

**Master's Thesis Dissertation**

# **Iberdrola's Internationalisation to Colombia**

**Solar and Wind Energy Generation**

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## Resumen

La utilización de combustibles fósiles, que es la mayor fuente de contaminación atmosférica, es el epicentro de la crisis climática del siglo XXI. Mientras las emisiones antropogénicas se disparan junto con el aumento exponencial de la población, sobre todo en los países en vías de desarrollo, la demanda de energía, bienes y servicios crece. La formación de este círculo vicioso y perjudicial agrava aún más los problemas a los que nos enfrentamos en relación con el medio ambiente. Unas fuentes de energía renovable asequibles y eficientes pueden contribuir a los esfuerzos por reducir las emisiones de gases de efecto invernadero y allanar el camino hacia un método sostenible de producción de energía que pueda satisfacer la creciente demanda de los países en vías de desarrollo. Este plan de negocios de tesis se enfoca en la expansión internacional de Iberdrola en Colombia en la apuesta por establecer una filial, para reforzar la industria de la energía renovable dentro de una economía en vía de desarrollo. Dentro de esta tesis, se ofrece un fragmento introductorio además de un análisis en profundidad, externo e interno del mercado colombiano. Además, se presenta un análisis financiero detallado de la expansión junto con los aspectos de marketing y legales necesarios para explorar la internacionalización de Iberdrola a Colombia. Se puede concluir, luego de la investigación, que dicho plan sería factible para permitir y potenciar la energía renovable dentro de Colombia, con métodos de entrada innovadores a través de las subastas y los PPA.

**Palabras clave:** Iberdrola, Energías Renovables, Energía Solar, Energía Eólica, Plan Internacional, Subastas, PPA, Colombia

## Abstract

The combustion of fossil fuels, which are the largest source of atmospheric pollution, acts as the epicenter to the climate crisis within the 21st century. Whilst anthropogenic emissions soar alongside exponentially increasing populations, particularly within developing countries, the demand for energy, goods and services grows. The formation of this vicious and detrimental positive feedback cycle further exacerbates the issues we face in relation to the environment. Affordable and efficient sources of renewable energy can assist efforts to reduce greenhouse gas emissions and pave a way to a sustainable method of energy production to which can meet the growing demands within developing countries. This thesis business plan delves into the international expansion of Iberdrola into Colombia in the bid to set up a subsidiary, to reinforce the renewable energy industry within a developing economy. Within this thesis, an introductory passage is provided in addition with an in-depth examination from an external and internal view of the Colombian market. Moreover, a detailed financial analysis of the expansion is established along with the marketing and legal developments necessary to explore the internationalisation of Iberdrola to Colombia. It can be concluded, after the following research, that such a plan would be feasible to enable and enhance renewable energy within Colombia, with innovative entry methods through the auctions and PPA's.

**Keywords:** Iberdrola, Renewable Energy, Solar Energy, Wind Energy, International Plan, Auctions, PPA, Colombia

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## **List of Abbreviations**

**ACOLGEN** - Colombian Association of Electric Energy Generators

**B2B** - Business to Business

**CH<sub>4</sub>** - Methane

**CO<sub>2</sub>** - Carbon Dioxide

**COMEX** - Foreign Commerce

**FDI** - Foreign Direct Investment

**GCI** - Global Connectivity Index

**GDP** - Gross Domestic Product

**GHG** - Greenhouse Gases

**IPCC** - Intergovernmental panel on Climate Change

**KPI** - Key Performance Indicators

**MW** - Megawatts

**NCES** - Non Conventional Energy Sources

**NCRES** - Non Conventional Renewable Energy Sources

**PPA** - Power Purchase Agreement

**SDG** - Sustainable Development Goals

**VAT** - Value Added Tax

# 1. Executive Summary

One of the most extreme and monumental challenges which we face as a holistic entity is the rapid climate change of the globe, specifically in relation to anthropogenic pollution. As global carbon emissions rise, it has become apparent that fossil fuels and non-renewable sources collectively act as the prominent driver. With exponentially rising populations of developing countries, further increasing the demand for housing, electricity, and energy, there becomes an apparent and complex issue with the consumption of fossil fuel energy. In order to combat the prevalent issues, renewable energy distribution and infrastructure can act as a catalyst in order to maintain the output of the necessity good (energy) and minimise the harmful by-products which non-renewable sources produce.

Iberdrola is a renewable based energy company which to this day has a significant market share of energy output to many different sovereign nations. Since the initial founding year within 1992, Iberdrola has leap-frogged competitors, fighting to the top as a significant powerhouse within the industry. To this day, Iberdrola is the third largest electricity company in the world by market capitalization and world leader in renewable energy. Iberdrola offers innovative, efficient, and clean energy to millions of people worldwide through their concoction of a global outlook with the necessary local pressure and responsiveness. The “glocal” presence has enhanced their ability to adapt to the local needs and desires of consumers whilst leveraging the individualistic experiences, strengthening the values of the brand.

Colombia was advantageous when initially analysed for expansion due to the ample opportunity to harvest solar and eolic energy along with ambitious and opportunistic entry modes. The innovative renewable energy auctions within Colombia provide a stable and strong foothold for emerging companies to offer FDI into the industry. The competitive process, reducing costs to win long-term contracts, is successful after usage, increasing private investments and sustainable practices. The current ambitious task of combating climate change has forged a new meta in which companies aim to reduce carbon emissions and pledge increased sustainability efforts across their investment portfolio and output. Iberdrola Colombia aims to satisfy all such demands to help increase the sustainable operations within the country, at a lower cost and increased longevity due to self-sufficient technologies enabling automation within the energy distribution processes. Furthermore, the internationalisation of Colombia is the first step in the expansion plan aiming to do a future entry to neighbouring countries such as Ecuador, Peru, and Panama.

The selected entry mode for Iberdrola to develop its expansion plan in Colombia is to set up a wholly owned subsidiary, with the central office located in Bogotá, the capital of Colombia, and with the first two energy parks located in La Guajira, in the Atlantic coast. The main assumption is that the company was granted with two projects in the last renewable energy auction in the fourth quarter of 2021, one solar park with 100 MW of capacity and one eolic park with 20 MW of capacity that will be providing energy to an energy retailer through a 15-year contract, known as Power Purchase Agreement, with a fixed price indexed to the inflation.

From this position, with a guaranteed income for 15 years, Iberdrola Colombia will focus on winning more projects in future auctions, doing direct business with retailers and big companies, and working on getting the distributor licence to be a retailer and supply energy directly to households, as every company of the group is doing in their countries. Moreover, the company aims to be the first company to do offshore wind projects in Colombia and to innovate in digital products to enhance the customer experience of energy procurement.

## 2. Introduction

### 2.1. Overview

Over the last three decades, climate warming has occurred successively at a faster rate than any previous decade on record, increasing risk to complex ecosystems and fragile environments around the globe (Climate Change Synthesis Report, 2014). Through anthropogenic pollution, rates of Carbon Dioxide (CO<sub>2</sub>) and Methane (CH<sub>4</sub>) emissions into the atmosphere have increased continuously since the pre-industrial era but the end of the C20th saw a sharp and worrying acceleration in this trend. The long-term growth in emissions has been largely driven by long-term economic and population growth. More recently, the extent and speed of finite resource consumption has gone in tandem with increased environmental impact as a consequence of pollution reaching a climate tipping point. CO<sub>2</sub> emissions from the combustion of fossil fuel contributed 78% to the total greenhouse gas (GHG) emissions increase from 1970 to 2010 (IPPC, 2014). With levels of pollution and global consumption reaching all-time highs, current levels of atmospheric CO<sub>2</sub> concentration are now breaching levels unseen in the past 420,000 years (IPCC, 2001).

Several global agreements have included the fight against climate change in their objectives such as the Kyoto Protocol (1997), the Paris Agreement (2016), the Sustainable Development Goals (SDGs), which are supposed to be reached by 2030, and the Intergovernmental Panel on Climate Change (IPCC), which was established in 1988. All of them mention the transition to renewable energy as a must for a sustainable development of future generations.

Furthermore, the Non Conventional Renewable Energy Sources (NCRES) are key in this transition as they are the less damaging way of creating energy. The NCRES include wind energy, solar energy, geothermal energy, and biomass energy. This project will be focusing particularly on wind and solar energy.

The transition to clean energy is not considered a new trend as in developed countries several companies started to increase the supply of renewable energy with the support of different governments. The data presented in Appendix 1 shows that the renewable energy capacity has increased more than 100% from 2009 to 2020.

There are several energy companies that are focusing on the production of carbon free energy and there is a huge opportunity for these companies to expand their markets into developing countries as they have the knowledge and the capacity of building the needed infrastructure to develop renewable energy products without a blind investment. As it can be seen in the graph of Appendix 2, Iberdrola is the company with a major proportion of renewables in comparison

to nuclear and hydro and that is the main reason why we decided to focus our project on this company.

Moreover, Latin America appears as a region that is focusing its efforts for energy efficiency on the transition to NCRES, and the governments of different countries are promoting FDI through renewable energy auctions to grant long-term Power Purchase Agreements. Furthermore, Colombia is one of the cleanest energy producers in the world due to the hydropower generation, but the acceptance of this type of production is declining as they have negative environmental and social impacts. It is expected that the growth of energy demand will be sourced through cleaner energy production modes as solar and eolic parks. (SolarPower, 2020).

In this document we will study the internal and external factors of the project, analysing the composition of the parent company Iberdrola and then the conditions of the host market Colombia, to understand the differences of the markets and find the threats and opportunities that need to be considered. Additionally, we will assess the operational perspective of the company, creating a plan including Legal, Logistics, HR, and Finance aspects for the new subsidiary.

There are several reasons to consider this project as international oriented. First, it has its motivation on a key global challenge as it is climate change, and at the same time it is focused on the knowledge spillover between developed and developing countries in order to increase the FDI and market development of developing countries. Additionally, we are selecting a company that is already global to create an expansion plan to a different type of market than the one Iberdrola is used to, as they have always selected countries with higher levels of development and less levels of risk. By demonstrating that this type of high risk expansion for Iberdrola could be profitable, we are opening several opportunities in the international market for Iberdrola to continue its global expansion.

## **2.2. Background of Iberdrola**

Iberdrola is a large and growing company, with \$40.105m revenue in 2020, placing it under EDF (France) at \$83.5m and Enel at \$78.63m as one of the biggest energy companies, this can be further contemplated in Appendix 3. Furthermore, it is clear that the company, Iberdrola, has a global presence however predominantly in North America and Europe, with over 400,000 employees through direct and indirect employment. It is therefore evident that Iberdrola is a world leader, with 34 million customers worldwide. As a company it often is based within low-risk and developed countries. This can be beneficial due to the high stability and increased securities from customers and corporations but can also reduce benefits such as being a founder or strong first-mover within a developing country. In particular with renewable energy, many developing countries are lacking, and their current positioning is not strong, lacking infrastructure and funding. Therefore, it is evident that Iberdrola is a suitable and current reputable company for renewable energy outlets, with a diverse set of operating countries with a high degree of success. In the graph shown in the Appendix 4 it can be seen how Iberdrola is positioned in comparison to their competitors in terms of renewable capacity and in revenues,

leaving the company in an overall good position with a 45% of capacity, as well as the key figures of Iberdrola's business in Appendix 5.

Iberdrola has its main operations in Spain. It is understood that Iberdrola Group currently has different subsidiaries in: United States, Mexico, Brazil, United Kingdom, Australia, Portugal, Poland, Italy, and Greece. The Iberdrola group has increased renewable capacity by 9.2% in the year of 2021 (Iberdrola, 2021). Furthermore, the group strengthens its global leadership in wind energy, with a 4,9% increase in onshore wind capacity. It is evident that Iberdrola is a strong leader in the renewable energy sector, with an extensive list of host countries which they operate in. Currently, as it can be perceived in Appendix 6 & 7, Iberdrola has more than 34 million energy users all around the world, 42% of them are in Brazil, 32% in Spain, 14% in the United Kingdom and 10% in the US. There is still room for growth and international expansion. Large regions of South America and Asia are untouched. Our project will be focused on entering the South America market through Colombia, as this country is in the lead of the transition of the Andean countries, in order to later expand to its neighbouring countries as Ecuador, Peru, and Panama.

The distribution channels depend on the regulations of each country in terms of the energy industry. In the case of Spain, Iberdrola sells the energy through several channels. They are energy providers directly to households as final consumers and to companies, and they have around 11 million of contracts of energy and gas supply (Iberdrola, 2021). The main portfolio Iberdrola currently holds, includes the following types of energy: marine eolic, land eolic, hydroelectric, solar and batteries. By 2020, as presented in Appendix 7, the most MW collected were from solar energy, with 36.600 MW, followed by marine eolic energy that had a 25.200 MW production, land eolic produced 15.500 MW, hydroelectric production was of 3.400 MW, and lastly batteries produced 1.100 MW.

### **2.3.Mission, Vision, and Values**

The Mission, Vision and Values are a foundational basis whereby Iberdrola displays the past, present and future behaviours of the firm. The Mission, Vision and Values provide the direction and the ambitions of the company, to which every corporate objective, decision, and employee acts upon. Within Iberdrola and the expansion to Colombia, the centralised, common ethical standards are upheld to the highest value, along with tailored specifics which can be applied to the future path of Iberdrola Colombia.

#### **Mission**

Iberdrola states that “Our mission in carrying out our activities is to create value sustainably for society, Citizens, customers, and shareholders, as the leading multinational group in the energy sector providing a quality service through the use of environmentally-friendly energy sources, which engages in innovation and considers its employees to be a strategic assets, fostering their development, training, and conciliation measures, favouring a good working environment and equality of opportunity, committed to social return through all of our business activities, generating employment and wealth in our environment, all within our strategy of social responsibility and compliance with tax regulations” (Iberdrola, 2021).

## **Vision**

“We want to be the leading multinational group in the energy sector at the forefront of a better future, sustainably creating value with a quality service for people: customers, citizens and shareholders (who we care for and involve in our corporate life) and for the communities in which we carry out our activities, generating employment and wealth (with whom we engage in a constructive dialogue), known for our firm commitments to ethical principles, good corporate governance and transparency, the safety of people and supply, operational quality and excellence, innovation, protection of the environment, and customer focus. Making it possible thanks to the work of our employees and the people working at our suppliers and collaborators, whom we care for by offering all our training and reconciliation measures for their development and to strengthen equality of opportunities” (Iberdrola, 2021).

## **Values**

Iberdrola has a number of different values, basing them on twelve key points:

- a. Creation of sustainable value
- b. Good Governance and transparency
- c. Development of our workforce
- d. Social Commitment
- e. Sense of Belonging
- f. Safety and Reliability
- g. Quality
- h. Innovation
- i. Respect for the Environment
- j. Customer Focus
- k. Institutional loyalty

These values are shared by the whole group and the parent company tries to promote them as a global framework for any company of the group (Iberdrola, 2021) (Appendix 8).

## **2.4.Strategic Objectives**

The international expansion of Iberdrola to a different type of market aims to fulfil different goals that are going to help the company to maintain its growth, increase the brand reputation and to open new opportunities for the future. The following are the specific objectives of the internationalisation of Iberdrola to Colombia.

### **2.4.1. Qualitative Objectives**

#### **1. Market Expansion**

With the creation of an Iberdrola subsidiary in Colombia the company aims to expand their energy portfolio to a new type of market, developing countries with middle to high risk profiles that are in the transition to renewable energy. Currently, Iberdrola operates in low-risk markets within mostly developed countries. However, the transition to renewable energy is a global challenge and Iberdrola as a market leader needs to expand

their country's profile, learning how to apply their business model in developing countries and Colombia is the perfect environment for this. If the expansion to Colombia is successful, the company will later have the opportunity to apply this model in other countries with similar profiles in this region as Ecuador, Peru, Bolivia, and in other regions as Africa, Asia and Central America.

2. Global Brand Recognition

The transition to a green or clean energy is one of the main fronts to battle climate change and it is also fundamental in the matter of global governance in order to avoid dependence on oil suppliers' countries. For this reason, if Iberdrola decides to expand their operation to different types of countries, the company will be in the centre of public relations and could take advantage of this to become an energy global brand. It is not usual to have brand recognition or identification in the energy sector, but the actual conditions open this possibility and Iberdrola is in the position to make it possible.

3. First-mover in offshore projects in Latin America

The research has shown that there is not a fully functional offshore energy project working in Latin America. Iberdrola has the know-how and the corporate relationships to be the first mover in this part of the energy sector in Latin America. Iberdrola aims to be one of the first companies to build an offshore wind energy park in Colombia to have the advantages of being the benchmark of this type of energy generation in the country.

## 2.4.2. Quantitative Objectives

1. Auctions

Iberdrola aims to win at least two of the renewable energy projects at the next auction that is going to be held in Colombia in the coming years. This is the main objective as it is the way to get a long-term contract to have a fixed revenue for 15 years while the company tries to get more projects directly with the customers or in more auctions. For the purpose of this study, we are supposing that they already have two projects granted in the last auction held in 2021 in Colombia.

2. Projects Type

As Iberdrola is specialised both in solar and eolic projects through PPAs. Our objective is to start building one solar park and one on-shore eolic park during 2022, to have it 100% operational for 2023. In 2025, the plan is to expand one more energy generating park of each kind for them to be fully operational for 2026, which would add up to 200 MW of total capacity production. Iberdrola Colombia aims to become an energy retailer from 2030 onwards to provide energy directly to households after getting a distributor permit.

3. Energy Generation Market Share in Colombia

As it will be detailed after, the energy generation in Colombia is concentrated in hydropower and conventional generation. The NCES, where solar and wind energy are located, represent less than 2% of the total energy generation. However, this segment on the market is expected to increase significantly during the transition to a cleaner

energy. Iberdrola aims to enter this sector in Colombia to become one of the three leaders in the NCES segment of power generation.

### **3. External Analysis**

#### **3.1. CAGE Analysis**

A CAGE analysis was carried out to externally examine the countries which are in question of international expansion, Spain and Colombia. It can be concluded that whilst Spain and Colombia are very connected in culture, there remains some distance between the two sovereign nations across the other remaining factors. Cultural distance is minimal with sharing language and similar religious practices. That being said, there is a relatively large administrative distance, aside from the previous colonial ties back in the 17th Century. The two nations share different currencies and further often trade different sectors of goods with Colombia focusing on the output from the primary sector, whereas machinery is exported from Spain to Colombia. The distance between the two nations on a geographic front is once again a large distance with large differences in time zones, no sharing borders and nearly a two times difference in size. Finally, the Economic distance is too relatively sizable, with Spain having an exponentially greater GDP and GDP per capita along with much larger consumer spending per annum. It was highlighted within the analysis that Colombia was much richer in natural resources rents, by around 4.2%. However, as Iberdrola has experience in countries such as Brazil and Mexico that are more like Colombia, we think that the parent company can leverage on the group know-how in order to exploit the Colombian market working to manage the distance between the two countries. For the complete CAGE analysis see Appendix 9.

#### **3.2. PESTLE Analysis**

It is evident that through the external analysis that whilst there are issues across socioeconomic and political factors, Colombia is an emerging economy which in recent years is improving from once a war-stricken country due to narco-trafficking. Primarily, it is evident that governmental policies have improved the situation across political stability, absence of violence and the rule of law. Colombia still ranks 92nd within the Corruption Perception index. Across economic factors, external analysis highlighted a slow decline in GDP due to the Covid 19 Pandemic. Furthermore, it is evident that inequality is relatively high and projected to increase over the years to come. When examining the Social context, Colombia ranks above average across the Better Life Index which considers jobs, earnings, housing, education and skills, wealth, and personal security. That being said, unemployment remains relatively high among young Colombian citizens. Technology is a key factor for innovation and overall performance for Colombia's economy. Colombia ranked 54th out of 79th in the Global Connectivity Index (GCI) in 2020 which considers many differentiating technological factors. From an environmental overview, Colombia aims to increase sustainability and stewardship, imitating programs such as their Green Growth Plan which came to light in 2018 which puts in place goals to be reached by 2030. Finally, external analysis across a legal front highlights law which surround businesses that are establishing in Colombia and certain criteria such as salaries, working conditions, schedules, social security, and corporate taxes. To conclude,

whilst the external analysis highlighted negative attributes such as relatively high corruption and crime, Colombia is still attractive for expansion due to a relatively high sustainability ranking and large growth potential. Colombia ranked 17th among 34 upper-middle income economies and 6th overall all in South America. Moreover, Colombia ranked 27th in Ecological Sustainability out of 132 countries placing it in the top 20% worldwide. The extended analysis can be found in Appendix 10.

### 3.3. SWOT Analysis

It is necessary to analyse Iberdrola's SWOT matrix in order to understand its feasibility at the moment of entering the Colombian Market. Therefore, we will be elaborating on the different points we came across when researching and discussing the project. First, the *Strengths* of the company are quite a few. Iberdrola has a wide geographic presence, as it has 5 subsidiaries around the world, established dealers and associates' networks that help them deliver their services efficiently. As Iberdrola has 140 years in the market, it has a strong brand recognition in the Electric Utilities Industry, which can even lead to a raise in the fare they charge in order to get more profits as well as letting them present a strong brand portfolio. This also means that they have a strong organisational infrastructure that is based on 12 key values while guiding their operations with social responsibility and a skilful workforce. Second, the *Weaknesses* presented by Iberdrola in this work, are related to the entrance of the company into a new market, which is Colombia, for this reason entering an unknown market is the first weakness, as they are present worldwide and even in Brazil and Mexico, but they do not know if the Colombian market will behave in the same way as the others. Additionally, investment regulations and policies in the host country can affect operational efficiency and create a problem in the functioning of the company. Their focus on a niche market, due to their easily replicable business model is in danger as many competitors are also gaining customers in the Electric Utility Industry offering basically the same product as Iberdrola. Third, the company's *Opportunities* are many. The possibility of entering new markets in Latin America, by first applying the business model in Colombia and later possibly replicating it in Ecuador, Peru, and Panama. Additionally, the green initiatives from governments could open the doors for Iberdrola to be selected for state contractor's procurements. There is also a great change in customers' preferences in terms of green energy to help with climate change and better energy actions. Additionally, there is an opening for local collaboration with companies that can provide infrastructure to help an easier transition of locals from different energy companies to Iberdrola, at the same time the company can obtain a steady flow of energy all year long from local collaborators and from the climate zone of Colombia. In this way, Iberdrola's consolidation in the market serves as a catalyst to take advantage of all the opportunities that arise in Colombia regarding brand awareness, renewable energy, and environmental impact. Finally, there are some *Threats* that also arise at the moment of analysing the company, the first one as mentioned before, is that new companies can easily replicate the business model and even apply new technologies. Currency volatility can affect the profits and expected returns, currently Covid-19 crisis still presents a threat not only to Iberdrola at the moment of entering a new market but also to most businesses around the world. New environment regulations after the Paris Agreement in 2016 have modified certain aspects that previously benefited electricity producing companies due to the existence of few regulations, this goes

hand in hand with climate change. Lastly, not presenting innovative products regularly could affect customer attraction and retention for Iberdrola. To protect the internationalisation project from falling short of the expectations, there is an action plan to continue investing and improving the business line through time, approaching customers in a more digital and convenient way as well as providing all the stakeholders the necessary incentives to continue their support to the vision of the company. Appendix 11 shows the division and additional points of the four aforementioned areas.

## **4. Internal Analysis**

### **4.1. Microenvironment Analysis**

#### **4.1.1. Market Potential**

The market size of the energy sector is directly related to the whole population of the country, in Colombia's case it is around 51 million, as almost every single habitant is consuming some kind of energy. However, we also have to take into account the inequality and the poverty of the country, that makes energy access very difficult to a part of the population.

Since 2000, the energy demand has grown around 5% every year until it dropped down with the COVID-19 crisis. However, this is a clear signal that the energy market is growing and that it will continue like this after the recovery from the 2020 shock (Appendix 12).

In Colombia, the energy is mainly generated through hydropower, followed by natural gas, coal, oil and Non-Conventional Renewable Energy Sources (NCRES), the power sources we are planning to use, are in last place (BBVA, 2021). However, for the specific NCRES sector there is a huge potential as The National Energy Plan is focused on the transition to the NCRES because the research shows that geographic and climatic conditions of the country are favourable for wind and solar energy, and the government is offering some tax benefits as special deduction in income tax determination, accelerated depreciation, exclusion of goods and services from VAT, and exemptions from custom duties. (SolarPower Europe, 2020). Additionally, there is a complete Regulatory Framework specific for NCRES that is focused on the auctions for NCRES projects where the company will be focusing its efforts.

#### **4.1.2. Competition Analysis**

In the graphic presented in Appendix 13, it can be understood the market composition of the energy supply by source and its generation capacity.

As we mentioned before there are several ways of generating energy, and on an overall view all the companies that generate energy through every source need to be considered a competitor. However, as Colombia has an entire program for the transition to renewable energy, more specifically to the NCRES, our direct competitors are the ones that are able to generate power through these sources.

Regarding the overall competition on the energy market as a whole, the main energy producers are the members of ACOLGEN, which is the Colombian Association of Electric Energy Generators. They have 15 members, and they account for 70% of the total electricity generation of the market. The companies of this association are national both public and private, and they have in their members generators as well as distributors. The main companies are EPM, Isagen, Celsia, and AES Colombia (ACOLGEN, 2022).

As we are planning to enter the market with the renewable auctions program, we should consider as competitors the ones that have managed to enter through this strategy. In Colombia, two NCRES auctions have been done, one in 2019 and the other one in 2021, granting projects to several national and international companies. The following list includes the foreign companies that won solar and eolic projects in these two auctions:

- First auction:
  - EDPR (Energías de Portugal)
  - Trina Solar (China)
- Second auction:
  - Solar Pack (Spain)
  - ENEL (Italy)
  - EDF (France)
  - Canadian Solar (Canada)
  - Genersol (Uruguay)

One important factor to mention here, is that almost every company from that list created a wholly owned subsidiary in the country, which means that they are not only planning to do the project they were granted, but trying to expand in the market through direct sourcing to the regulated and non regulated market. For this reason, they need to be considered as direct competitors as they are using the same strategy that we are planning to use as it will be seen in the business strategy section, their detailed information is presented in Appendix 14. Additionally, Iberdrola will be included in the list of awarded companies for the 2021 auctions in order to do the analysis of this project.

Moreover, it also needs to be considered that as we are relying on the auction as the preferable entry mode, this type of negotiation is a long-term contract with 15 years of energy supply and a fixed price (IDB, 2019). This allows the company to have a consistent revenue stream as well as a protection against price fluctuations, and this position is positive to gain market share with other kinds of negotiations different from the auctions.

#### **4.1.3. Segmentation Criteria**

As it was mentioned in the last section, there are two energy markets in Colombia, the regulated and the non-regulated market. The regulated market refers to residential and small business distribution, where the users have less than 55.000 kwh/month consumption. This segment represented 70.4% of the energy consumption in 2020. In this case Iberdrola would sell the energy to the retailers that later will sell it to the final users as the households and small

companies. The non-regulated market refers to the large companies' segment, where the users consume at least 55.000 kwh/month or 0.1 MW of potency. This segment represented 29.6% of the energy consumption in 2020. Furthermore, inside this segment the industry represents 42.6%, mining 25.4%, trade 5.4%, public administration 5.4% and agribusiness 3.7% of the total (BBVA Research, 2021). The segmentation for this type of channel is more important than the first one. Working directly with the companies and manufacturers is important as they can target companies that are seeking to reduce their carbon footprint as well as fulfilling the SDGs.

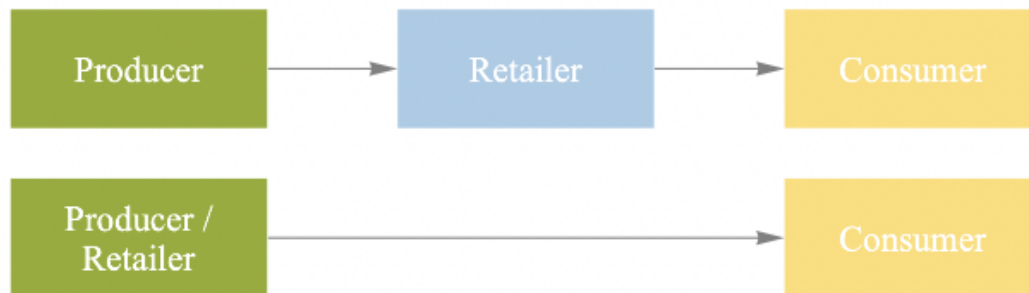
#### **4.1.4. Consumer/User Analysis**

For the nature of the business, the consumers or users of our product, energy, could be both the retailers and the final consumers. As we mentioned before, the energy market is not separated between renewable and non-renewable, it is as simple as that if you needed energy, you normally would not care about the origin of it. However, both companies and households have incentives to look for clean energy instead of the usual. For the companies, the government plans to offer tax benefits for the companies that demonstrate they are using NCRES energy, and they can leverage their marketing on the fact that they are part of the transition to a cleaner energy. Iberdrola needs to target this type of consumer to penetrate the market, offering not only the energy but also to take advantage of their worldwide recognition and reputation offering the companies a global ally that could be very useful for their marketing.

For the households, Iberdrola will need to work in user recognition, and as with the companies to leverage on their global reputation to try to implement some marketing plans in Colombia to attract the final consumers to be part of the transition to clean energy.

#### **4.1.5. Distribution Channels**

There are two main ways of distributing energy in Colombia. Firstly, the distribution channels from the producer to the retailer to the consumer in the regulated market, where the energy producers sell the energy to the retailers, and they sell it to the final consumer. Secondly, from producer to consumer that is known as the non-regulated Market where the energy producers sell the energy directly to final consumers as big companies and manufacturers. Any generation company that is fully operational can distribute energy in the first scenario through retailers and in the second scenario of non-regulation. However, any company that aims to offer energy as a retailer to households, needs to hold a permission as regulated distributor.

**Figure 1***Distribution Channels (Own Elaboration)*

## 4.2. Porter's Value Chain

After the microenvironment analysis, it is important to highlight the internal processes within Iberdrola Colombia, in particular to further delve into value creation and output. The Porter's Value chain allows us to highlight such factors and take an in-depth insight into the value chain. The Porter's Value Chain Analysis can be subdivided into Primary activities and support activities. Primary activities include Inbound Logistics, Operations, Outbound logistics, Marketing and Sales, and finally Service. These activities have an immediate effect on the maintenance, production, sales and overall. For example, Inbound Logistics relates to any goods being received, stored or distributed internally and therefore Iberdrola Colombia will have a significant inbound logistics presence. Manufactured goods (solar & eolic components and technology) will be deployed and set up on a mass scale within our farms and thus storage and distribution internally will also be present. Similar with outbound logistics, distribution to the customer will be outsourced due to pre-existing infrastructure and distribution networks of current companies operating within the regions. Overall, each primary activity will be crucial to the longevity and success of Iberdrola Colombia, providing the necessary environment to execute the value chain and ultimately lead to value creation. On the other hand, the support activities such as: Firm Infrastructure, Human Resources, Technology Development, Procurement aim to assist the primary activities along the value creation process (Appendix 15).

## 4.3. Stakeholders Map

Taking into consideration the external and internal analysis of the project, there are 20 key figures that surround the principal operations of Iberdrola Colombia. It can be divided into 7 main sections. The *Parent Company*, which also includes *Partner Subsidiaries*, on the opposite side are the *Competitors*, who share similar business strategies and therefore it is important to monitor them from time to time. Financial Institutions include the parts that would be financially contributing to the operations of the company, such as *Hedging Consultants*, *Shareholders*, *Investors*, and *Banks*. The Government area is composed of *Regulatory Institutions*, the *Ministry of Environment*, the *Ministry of COMEX*, and *Legal Consultants*; all of whom regulate and give guidance to Iberdrola Colombia in order to comply with the laws. In the Operations side, everyone involved in the business main activities and who are the support of the company are included, such as the *CEO*, *CFO & COO*, *Contractors*, *Managers*

*of Departments, and Employees.* For the Suppliers, *Local* and *International* ones are included, as some resources are going to be procured locally and from neighbouring countries. Finally, Customers include our main markets and buyers of renewable energy, *Regulated Market, Non-Regulated Market, and Auctions* (Appendix 16).

## **5. Business Strategy**

### **5.1. Entry Modes**

The entry strategy for the Colombian market is going to be to establish a wholly owned subsidiary of Iberdrola. The company has used this model combined with some joint ventures when starting operations in foreign countries, but in the case of Colombia it is more complicated to find a local partner to do a joint venture as some of the main companies in the energy sector have some degree of state ownership and political interests. Additionally, as the plan is to start the expansion participating in the public auctions that the Colombian government does for renewable energy projects, it is easier in terms of compliance having a fully and legally established local company.

Furthermore, by funding a subsidiary Iberdrola has several advantages such as more control, access to local subsidies, flexibility to work in complex environments, adjust to customers preference, feasibility to gain market knowledge and facility to have better logistics. However, for the positioning on the market through this strategy some risks need to be addressed in order to avoid a possible failure. First, it is important to understand that establishing a subsidiary is one of the most expensive strategies, and that is the reason Iberdrola is a feasible company to go through this expansion plan as they have the necessary capital to make this investment as well as the tools to get more indebted if needed. Secondly, before establishing a legal company, a legal study is needed to understand the legal constraints that may arise in any part of the process, but there are some consultancy companies that can help in this matter. Some other issues could be that the growth process is slower with a subsidiary and there are several costs if the company take bad decisions, but on this matter, we are aiming to a long-term process of expansion in Latin America so there is no rush for exponential growth or fast profits and that is the message that we want to transmit inside the company.

#### **5.1.1. Renewable Energy Auctions**

With a subsidiary already established, Iberdrola Colombia aims to start its operations participating in the renewable energy auctions that are held by the government to grant long-term contracts for generators, as our company, sell renewable energy for retailers of the regulated market.

Renewable Energy Auctions are a newfound and innovative entry mode for renewable energy companies whereby as policy makers they seek to procure renewables-based electricity at the lowest price while fulfilling other objectives (IRENA, 2021). The attraction of long term contracts from up to 10-15 years to provide energy within a country promotes high levels of competition and ultimately pushes the price down. Therefore, the ability to win an auction

benefit both the consumers of the domestic country who hosts the auction and also the providers. Within Colombia, Renewable Energy Auctions have been deemed a great success, promoting private investments and in recent events providing 4,500 jobs across 9 provinces in Colombia overall decreasing CO<sub>2</sub> emission by 465,000 tonnes per year (USAID, 2022). Moreover, Renewable Energy Auctions are estimated to bring \$2bn in private investment and save up to \$228m in annual costs (USAID, 2022). For Iberdrola Colombia, the Renewable Energy Auctions will guarantee a long-term contract to provide renewable energy to the distributors of Colombia, enabling the opportunity to carry out the international expansion to another South American country.

For the analysis of this project, we will be assuming that Iberdrola Colombia was awarded with two projects in the last auction, compromising to start providing energy to a retailer from 2023 onwards through a Power Purchase Agreement (PPA) of 15 years.

### **5.1.2. Power Purchase Agreements (PPA)**

A Power Purchase Agreement is a long-term agreement to purchase clean energy from a specific asset at a predetermined price between a renewable developer and a consumer, often to be a company requiring large amounts of electricity (Iberdrola, 2021). PPA's include many benefits from a clean supply which can be traced from a specific asset to competitive, stable, and predictable prices (Iberdrola, 2021). Iberdrola over time has become an expert with PPA's and B2B (Business to Business) agreements in the USA, United Kingdom, Mexico, Brazil, and Australia with some contracts up to 10 years to provide renewable energy to corporations and distributors.

PPA's can be divided up into two different modes: off-site and on-site PPA's. An Off-site PPA is whereby the renewable energy is produced at an optimal location and connected to the main grid of the domestic country. On the other hand, an on-site PPA is produced near on-site of the customer facilities, often in the form of internal networks. When it comes to the international expansion of Iberdrola to Colombia, an off-site approach will be utilised in order to be connected to the transmission/distribution networks of the domestic country.

Moreover, there are often cost savings and scaling benefits with off-site PPA's, however can often be complex in nature (E. Hiatt, 2019). There are three main methods of PPA's: Physical PPA, Virtual PPA, Sleeved PPA. For the expansion to Colombia, we will follow a Sleeved PPA due to key benefits gained whilst reducing the exposure to risk. Advantages include reliability, long term fixed rate for power and easier verification that energy is produced from a particular renewable source (Urban Grid, 2019). Overall, an off-site, Sleeved Power Purchase Agreement was the most favourable to our desires for Iberdrola Colombia due to the ranging advantages and stability over a long period of time, in tandem with the Renewable Energy Auctions. The assumption of two auctions granted means that Iberdrola Colombia will start fully operational in 2023 with two PPAs, one for solar energy and another one with eolic energy, both with an overall capacity of 120 MW. The detailed information of these contracts will be provided in the chapter to follow about the legal plan.

## **5.2. Digital Added Value**

It is widely accepted that the integration of technology into the renewable energy sector can enable efficiencies to blossom and increase the optimal performance across solar and eolic products (Nexus Integra, 2021). At Iberdrola Colombia, whilst initial investments of capital will focus directly on the operations during the start of the subsidiary, research and development into innovative technology will take place once a functional expansion has occurred. Whilst a basic set of technology infrastructure is required to operate such a facility, ranging degrees are often utilised, and at Iberdrola Colombia we aim to become one of the most technology-based facilities over the long-run.

Big data within the energy sector can be vast and often extremely unfathomable to analyse without the use of technology and software. Furthermore, the data is crucial towards the understanding of the output and ultimately how we price our energy and whether faulty components are prohibiting our output of energy. The utilisation of smart technology within the renewable energy sector will revolutionise the ability to forecast, monitor, improve and store data across parks with greater precision, and accuracy (Nexus Integra, 2021). Finally, the utilisation of AI can help optimise the maintenance, engineering and also construction of further plants, reducing downtimes and increasing production (Nexus Integra, 2021).

From a customer's point of view, the Iberdrola Customer App can provide hourly consumption rates, improving transparency and the ability to save energy when the usage is not required (Iberdrola, 2021). It is critical that the consumers of Iberdrola Colombia feel aware and are connected 24/7 to view their energy usage and to be able to connect to the system. The customer experience is a highly valuable factor towards the success of Iberdrola Colombia and the correct utilisation of powerful smart technology and analysis, the experience can be fluid and informative in nature.

## **6. Legal Plan**

The first action regarding the legal dimension of the project is the decision of the entry strategy mode with the establishment of a wholly owned subsidiary, which was analysed in the previous chapters. Normally, a disadvantage of creating a subsidiary is that the company will be constrained to the local legal environment. However, evidence shows that on the renewable energy market multinational companies prefer to create a new company based in Colombia in order to have more ease regarding legal compliance (Ministerio de Energia, 2021) (Appendix 14).

This decision will give more flexibility to the company in order to be part of the public auctions that are expected to be held in the future. Following the regulations of the country, the complete name of the company will be Iberdrola Colombia S.A.S. E.S.P.

### **6.1. Regional, National and International Contracts**

Iberdrola Colombia will use the group experience on PPAs contracts to create a sustainable competitive advantage. The expertise of the legal teams of the parent company will allow the subsidiary to create tailor made contracts both for the business granted through the auctions as well as for the future negotiations that are expected to take place, when Iberdrola Colombia will have the best positioning in the local market. The PPA contract framework gives the company a lot of benefits in terms of risk management and negotiation as the document that results from this type of agreement is very complex and complete and it includes several fundamental topics as terms of agreement, delivery conditions, sales capacity, purchaser and seller rights, payment terms, insurance, taxes, termination, force majeure, dispute resolution, provisions, among others (Appendix 17).

## **7. Marketing Mix**

After doing the external and internal analysis of the country and the energy industry and understanding the business strategy and the approach that the company is going to take, we can move to explain in detail the components of the company operations. We decided to use the 4 P's approach to begin with this matter.

### **7.1. Product**

In Colombia we are going to offer the same product that Iberdrola is offering in its current markets, which is energy generated through renewable and sustainable sources. Our two main sources of energy are going to be solar and eolic parks. In the first stage of the expansion, we aim to offer solar and onshore eolic energy as it has the fastest infrastructure to build and later on, we plan to build offshore eolic parks. Moreover, we are offering a basic utility as the energy is a non-tangible service and is needed for day-to-day activities. The main feature of the product is that the company is focused on generating energy through non-conventional sources to avoid the harm on the environment that other energy sources do such as oil, fuels and hydropower. It is important to highlight that we are not offering infrastructure such as solar panels or wind turbines, but the energy that is generated through them. Therefore, in order to distribute it, we will work with national electricity distribution companies that will be handling the passing of energy to consumers, both households and small businesses, and also providing energy directly to medium and big companies. Basically, we are offering the same product as in the other countries where the company operates.

### **7.2. Price**

In the case of the price, it is not possible to use the single price strategy as countries have different regulations on energy prices. Moreover, as the objective is not to maximise the current profit but to gradually become a leader on renewable energy generation, the pricing will be settled at a survival level while we acquire the needed expertise on the local market to go to the next step of being recognized as a leader to keep improving the global brand recognition, we will target a price that comply with the regulations and that is going to be in the range of the main competitors. Additionally, our service will be adapted to the Colombian market's PPP.

In 2021, the two markets closed with different prices in Colombia, for the Regulated Market focused on households the price ended in 0.150 US/kWh and for the Non Regulated Market focused on companies the price ended in 0.146 US/kWh. It is important to mention that these prices are an average of the annual total consumption of each threshold as there are different prices on each market depending on several factors such as the voltage and the stratification, these prices are not going to be the reference for our product. In comparison to Spain, the price ended at 0.225 US/kWh and is not differentiated between businesses and households (GlobalPetroPrices, 2022). So, we are talking about a price that is lower than in the home country, but it also needs to be mentioned that costs are also lower both on labour cost and investment related costs.

Moreover, in the first stage the pricing will be defined through the auction process. For the analysis of this expansion project, we will assume that the first projects will be paid as the average price defined in the last auction that was 155.57 COP/kWh (Ministerio de Energía, 2021). We will use a theoretical exchange rate of \$4.200 COP/Euro to do the financial analysis on a Euro currency basis, resulting in an initial price of 0.0369 Euro/kWh. On further expansion the price will be determined by the conditions of the market depending on each customer segment.

### **7.3. Place**

The prospective locations for our energy production parks are based on the grid connectivity and solar potential maps of Colombia for 2021 and selecting the areas which have between 5 and 6 KWh/m<sup>2</sup> (Appendix 18), and on the current location of existent solar & eolic parks (Appendix 19). From the analysis of the information, there is great solar potential in the ZNI. Exactly in different zones of Colombia: La Guajira, Vichada, Boyacá, Casanare, Arauca. From them, La Guajira is our main point of establishment of the energy farms, both eolic and as it has great access and space for these types of projects. Additionally, the Atlantic coast is the one with a higher market share of renewable energy with 23% (Appendix 20). For 2025 we plan to have 4 energy generation parks with a total production capacity of 240 MW.

The company aims to offer the energy both in the regulated and the non- regulated. In the regulated market, we are mainly referring to retailers with our PPAs that are going to sell the power to small businesses and residences, where their monthly limit of consumption does not exceed 55.000 kWh. In the non-regulated market with higher levels of consumption, we would commercialise the energy directly to the companies that require it, also this gives us the chance to partner with different organisations to help reduce the carbon footprint as well as fulfilling the SDGs.

In the first stage of the expansion, Iberdrola Colombia will be providing energy to retailers in the Regulated Market through PPAs awarded in auctions. For the second stage, Iberdrola Colombia aims to start negotiating directly to big companies to provide energy directly to them. And in the final stage, Iberdrola aims to also become a retailer to provide power directly to households. The awarded buyers for the auction are detailed in Appendix 21, these are the ones that we are going to target for the next agreements.

## **7.4. Promotion**

As we are an energy production company, and this is a public service, there will not be a strong campaign or investment to promote our services, however, it is important that our product is known in the Colombian community as we want to increase the brand recognition of the company and promote the clean energy transition.

### **7.4.1. Non Digital Promotion**

**Staff Promotion:** Personnel from the company can enter the community to offer training and advice on electricity use and conservation. In this way Iberdrola Colombia can publicise the concept of renewable energy and how it is the best option to protect the environment in the long term at the same time we promote the brand.

**Auctions:** The presence of the company in energy auctions can improve the adoption of Iberdrola Colombia's energy by word of mouth, and also by advertising contract and service information through the network sales platforms.

**Sustainability and Energy Fairs:** By assisting to different types of fairs where our company can gain brand awareness, we are applying a traditional marketing approach which can help us both in networking and the promotion of Iberdrola Colombia's energy adoption by large corporations who also assist at different fairs.

### **7.4.2. Digital Promotion**

The digital marketing in Colombia's energy sector is not that developed as in other sectors, and the mainstream is to use traditional marketing tools as well as business related events and government events. However, we plan to include a Digital Promotion threshold in our marketing strategy as we think it is going to add value to our expansion plan.

**RTG:** For retargeting promotion, we would be using services from websites such as Mailchimp, to reach our target audience through concurrent emails until we receive a 15% of acceptance from our target consumers and later following up the process, reaching a 60% conversion rate from said acceptance. This strategy will mainly apply for the big companies that we are targeting in the Non Regulated market, trying to reach the decision makers in their corporate mails.

**SEA:** In regard to the search engine advertising, our IT team will develop campaigns in Google with the website's own tools to acquire as many leads as possible to then convert them into adepts of the Iberdrola Colombia brand. In order for the advertisements of the company to be successful, our IT team will manage different keywords according to the locations in which prospective clients are.

Instagram, Facebook, LinkedIn: Social media presence is imperative in this digital era, therefore Iberdrola Colombia is going to be active on Instagram, Facebook, LinkedIn, which are the top 3 social networks used in Colombia, to promote the brand, the sustainability projects and information for the customers.

## **8. Supply Chain**

### **8.1. Logistics**

Regarding the logistics, two activities were identified in this topic. The first one is related to the upfront investment of building the solar and eolic parks, including the supply of the materials, and the design and development of the infrastructure. After considering several options, it was decided that in this matter Iberdrola Colombia can leverage itself on the expertise of the group on outsourcing this type of project.

As Iberdrola has operating subsidiaries both in Mexico and Brazil, there is already some experience of building this type of infrastructure with international partners. Additionally, the group has a fully developed system of supplier management integrating information from SAP about Master Data and KPI's and information from GoSupply with risk assessments of every supplier, to generate supplier reports before asking for new business proposals, reducing the risk of outsourcing this fundamental activity (Appendix 22).

After going through Iberdrola's top 10 global suppliers (Appendix 23), we decided to invite all of them to be part of a tender for the two first projects that we will be developing in Colombia as we consider that there is no need of including any supplier without experience working with the parent company or its subsidiaries. Moreover, further research on the potential suppliers showed that some of them have already experience working in Colombia or at least in the region. Specifically, Elecnor is a great prospect to develop these two projects as the company has experience in the Colombian market with the competitor ISAGEN (EFE, 2022).

### **8.2. Tenders for the Projects**

In the first stage of the expansion, Iberdrola will be opening two tenders for the two different projects that were awarded on the auction. As it was mentioned in the marketing plan, both projects will be in La Guajira, and this facilitates the transportation of materials as it is located in the Atlantic Coast of Colombia. After doing secondary benchmarking we calculated that for the type of projects we are looking for we are expecting tenders near the following conditions:

**Figure 2***Energy Park Tenders (Own Elaboration)*

<b>Eolic Park 1 Tender (Including Office and Warehouse)</b>	
Building Time	1 Year
Fully Operational On	January 2023
Type of Project	Turnkey
Location	La Guajira
Downpayment	70%
Guarantee	15 Years
Energy Capacity	20 MW
Total Price	€ 20,000,000

<b>Solar Park 1 Tender (Including Office and Warehouse)</b>	
Building Time	1 Year
Fully Operational On	January 2023
Type of Project	Turnkey
Location	La Guajira
Downpayment	70%
Guarantee	15 Years
Energy Capacity	100 MW
Total Price	€ 60,000,000

These conditions are based on the characteristics of previous projects that have been awarded in the previous years through the auctions system. For the solar park we used the financial information of a park with similar conditions called La Union (IDB, 2022). For the wind park we used the financial information of the park developed by Elecnor and Isagen, assuming a discount rate for the historical partnership between Elecnor and Iberdrola (EFE, 2022).

## 9. HR Plan

The Iberdrola Group has always tried to maintain a level of standardisation between the subsidiaries, allowing them to create their policies but always following the main strategy of the parent company. We tried to follow this line while creating our HR plan that is presented above.

### 9.1. HR Policies

Within the Iberdrola subsidiary our HR strategy will encompass the overall policies from the firm whilst also focusing and specialising to the environment which employees and customers will face within the country. At Iberdrola, the code of conduct between employees and managers must always reciprocate high levels of respect for diversity, equal opportunity, and

non-discriminatory behaviour. Furthermore, we will strive to promote fair working conditions for women in the workplace with policies such as offering 12-month maternity leave. The HR Global Framework Policies of Iberdrola are a standardised set of 14 core principles which provide extreme professionalism within the workspace, which Iberdrola Colombia will be maintaining to the highest standard. It is recognised that in order to have an efficient, constructive, and pleasurable working environment, the HR policies must be abided to, otherwise strict consequences will be forced upon individuals. Overall, the HR policies within Iberdrola Colombia will follow suit for the overall company to maintain a global and unison approach towards Human Resources and employee behaviour.

## **9.2. Recruitment and Selection**

Due to the recent start-up of Iberdrola Colombia, the initial size of the subsidiary will be around 40 staff members. Workers can be targeted through a wide range of different avenues such as online sites, job boards or social media. Furthermore, the Iberdrola Campus can help provide managers and staff who specialise within Iberdrola and the surrounding strategy and culture. Moreover, at Iberdrola Colombia, we aim to foster a hierarchical structure, with the organisational chart acting as a visual aid towards the employee structure within the subsidiary (Appendix 24).

## **9.3. Payroll, Compensation & Benefits**

Compensation will follow country standards and regulations to provide ethical wages and compensation for the employees of Colombia Iberdrola. Furthermore, a pyramid payroll formation will occur with CEO, CFO and COO attaining the highest gross annual salary. After the highest managerial positions, wages will be reduced according to the level of productivity and output the role attains. The overall wages and payroll levels can be seen in EUR within the Appendix 25, for an annual and monthly gross income. Furthermore, bonus wages will only be applicable in the third year of operations to the following roles: CEO, CFO, COO, which will be capped at 9%, 7% and 7% accordingly across each of the managerial positions and given from Year 3 onwards.

## **9.4. Training and Development**

Iberdrola takes pride within high levels of in-house training and development for employees who choose to join the firm. Furthermore, the Iberdrola Campus which acts as a global center for knowledge, innovation, and employability has a turnover of 13,000 trained and well-equipped employees to enable increased output when initially joining the firm, reducing inefficiencies through pre-trained employees. Through developing a workforce from the Iberdrola Campus, the firm's culture, organisation, and overall strategies can be ingrained within the employees to further enable a productive workforce from the moment Iberdrola Colombia is publicly listed and operational.

## 10. Action Plan

The Action Plan contains a series of steps and processes which are necessary for a successful rollout of Iberdrola Colombia across the market through different strategies, with a full-scale marketing promotion deployment within the Q3 of 2022 for the signing of PPA's. The 1-YR Review in Q4 2022 will allow us to look back on the initial development of the solar/wind farm in Q1 2022 and the final developments in Q2 2022 before the production sites become fully operative in 2023. It is worth mentioning that the regulations are relatively tight, creating high barriers of entry to the market and thus the action plan may be susceptible to change under circumstances where denial of initial auction wins are developed. That being said, as a firm we are confident that the auction win will be set in stone, and we can focus on the later stages of the plan from Q1 2023 onwards. Furthermore, it is important to highlight the continuation of awareness, drive consideration, building customer loyalty and other business goals which will be at the core of the action plan and marketing development throughout all stages of the initial growth period to be the base of future objectives of doubling the amount of energy production sites for 2025 and have a total production capacity of 240 MW. All customers, retailers, corporate, and the average households will play a pivotal role within the initial stages of the internationalisation process and therefore these goals are foundational towards the success at Iberdrola Colombia (Appendix 26).

## 11. Financial Analysis

In the following chapter we will explain in detail the financial analysis for our project. Including a sales and cost forecast, the income statement, and the cash flow. All the values are shown in euros for a better understanding, but the operation of the company will be in Colombian pesos without exposure to other currencies. The numbers and calculations used for the forecasts are going to be shown from Appendix 27 to Appendix 31.

### 11.1. Sales Forecast

For the sales forecast of Iberdrola Colombia, we have generated a nine-year forecast in order to have a better understanding of the business revenues in the short term and the future projects that have been planned for the company. The first year has a € 0,00 revenue in both the Solar & Eolic Parks, as a result of the finalisation of the construction of the first energy generation sites. For 2023, both parks are going to be 100% operational, thus the revenue will be of € 10.466.375, as the PPAs signed for 15 years will maintain a fixed price throughout the year and increase a 1,5% the following year with respect to the last. Regarding the production, the PPAs also have a fixed production requirement of 182.500 MW h/year for the Solar Park 1 and 87.600 MW h/year for Eolic Park 1, it is important to highlight that the solar park is going to be producing energy for 5 hours per day while the eolic park produces all day long. Therefore, for the following years we consider the fixed energy production and a 1,5% increase in the price. In 2025, there is a plan to develop a second park of each kind with the same characteristics to supply for new PPAs, consequently for 2026 the revenues would be at least 230% above 2023 sales with a total revenue of € 24.232.275 (Appendix 27).

## **11.2. Cost Forecast**

Regarding the cost of the energy production, the industry uses the term of LCOE, Levelized Cost of Energy, as the reference of the total cost of producing the energy. For this project, the LCOE was divided in the initial investment on the materials for the energy parks and their yearly depreciation, and on the yearly costs of maintenance and operations. The initial investment was calculated with information of similar projects as it was presented in the Tender section. The yearly cost of maintenance and operation of the parks is established as 6.5 euros per kW as the industry average (RENAC, 2018). The remaining operative expenses forecast include the wages calculations considering an annual rise of 5% with respect to the previous year and also including the addition of maintenance workers by 2026 to check the four energy generation sites, external services include the annual transportation cost for said maintenance workers and will double from 2026, also the coworking space memberships for an all-inclusive office space in Bogota for the administrative employees, which price estimation has been benchmarked with information from the Colombian market, marketing costs and office supplies external to the Coworking. Depreciation is of 2,50% per year for all the equipment present in the energy generation parks (Appendix 28).

## **11.3. Income Statement**

For the explanation of the construction of the income statement for Iberdrola Colombia, we use nine years in order to determine the revenues and expenses incurred in the operation of the company. For the revenues, we base ourselves in the signing of the PPAs for 15 years. For 2023 the price of energy is being determined by adding a 5% inflation rate to the price marked by the Colombian government in 2021 for the auctions, every year after, it is also considered that same 5% rise in everything and for 2026 it doubles as the plan of expanding the energy generating parks is completed. With that said, we use RENAC to benchmark the percentage of COGS used in the production of energy, which including some additional costs can be 6,5 times the size of the project, in this case specifically for operative year 1, it would be of €780.000. The remaining operating costs include wages, external services for transportation and maintenance, membership fees for a coworking space and marketing services for the company. The depreciation of the production site is of 6,67% per year as it is a viable project for the duration of the PPA's (15 years). The ledger for financial expenses consists in the loan interest of 1,55% for the money borrowed from Iberdrola Group during 11 and 12 years respectively. For the 35% tax on income percentage in Colombia, we consulted the Ministry of Work in Colombia. For the first operative year (2023), the net profit represents a 19,58% of sales (Appendix 29).

In the information gathered from the Annual Financial Report of Iberdrola, S.A. and subsidiaries, it is shown that the profits from the renewables activities of the group generate a be inferred that the renewable energy production operations are the one that give more profit for the company around the world and therefore compared to the forecast made for Colombia, it can be concluded that the (Appendix 30).

## **11.4. Cash Flow and Funding**

In regard to the cash flow forecast, we take the forecasted net profit for the nine years and add the depreciation values of the on-site building and the resources used in the production site, such as the solar panels, wind turbines, and complementary equipment. With that amount we adjust the capital needs with the subtraction of the working capital calculation that includes all the costs incurred in each fiscal year divided by the number of months corresponding to them times two, and of the total investments for said year.

For the financing options for the implementation of the energy production sites in Colombia, in the first year we access to the group equity destined for the internationalisation plan of € 17.500.000 and a group loan of € 64.000.000 at a rate of 1,5% for 11 years and in the table drawn up for the financing activities, it is also included the loan to be asked at the same rate of 1,5% in 2025 for the expansion projects and it will be repaid in 12 years, also the repayment amounts are considered to have the final cash flow of Iberdrola Colombia (Appendix 31).

### **11.5. Hedging**

As it was mentioned in the beginning of this section, Iberdrola Colombia will fully operate in Colombian pesos, so there is no need for hedging regarding transaction exposure. However, the group must include Colombia's operations in the hedging strategy for the translation exposure that is going to have some impacts when constructing the consolidated statements of Iberdrola S.A.

## **12. Sustainability and CSR**

Once we have seen the business strategy, plan and that the business is profitable it is also necessary to understand the relation of our product regarding sustainability issues. As it has been said in the previous sections, the company's core activity of generating and providing renewable energy makes a direct and huge contribution to the transition to a green energy. Iberdrola Colombia is impacting directly and positively the SDG number 7 of “Affordable and Clean Energy” as we are offering energy from green sources and at the lowest possible price guaranteed by the auction mechanisms, increasing the supply of renewable energy in Colombia and giving the option to more people to use this type of power. (United Nations, 2022). Moreover, we are also impacting indirectly on the SDG number 9 “Industry, Innovation and Infrastructure”, on the SDG number 11 “Sustainable cities”, and more importantly on the SDG number 13 “Climate Action” (United Nations, 2022). Iberdrola Colombia is fully committed to have sustainability as part of its core activities, and by providing renewable and clean energy, we are helping on the climate change race and impacting other fundamental issues of the SDGs agenda.

Furthermore, we want to create an extra CSR strategy to create a connection with the communities that are living near the areas where the energy parks are going to be built, as La Guajira is one of the poorest departments in Colombia. This program will be aiming to involve the people in several activities to bring awareness about renewable energy and the positive impact of it on the environment and the society. Some of the activities that will be carried out are on-house visits to the energy parks for the communities to educate them on the renewable

energy generation and its importance, conferences in public schools and universities and traineeships for local students interested in renewable energy. These activities are only aiming to reinforce the idea of sustainable business that is shared along the group and represented on its operations.

## 13. Conclusion

In conclusion, across a range of steps, the internationalisation plan of Iberdrola to Colombia presents a detailed external and internal analysis of the Colombian market, along with a marketing plan, business strategy, supply chain analysis, a human resources plan, a legal plan, CSR considerations and a financial analysis plan for the establishment of a subsidiary. The integration of the entry strategy, the innovative and efficient renewable energy auctions, provide an affordable alternative to fossil fuels, particularly prominent for the developing countries which often face relative poverty. It is no secret that the rich biodiversity and natural earth cycles are facing irreversible damage through anthropogenic climate change and emissions. The ability to help provide the infrastructure to combat such issues is a necessary step into the right direction.

Through the thesis, it highlighted the importance of experience in order to have a successful internationalisation within the industry due to the complex nature of such a process. Iberdrola, having a large presence in the international scene, enabled the necessary concoction of capital and expertise. The profitability of this business is backed by long-term contracts with specific and clear conditions that allow us to assess the financial viability of the projects. Colombia's renewable auctions are in the centre of this project, and they are a necessary condition in order for this type of project to be successful.

With this, the future ambitions of Iberdrola and Iberdrola Colombia are set to exponentially increase the output of renewable energy across South America. The future for the subsidiary within Colombia would be to have a foundational and majority market share of renewable energy output across the sovereign nation. Furthermore, the subsidiary aims to increase the accessibility to renewable energy through many different solar and on-shore wind farms across the country, while they work to be the first company to build an off-shore energy park in Colombia and in offering digital innovation for the customer service. Additional steps would incorporate the expansion into the neighboring countries such as Ecuador, Peru and Panama in order to increase the overall renewable energy utilisation across the South American region.

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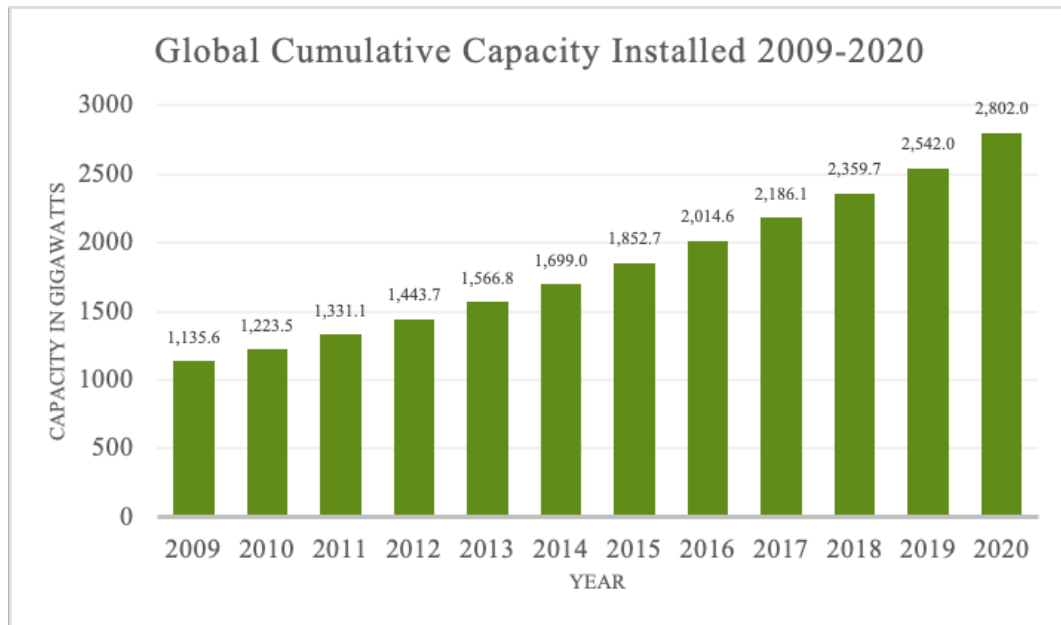
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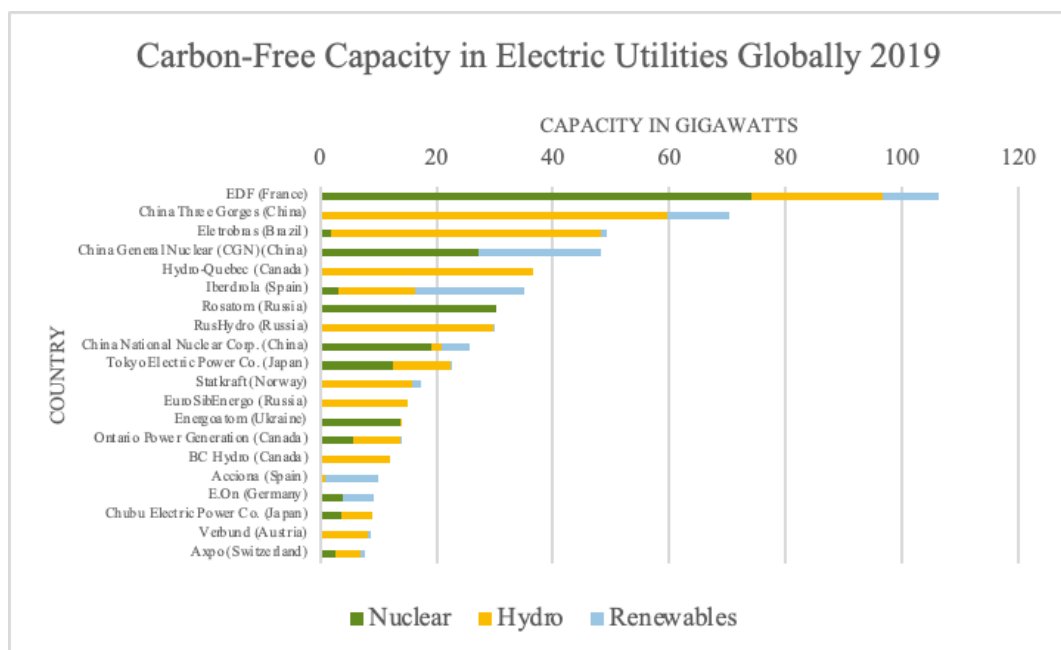
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## Appendix

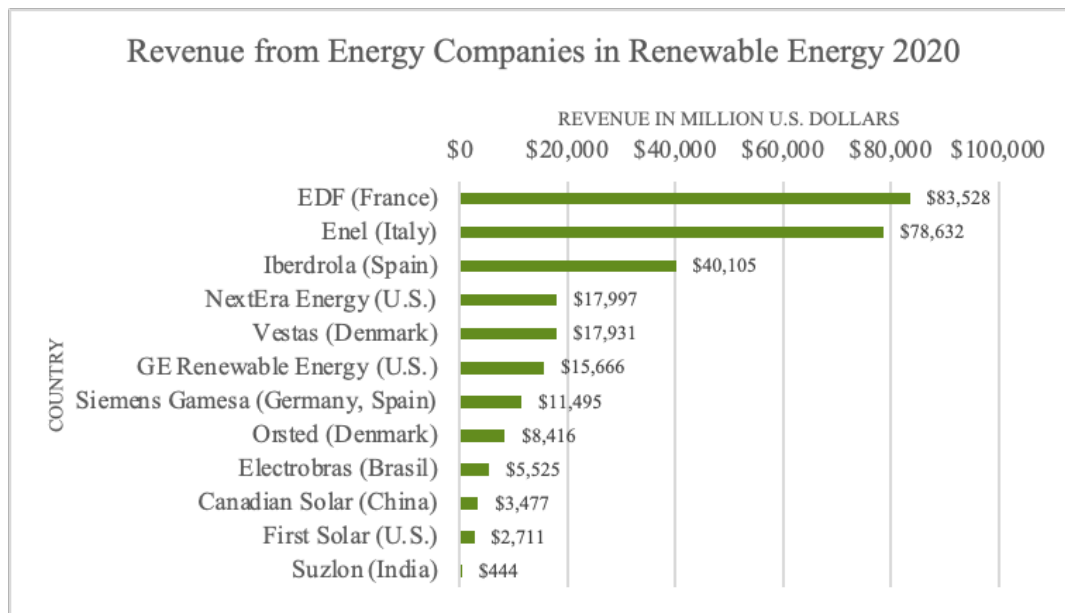
### 1. Cumulative renewable energy capacity worldwide from 2009 to 2020 (in gigawatts). (Statista, 2020)



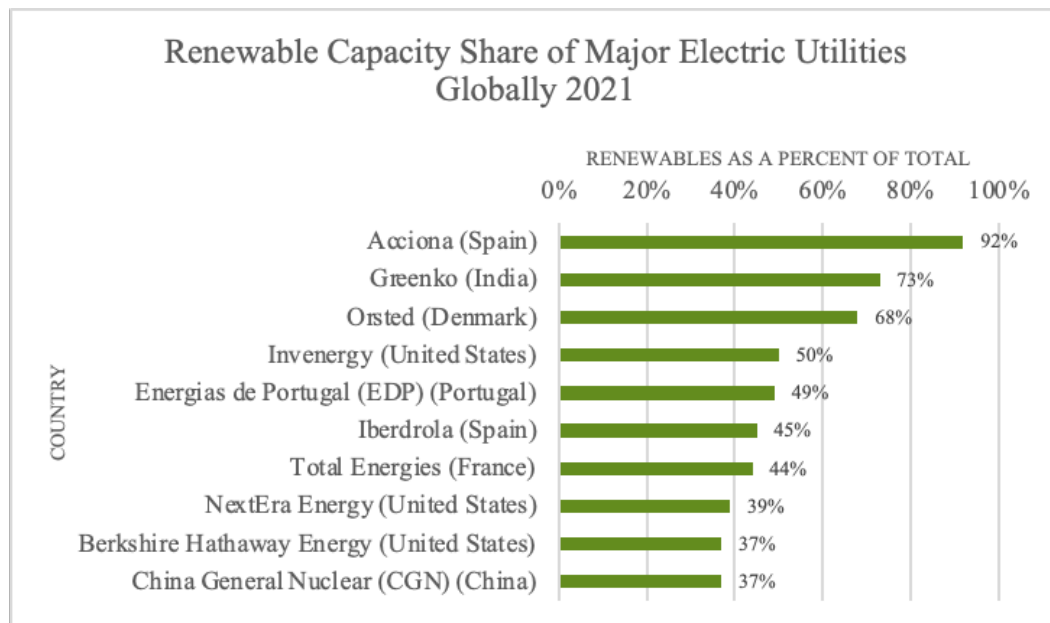
### 2. Leading global utilities based on carbon-free generation capacity in 2019, by source (in gigawatts). (Statista, 2020)



**3. Revenue of select companies in renewable energy in 2020\* (in million U.S. dollars).  
(Statista, 2021)**



**4. Leading electric utilities based on renewable capacity share worldwide in 2021.  
(Statista, 2022)**



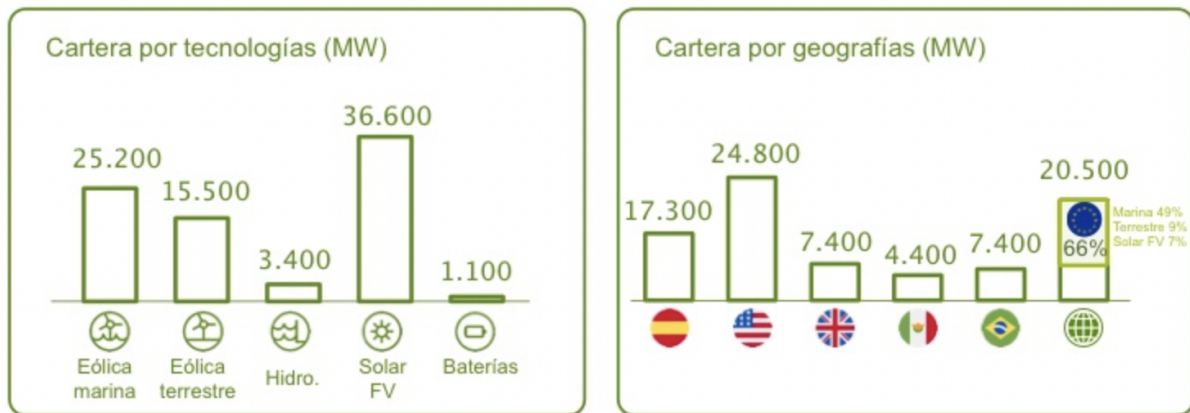
## 5. Key Figures of Iberdrola. (Iberdrola, 2021)



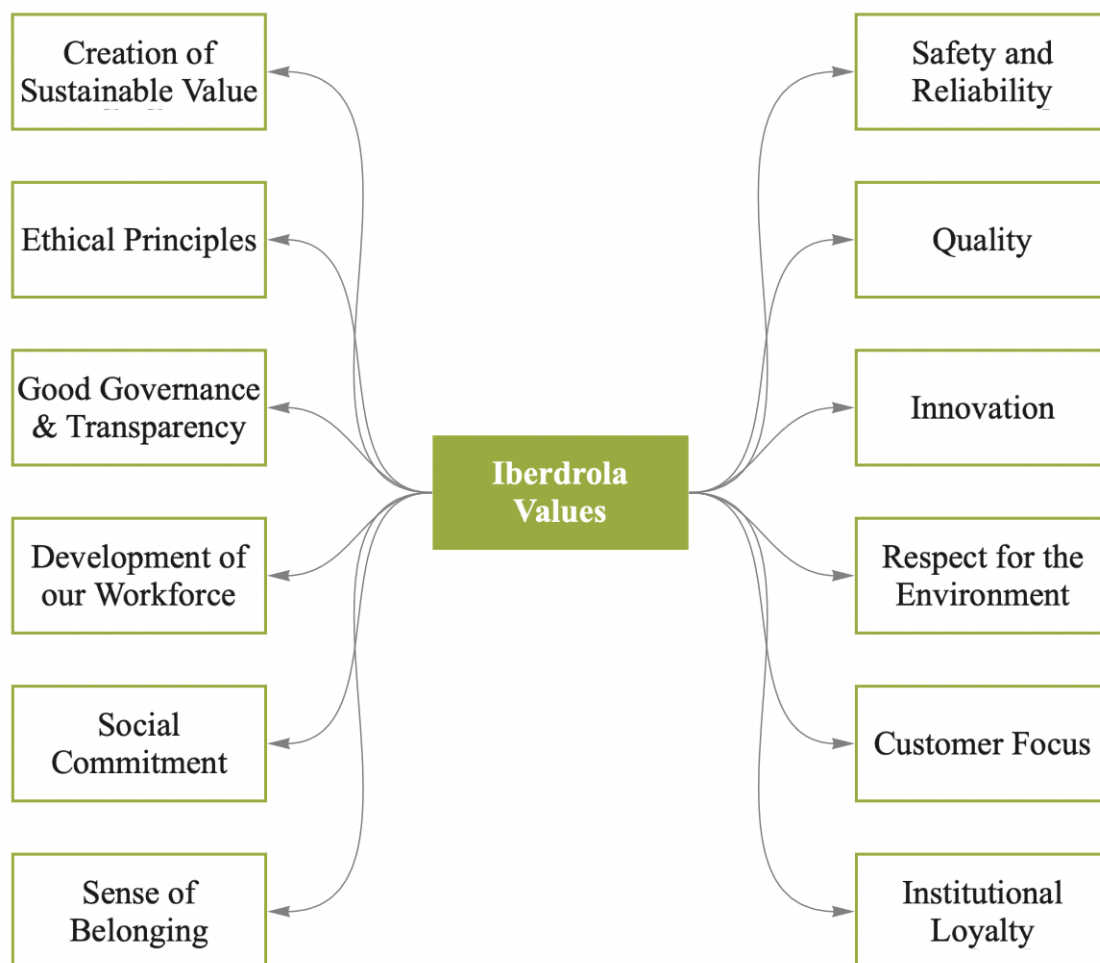
## 6. Number of Customer Accounts of Iberdrola from 2016 to 2021. (Statista, 2022)



## 7. Product Portfolio by Technology & Geography. (Iberdrola, 2021)



## 8. Iberdrola Values



## 9. CAGE Analysis

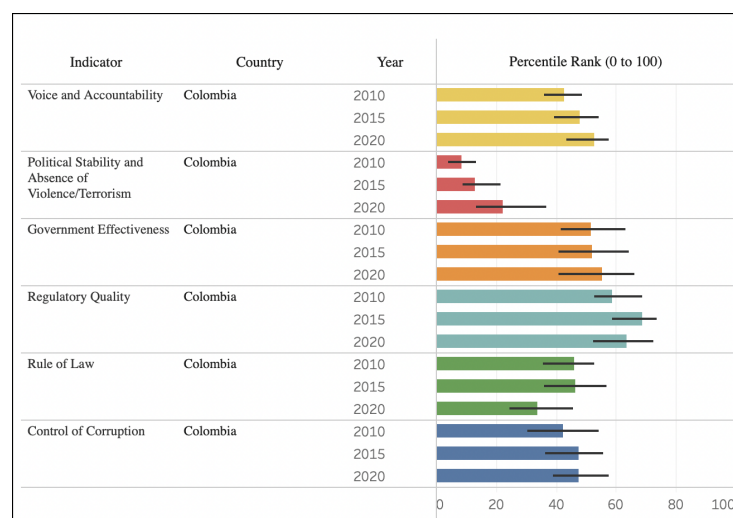
<p><b>Cultural</b></p> <ul style="list-style-type: none"> <li>- Spain and Colombia speak similar languages however there are slight differences in the two languages. For communication and trade, there will be no issues.</li> <li>- Spain and Colombia also share religion with 48% of the population in Colombia practising catholic Christian and 68.5% in Spain (Cultural Atlas, 2018) (Statista, 2020).</li> <li>- In Colombia, 57.5% are Mestizos and in Spain around 85% are Spaniards (World Atlas, 2020)</li> </ul>	<p><b>Administrative</b></p> <ul style="list-style-type: none"> <li>- Strong colonial ties, first discovered in 1499 by Spanish explorer Alonso de Ojeda, and a colony until independence in 1811.</li> <li>- Colombia and Spain do not share their official currency since Spain utilises the Euro (EUR) and Colombian Peso (COP).</li> <li>- In 2019, trade between Spain and Colombia totalled at €1.4 million, with Colombia's main exports relating to fruit and fish. Spanish exports to Colombia include machinery and electrical equipment (OID, 2019)</li> <li>- Corruption with Spain is relatively low, being ranked 34/180 in the Corruption Perception Index (CPI) in 2021, whilst on the other hand, Colombia ranked 87/180 (Transparency.org, 2021).</li> </ul>
<p><b>Geographic</b></p> <ul style="list-style-type: none"> <li>- There is no common border with Colombia and Spain, due to Spain being in Europe with Colombia based in South America.</li> <li>- Both countries have great access to the sea, with major ports based in both sovereign nations.</li> <li>- Colombia has an area of 1.142 million km<sup>2</sup> whilst Spain has an area of 505,990 km<sup>2</sup>, thus Colombia is approximately 2.26x greater in surface land.</li> <li>- Spain operates within the Central European Time (CET) zone whilst Colombia Standard time (CST), is -6 hours of the CET zone.</li> </ul>	<p><b>Economic</b></p> <ul style="list-style-type: none"> <li>- Spanish GDP was approximately \$1360.00 USD Billion by the end of 2021, whilst the Colombian GDP was \$320.00 USD Billion by the end of 2021 (Trading Economics, 2022).</li> <li>- Per Capita, GDP in Spain reached \$32000.00 USD by the end of 2021 and Colombian GDP per capita reached \$6200.00 USD by the end of 2021 (Trading Economics, 2022).</li> <li>- When highlighting natural resources rents, Colombia was reported at 4.3% whilst Spain was at 0.085%, both in the year 2020 (Trading Economics, 2022)</li> <li>- In 2020, Colombia's consumer spending was around \$189bn whilst Spain had \$717bn (Macro Trends, 2022)</li> </ul>

## 10. PESTLE Analysis

### a. Political

- The Republic of Colombia has a democratic government, and the current president is Ivan Duque. In 2022 the country will have presidential and senate elections (Presidencia de la República, 2021).
- Colombia belongs to several international organisations such as: UN, WTO, OAS, OECD, G-24, CEPAL and others. It also has FTA agreements with the US, CAN, CARICOM and the EU, which also shows the country's strong foreign policy (Presidencia de la República, 2021).
- In 2016, the government of Juan Manuel Santos signed a peace treaty with the guerrilla group Fuerzas Armadas Revolucionarias de Colombia (FARC), the objective was to end the armed conflict started in the 1960s between the country and the guerrilla group, the agreement passed without too much support from the state (Presidencia de la República, 2016).
- The FARC is next to be taken off the list of international terrorist groups by the American government, it was announced on November 24, 2021; by legislative sources in the Biden administration (Mars, 2021).
- The Agricultural Policies and Rural Development guidelines focus on Duque's administration, following the recommendations from the OECD, giving attention to the promotion of a more egalitarian arena and fair competitiveness between rural and urban societies (Presidencia de la República, 2019).
- After COVID-19 shock, the progress of the national vaccination plan and the economic reactivation, geopolitical events, significant changes to the security environment, and the growing political polarisation before the 2022 elections could also affect who wants to do business in Colombia, after the elections a new tendency could be set (Parish, 2021).
- The Corruption Perception Index 2020 shows that Colombia has a score of 39 over 100, which leaves the country in the 92<sup>nd</sup> positions and means that it has a high level of corruption in the public fronts (Transparency International, 2021).
- The Worldwide Governance Indicators 2020 for Colombia present 6 dimensions that comprise the views of different sectors of society on the quality of governance for countries, regions, and continents, which will be detailed below (World Bank, 2021).

- Control of Corruption: 47.6 was Colombia's ranking, meaning that the country has a median amount of corruption in their public services.
- Rule of Law: The percentile rank was 33.65, which presents Colombia with a neutral governance, with a worse tendency than previous years.
- Regulatory Quality: The country has a 63.46 score, which is better than the 2010 score.
- Government Effectiveness: Colombia has a total of 55.29, which means that the current administration is meeting halfway their goals.
- Political Stability and Absence of Violence/Terrorism: With a score of 22.17, Colombia has improved by almost 15 points their poor situation of 2010.
- Voice and Accountability: 52.66 is the percentile rank for the country, which has also improved in the last decade and gives the Colombian society hope to be heard freely.



## b. Economic

- Colombia's GDP has experienced a gradual decline from US\$334.198 billion in 2018 to US\$271.347 billion in 2020, where the latter year reached an annual growth of - 6.84% due to the impacts caused by the COVID 19 pandemic (World Bank, 2020) . The pattern has been the same for GDP per capita, in 2018 it was US\$6729.58 dropping to US\$6425.97 in 2019 and US\$5332.77 in 2020 (World Bank, 2020). Despite all of the aforementioned, the country is expected to grow by 7.61% in 2021 and then an average annual growth of 3.49% from 2022 to 2026 (Statista, 2021).
- With respect to the Gini coefficient, Colombia has a percentage of 51.30% in 2019, which is 0.9% higher than the previous year and 1.6% higher than in 2017. This

percentage means that inequality in Colombia is very high, where the distribution of wealth is unequal and it seems that it will continue over the years (World Bank, 2019). However, according to the World Bank, while income inequality is projected to decline, it is projected to remain above (already high) pre-pandemic levels.

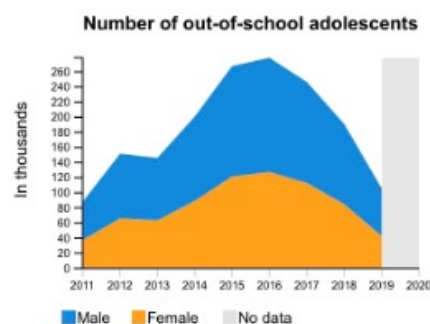
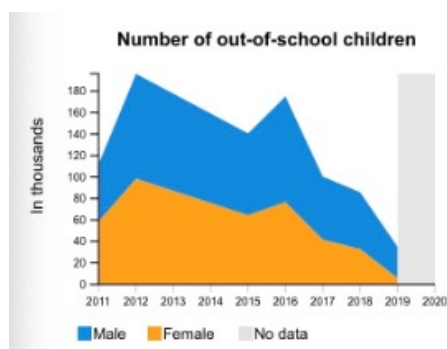
- Considering the different economic sectors that contribute to the GDP in Colombia, the agriculture sector generated 7.68% of Colombia's GDP in 2020, while industry contributed roughly 23.78% and the services sector contributed about 59.68% (Statista, 2021).
- In the last four years Colombia has been losing positions in the World Bank's Doing Business Index, which reflects a country's capacity to generate a climate that facilitates doing business. In the Doing Business 2020 report, Colombia fell two positions, from 65th to 67th place. For this edition, the Doing Business revealed that the score for Colombia was 70.1 out of 100 (World Bank, 2020). However, after all the above, it is not known if the data is certain or accurate since the World Bank started an investigation due to allegations of certain irregularities in the Doing Business 2018 and 2020 (World Bank, 2021).
- Unemployment in Colombia has been increasing from 2015 onwards. In the last three years unemployment rose from 9.11% in 2018 to 9.96% and 15.44% in 2019 and 2020, respectively (Statista, 2021).
- Since 2016 Colombia has suffered a decline in Foreign Direct Investment. In that year FDI was for a total of 4.9% in relation to GDP, then in 2017 for 4.39% and subsequently 3.38% and 4.32% in 2018 and 2019, respectively (World Bank, 2019).
- Colombia has been experiencing a decline in inflation since 2016, falling from 7.5% in 2016 and 4.31% in 2017 to 3.21% in 2021. According to Statista, inflation is expected to remain between 2.99% and 3.54% until 2026 (Statista, 2021). The inflation is decreasing because most of the items continue to decline due to lower demand, whereas others are increasing due to the lifting of the quarantine.
- The salary increase must take into account the previous year's inflation. What Colombia is currently doing is doubling the wage above inflation and such an excessive increase in the minimum wage can have negative consequences for the labor market, as it increases the cost of hiring, thus, leading to an increase in unemployment.

### c. Social

- Colombia performs well in many measures of well-being in the Better Life Index. It ranks above average in health status and ranks below the average in jobs, earnings, housing, education and skills, income and wealth, personal security, etc (OECD, 2020).
- Colombia's HDI value for 2019 is 0.767, placing it 83rd out of 189 nations and territories and positioning it in the high human development category (Human Development Report, 2020).
- Colombia has one of the highest poverty rates in the South American region and the world. (World Bank, 2021) From 2008 (42%) to 2018 (27%), the poverty ratio in Colombia was on an overall downward trend, with a slight rebound in 2016 (28%) and 2018. Even with such a decline in the past decade, compared to the peer countries like Ecuador (25%), Peru (20.2%), Colombia remains at a high level of poverty (Statista, 2018).
- Colombia's Multidimensional Poverty Index assessment is based on the most recent publicly available survey data from 2015/2016. In Colombia, 4.8 percent of the population (2,407 thousand people) is classed as multidimensionally poor, with another 6.2 percent vulnerable to multidimensional poverty (3,094 thousand people). Colombia has a 40.6 percent breadth of deprivation (intensity), which is the average deprivation score experienced by persons living in multidimensional poverty (Human Development Report, 2020).
- Colombia went into recession in 2020 because of the COVID-19 crisis, which worsened existing labour market difficulties. In that year, over 2.5 million jobs were eliminated. In 2020, the unemployment rate rose by 50% to 15.9%, with significant rises in metropolitan areas and among women, young, self-employed, and small-business workers. 2.5 million jobs were lost, resulting in an increase in inactivity. Among the employed, the number of those working less than 20 hours per week climbed from 15% to 22% (World Bank, 2021).
- Unemployment is particularly high among young Colombians younger than 24 years old. More than one in four young Colombians are unemployed, often disregarding their level of education (Colombia Report, 2020).
- In the 1990s, Colombia's mass displacement and subsequent urbanisation resulted in a significant difference in unemployment between the country's 13 main cities and the countryside. Rural unemployment has increased because of the present government's

economic policy of prioritising agro-industrial projects. Until 2019, most Colombians who work are not technically employed, and so do not receive the social security benefits that come with it (Colombia Report, 2020).

- The total population in Colombia is 50.88 million, and the median age in Colombia is 31.3 years. (Statista,2020) Births attended by skilled health staff increased nearly 13% in the past two decades, from 86.1% to 99.1%. However, the birth rate gradually declined in the last decade to 14.66% (Statista, 2020).
- Bogota has traditionally enjoyed lower homicide rates (14.41%, 2019) than other major cities in Colombia. The criminal activity that affects Bogota's residents by far the most is armed robbery of which the police reported some 82000 in 2020. The insecurity perception of Bogota's residents is 86%, and has been relatively low compared to other cities in Colombia (Colombia Reports, 2021).
- At least 65 land activists or environmentalists were killed in Colombia in 2020, making it the worst year of the study period. Small-scale farmers, indigenous peoples, and people of African descent were the major targets of these crimes in the South American country, which also had the highest number of activists and environmentalists murdered in 2020 (Statista, 2020).
- According to new World Bank data, global remittances are expected to total \$702 billion in 2020, down from \$719 billion in 2019 (-2.4%). The personal remittances represent 2.554% in Colombia (World Bank, 2020).
- The income share of the top 10% of the income group was 40.3% in 2019. The country was ranked one of Latin America's most unequal countries. (World Bank,2020)
- The government increased its expenditure on education over the years, and the government expenditure on education, total (% of GDP) in Colombia is 4.506%. (World Bank, 2021)



#### d. Technological

- The Global Connectivity Index of 2020 ranked Colombia 54<sup>th</sup> out of 79 other countries and with a score of 42 out of 120 (Huawei GCI, 2020). This put Colombia within the adopter category with a score on each of the main four pillars of global connectivity. Firstly, broadband within Colombia scored 41 out of 120, with the average at 62. Secondly, the cloud, a distribution model for mass market access to computer storage capabilities, scored 42 out of 120 with the average at 42. Thirdly, AI scored 30 out of 120 with an average of 30. Finally, Internet of Things, sensor and actuator networks for data collection and response action, scored 33 out of 120 with the average scoring 40 (Huawei GCI, 2020).

[illegible]

- It is understood that Colombia has more than 3,950 research groups in science and technology (DFI, 2015).
- The global Innovation Index takes the pulse of the most recent global innovation trends. It ranks the innovation ecosystem performance of economies around the globe each year. Colombia ranked 68th in the Global Innovation Index in 2020, down from 67th in 2019 (Global Innovation Index, 2020). Furthermore, Colombia ranked 20th among

the 37 upper middle-income group economies, and 5th among the 18 economies in Latin America and the Caribbean (Global Innovation Index, 2020).

- OECD defines internet access as the percentage of households who have access to the internet through personal computers. Across Colombia, Internet access is reported in 2019 to be around 52.2% out of all households (OECD, 2021).
- The statistic shows information and communication technology (ICT) revenue in Colombia in 2016 as well as a forecast thereof until 2018. The 2018 revenue was expected to reach 6.29 billion U.S. dollars, up from 5.39 billion in 2016. (Statista, 2018).
- Across Colombia, recent data from OECD displays that a total of 37.2% have access to a computer within their dwelling, across all households within the sovereign state (OECD, 2019).
- Colombia approximately had 27 agricultural smart technological enterprises across the sovereign state business, ranking 4<sup>th</sup> across Latin America and the Caribbean. Furthermore, as of May 2019, there were approximately 542 smart agricultural businesses in Latin America and the Caribbean, out of which more than 50 percent were located in Brazil. Argentina ranked second, with 116 businesses. Meanwhile, in North America, Mexico reported 17 smart agriculture enterprises (Statista, 2020).
- In 2020, spending on information technology (IT) in Colombia was forecasted to increase by approximately 5.4 percent, compared to values reported for 2019. Additionally, the source projected that IT expenditure in the South American country would grow by another three percent in 2021 (Statista, 2020).
- Change in information technology (IT) spending in Colombia in 2020 and 2021. In 2020, spending on information technology (IT) in Colombia was forecasted to increase by approximately 5.4 percent, compared to values reported for 2019. Additionally, the source projected that IT expenditure in the South American country would grow by another 3% in 2021. (Statista, 2020)

#### e. Legal

- Colombia's constitution was enforced in 1991, which gave more power to the judiciary body of the country as well as independence from the executive branch. It presents a well-structured legal framework. The court system is well prepared to proceed with efficient judicial procedures.

- Foreign Direct Investment is permitted in the country according to the decree N. 1735 from 1993 and N.1068 from 2015. According to the 2020 World Investment Report from the United Nations Conference on Trade and Investment (UNCTAD), there was an entry of \$ 14.5 billion USD in 2019, which was 3 billion more than the previous year.
- According to the article 471 from the Commercial Code of Colombia, any foreign company can establish a subsidiary in Colombian territory, while following the IFRS guidelines, the companies would have to comply with the Colombian currency and language for their financial statements, while hiring a Fiscal Reviewer (Deloitte, 2021).
- International companies that want to establish their businesses in Colombia, must follow the law in terms of salaries, working conditions, schedules, social security, and corporate taxes regardless of their country of origin (Deloitte, 2021).
- In the 2020 World Bank Doing Business Report, Colombia ranked 67<sup>th</sup> out of 190 countries. It was ranked 11<sup>th</sup> in terms of credit obtention, 13<sup>th</sup> in terms of protecting minority investors and 32<sup>nd</sup> in resolving insolvency. The nation has one of the top business environments in Latin America.

#### **f. Environmental**

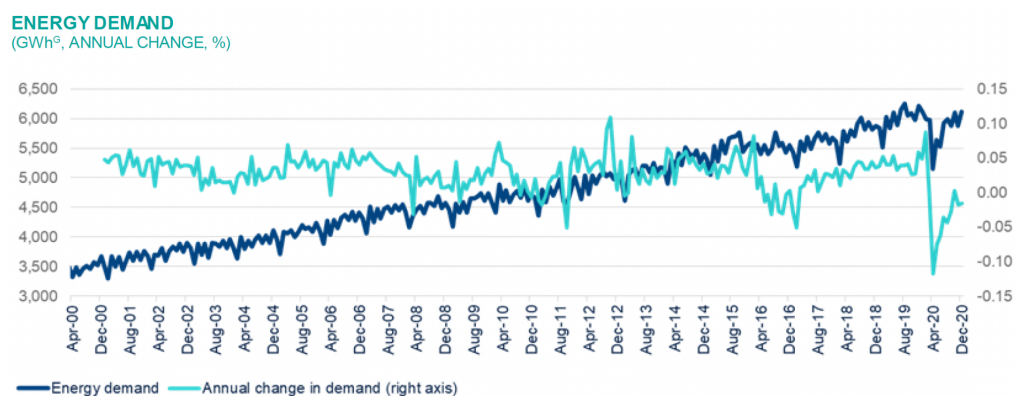
- Colombia wants to maintain its commitment to the various international environmental treaties. However, there are a lot of risks related to investment mostly associated with the lack of funds.
- Colombia is part of Andean Environmental Agenda (AAA). The community approved the 2012-2016 agenda with the main topics: biodiversity, climate change and water resources. The AAA agenda is recognized by the United Nations as aligned to the 2030 Agenda for Sustainable Development.
- Colombia also drew its Green Growth Plan in 2018 with a new green growth policy, which provided a strong set of sustainable development indicators and action plans to be delivered by 2030.
- In 2012 the NDP of Colombia introduced the low carbon strategy 2020-2030. By 2016 the Colombian government established the carbon tax and voluntary exchange carbon market, later the carbon tax was extended to liquid fossil fuels and industrial uses of natural gas.

- In 2017 the climate change national policy was introduced. Ivan Duque, current president of Colombia, in 2019 launched a program for solving problems with water scarcity in various regions, trying to ensure universal access to water by 2024, also he created a National Council to reduce deforestation and help in the conservation of water resources (Presidencia de la República, 2019).
- However, the full implementation of environmental regulations is still weak. Taxes required to be paid for that kind of regulations are not collected, the inspections are not undertaken due to a weak monitoring system. One of the biggest issues Colombia faces is the correct implementation of laws by local governments. The Autonomous Regional Environmental Authorities (Corporaciones Autónomas Regionales [CARs]) are bodies that have a double function of implementing environmental policies and licensing companies at the same time, where it has been reported that connections between CAR directors and higher ranks of certain companies allow regulations to be overlooked.
- In 2019 eight contracts for wind and solar projects were awarded by the government, with the investments worth US\$2.2bn. The government also has aimed at reducing deforestation by 50% by the year 2022 with the restoration of 180 million trees which would help its 2030 goals for CO2 emissions reduction.
- In the 2020 Environmental Performance Index, Colombia ranked 50th out of 180 countries. For the SO2 emission and NOX emissions growth it ranked below the 100<sup>th</sup> position. For CO2 emissions growth the country was ranked 96<sup>th</sup> among 180 countries. Colombia ranked 63<sup>rd</sup> out of 180 in terms of drinking water safety, which means it is not so safe to drink tap water in the country. In terms of agriculture the country performed the worst and ranked 148<sup>th</sup> in the Sustainable Nitrogen Management Index.
- The National Energetic Plan (PEN) 2020-2050, proposes a long term vision of the energy production sector in Colombia and the ways in which the country can reach an efficient and sustainable way to collect and distribute energy (UPME, 2020).

## 11. SWOT Matrix

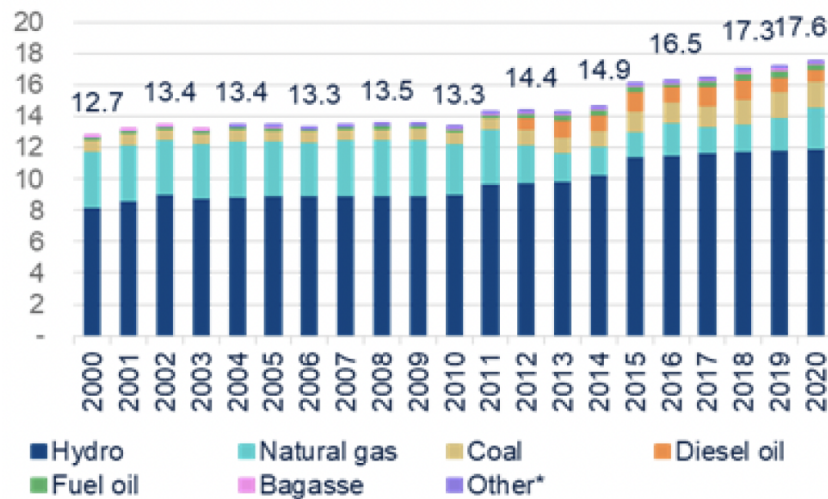
<p style="text-align: center;"><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>• Wide geographic presence</li> <li>• Strong brand recognition</li> <li>• Strong organizational infrastructure</li> <li>• Social responsibility</li> <li>• Strong Brand Portfolio</li> <li>• Skillful workforce</li> </ul>	<p style="text-align: center;"><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>• Entering an unknown market</li> <li>• Investment regulations and policies</li> <li>• Focused on niche markets</li> <li>• Business model that can be imitated by competitors</li> </ul>
<p style="text-align: center;"><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>• New markets in LATAM, starting from Colombia</li> <li>• Possibility of replicating the business model applied in Colombia to Ecuador, Peru &amp; Panama</li> <li>• Green initiatives from governments could open the opportunity for procurement by state contractors</li> <li>• Change of customer preferences in terms of green energy</li> <li>• Local collaboration</li> <li>• Steady obtention of energy all year long</li> </ul>	<p style="text-align: center;"><b>THREATS</b></p> <ul style="list-style-type: none"> <li>• New companies using a similar business model</li> <li>• Currency volatility</li> <li>• COVID-19 crisis</li> <li>• New environment regulations after the Paris Agreement (2016)</li> <li>• Not presenting innovative products regularly</li> <li>• Climate change</li> </ul>

## 12. Energy Demand Colombia 2000 - 2020. (BBVA Research, 2021)



### 13. Net Generation Capacity by Source in Colombia 2000 - 2020. (BBVA Research, 2021)

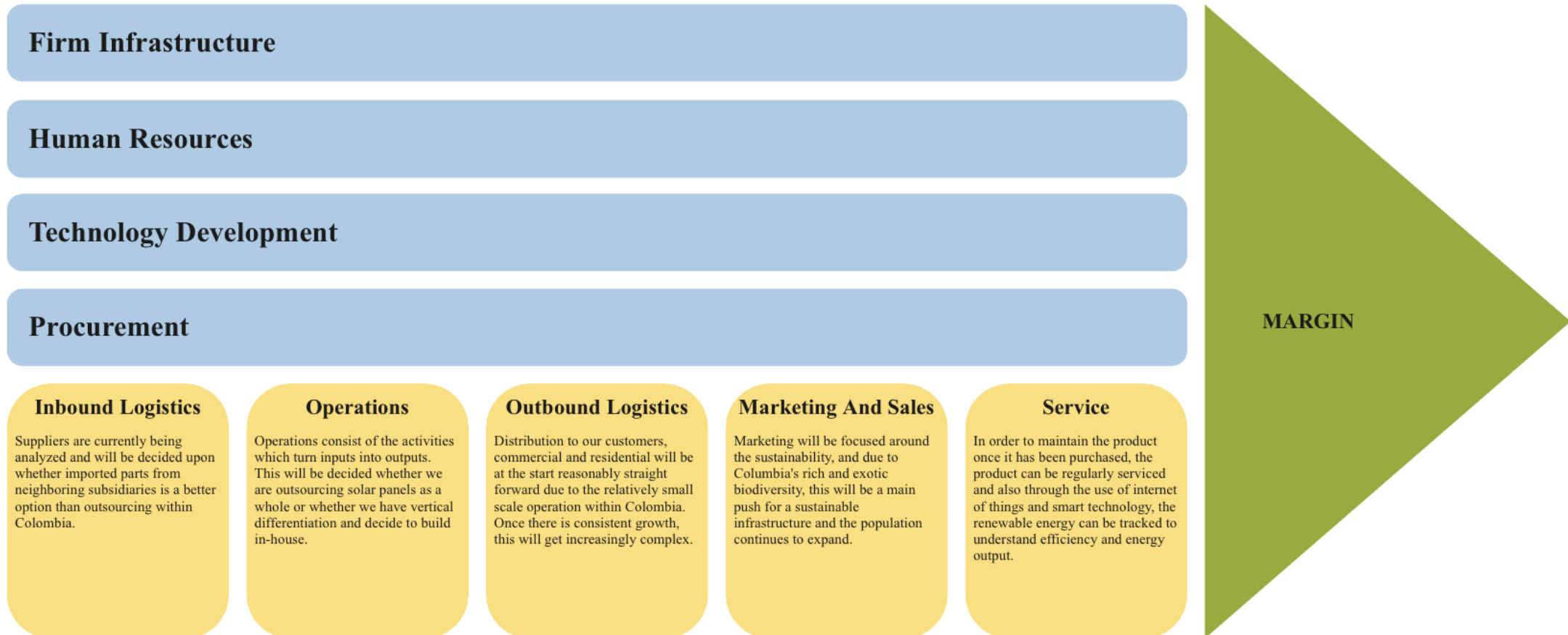
#### NET GENERATION CAPACITY BY SOURCE (GW<sup>o</sup>)



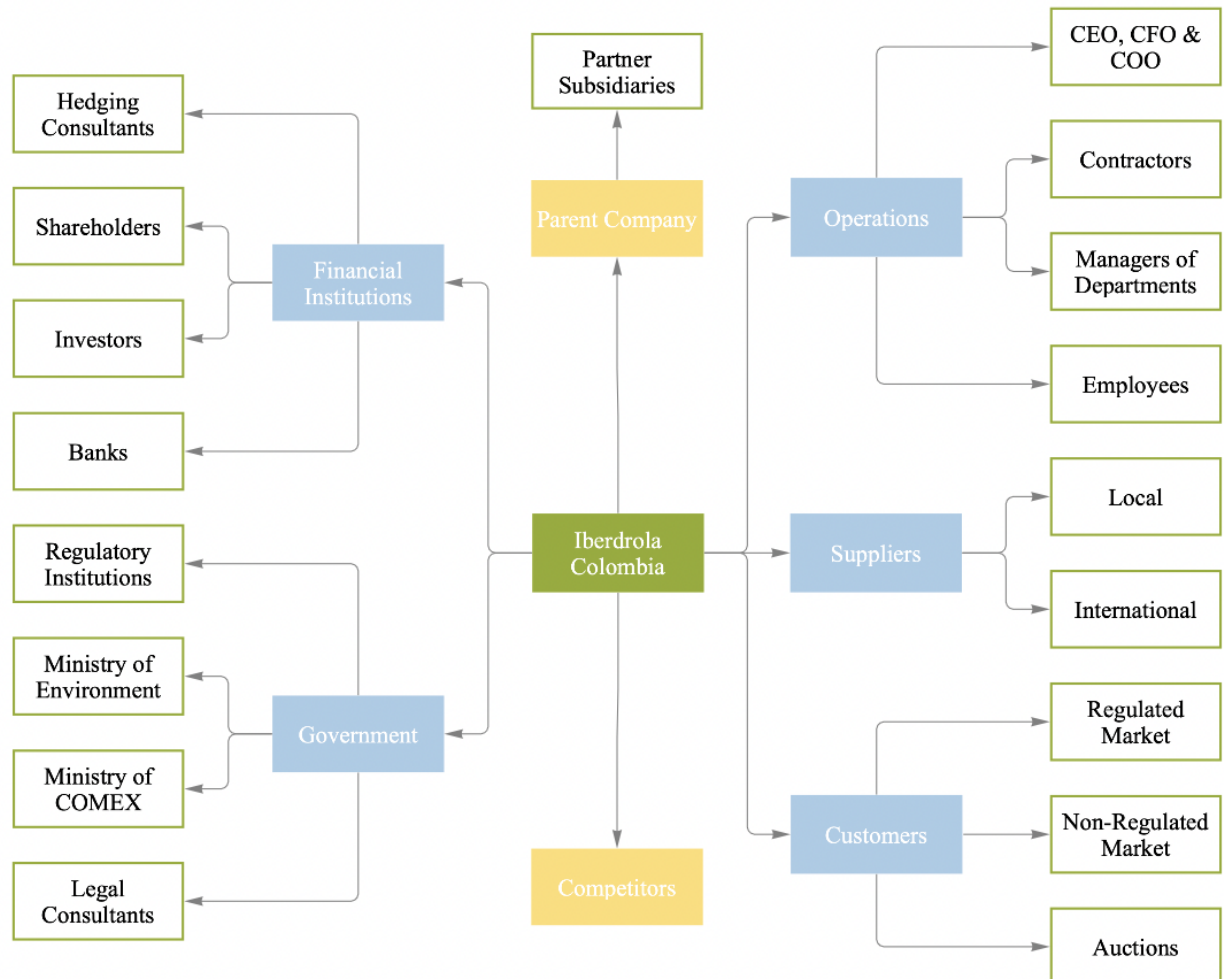
### 14. Companies, Production Sites and MW Capacity

Company	Production Site	MW
SOLARPARK Colombia SAS ESP	PV La Unión	100
ENEL Green Power Colombia SAS ESP	Nabusimake	99.9
CELSIA Colombia SA ESP	Solar Escobal 6	99
Fotovoltaico Arrayanes S.A.S.	Parque Solar Fotovoltaico Manglares	99.9
Empresas Públicas de Medellín E.S.P.	Tepuy	83
SOLARPARK Colombia SAS ESP	PV La Mata	80
EDF Renewables Colombia S.A.S.	Bosques Solares de los Llanos 6	79.6
EDF Renewables Colombia S.A.S.	Planta de Generación Solar Pubenza PSR2	50
Canadian Solar Energy Colombia S.A.S.	Parque Solar Caracolí I	50
GENERSOL S.A.S.	Parque Solar Fotovoltaico Sonnorte 35 MW	35
Empresa URRÁ S.A. E.S.P.	Parque Solar Urrá	19.9

### 15. Porter's Value Chain. (Own Elaboration)



## 16. Stakeholders Map. (Own Elaboration)



## 17. PPA Contract Model. (World Bank, 2007)

This document has been prepared for the purposes of the  
**PPP IN INFRASTRUCTURE RESOURCE CENTER FOR CONTRACTS, LAWS AND REGULATIONS (PPPIRC)**  
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should be adapted to fit the circumstances of that project

### Power Purchase Agreement

Dated \_\_\_\_\_

**PURCHASER**

- and -

**SELLER**

**POWER PURCHASE AGREEMENT**  
Relating to the [•] Generating Station



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<http://www.worldbank.org/ppp>

Reviewed: Mark M. Moseley, LEGPS  
January 2007

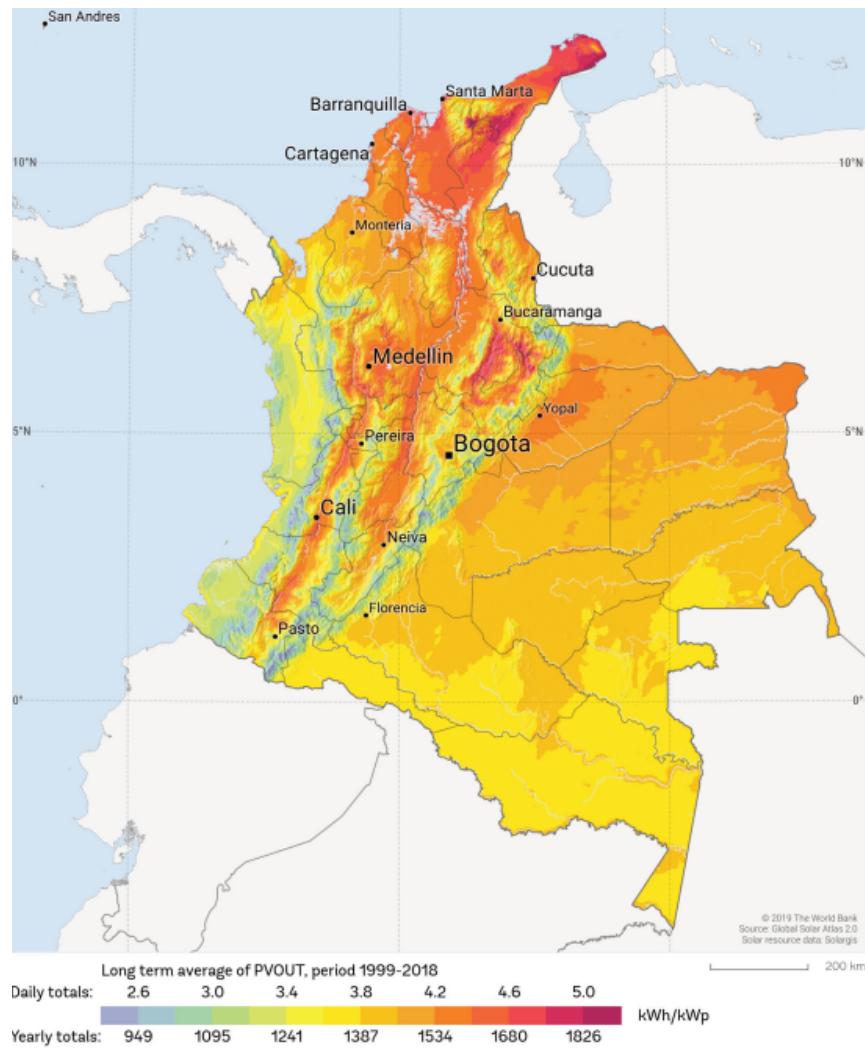
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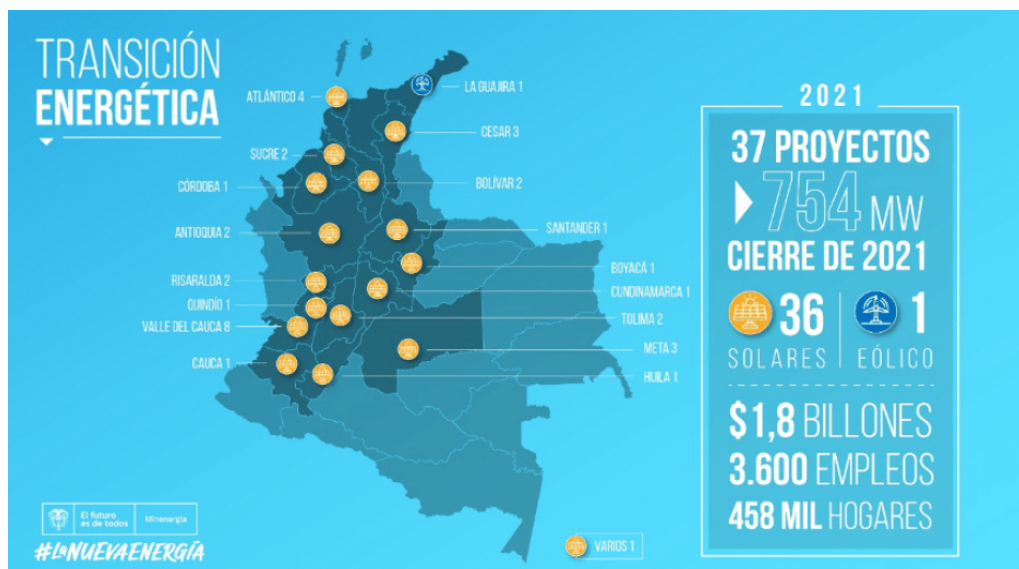
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## 18. Solar KWh/KWp. (BBVA, 2020)



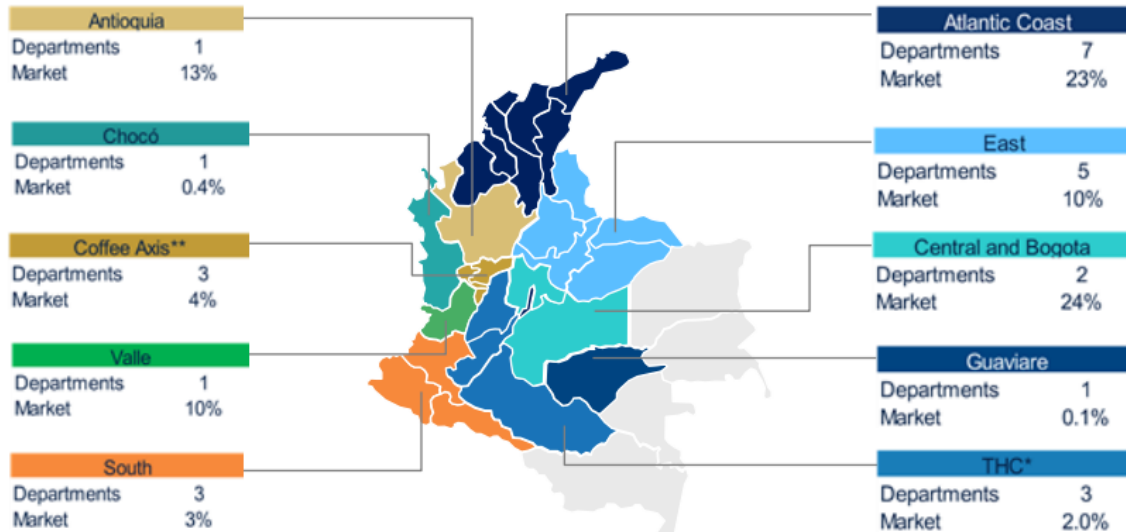
## 19. Location of Solar and Eolic Parks. (Minister of Energy, 2022)



## 20. Electricity Demand by Region. (BBVA Research, 2021)

### ELECTRICITY DEMAND BY REGION

(% OF TOTAL, DEC-20)



\*THC: Tolima – Huila – Caquetá.

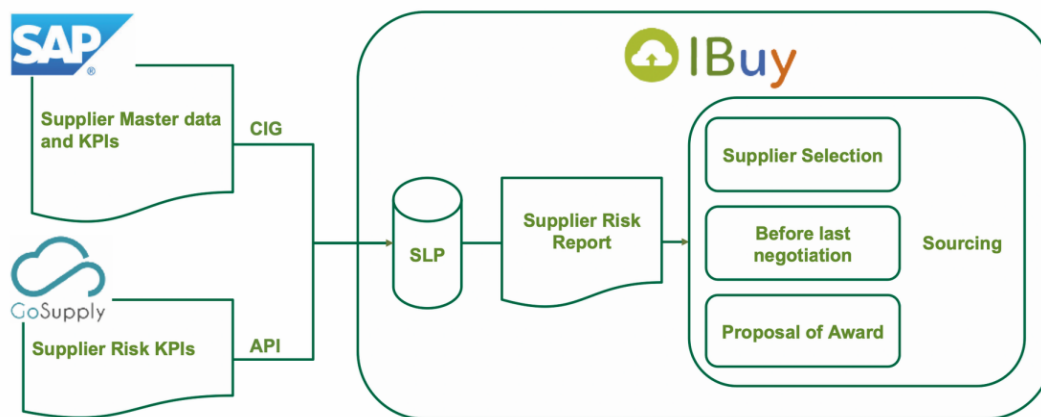
\*\*Coffee Axis: includes Caldas, Risaralda and Quindío.

Source: BBVA Research based on data from XM.

## 21. Awarded Buyers of 2021 Auction. (Minister of Energy, 2022)

Awarded Buyers 2021
CODENSA S.A. E.S.P.
CARIBEMAR de la Costa S.A.S. E.S.P.
Central Hidroeléctrica de Caldas S.A. E.S.P.
AES Chivor & CIA S.C.A. E.S.P.
Electrificadora del Meta S.A. E.S.P.
Empresa de Energía del Quindío S.A. E.S.P.
Enermas S.A.S. E.S.P.

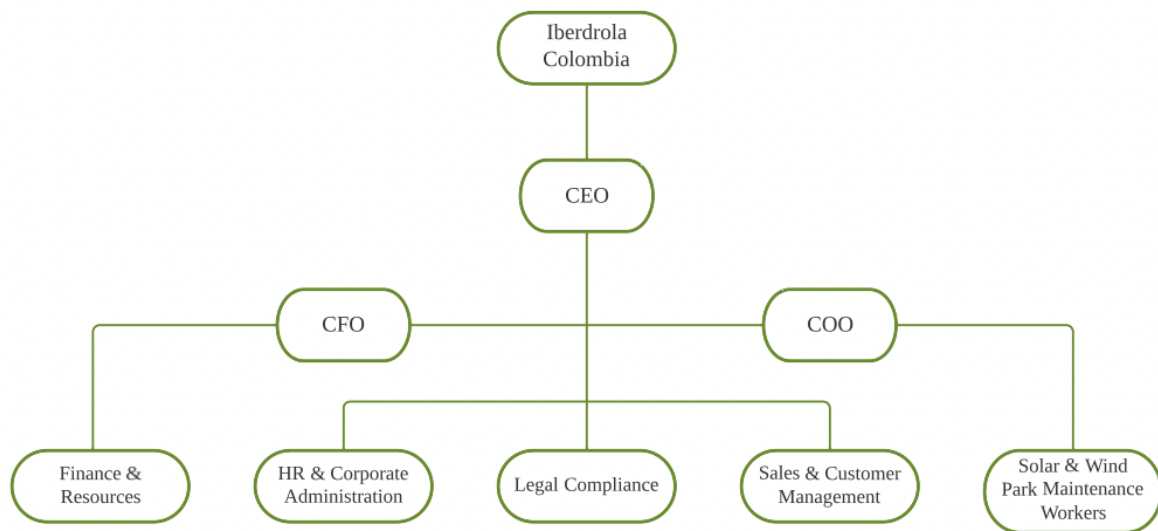
## 22. Supplier Management Model. (Iberdrola, 2021)



## 23. Iberdrola Main Suppliers. (Iberdrola, 2021)

Main Suppliers 2020
Eiffage
Elecnor
Fcc Industrial e Infraestructuras
General Electric
Longi Solar Technology
northline Utilities
O'Connell Electric
Siemens Gamesa
Trina Solar
Vestas

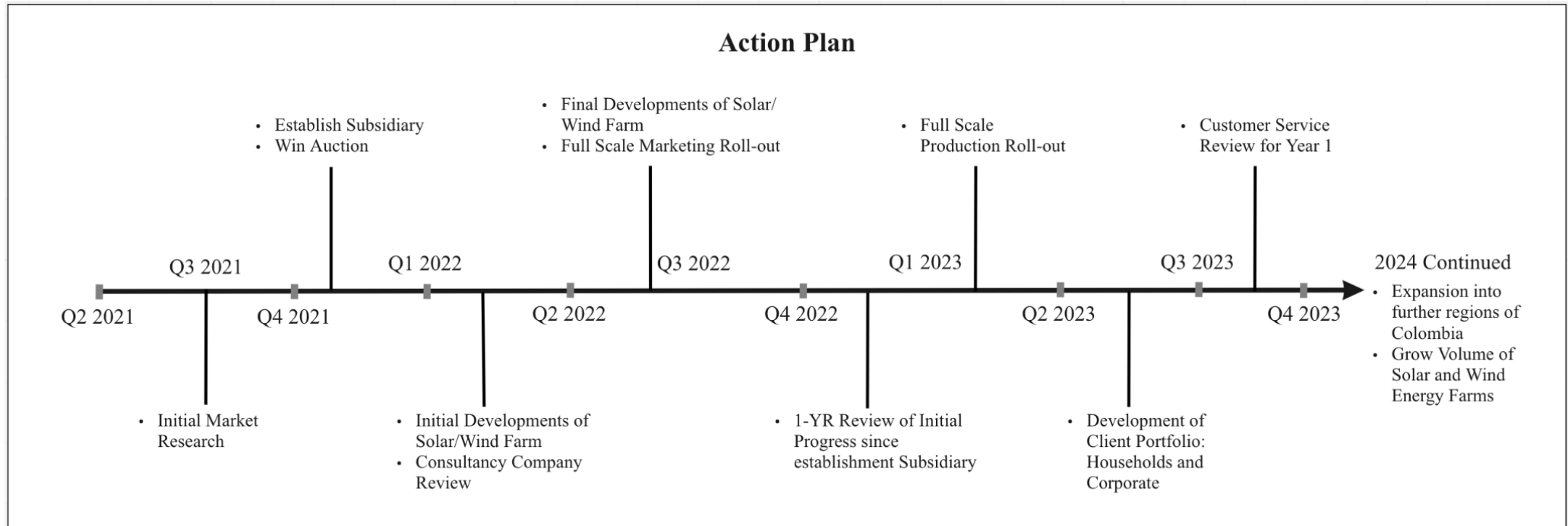
## 24. Organisational Chart. (Own Elaboration)



## 25. Staff Wages in Euros. (Own Elaboration)

Staff Wages	Quantity	Gross/Annual P	Gross/Annual T	Gross/Monthly
CEO	1	€54.000	€54.000	€4.500
COO	1	€41.000	€41.000	€3.417
CFO	1	€41.000	€41.000	€3.417
Sales & Customer Management	2	€12.000	€24.000	€1.000
Finance & Resources	2	€12.000	€24.000	€1.000
Legal Compliance	2	€12.000	€24.000	€1.000
HR & Corporate Administration	1	€12.000	€12.000	€1.000
Solar & Eolic Park Maintence Workers	30	€7.200	€216.000	€600
<b>Total</b>	<b>40</b>	<b>€191.200</b>	<b>€436.000</b>	<b>€15.933</b>

## 26. Action Plan. (Own Elaboration)



## 27. Sales Forecast. (Own Elaboration)

	2022	2023	2024	2025	2026	2027	2028	2029	2030	
<i>Solar Park 1</i>	0 €	7.071.875 €	7.425.469 €	7.796.742 €	8.186.579 €	8.595.908 €	9.025.704 €	9.476.989 €	9.950.838 €	
<i>Solar Park 2</i>	0 €	0 €	0 €	0 €	8.186.579 €	8.595.908 €	9.025.704 €	9.476.989 €	9.950.838 €	
<b>Total Solar Non Regulated Market</b>	0 €	7.071.875 €	7.425.469 €	7.796.742 €	16.373.159 €	17.191.817 €	18.051.407 €	18.953.978 €	19.901.677 €	
<i>Eolic Park 1</i>	0 €	3.394.500 €	3.564.225 €	3.742.436 €	3.929.558 €	4.126.036 €	4.332.338 €	4.548.955 €	4.776.402 €	
<i>Eolic Park 2</i>	0 €	0 €	0 €	0 €	3.929.558 €	4.126.036 €	4.332.338 €	4.548.955 €	4.776.402 €	
<b>Total Eolic Non Regulated Market</b>	0 €	3.394.500 €	3.564.225 €	3.742.436 €	7.859.116 €	8.252.072 €	8.664.676 €	9.097.909 €	9.552.805 €	
<b>Total Sales</b>	<b>0 €</b>	<b>10.466.375 €</b>	<b>10.989.694 €</b>	<b>11.539.178 €</b>	<b>24.232.275 €</b>	<b>25.443.888 €</b>	<b>26.716.083 €</b>	<b>28.051.887 €</b>	<b>29.454.481 €</b>	

	2022	2023	2024	2025	2026	2027	2028	2029	2030	
<b>Solar Project Capacity</b>	100	100	100	100	100	100	100	100	100	MW
<b>Solar Project Generation</b>	182.500	182.500	182.500	182.500	182.500	182.500	182.500	182.500	182.500	MWh/year
<b>Solar Price</b>	40,00	42,00	44,10	46,31	48,62	51,05	53,60	56,28	59,10	USD/MWh
<b>Solar Price</b>	36,90	38,75	40,69	42,72	44,86	47,10	49,46	51,93	54,53	Euros/MWh

	2022	2023	2024	2025	2026	2027	2028	2029	2030	
<b>Eolic Project Capacity</b>	20	20	20	20	20	20	20	20	20	MW
<b>Eolic Project Generation</b>	87.600	87.600	87.600	87.600	87.600	87.600	87.600	87.600	87.600	MWh/year
<b>Eolic Onshore Price</b>	43,000	43,6450	44,2997	44,9642	45,6386	46,3232	47,0181	47,7233	48,4392	USD/MWh
<b>Eolic Onshore Price</b>	36,90	38,75	40,69	42,72	44,86	47,10	49,46	51,93	54,53	Euros/MWh

## 28. Cost Forecast. (Own Elaboration)

	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>COGS</b>	0 €	780.000 €	819.000 €	859.950 €	1.874.691 €	2.043.413 €	2.227.320 €	2.427.779 €	2.646.279 €

		2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Annual Wages with +5%</b>	5%	€436.000	€457.800	€480.690	€754.772	€792.510	€832.136	€873.742	€917.429	€963.301
<b>Social Security in Colombia</b>	25%	€109.000	€114.450	€120.173	€188.693	€198.128	€208.034	€218.436	€229.357	€240.825
<b>Annual Bonus*</b>		€0	€0	€11.687	€12.271	€12.884	€13.529	€14.205	€14.915	€15.661
<b>Total Annual Compensation Cost</b>		<b>€545.000</b>	<b>€572.250</b>	<b>€612.549</b>	<b>€955.735</b>	<b>€1.003.522</b>	<b>€1.053.698</b>	<b>€1.106.383</b>	<b>€1.161.702</b>	<b>€1.219.787</b>

\* Bonus% will be paid from Year 3

<b>Recurring Investment (Yearly)</b>	<b>Cost</b>
Transportation Vehicles to Access and Maintain the Renewable Energy Farms (Including Maintenance Tools)	€30.000
WeWork Memberships (11 Employees)	€33.000
<b>Total Recurring Investment</b>	<b>€63.000</b>

## 29. Income Statement. (Own Elaboration)

	2022	2023	2024	2025	2026	2027	2028	2029	2030
<i>Solar Parks</i>	€0	€7.071.875	€7.425.469	€7.796.742	€16.373.159	€17.191.817	€18.051.407	€18.953.978	€19.901.677
<i>Eolic Parks</i>	€0	€3.394.500	€3.564.225	€3.742.436	€7.859.116	€8.252.072	€8.664.676	€9.097.909	€9.552.805
Total Revenue	€0	€10.466.375	€10.989.694	€11.539.178	€24.232.275	€25.443.888	€26.716.083	€28.051.887	€29.454.481
LCOE (Real COGS=LCOE+DEP)	€0	€780.000	€819.000	€859.950	€1.874.691	€2.043.413	€2.227.320	€2.427.779	€2.646.279
<b>GROSS INCOME</b>	<b>€0</b>	<b>€9.686.375</b>	<b>€10.170.694</b>	<b>€10.679.228</b>	<b>€22.357.584</b>	<b>€23.400.475</b>	<b>€24.488.763</b>	<b>€25.624.108</b>	<b>€26.808.202</b>
<i>Personnel Expenses</i>	€545.000	€572.250	€612.549	€955.735	€1.003.522	€1.053.698	€1.106.383	€1.161.702	€1.219.787
<i>External Services</i>	€30.000	€30.000	€30.000	€60.000	€60.000	€60.000	€60.000	€60.000	€60.000
<i>Other Operating Expenses</i>	€33.000	€34.650	€36.383	€38.202	€40.112	€42.117	€44.223	€46.434	€48.756
<i>Marketing</i>	€100.000	€100.000	€100.000	€120.000	€120.000	€120.000	€120.000	€120.000	€120.000
Net Operating Expenses	€708.000	€636.900	€678.932	€1.053.937	€1.103.634	€1.155.815	€1.210.606	€1.268.136	€1.328.543
Taxes other than Income Tax	€0	€0	€0	€0	€0	€0	€0	€0	€0
<b>GROSS OPERATING PROFIT (EBITDA)</b>	<b>-€708.000</b>	<b>€9.049.475</b>	<b>€9.491.762</b>	<b>€9.625.292</b>	<b>€21.253.950</b>	<b>€22.244.660</b>	<b>€23.278.156</b>	<b>€24.355.971</b>	<b>€25.479.659</b>
Depreciation Energy Production (DEP)	€0	€4.800.000	€4.800.000	€4.800.000	€12.000.000	€12.000.000	€12.000.000	€12.000.000	€12.000.000
Depreciation Buildings	€0	€88.800	€88.800	€88.800	€190.920	€190.920	€190.920	€190.920	€190.920
<b>OPERATING PROFIT (EBIT)</b>	<b>-€708.000</b>	<b>€4.160.675</b>	<b>€4.602.962</b>	<b>€4.736.492</b>	<b>€9.063.030</b>	<b>€10.053.740</b>	<b>€11.087.236</b>	<b>€12.165.051</b>	<b>€13.288.739</b>
<i>Finance Expense</i>	€0	-€775.000	-€709.838	-€643.666	-€2.141.968	-€1.954.021	-€1.763.161	-€1.569.343	-€1.372.521
Net Finance Expense	€0	-€775.000	-€709.838	-€643.666	-€2.141.968	-€1.954.021	-€1.763.161	-€1.569.343	-€1.372.521
<b>PROFIT BEFORE TAX (EBT)</b>	<b>-€708.000</b>	<b>€3.385.675</b>	<b>€3.893.124</b>	<b>€4.092.826</b>	<b>€6.921.062</b>	<b>€8.099.719</b>	<b>€9.324.075</b>	<b>€10.595.708</b>	<b>€11.916.218</b>
Income Tax (35%)	€0	-€1.184.986	-€1.362.594	-€1.432.489	-€2.422.372	-€2.834.902	-€3.263.426	-€3.708.498	-€4.170.676
<b>NET INCOME</b>	<b>-€708.000</b>	<b>€2.200.689</b>	<b>€2.530.531</b>	<b>€2.660.337</b>	<b>€4.498.691</b>	<b>€5.264.817</b>	<b>€6.060.649</b>	<b>€6.887.210</b>	<b>€7.745.542</b>

	2023	2024	2025	2026	2027	2028	2029	2030
<i>Solar Parks</i>	68%	68%	68%	68%	68%	68%	68%	68%
<i>Eolic Parks</i>	32%	32%	32%	32%	32%	32%	32%	32%
Total Revenue	100%	100%	100%	100%	100%	100%	100%	100%
LCOE (Real COGS=LCOE+DEP)	7%	7%	7%	8%	8%	8%	9%	9%
<b>GROSS INCOME</b>	<b>92,55%</b>	<b>92,55%</b>	<b>92,55%</b>	<b>92,26%</b>	<b>91,97%</b>	<b>91,66%</b>	<b>91,35%</b>	<b>91,02%</b>
<i>Personnel Expenses</i>	5,47%	5,57%	8,28%	4,14%	4,14%	4,14%	4,14%	4,14%
<i>External Services</i>	0,29%	0,27%	0,52%	0,25%	0,24%	0,22%	0,21%	0,20%
<i>Other Operating Expenses</i>	0,33%	0,33%	0,33%	0,17%	0,17%	0,17%	0,17%	0,17%
<i>Marketing</i>	0,96%	0,91%	1,04%	0,50%	0,47%	0,45%	0,43%	0,41%
Net Operating Expenses	6,09%	6,18%	9,13%	4,55%	4,54%	4,53%	4,52%	4,51%
Taxes other than Income Tax	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
<b>GROSS OPERATING PROFIT (EBITDA)</b>	<b>86,46%</b>	<b>86,37%</b>	<b>83,41%</b>	<b>87,71%</b>	<b>87,43%</b>	<b>87,13%</b>	<b>86,82%</b>	<b>86,51%</b>
Depreciation Energy Production (DEP)	45,86%	43,68%	41,60%	49,52%	47,16%	44,92%	42,78%	40,74%
Depreciation Buildings	0,85%	0,81%	0,77%	0,79%	0,75%	0,71%	0,68%	0,65%
<b>OPERATING PROFIT (EBIT)</b>	<b>39,75%</b>	<b>41,88%</b>	<b>41,05%</b>	<b>37,40%</b>	<b>39,51%</b>	<b>41,50%</b>	<b>43,37%</b>	<b>45,12%</b>
<i>Finance Expense</i>	-7,40%	-6,46%	-5,58%	-8,84%	-7,68%	-6,60%	-5,59%	-4,66%
Net Finance Expense	-7,40%	-6,46%	-5,58%	-8,84%	-7,68%	-6,60%	-5,59%	-4,66%
<b>PROFIT BEFORE TAX (EBT)</b>	<b>32,35%</b>	<b>35,43%</b>	<b>35,47%</b>	<b>28,56%</b>	<b>31,83%</b>	<b>34,90%</b>	<b>37,77%</b>	<b>40,46%</b>
Income Tax (35%)	-11,32%	-12,40%	-12,41%	-10,00%	-11,14%	-12,22%	-13,22%	-14,16%
<b>NET INCOME</b>	<b>21,03%</b>	<b>23,03%</b>	<b>23,05%</b>	<b>18,56%</b>	<b>20,69%</b>	<b>22,69%</b>	<b>24,55%</b>	<b>26,30%</b>

Depreciation Table		
Asset	Rate	Use Life
Constructions & Buildings	2,22%	45 years
Production Site & Networks	2,50%	40 years
Amortisation Table		
Asset	Rate	Use Life
Energy Investments	6,67%	15 years

## 30. Consolidated Report by Activities. (Iberdrola, 2021)

2021	Liberalised	Renewables	Networks	Other businesses, Corporation and adjustments	Total
Millions of euros					
<b>REVENUE</b>	<b>22,734</b>	<b>6,036</b>	<b>14,887</b>	<b>(4,543)</b>	<b>39,114</b>
<b>RESULTS</b>					
Segment operating profit	(170)	4,085	3,362	66	7,343
Result of equity-accounted investees — net of taxes	(2)	(55)	13	5	(39)
<b>ASSETS</b>					
Segment assets	21,324	42,150	59,328	3,930	126,732
Equity-accounted investees	17	784	162	95	1,058
<b>LIABILITIES</b>					
Segment liabilities	7,416	9,110	19,615	1,502	37,643
<b>OTHER INFORMATION</b>					
Total cost incurred during the period in the acquisition of property, plant and equipment, rights of use and intangible assets	973	4,148	3,207	144	8,472
Impairment losses, trade and other receivables (expense/income)	209	2	158	—	369
Amortisation and depreciation	847	1,382	1,835	133	4,197
Charges for asset impairment	13	36	—	3	52
Reversal for asset impairment	(10)	(12)	(1)	(1)	(24)
(Charges)/Reversal for other provisions	16	27	41	(15)	69
Expenses for the period other than depreciation and amortisation not resulting in cash outflows	52	9	140	45	246