

MASTERS IN FINANCE

MASTERS FINAL WORK PROJECT

**EQUITY RESEARCH:
IBERDROLA S.A.**

JOÃO SERRA MIGUEL

JUNE 2023

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**SUPERVISOR:
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Abstract

This report consists of an Equity Research on Iberdrola S.A. (IBE), one of the biggest renewable energy companies in the world. With a rich history spanning over 170 years, Iberdrola has evolved into a prominent global energy leader. As one of the largest utility companies in the world, it holds a significant presence in the industry and demonstrates its expertise through a substantial market capitalization.

In this report, we present a HOLD recommendation for IBE, along with a price target of €12.02 per share for the end of 2023. The valuation methodology incorporates the use of the DCF (Discounted Cash Flow), DDM (Dividend Discount Model), and APV (Adjusted Present Value). Through this approach, the price target was estimated through different processes, mitigating the limitations of each valuation method.

The valuation analysis indicates a potential upside of 3.07% from the closing price of €11.66 as of June 26th, 2022. This assessment considers a medium level of risk associated with the investment.

To further evaluate the risk of the investment, we conducted a sensitivity analysis, addressing potential factors that could impact the valuation and the overall investment decision.

Based on the analysis, it is recommended a cautious approach towards the investment due to the limited upside potential and the associated risk factors.

JEL classification: G00; G10; G30; G32; G34; G35.

Keywords: Iberdrola S.A., Renewables, Valuation, Equity Research, M&A

Resumo

O presente relatório consiste numa Equity Research realizada sobre a Iberdrola S.A. (IBE), uma das maiores empresas de energia renovável do mundo.

Com uma história que abrange mais de 170 anos, a Iberdrola tornou-se uma líder global proeminente do setor de energia renovável. Sendo uma das maiores empresas de eletricidade em todo o mundo, possui uma presença significativa na indústria e demonstra sua dimensão por meio de uma capitalização de mercado substancial.

Neste relatório, apresentamos uma recomendação NEUTRA, juntamente com uma Preço Alvo de €12.02 por ação para o final de 2023. A metodologia de avaliação incorpora o uso dos métodos de DCF (Discounted Cash Flow), DDM (Dividend Discount Model) e APV (Adjusted Present Value). Através desta abordagem, o Preço Alvo foi estimado através de diferentes processos, mitigando assim as limitações de cada método de avaliação.

A análise de avaliação indica um potencial de valorização de 3.07% em relação ao preço de fecho de €11.66 a 26 de junho de 2023. Esta avaliação considera um nível médio de risco associado ao investimento.

De forma a avaliar o risco associado ao investimento, foi realizada uma análise de sensibilidade, abordando potenciais fatores que podem impactar a avaliação e a perspetiva geral de investimento.

Com base na análise realizada, é recomendada uma abordagem cautelosa em relação ao investimento devido ao potencial de valorização ser reduzido e aos riscos associados.

Classificação JEL: G00; G10; G30; G32; G34; G35.

Keywords: Iberdrola S.A., Renováveis, Avaliação de empresas, Equity Research, M&A

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Thank you!

Disclosures and Disclaimer

This report is published for educational purposes by Master students and does not constitute an offer or a solicitation of an offer to buy or sell any security, nor is it an investment recommendation as defined by Article 12º A of the Código do Mercado de Valores Mobiliários (Portuguese Securities Market Code).

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Recommendation System:

Level of Risk	Investment Recommendation				
	Sell	Reduce	Hold	Buy	Strong Buy
High Risk	$\leq 0\%$	$>0\% \ \& \ \leq 10\%$	$>10\% \ \& \ \leq 20\%$	$>20\% \ \& \ \leq 45\%$	$>45\%$
Medium Risk	$\leq 5\%$	$>-5\% \ \& \ \leq 5\%$	$>5\% \ \& \ \leq 15\%$	$>15\% \ \& \ \leq 30\%$	$>30\%$
Low Risk	$\leq -10\%$	$>-10\% \ \& \ \leq 0\%$	$>0\% \ \& \ \leq 10\%$	$>10\% \ \& \ \leq 20\%$	$>20\%$

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Glossary

AMER	North, Central, and South America
APAC	Asia Pacific
APS	Announced Pledges Scenario
APV	Adjusted Present Value
AT	Asset Turnover
Bn	Billions
BNEF	Bloomberg NEF
BoD	Board of Directors
CAGR	Compounded Annual Growth Rate
CEO	Chief Executive Officer
CF	Capacity Factor
CO ₂	Carbon Dioxide
COP	Conference of the Parties
DCF	Discounted Cash Flow
D/E	Debt-to-Equity
ECB	European Central Bank
EEA	European Environment Agency
EMEA	Europe, Middle East, and Africa
ESG	Environmental, Social, and Governance
EU	European Union
F	Forecast
FED	Federal Reserve System
FY	Final Year
GDP	Gross Domestic Product
Gt	Gigatonnes
GW	Gigawatt
IC	Installed Capacity
IEA	International Energy Agency
IMF	International Monetary Fund
IRENA	International Renewable Energy Agency
KPI	Key Performance Indicator
LCOE	Levelized Cost of Energy
M&A	Mergers and Acquisitions
Mn	Million
MRP	Market Risk Premium
Mt	Megatons
NDC	Nationally Determined Contributions
NZE	Net Zero Emissions
PP	Percentage Point
PPA	Power Purchase Agreement
PV	Photovoltaic
R&D	Research and Development
RES	Renewable Energy Sources
RFR	Risk Free Rate
ROE	Return on Equity
SARD	Sum of Absolute Rank Differences
TFEC	Total Final Energy Consumption
Tn	Trillion
TP	Target Price

TW	Terawatt
UN	United Nations
USA	United States of America
USD	United States Dollars
Y	Year
YE	Year End
YoY	Year over Year

Stock Exchange	Madrid Stock Exchange
Price (26/06/2023)	11,66
YTD Performance	6,04%
YTD Range	€10.61 - €11.95
Market Cap. (€Mn)	68 515
Free Float (%)	81%
Shares Outstanding (Mn)	6 326

IBERDROLA S.A. – A modest upside for the next 6 months

The Iberdrola Group has emerged as a prominent global energy leader, spearheading the energy transition and effectively combating climate change. By advancing renewable solutions, they've helped accelerating the renewable transition, offering a sustainable and competitive business model that generates value for society.

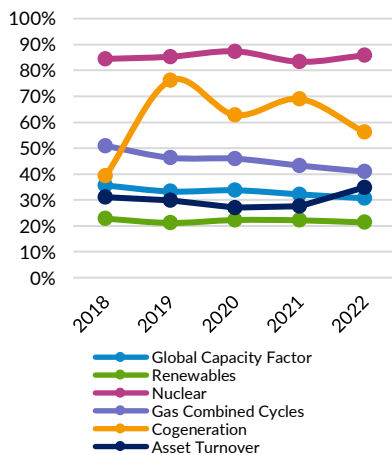
1. Research Snapshot

Figure 1: Iberdrola's historical price (YTD) and Price Target



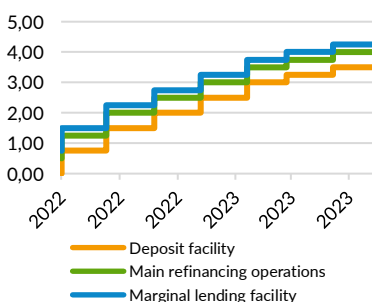
Source: Yahoo Finance and author analysis

Figure 2: Capacity Factor by technology



Source: Annual reports and author analysis

Figure 3: Key ECB interest rates



Source: ECB

The investment recommendation for Iberdrola S.A. is a **HOLD**, with a 2023YE TP of **€12.02**, implying an upside of 3.07% from the closing price of **€11.66** as of 26th June 2023. This recommendation is issued based on a weighted average of several valuation methods, in order to mitigate their biases and limitations: **Discounted Cash Flows, Dividend Discount Model and Adjusted Present Value (5. Investment Summary)**. This is considered a **Medium Risk** investment due to the sector its growth perspectives for the future in which the company operates.

Decreasing Capacity Factor

The Capacity Factor is a measure of how efficiently a power generation system operates and utilizes its installed capacity. It is the ratio of actual energy output over the maximum possible output over a specific period.

For the past 5 years, Iberdrola's Capacity Factor has been declining at a **-3.69% CAGR (Figure 2)**. This trend indicates that increasing the Installed Capacity does not proportionally translate to an increase in Net Production and, consequently, revenues. It raises important considerations for future investments, suggesting a need to address underlying factors contributing to this decline in efficiency, such as operational inefficiencies or maintenance issues.

This loss of efficiency also impacts the Asset Turnover (**Figure 2**), as the revenue generated by the same assets gets lower. The sudden increase in 2022 was caused by high energy prices during that year due to the Russian invasion of Ukraine, resulting in a revenue spike. However, a return to normal values is expected in the future.

Uncertainty on the future of interest rates

The future of interest rates is still uncertain, as they are influenced by various economic factors and monetary policies. The recent increases in the interest rates by the ECB (**Figure 3**) and the FED have caused a big impact on the stock market as they play an important role in the valuation of companies, in the opportunity cost of investors and in the cost of financing.

An increase of 1pp in the cost of debt is expected to reduce the Target Price in **€2.73/Sh (Figure 51)**, a reduction of around 23% compared to the base case.

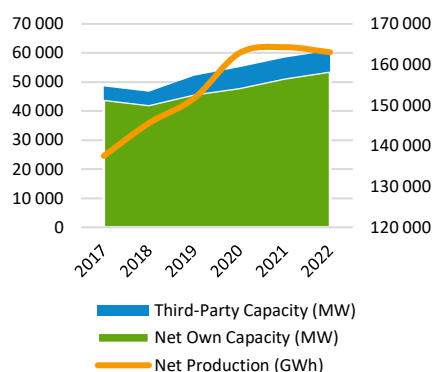
However, Iberdrola plays it safe when dealing with this risk. With a debt-to-equity ratio (D/E) of **0.84** as of 2022YE, Iberdrola has a more conservative approach to its debt structure compared to its peers, which makes it less exposed to interest rate risk. This policy is not recent as its D/E ratio is historically lower than 1, a strategy that has been proven more useful than ever.

Table 1: Iberdrola's Installed Capacity and Net Production (2022YE)

	Installed Capacity (MW)	Net Production (GWh)
Spain	29 013	56 698
United Kingdom	3 008	7 823
United States	9 542	22 711
Mexico	11 198	55 937
Brazil	5 100	14 751
Iberdrola Energía Internacional	2 900	5 111

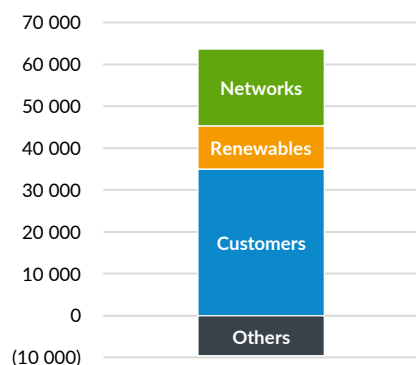
Source: Integrated Report February 2023

Figure 4: Iberdrola's Installed Capacity and Net Production Evolution



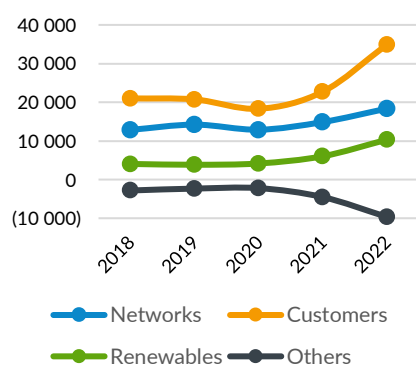
Source: Integrated Report February 2023

Figure 5: Revenue by Business Segments (Millions of €, YE2022)



Source: Company Data

Figure 6: Evolution of Segments Revenues (Millions of €)



Source: Company Data

2. Business Description

Iberdrola S.A. (IBE.MC) is a Spanish electric utility company, based in Bilbao, with a market capitalization of €68.068B (YE2022), one of the largest in the world. It is the parent of a group whose main activities are: i) **production of electricity**; ii) **sale and purchase of electricity and gas**; iii) **transmission and distribution of electricity**; iv) **retail supply of electricity, gas and energy-related services**; and v) **other activities nonrelated to the energy sector**.

The Company was created as the result of the merger between Hidroeléctrica Española and Iberduero in 1992, and 30 years after it has activities mainly in Spain, the United Kingdom, the United States of America, Mexico and Brazil. Iberdrola currently has a **Total Installed Capacity of 60 761MW** and a **Total Net Production of 163 031GWh** (Table 1 and Figure 4).

2.1. Business Segments and Technologies

Iberdrola reports its business according to 4 different segments: i) the **Network Business**; ii) the **Customers Business**; iii) the **Renewables and Sustainable Generation Business**; and iv) **Other Businesses**¹. These operating segments are combined by the nature of the business. Customers and Networks segments had the most weight on revenues in 2022 (Figure 5).

- **Networks (c.34% of revenues)**: these include **energy transmission and distribution activities** (Spain, the United Kingdom, the United States and Brazil);
- **Customers (c.65% of revenues)**: is the segment that generates more revenue and includes the **energy retail and supply businesses** (Spain, the UK, Mexico, Brazil and the countries within the Iberdrola Energía Internacional sub holding);
- **Renewables (c.19% of revenues)**: includes activities related to wind, solar and hydroelectric **energy production** (Spain, the UK, the US, Mexico, Brazil and the countries within the Iberdrola Energía Internacional sub holding);
- **Others (c.-18% of revenues)**: Iberdrola also engages in other activities nonrelated to the energy sector such as real estate, engineering and technology. In its statements, the company also includes Corporation (which include the costs of the Holding's structure) and adjustments. This segment has had negative revenues in the past 5 years (Figure 6).

In terms of production, Iberdrola has 4 main technologies: i) **Renewables**, which include Onshore and Offshore wind farms, Hydroelectric, Mini hydroelectric and Solar; ii) **Nuclear**; iii) **Gas Combined Cycles** and iv) **Cogeneration**.

2.2. Group Structure and Geographical Presence

The Iberdrola Group is divided in holding companies according to the locations of the activities (Appendix 1). It owns **Iberdrola España, S.A.U.**, **Scottish Power Ltd.** and **Iberdrola México, S.A. de C.V.** which, through subsidiaries, operate in their respective countries producing and distributing energy. **Avagrid, Inc.** (US) and **Neoenergia, S.A.** (Brazil) are listed companies in their countries' stock exchange. The **Iberdrola Energía Internacional** sub holding is present in Australia, Cyprus, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Poland, Portugal, Taiwan and Romania.

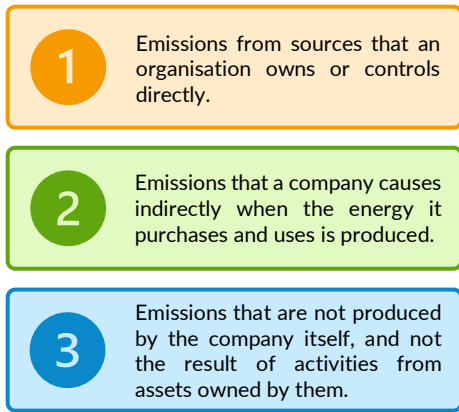
The Company also owns **Iberdrola Ingeniería y Construcción, S.A.U.**, the technological core of the Group, and **Iberdrola Inmobiliaria, S.A.U.**, the real estate agency responsible for the Group's transactions.

2.3. Business Model

Iberdrola's business model is based on the generation, distribution, and commercialization of **electricity** and **gas**, producing energy from a diverse range of

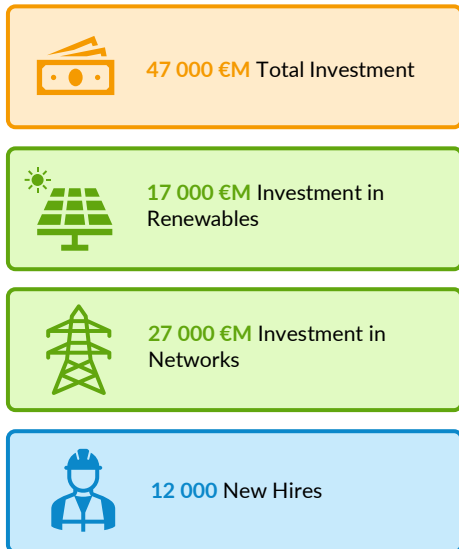
¹ From this point on, the segments will be addressed as Networks, Customers, Renewables and Others.

Figure 7: The Three Scopes of Emissions



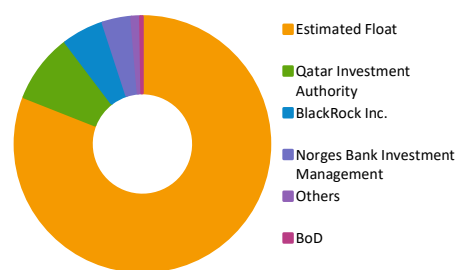
Source: Greenhouse Gas Protocol

Figure 8: Main Figures of the Strategic Plan 2023-2025



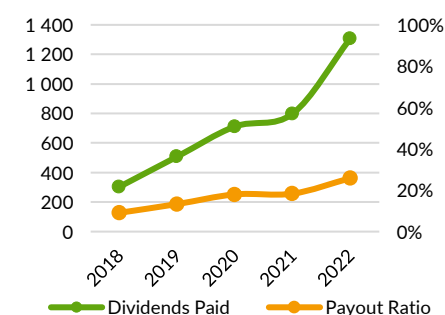
Source: Integrated Report February 2023

Figure 9: Ownership Structure



Source: Annual Corporate Governance Report 2022

Figure 10: Dividend Evolution 2018-2022



Source: Company Reports and Author Analysis

sources, including **nuclear, hydroelectric, wind, and solar power**. The main purpose of Iberdrola's business model is to supply reliable, high-quality and environmentally friendly energy, through a sustainable, long-term industrial enterprise and also to meet the expectations of stakeholders by integrating ESG factors into both the company's strategy and management.

The **Networks** segment is the backbone of the entire business model because it allows the integration of new renewable capacity and the implementation of new solutions and services. Investment is primarily focused on this segment, because it benefits from predictable regulations and investment incentives. It serves as crucial infrastructure for managing the transition to a new energy model.

Diversification is also a very important component of Iberdrola's business model, and so, the company focuses on diversifying in countries with high credit ratings.

2.4. Drivers of Profitability

The main driver of profitability in the renewable energy industry is the **Capacity Factor (CF)**, which measures the actual energy output over the maximum possible output over a specific period. A higher CF implies that a power plant is producing closer to the total possible production output. Companies with higher CF can generate more energy for the same Installed Capacity, which means that the same amount of assets are able to generate more revenues. This ratio usually evolves along the Asset Turnover ratio, even though there are some events that can lead to an increase in AT without changes in efficiency, such as revenues spikes due to price increases.

2.5. Company Strategies

The transition to a carbon neutral society and economy is a necessary step to take in the future. With the current concerns about climate change, the need to achieve this neutrality has become one of the main goals for institutions regarding climate policy. There is social and political pressure and the technology is evolving fast, making low-emission energy production politically attractive and economically viable. This energy transition presents a great opportunity for wealth creation that can be seized by renewable energy companies with the proper strategy and investments.

Iberdrola aims to **achieve carbon neutrality for Scopes 1 and 2 (Figure 7)** by the year 2030, with the goal of achieving **Net Zero emissions** by 2040.

Outlook for 2023-2025

The strength of Iberdrola's business model allows the company to successfully face the current challenges imposed by the macroeconomic, political and social context.

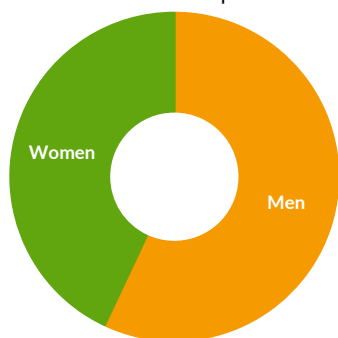
Iberdrola has an ambitious investment plan of **€47 000M** to be executed between 2023 and 2025, focused on increasing its installed renewable, onshore and offshore wind, photovoltaic, battery and hydroelectric capacity, plus electricity grids (**Figure 8**). This plan aligns its growth in renewables and networks with the goal of becoming carbon neutral by 2030 in its generation plants and consumption and in all its activities before 2040.

Additionally, the drivers for this objectives include achieving **100% of energy production from renewable sources**, creating robust and **fully digitalized Networks**, having **100% green procurement** (purchasing products and services that cause minimal adverse environmental impacts) and **expanding the offer of green solutions** for customers.

2.6. Ownership Structure

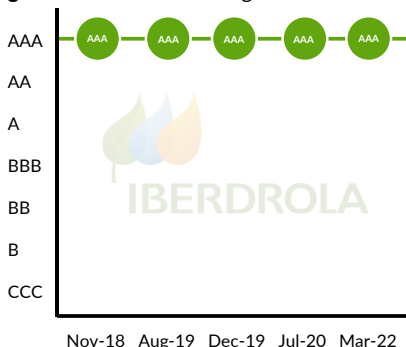
As of 2022YE, Iberdrola has a total of **6 362 Mn shares outstanding**. Each share represents one voting right. The largest shareholder is Qatar Investment Authority, a sovereign wealth fund from Qatar, which holds an 8.69% stake in the company. BlackRock, Inc. (5.29%) and Norges Bank Investment Management (3.65%) are the other main shareholders. The Board of Directors also owns 0.25% of the company (**Figure 9**).

Figure 11: BoD Gender Composition



Source: Annual Corporate Governance Report 2022

Figure 12: MSCI ESG Rating Evolution



Source: MSCI

Table 2: Total ESG Risk Scores, Iberdrola and Peers

Company	Total ESG Score
Consolidated Edison, Inc.	23
EDP Energias de Portugal S.A.	20
Nextera Energy, Inc.	28
Orsted A/S	16
Iberdrola S.A.	21
The Southern Company	33
Endesa, S.A.	17
Public Service Enterprise Group Inc.	26
Sempra Energy	25
Peer Average	24

Source: Yahoo Finance, Sustainalytics

Table 3: ESG Scores, Iberdrola and Peers

Company	E	S	G
Consolidated Edison, Inc.	8	9	6
EDP Energias de Portugal S.A.	7	7	6
Nextera Energy, Inc.	14	8	6
Orsted A/S	6	6	4
Iberdrola S.A.	7	7	6
The Southern Company	15	11	7
Endesa, S.A.	8	6	4
Public Service Enterprise Group Inc.	12	9	6
Sempra Energy	12	7	6
Peer Average	10	8	6

Source: Yahoo Finance, Sustainalytics

The Company is listed on several stock exchanges, including the Madrid Stock Exchange, the New York Stock Exchange, and the Mexican Stock Exchange and has an estimated float of 81%.

Dividend Policy

Iberdrola S.A. aims to provide its shareholders with a stable and attractive return through its dividend policy. In the past five years, the company has maintained a consistent increase in its dividend payout, with a compound annual growth rate of 44.07% (Figure 10).

For the 2023 to 2025 timeframe, Iberdrola expects to stand by its policy of increasing shareholder remuneration in line with earnings performance, aiming for a payout ratio between 65% and 75%.

3. Management and ESG

3.1. The Board of Directors (BoD)

Iberdrola’s Board of Directors is currently composed of 14 members (the maximum established in the articles of incorporation), of which are 8 men and 6 women (Figure 11). The Board includes the Chairman Mr. José Ignacio Sánchez Galán, the CEO Mr. Armando Martínez Martínez and 12 other independent members.

The Directors are elected at the General Shareholders’ Meeting, and have to serve their position for four years, with the possibility of being re-elected for more terms.

3.2. The Management

The current Chief Executive Officer (CEO) is Mr. Armando Martínez Martínez, elected on the 25th of October 2022, successor of Mr. José Ignacio Sánchez Galán, which is currently the Executive Chairman of the Group. The Group also has an Executive Committee which operates as the representative of the Board of Directors and is composed of 6 members from the BoD.

At YE2022, the Board of Directors held 0,25% of voting rights, of which 0,22% belonged to Mr. José Ignacio Sánchez Galán.

3.3. Management Compensation

The remuneration of Directors and Members of Senior Management is set by the Remuneration Committee, which must be composed of 3 to 5 members from among the non-executive directors and the majority must be Independent. The CEO has a remuneration that is part fixed and part variable (Appendix 4).

3.4. ESG – Environment, Social and Governance

In terms of ESG Ratings, following the MSCI ESG Ratings, Iberdrola is a leader among other 139 companies in the utilities industry, with the maximum score (AAA). This score has been achieved since 2018 (Figure 12). The Company is also incorporating Sustainable Development Goals, set by the United Nations, in its business strategy (Appendix 3).

According to Sustainalytics, Iberdrola as a **Total ESG Risk Score of 21 out of 100²** (Table 2). Compared to its peers, Iberdrola scores above the average of 24. This means that the Company has a medium risk (according to Sustainalytics) related to ESG factors, but it’s still less exposed to unmanaged ESG risk than its average peer.

3.5. Environment

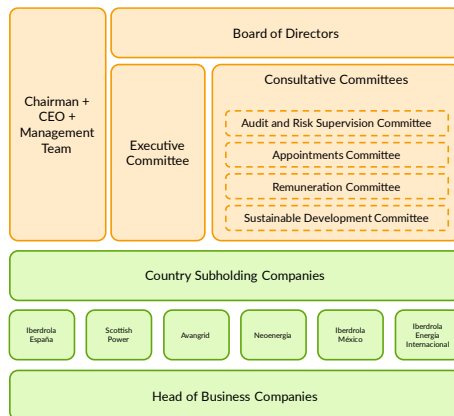
Regarding environmental issues, Iberdrola scores a **7/100** according to Sustainalytics (Table 3), having a better score than the average of its peers (10).

² This score assesses the degree to which a company’s enterprise value is at risk driven by ESG factors or, more technically speaking, the magnitude of a company’s unmanaged ESG risk.

Figure 13: Iberdrola Sponsorships

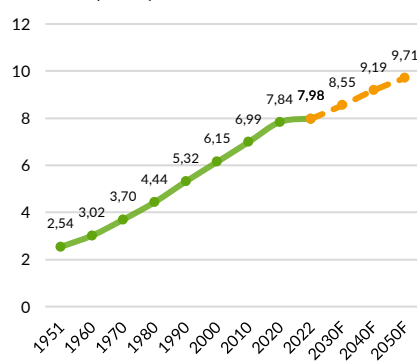


Figure 14: Iberdrola's Corporate Governance Structure



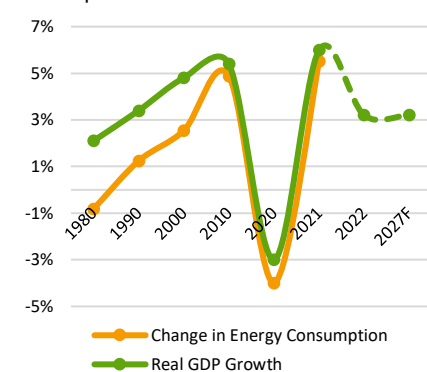
Source: Iberdrola

Figure 15: World Population Evolution and Forecast (in Bn)



Source: United Nations

Figure 16: GDP Growth and Energy Consumption



Source: IMF, BP

The environmental policies of the company fall in line with the Paris Agreement and the United Nations 2030 Agenda for Sustainable Development. Iberdrola carries out economic activities that are sustainable for the environment and defines 3 lines of action: the circular economy, natural capital and biodiversity protection. These commitments are incorporated into Iberdrola's Environmental Management System, which establishes a common framework for all the companies in the group. For the 2023-2025 timeframe, Iberdrola expects to invest €47 000M in renewable production and decarbonization.

3.6. Social

On the Social Risk Rating, Iberdrola scores a **7/100**, again a better score than the peer average of 8 (Table 3).

In 2022, Iberdrola had an average of **40 090 employees**, all around the world, and so, the Company has established a Human Resources Framework Policy in order to attract and retain talent. There is also the commitment to maintain a stable labour environment and create an environment of diversity and equal opportunities. Regarding customers, the goal is to assure the best quality of service, through a quality-evaluation system which ensures compliance with quality standards.

Iberdrola is also the main sponsor of several events related to sports in Spain (Figure 13). It lends its name to Spain's highest level of women's soccer competitions, the Primera Iberdrola league, as well as the second division, Reto Iberdrola, the Copa de la Reina and the Supercopa de España. Additionally, Iberdrola one of the main promoters of the Women's Universe Tour (*Tour Universo Mujer*), a racing event part of the Women III Universe (*Universo Mujer III*) a program organized by the Higher Council for Sport's (*Consejo Superior de Deportes, CSD*) that aims to promote and increase in female participation in all areas of sport.

3.7. Governance

In terms of Governance, Iberdrola scores higher than the average of its peers, with a **6/100 Governance Risk Rating** (Table 3).

Iberdrola's Board of Directors has the role of setting and monitoring the company's policies and strategies. Meanwhile, the Chairman and the CEO, along with the management team, are responsible for the overall organization and strategic coordination of the Iberdrola group (Figure 14).

In each of the countries where Iberdrola operates, the sub holding companies serve as a means of organizing and coordinating the group's activities in such countries. Each country sub holding company has its own CEO (Appendix 5) and a Board of Directors, which includes independent directors, as well as internal audit divisions.

4. Industry Overview

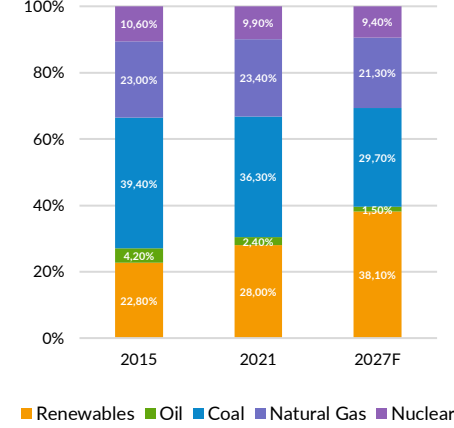
4.1. Global Economic Outlook

World Population | World population has a YoY growth. In 1951, world population was around 2.54 billion people, while in 2022 it reached 7.98bn people, a 1.65% CAGR through this period. In the 2022-2050 period, a +0.66% CAGR is expected by United Nations, reaching a population of 9.71bn people in 2050 (Figure 15).

World GDP Growth | As shown in Figure 16, in the 1990-2010 period global real GDP growth increased, with growth rates ranging between 3.4% and 5.4% YoY. It is visible the decrease in 2020 due to the COVID-19 pandemic which has significantly impacted the global economy, with global real GDP growth reaching -3% YoY. In 2021, the global economy had recovered to 6% YoY despite a decrease in the year ahead. Historically, global change in energy consumption follows global GDP growth, so it is expected to keep growing in the future years as the forecasts for GDP growth indicate a similar value for 2027F as 2022.

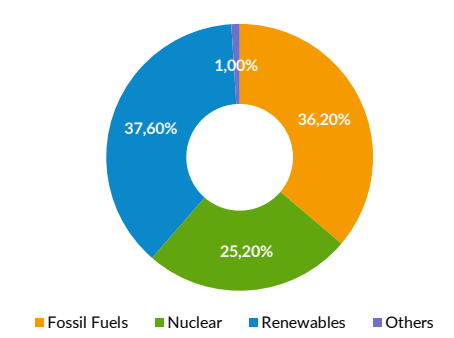
Interest Rates | In the past few years we have been experiencing an increase in interest rates by central banks in order to face the levels of inflation that economies

Figure 17: World Electricity Generation by Source (%)



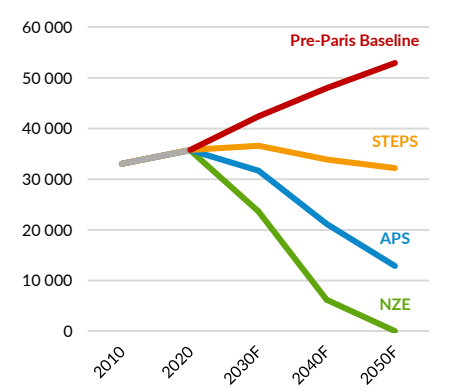
Source: Financial Times

Figure 18: Production of Electricity in the EU by source, 2021 (%)



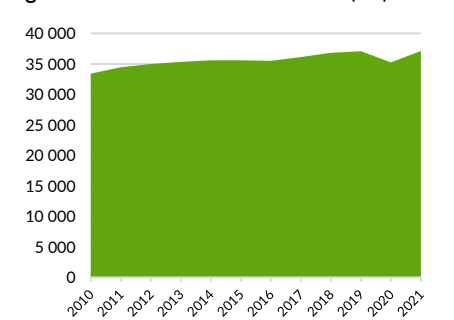
Source: Eurostat

Figure 19: CO2 Emissions Forecast by Scenario (Mt)



Source: IEA

Figure 20: Historical CO2 Emissions (Mt)



Source: Our World in Data

are going through. The decision by the European Central Bank (ECB) and the US Federal Reserve to raise interest rates could have a significant impact on businesses in the renewables industry. Higher interest rates increase the cost of borrowing, making it more expensive for companies to finance their projects. This could lead to a slowdown in investment in the industry.

4.2. Market Overview

The Russian invasion of Ukraine has accelerated the growth of the renewable energy industry. The invasion has led to an increase in fossil fuel and electricity prices due to the sanctions on Russian gas, making renewables the most affordable source of energy production for many countries. As a result, there has been an increase in the share of renewable energy in overall generation (IEA, 2022).

In 2015, renewables accounted for 22.8% of global energy production, which increased to 28% by 2021 (Figure 17). The share of oil, coal, and nuclear energy has decreased in this period, while natural gas remained relatively stable. Looking forward, the data suggests that the trend of increasing renewables is expected to continue, with renewables expected to reach a share of 38.1% of global energy production by 2027. This significant increase can be attributed to ambitious renewable policies, the falling costs of solar and wind technologies, and the increasing need to reduce dependence on fossil fuels due to concerns over climate change.

The European Union is gradually shifting towards renewable energy sources, with renewables accounting for 37.6% of energy production in 2021 (Figure 18). This shift can be attributed to the EU's policies aimed at reducing greenhouse gas emissions and transitioning to a low-carbon economy. The EU has set a goal to become carbon-neutral by 2050, which requires a significant increase in the use of renewable energy sources. The EU has implemented several policies and initiatives to promote the use of renewables, such as the Renewable Energy Directive and the EU Emissions Trading System. The growth of renewables in the EU is also driven by falling costs of technologies such as wind and solar, as well as increasing public awareness and demand for clean energy. However, there is still a long way to go for the EU to reach its renewable energy targets, and further efforts and investment are needed to accelerate the transition towards a sustainable energy future.

Path to 2050 Decarbonization

The International Energy Agency (IEA) defines 3 different scenarios in its World Energy Outlook report, which are the **Stated Policies Scenario (STEPS)**, the **Announced Pledges Scenario (APS)**, and the **Net Zero Emissions (NZE)** scenario (Figure 19).

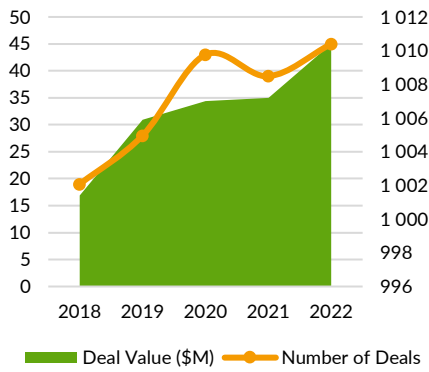
The **Stated Policies Scenario** assumes the maintenance of existing policies and no further action to address climate change. It projects that global energy-related carbon dioxide emissions CO2 emissions will reach a plateau in the mid-2020s at 37 000 Mt and thereafter fall slowly to 32 000 Mt by 2050.

The **Announced Pledges Scenario**, on the other hand, assumes the implementation of current energy and climate targets announced by countries, including their nationally determined contributions (NDCs) under the Paris Agreement. In the APS, CO2 emissions peak in the mid-2020s and fall to around 12 000 Mt in 2050. However, it still falls short of the more ambitious pathways required to limit global temperature rise to 1.5°C above pre-industrial levels.

The **Net Zero Emissions Scenario** outlines a very specific pathway to achieve net-zero emissions by 2050, consistent with the goals of the Paris Agreement. CO2 emissions decline to 23 000 Mt in 2030 and to zero in 2050. It requires a rapid widespread of clean energy technologies, as well as the development and scaling-up of carbon capture and storage technologies. The NZE scenario also involves changes in consumption patterns and lifestyles to reduce energy demand and limit the growth of greenhouse gas emissions.

Historical CO2 emissions have been stable in the past decade (Figure 20), with values around 35 000 Mt. In 2020, the pandemic as caused a reduction in emissions due to

Figure 21: M&A Activity 2018-2022
(Acquisitions of Renewable Developers)



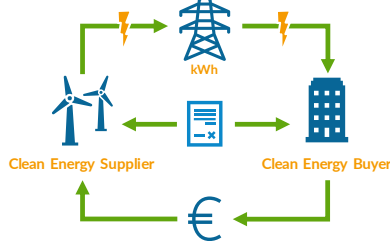
Source: McKinsey

lower levels of economic activity, from production to consumption. Reaching 0 emissions by 2050 seems an overly optimistic scenario due to the efforts and changes in consumption that would be required to achieve this goal.

M&A Trends

The renewable energy industry has seen a surge in M&A activity in recent years (Figure 21), driven by the increasing demand for sustainable energy and the need for scale to compete in the global market. M&A deals in the renewable energy sector can take various forms, such as partnerships, joint ventures, or full acquisitions. Large companies are acquiring smaller ones to expand their reach and expertise in renewable energy technologies. For example, in 2017, General Electric announced the acquisition of LM Wind Power, a manufacturer of wind turbine blades. The deal would allow General Electric to integrate LM Wind Power's technology and manufacturing capabilities into its existing renewable energy portfolio. In another example, Total, the French oil company, acquired a majority stake in SunPower in 2022, a US-based solar panel manufacturer. This acquisition gave Total a foothold in the solar panel market and allowed it to expand its renewable energy portfolio.

Figure 22: Corporate PPA

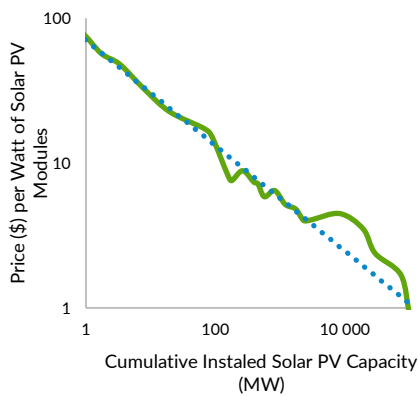


Source: Author elaboration

Corporate PPAs

A **Corporate Power Purchase Agreement (PPA)** is a contractual agreement between a renewable energy producer and a corporate entity (such as a business or institution) to purchase renewable energy directly from the generator (Figure 22). The corporate entity commits to buying a certain amount of electricity generated by the renewable energy project at a fixed price over a specified period, usually between 10 to 20 years. Corporate PPAs offer several benefits for both the renewable energy generator and the corporate buyer. The renewable energy generator gains a stable source of revenue, while the corporate buyer can secure a reliable and cost-effective source of renewable energy, which can help reduce its carbon footprint and meet sustainability goals. Corporate PPAs have become increasingly popular in recent years, as more companies seek to transition to renewable energy and achieve their sustainability targets.

Figure 23: Price per Watt of Solar PV Modules vs Cumulative Solar PV Capacity (1976-2019)



Source: Our World in Data

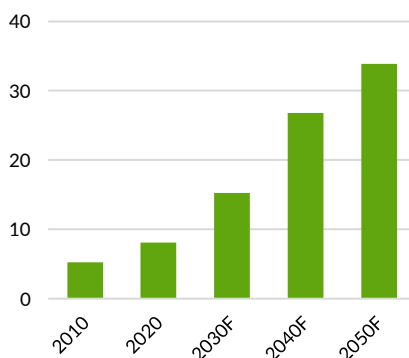
4.3. Demand Drivers

Worldwide Green Trends | Growing awareness and concern about climate change and environmental degradation are driving increased demand for renewable energy sources. Renewable energy is seen as a cleaner and more sustainable alternative to fossil fuels, as it produces lower greenhouse gas emissions and reduces air pollution.

Declining Costs | Renewable energy has become cheaper to produce over the years. In the case of solar energy, the price of solar modules has decreased 99.6% since 1976, from \$106 to \$0.38 per watt (Figure 23). The data shows us that with the increase in installed capacity of solar PVs from 1976 to 2019, the costs of producing 1 watt of energy have reduced massively. In this case, the learning rate of solar PV modules is 20.2%, which means that with each doubling of cumulative capacity, the price declines by 20.2%.

Policy and Government Support | Governments around the world, in alignment with the goals of the Paris Agreement, are implementing policies and providing incentives to promote the adoption of renewable energy. Through the Paris Agreement targets have been set for reducing greenhouse gas emissions and increasing the share of renewable energy in the global energy mix. The support and commitment of governments to renewable energy encourage investment in renewable energy projects and drive the growing demand for clean and sustainable energy sources.

Figure 24: Installed Capacity in the NZE Scenario

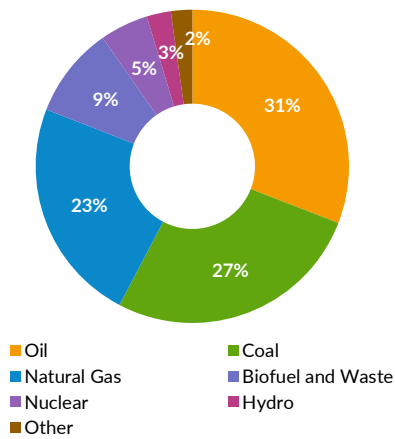


Source: IEA

4.4. Supply Drivers

Regulation and Climate Targets | The current commitments between countries to the Paris Agreement and legislation pushing for carbon neutrality and energy transition set a very good perspective for the renewable energy sector in the long term. In a NZE scenario, it is expected that global energy generation increases by over 2.5 times from 2021 to 2050, and low-emission sources of energy overtakes fossil fuels after 2025. In this scenario it is also expected that the total installed capacity of renewables

Figure 25: Share of world total energy supply by source (2019)



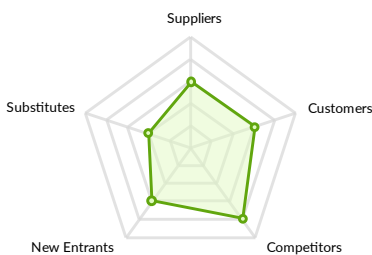
Source: IEA

Table 4: Iberdrola's Peer Selection (SARD approach)

Company	SARD	Ranking
Iberdrola S.A.	0	1
Sempra Energy	17	2
Nextera Energy, Inc.	36	3
Consolidated Edison, Inc.	43	4
The Southern Company	46	5
Public Service Enterprise Group Inc.	47	6
EDP Energias de Portugal S.A.	51	7
Drax Group Plc	52	8
Endesa, S.A.	52	8
Orsted A/S	54	10

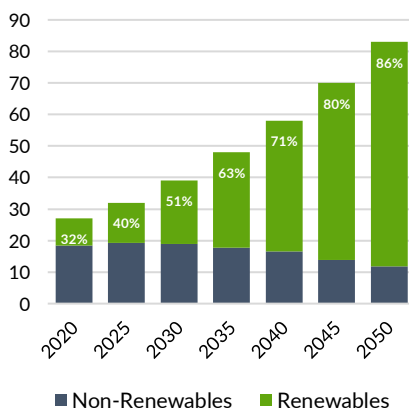
Source: Author analysis

Figure 26: Porter's 5 Forces



Source: Author analysis

Figure 27: Global Power Generation (Thousand TWh)



Source: McKinsey

rises sevenfold until 2050 (Figure 24), a very promising outlook for the sector. However, the stated policies fall short of the Net Zero Emissions goal and so, this positive perspective will not be as optimistic as expected.

Technology | The renewables sector is heavily dependent on the efficiency of the production equipment, such as wind turbines and solar PV's. Technological improvements and investment will play a very important role in the next years in order to achieve more efficient farms and a bigger energy output, increasing cash flows for the players and the weight of renewable energy consumed worldwide. Furthermore, clean technologies for power generation are a more cost-efficient option for energy production in most countries, even if not considering the current high prices of coal and gas.

Commodity Prices | Renewable energy still falls behind oil, coal, and gas in the share of world energy supply. In 2019, these sources of energy accounted for 80.9% of the energy supply worldwide (Figure 25). This means that renewable energy sources need to be a cheaper alternative in order to rapidly increase the share of the energy supply. With the current prices of Oil & Gas and the political pressure to abandon these types of energy sources, through tax incentives and carbon taxes, it is expected that those will become a more expensive way to produce energy, making renewable sources more attractive to invest in.

4.5. Competitive Positioning

Peers Identification

To select Iberdrola's peers for the analysis of the competitive positioning, it was considered a list of the companies from the Utilities Sector with the biggest market cap from Europe and the United States (the main geographical presence of Iberdrola). The selection from this list was made using the SARD approach, having in consideration solvency, liquidity and profitability ratios.

The peer group includes **Orsted A/S, EDP Energias de Portugal S.A., Nextera Energy, Inc. and Endesa, S.A.** (Table 4).

Porter's 5 Forces

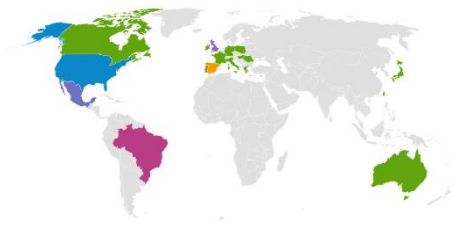
Bargaining Power of Suppliers - Medium (3) | Given a low number of alternative inputs globally and a non-significant geographical preference, companies select suppliers of clean energy generation equipment, namely wind turbines and solar panels, based on LCOE considerations. However, company performance can be affected if there is no vertical integration (suppliers can take advantage of product cost increases).

Bargaining Power of Customers - Medium (3) | Regarding commercial and domestic users, they have low bargaining power, as price sensitivity is low. Households have some constraints on investing in renewable alternatives, as capital requirements are high, in this case the government may support the costs. Corporates, however, have high bargaining power, as they can make PPAs to fix prices in the long-term, choosing the most economic renewable provider.

Rivalry among competitors - Medium/High (4) | The renewable energy sector is highly competitive. Not only are there more incentives to participate in the industry, but the exit costs are also very high, due to the high investments required, thus making companies reluctant to leave. Also, Oil & Gas companies are reducing their polluting activities and diversifying to the renewable sector. Despite the competitiveness of the industry, many competitors work together in consortiums in order to take on big projects, sharing resources and knowledge.

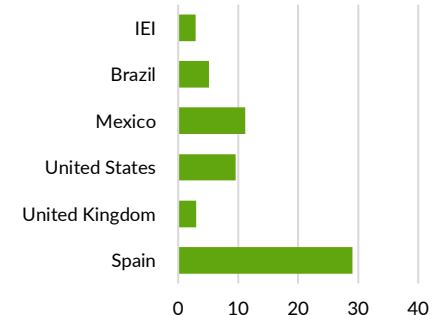
Threat of new entrants - Medium (3) | The renewable energy sector includes several industries and companies that provide different solutions to its clients. High investments in technology and R&D and the consequent high capital requirements make electricity distribution a business where the threat of new entrants is low. In terms of alternative renewables, because of its embryonic characteristics, and its

Figure 28: Iberdrola global presence



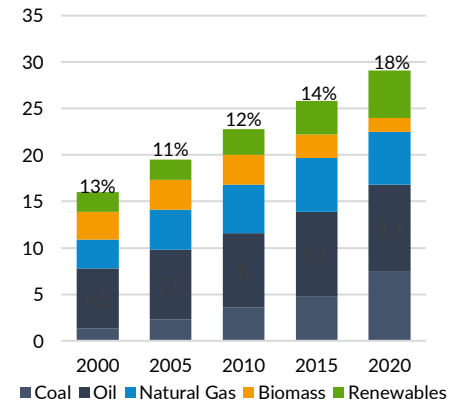
Source: Iberdrola

Figure 29: Consolidated installed capacity by region (MW, 2022YE)



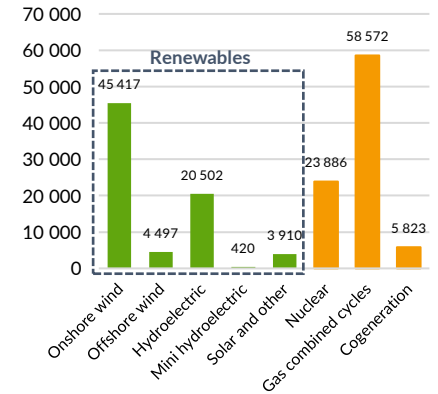
Source: Annual Financial Information 2022

Figure 30: Total primary energy supply by fuel in Southeast Asia (2000-2020)



Source: IEA, 2022

Figure 31: Consolidated electricity production (GWh, 2022)



Source: Annual Financial Information 2022

continuously fast development in technology and consequent high prices, the threat of new entrants is moderate to high.

Threat of Substitutes – Medium/Low (2) | The threat of substitutes for renewable energy sources is low to moderate. Nowadays, fossil fuels are the most widely used resource, but limited and harmful to the environment. However, renewable energy sources are increasingly gaining ground in the world, not only because fossil fuels are finite but also due to environmental concerns. Renewables are projected to grow threefold by 2050, accounting for c.50% of power generation globally by 2030 and c.85% by 2050, (Figure 27).

SWOT Analysis

Strengths

- **Global presence:** Iberdrola has a strong presence on a global scale (Figure 28), allowing it to access diverse markets and benefit from economies of scale.
- **Investment capacity:** Iberdrola possesses significant investment capacity, enabling it to fund large-scale projects and pursue growth opportunities.
- **Diversified portfolio:** Iberdrola maintains a diversified portfolio of renewable energy assets, including wind, solar, hydroelectric, and biomass. This diversity in energy sources helps mitigate risks associated with specific technologies and ensures a more stable revenue stream.

Weaknesses

- **Geographic concentration:** While Iberdrola has a global presence, its operations are primarily concentrated in Europe, North America, and South America (Figure 29). This geographic concentration may expose the company to regional risks and limit its market diversification.
- **Loss of efficiency:** For the past years, Iberdrola has been losing efficiency of its production (Figure 2). This can be a worrisome situation for the future.

Opportunities

- **Renewable energy growth:** The renewable energy industry is experiencing continuous growth due to increasing environmental concerns and supportive government policies.
- **Asian market potential:** Iberdrola can expand its operations into the Asian market. Asia offers significant potential for renewable energy development and could become a major market for Iberdrola's expansion. In Southeast Asia, in 2020, only 18% of the energy supply came from renewable sources (Figure 30).

Threats

- **Rising competition from alternative energy sources:** Other sources of energy, such as hydrogen, are gaining traction as viable alternatives. These emerging technologies pose a threat to Iberdrola's dominance in the renewable energy sector and require continuous innovation and adaptation.
- **Weather-dependent energy production:** As most of its energy production comes from renewable sources (Figure 31), Iberdrola is exposed to weather conditions that can impact production. Dependence on weather patterns introduces variability and risk.

Industry corporate strategies

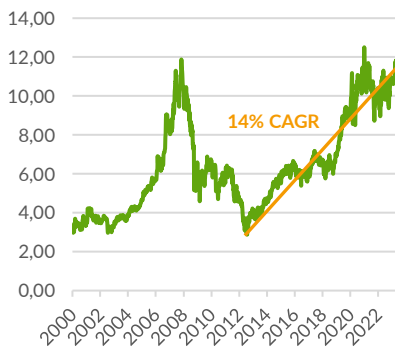
Vertical integration | Players engage in multiple stages of the value chain, owning power plants, grid infrastructure and retail arms. This strategy grants companies more control and value capture across the entire chain.

Diversification of renewable energy sources | Renewable energy players usually engage in energy production from different sources like wind, solar, hydroelectric,

Figure 32: Recommendation system for medium risk

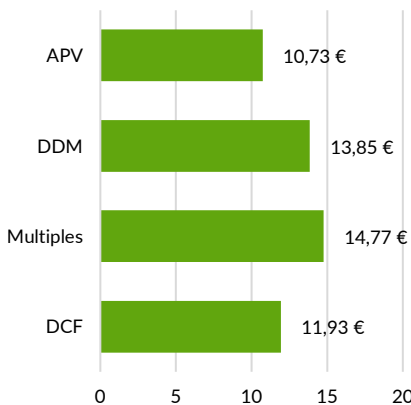
Recommendation	Upside
Sell	≤5%
Reduce	>-5% & ≤5%
Hold	>5% & ≤15%
Buy	>15% & ≤30%
Strong Buy	>30%

Figure 33: Iberdrola's historical price (2000-2023)



Source: Yahoo Finance

Figure 34: Valuation methods Target Prices



Source: Author analysis

Figure 35: Valuation methods weights

Method	Weight
DCF	75%
DDM	12,5%
APV	12,5%
Multiples	0%

Source: Author analysis

biomass, geothermal or hydrogen. This diversification mitigates risks from relying solely on one technology and allows companies to seize different market opportunities.

5. Investment Summary

Iberdrola S.A. is one of the main global players in the renewable energy market, with a current market cap of €73.9Bn as of June 26th, 2023. With its origins going back 170 years, the expertise obtained during its history plays an important role on its current success. Historically, its stock price has recovered since the financial crisis of 2012, yielding a **14% CAGR** until today (**Figure 33**)

Today, Iberdrola has a diverse portfolio that encompasses various renewable energy sources: onshore and offshore wind farms, solar energy projects, hydroelectric production, nuclear energy, but also gas combined cycles (a non-renewable source). It also ventures into emerging technologies such as energy storage.

Significant recent developments

One significant recent project includes the investment in the Kyoto Group, a company that develops thermal energy storage technology, acquiring a 12.8% stake in the company (€3 Mn). This move highlights Iberdrola's forward-thinking spirit and the will to explore new technological advancements.

Valuation Methods

To perform Iberdrola's valuation, the used methods were the **Discounted Cash Flow, Dividend Discount Model, Adjusted Present Value** and **Multiples**. In order to mitigate the impact of any individual method's limitations and arrive at a more balanced estimate of the target price, a weighted average of these method's target prices was calculated (**Figure 34** and **Figure 35**).

The DCF was considered the main model for the overall recommendation, due to its forward-looking nature and the fact that it includes all the possible assumptions and variables regarding the company and the industry. It was attributed a weight of 75% for the final investment recommendation. Estimating future FCFF's and using the WACC as the discount rate, the obtained price is **€11.93/Sh**.

For the DDM, future dividends paid were calculated having in consideration the dividend policy that Iberdrola has planned for the upcoming years, the estimated price was **€13.85**. Regarding the APV, the estimated price was of **€10.73/Sh**. Both methods were considered to have a weight of 12.5% on the final recommendation.

Because of the static nature of Multiples valuation, it is not possible to estimate an upside for the 2023YE. Still, the estimated price obtained from this valuation method for 2022YE was €14.77/Sh, compared to the closing price at the December 30th, 2022, of €10.99 may indicate a tendency of undervaluation. Still, this method was not considered in the final investment recommendation.

Investment recommendation

The recommendation for Iberdrola is to **HOLD** (**Figure 32**), with a 2023YE TP of **€12.02/Sh**, an upside potential of 3.07% in 6 months (6.04% annualised upside), against the closing price of **11.66€/Sh**, as of 26th of June 2023.

Based on the performed analysis, the recommendation also implies a cautious approach towards this investment due to the modest upside potential and the associated risk factors.

Figure 36: Valuation methods and prices

Method	Price
DCF	11,93 €
DDM	13,85 €
APV	10,73 €
Multiples	14,77 €

Source: Author analysis

6. Valuation

To assess the valuation of Iberdrola, three fundamental valuation methods were utilized: **Discounted Cash Flow (DCF)**, **Dividend Discount Model (DDM)**, **Multiples** and **Adjusted Present Value (APV)** (Figure 36). The use of several methods helps to mitigate any potential biases or limitations that may arise from relying solely on a single valuation approach.

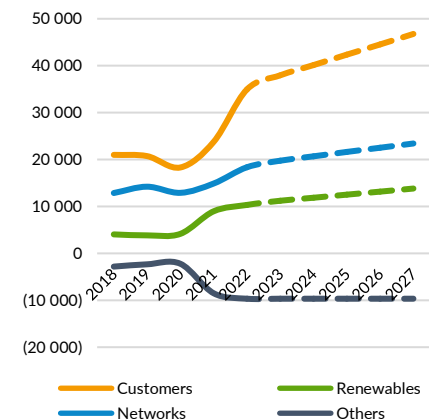
6.1. Discounted Cash Flow

The Discounted Cash Flow method is the most used method for company valuation. In order to perform the valuation according to this method, some assumptions must be considered (Appendix 7). The 3 main financial statements were forecasted for a period of 5 years, as it is a reasonable period for a growing industry.

Revenues

Revenues were forecasted considering Iberdrola's Total Installed Capacity (in MW), Net Production (in GWh) and the historical prices (€/MWh). The main assumption was that Iberdrola's installed capacity and efficiency of production will keep evolving at the same CAGR observed from 2018 to 2022 (6,80% and -3,69% respectively) (Appendix 11). With that in mind, revenues for the energy segments (Customers and Renewables) were estimated considering that the price per GWh of production (Revenues/Net Production) in 2023 will grow at the inflation rate estimated by the ECB for the forecasted period. The revenues for the Networks segment were estimated considering the Networks revenues per Km of lines will grow at the inflation rate. For the segment Others, due the nature of its revenues, it was assumed the constant of 2022.

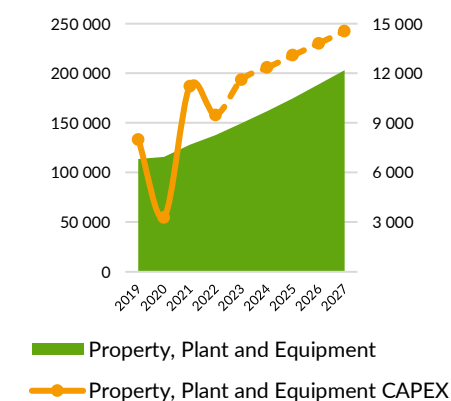
Figure 37: Revenues Forecast by Segment



Source: Author analysis

With this, the overall revenue forecast was achieved (Figure 37).

Figure 38: PP&E Gross Cost and CAPEX

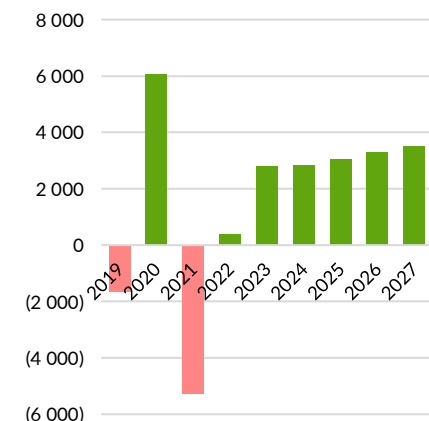


Source: Author analysis

CAPEX and D&A

In the context of the renewable energy sector, capital expenditures hold significant importance due to the capital-intensive nature of the industry. For the forecasted period, CAPEX and D&A were estimated as the average of the historical percentage of revenues. In this scenario, CAPEX grows at a CAGR of 5.84%, reaching a total value of €67 235 million (Appendix 12), a total investment that goes in line with the goal of investing €47 000 million in renewable technologies between 2023 and 2025. The main driver of CAPEX and D&A is Property, Plant and Equipment (Figure 38). The renewable energy sector suffers fluctuations in capital expenditures due to the significant investment needs associated with the dimension of the projects. These expenditures exhibit irregular patterns, with some years experiencing higher levels of investment while others see comparatively lower levels. Unfortunately, Iberdrola reports do not provide explicit details about future investment amounts, making it difficult to accurately forecast CAPEX. Estimating them as a percentage of revenues results in more stable amounts.

Figure 39: FCFF evolution



Source: Author analysis

Free Cash Flow to Firm

The obtained Free Cash Flows to Firm for the 2023 to 2027 period (Appendix 15) were then computed, using the real tax rate of 2022 (17.03%). The assumptions used result in the evolution of FCFF as represented in Figure 39. The cash outflows in 2019 and 2021 result in high levels of CAPEX incurred in those years (Appendix 15). Because of the previously mentioned assumption for CAPEX forecasting, FCFF present more stable values.

Terminal Growth Rate

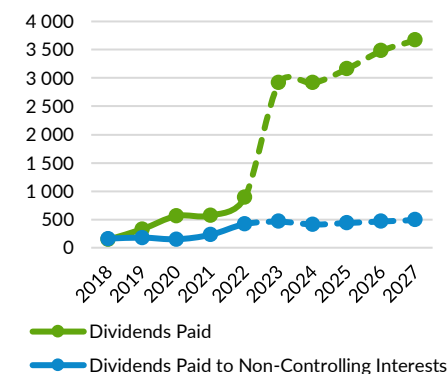
The assumed terminal growth rate was 2.50%. The base for the estimation of the Terminal Growth Rate was the target inflation set by central banks, of 2.00%. Additionally, a premium of 0.5% is added to reflect the rapid expansion and growth potential of the renewable energy sector. The industry is experiencing significant advancements, technological innovation, and increasing market demand, making it reasonable to assign a higher growth rate compared to traditional industries.

Figure 40: Equity Value per Share calculation

PV of FCFF (2023YE)	13 978
Terminal Value	147 460
PV of Terminal Value (2023YE)	127 637
Enterprise Value	141 615
+ Cash	6 058
- Total Debt	55 037
- Non-Controlling Interests	17 179
- Preferred Stock	0
Equity Value	75 456
Number of Shares	6 326 094 000
Equity Value per Share	11,93 €

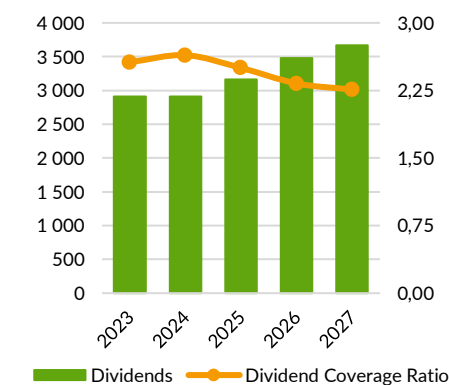
Source: Author analysis

Figure 41: Dividends forecast



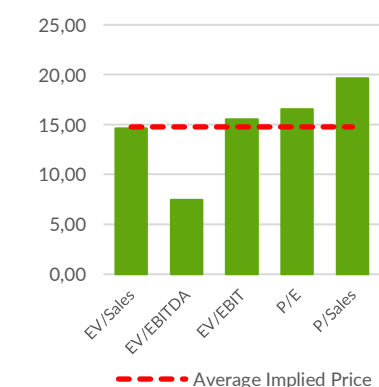
Source: Author analysis

Figure 42: Dividends vs Dividend Coverage Ratio (Forecasted Period)



Source: Author analysis

Figure 43: Multiples valuation



Source: Author analysis

WACC assumptions

The Free Cash Flows (FCF) were discounted using the Weighted Average Cost of Capital (WACC) method, assuming the forecasted debt structure of 2023YE of 87.57% (**Appendix 13**).

To determine the cost of equity, the Capital Asset Pricing Model (CAPM) was employed. The model incorporates a risk-free rate (RFR) of 2.514% based on the 10y German Bond Yields. The market risk premium (MRP) of 6.6% was derived from Fernandez (2023). Furthermore, the beta of 0.57 was calculated through the Pure-Play method (**Appendix 14**).

The cost of debt was determined as 4.51% using the Default Risk Model, with an estimated Company Default Spread of 2.00% (Damodaran, 2023b), associated with a credit rating of BBB+ (Fitch, 2023).

The WACC was estimated to be **4.93%**.

Equity Value

Considering the cash value of €6 058 Mn, total debt of €55 037 Mn, non-controlling interests of €17 179 Mn, and no preferred stock, the Equity Value of €75 456 Mn was reached. This represents an Equity Value per Share of **€11.93 (Figure 40)**.

6.2. Dividend Discount Model

Iberdrola maintains its commitment to increase shareholder remuneration in alignment with earnings performance, intending to allocate approximately 65% to 75% of profits towards payment of dividends. The goal is to achieve a DPS ranging from €0.55 to €0.58 in 2025. Additionally, the company has established a minimum DPS, set at €0.46 for 2023 and 2024, and €0.50 for 2025. Based on this dividend policy, it is expected a very significant increase in dividends paid, compared to 2022 (**Figure 41**).

This dividend policy implies a payout ratio of 44% in 2027, and an increasing in dividends over the forecasted period (**Figure 42**). The dividend coverage ratio decreases from 2.56x in 2023 to 2.26x in 2027. This declining trend suggests that Iberdrola's earnings growth may not be keeping pace with the growth in dividend payments. As a result, there are potential concerns regarding the sustainability of the company's dividend policy and its ability to maintain adequate earnings to support future dividend distributions. In the future, the company may adjust its dividend policy in order to maintain a sustainable payment of dividends in the future.

The implied Target Price for Iberdrola according to the DDM is €13.85/Sh, which implies a 18% upside.

6.3. Multiples

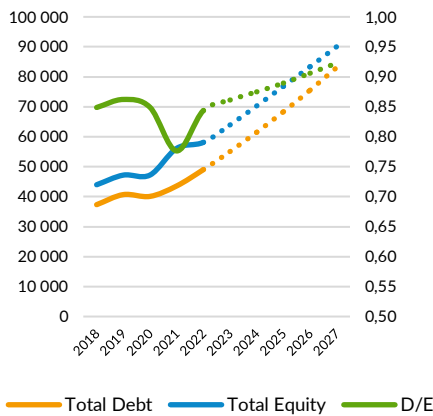
Additionally to the DCF and DDM, a Market-Based Valuation method was also performed over the selected peer group (**Table 4**) with the following multiples: EV/Sales, EV/EBITDA, EV/EBIT, P/E and P/Sales. The obtained results presented in **Figure 43** point us to an average price of €14.77/Sh, which represents an upside of, 26.65% as the peer multiples tend to be higher than Iberdrola's (**Appendix 17**).

Because the calculated multiples refer to 2022YE, this method was not considered for the final investment recommendation.

6.4. Adjusted Present Value

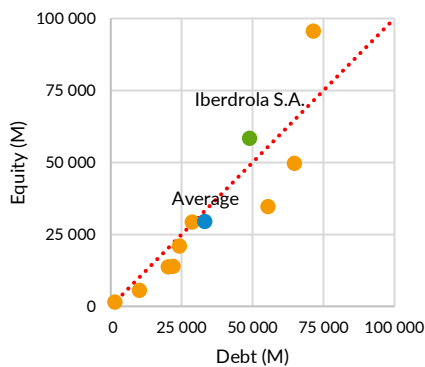
The Adjusted Present Value (APV) model was also computed, leading to a Target Price of €10.73/Sh (**Appendix 18**). This price implies a SELL recommendation, with an upside of -8.00%.

Figure 44: Iberdrola's Debt Structure 2018-2022



Source: Iberdrola's reports and author analysis

Figure 45: Iberdrola's Debt Structure vs Peers (2022YE)



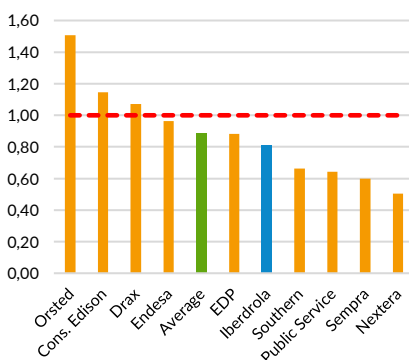
Source: Yahoo Finance and author analysis

Table 5: DuPont Analysis

DuPont Analysis	NPM	AT	Lev.	ROE
Endesa	0,07	0,51	7,21	26%
Orsted	0,12	0,40	3,29	15%
Southern	0,12	0,22	3,91	10%
Nextera	0,20	0,13	3,21	8%
Cons. Edison	0,11	0,23	3,31	8%
Public Service	0,11	0,20	3,55	8%
Sempra	0,15	0,18	2,69	7%
Drax	0,01	1,22	4,83	6%
EDP	0,03	0,35	4,25	5%
Average (Total)	0,10	0,38	4,03	10%
Average (Similar ROE)	0,14	0,19	3,19	8%
Iberdrola	0,08	0,35	2,66	7%

Source: Yahoo Finance and author analysis

Figure 46: Iberdrola's Current Ratio vs Peers (2022YE)



Source: Yahoo Finance and author analysis

7. Financial Analysis

Expanding Leverage Opportunities

Iberdrola has historically kept a policy of financial prudence, maintaining its Debt-to-Equity ratio around 0.85 in the past 5 years (Figure 44), having a decrease of this ratio in 2021 as a result of an increase in Reserves and Translation Differences, which gave the company margin to increase its debt in 2022. This means that Iberdrola has its debt under control and has margin to increase its leverage.

With the forthcoming investment plans spanning the next few years, it becomes evident that the pursuit of these initiatives will necessitate higher levels of debt. Consequently, an anticipated consequence of these plans is an increase in leverage.

When compared to its peers (Figure 45), Iberdrola is one of the few that has a Debt-to-Equity ratio lower than 1. Additionally, according to Damodaran 2023a, Market Debt-to-Equity for the Utility Sector in Europe is around 1.33. This presents an opportunity for Iberdrola to explore the possibility of increasing its debt as higher levels of debt are common in the industry. The increase in debt would make use of a cheaper source of financing as the cost of debt of Iberdrola is lower than the cost of equity (Appendix 13).

Using efficiency of operations to support ROE

Iberdrola has a Return on Equity (ROE) of 7%, a lower value when compared to the group of peers (10%) (Table 5). The wide range of ROE's that can be observed in the peer group are explained by the different levels of profitability, efficiency and leverage that compose this ratio, following the DuPont analysis. For example, we can see that Endesa's high ROE of 26% is mostly explained by its leverage which is much higher than the rest of the peers.

In order to understand what indicators explain Iberdrola's ROE, the analysis was focused on the comparison with peers with similar ROE (7% and 8%). We can verify that one of the key factors contributing to Iberdrola's ROE is its efficient asset turnover. As seen before, Iberdrola is the less leveraged company of the peer group, and, compared to the highlighted subset of peers (Table 5), has a cost structure that is less profitable, with a Net Profit Margin of only 8% compared to the average of 14%. With an asset turnover of 0.35, compared to the average of 0.19, Iberdrola demonstrates the ability to generate substantial revenue from its assets. This indicates that the company effectively utilizes its resources and operational efficiency to generate sales and maximize the utilization of its assets.

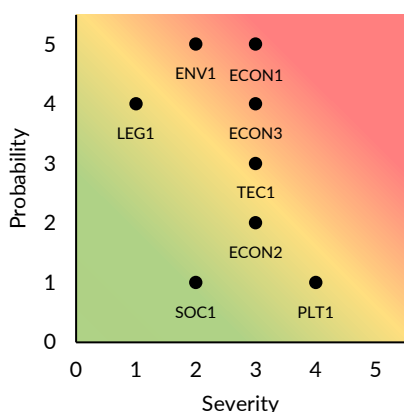
Weakened liquidity

Renewable energy projects, such as building wind farms or solar installations, typically require significant upfront investments. These projects often involve high capital investments, and the payback periods can be long. As a result, the liquidity of the players can be lower when compared to other industries. For the selected group of Iberdrola's peers, the average current ratio is 0.8863 (Figure 46), due to this capital-intensive nature of the industry.

Iberdrola's Current Ratio of 0.8103 indicates that the company is not able to fully cover short-term liabilities with its current assets. While being a common situation in the industry, it still falls slightly below the peer average of 0.8863.

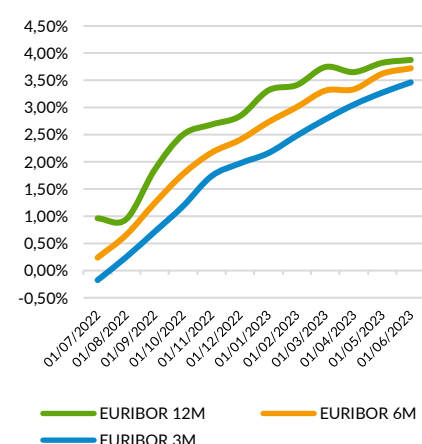
Despite this, historically, Iberdrola has demonstrated a track record of effectively managing its liquidity and meeting its financial commitments. Iberdrola has fostered strong relationships with banks and financial institutions. The company's reputation and history of responsible financial practices have contributed to its ability to access favourable financing terms and maintain a reliable source of capital.

Figure 47: Risk Matrix



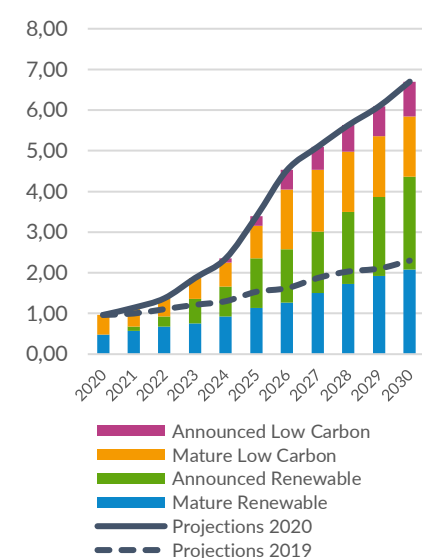
Source: Author analysis

Figure 48: EURIBOR Rates Evolution (last 12 months)



Source: Euribor-rates.eu

Figure 49: Announced clean hydrogen capacity through 2030 (Mt)



Source: Hydrogen Council, 2021

8. Investment Risks

Economical Risk 1 (ECON1) | Increase in Energy Production Equipment Cost

The current levels of inflation are also reaching the prices of the production of equipment necessary to produce energy. This makes the forecast of CAPEX values more uncertain and higher than anticipated, which can lead to lower FCF's. The consequences of this can take time to mitigate, due to the necessity of adjusting future investments and probably also the needs of financing. Overall, this is considered **High Risk**.

Economical Risk 2 (ECON2) | Decrease in Polluting Commodities Prices

The main alternatives for energy production are still polluting sources (oil, coal and natural gas), which account for most of the world's supply of energy. If these sources get cheaper, renewable energy will not be as attractive and its production must decrease. Despite this big impact, this is a low probability event, as polluting sources have been getting more expensive and renewables cheaper. **Low Risk**.

Economical Risk 3 (ECON3) | Financing Costs Increase

With the recent increase in interest rates (**Figure 48**), getting funding will be more expensive, whether through bank loans or bond issuances. It is very probable that interest rates keep rising, or, at least, will not get lower, and this impact can take time to mitigate. **Medium Risk**.

Environmental Risk 1 (ENV1) | Climate Change (Weather Instability)

Renewable energy production relies a lot on weather conditions (sunny days, water in dams and wind). With climate change, weather will tend to become more unpredictable and erratic, which can impact a lot the output of production. Despite this, it is possible to manage production through smart grids, a necessary investment for the future. **Medium Risk**.

Legal Risk 1 (LEG1) | Tighter Regulations Regarding Energy Consumption

With the political and social pressure to consume more energy from renewable sources, there is legislation that aims to control energy consumption. This is a very probable risk, but negligible because the tendency is to go in favour of renewables and not against. **Low Risk**.

Political Risk 1 (POL1) | Change in Political Support for Renewable Energy

A change in political will regarding the energy transition could have long-term consequences for the sector, but this is a low probability event. Over the years there has been an increase of political pressure in this matter. **Low Risk**.

Social Risk 1 (SOC1) | Less Social Concern for the Environment

Consumers have the last saying on the success of a company. If they decide to value other aspects of energy in order to decide from which company to buy, this can affect negatively the renewable sector, but with an impact relatively easy to manage. There is also a very low probability that social concerns about the environment will decrease. **Low Risk**.

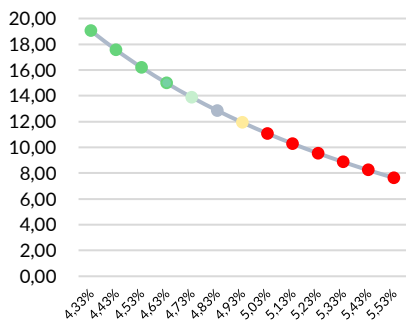
Technological Risk 1 (TEC1) | Development of New Competitor Technologies

There are many alternatives to the classic renewable energy sources, like nuclear and hydrogen (**Figure 49**³). If these technologies get well developed by competitors, being more efficient and/or cheaper, Iberdrola can take some time to mitigate this because it will need to also invest in the new technologies and adapt its business segments. **Medium Risk**.

³ **Announced** – Includes projects at preliminary studies or at press announcement stage

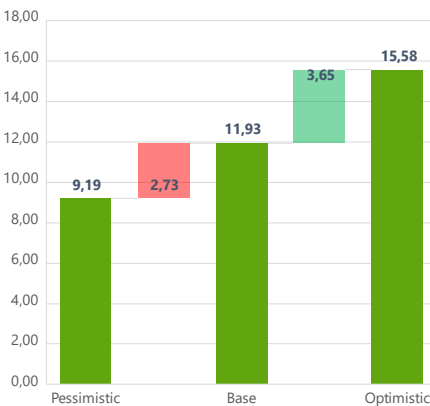
Mature - Includes projects that are at the feasibility study or front-end engineering and design stage or where a final investment decision (FID) has been taken, under construction, commissioned or operational

Figure 50: WACC sensitivity



Source: Author analysis

Figure 51: Cost of Debt scenarios



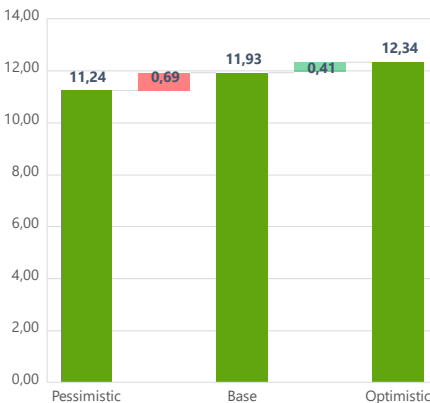
Source: Author analysis

Figure 52: Installed Capacity CAGR scenarios



Source: Author analysis

Figure 53: Efficiency CAGR scenarios



Source: Author analysis

Risk Assessment

Sensitivity Analysis

WACC | In the base case, a terminal period WACC of 4.93% was utilized. It's important to note that there isn't a direct linear relationship between TP and WACC, as depicted in **Figure 50**. The elasticity of WACC with respect to Iberdrola's PT decreases as WACC rises. Assuming all other variables remain constant, the recommendation would shift to a BUY at a WACC of 4.83% and to a SELL at a WACC of 5.03%.

WACC and Long-Term Growth Rate | In terms of the long-term growth rate ("g"), the base case assumes a scenario of 2.50%. It is possible to observe that the sensitivity of the Target Price to the growth rate increases for lower values of WACC (**Appendix 20**). A lower WACC implies lower perceived risk for the company and when investors perceive lower risk, they become more responsive to changes in growth, leading to a higher sensitivity of the target price to the growth rate.

Scenario Analysis

The scenario analysis was conducted to assess the impact of two variables on the forecasted period: the **Cost of Debt** and the **Installed Capacity CAGR**. Each variable was evaluated under three distinct scenarios: base, pessimistic, and optimistic.

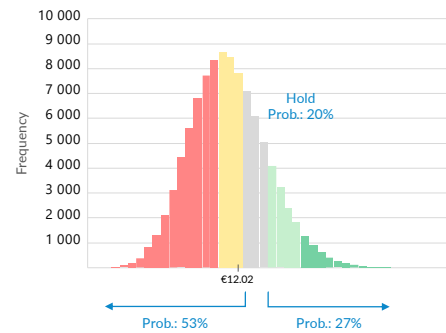
Cost of Debt | The recent increase in interest rates has introduced a new element of importance to the impact valuations. When interest rates rise, the cost of borrowing typically increases, which can have a negative effect on a company's valuation. The assumed base case was of a Cost of Debt of 4.514%, estimated through the Default Risk Model (**Appendix 13**). The pessimistic and optimistic scenarios were set assuming a change of +1% and -1% in the Cost of Debt, respectively. It is possible to observe that the impact of the changes in the Cost of Debt is not linear, as an increase of 1% leads to a smaller variation than a decrease of the same amount (**Figure 51**). The same effect was observed in the WACC sensitivity analysis (**Figure 50**). Both the pessimistic and optimistic scenarios result in the change of the investment recommendation⁴, to a SELL and a STRONG BUY, respectively.

Installed Capacity CAGR | As one of the main assumptions of the valuation model is the dependence of the revenues to the installed capacity of Iberdrola, it is relevant to study the impact of different scenarios regarding this variable. The base scenario considered that the growth of Iberdrola's installed capacity for the forecasted period would be the same CAGR of the 2018 to 2022 period (6.80%). For the optimistic scenario, it was assumed that Iberdrola would be able to grow its installed capacity at a **10% CAGR**, and in the pessimistic scenario that this growth would be at **3% CAGR**. The results show us that in the optimistic scenario the TP would reach the **€12.28/Sh.**, which would not result in a change of recommendation. The pessimistic scenario would, on the other hand, result in the change of the investment recommendation to a SELL.

Efficiency CAGR | The efficiency of the production is a relevant variable on the profitability and performance of renewable energy companies, as with higher levels of efficiency it is possible to make a better use of the assets and achieve higher revenues and profits. As stated before, Iberdrola has been losing efficiency in the past year, with a CAGR of **-3.69%** of its Capacity Factor from 2018 to 2022. Conducting a scenario analysis assuming an optimistic scenario where efficiency keeps stable at 2022 levels, the resulting Price Target is **€12.34/Sh.**, representing a HOLD recommendation. In a more pessimistic scenario, with a double CAGR compared to the base case (**-7.38%**), a SELL recommendation would be made, with a TP of **€11.24/Sh.** This indicates that the TP is more elastic to a worsening of the evolution of the efficiency than to an improvement in the same percentage points.

⁴ The overall recommendation is based on the DCF, DDM and APV models, using a weighted average. In this case, a "change in investment recommendation" regards to the recommendation obtained only through the DCF.

Figure 54: Monte Carlo simulation (Risk-Free Rate)



Source: Author analysis

Monte Carlo Simulation

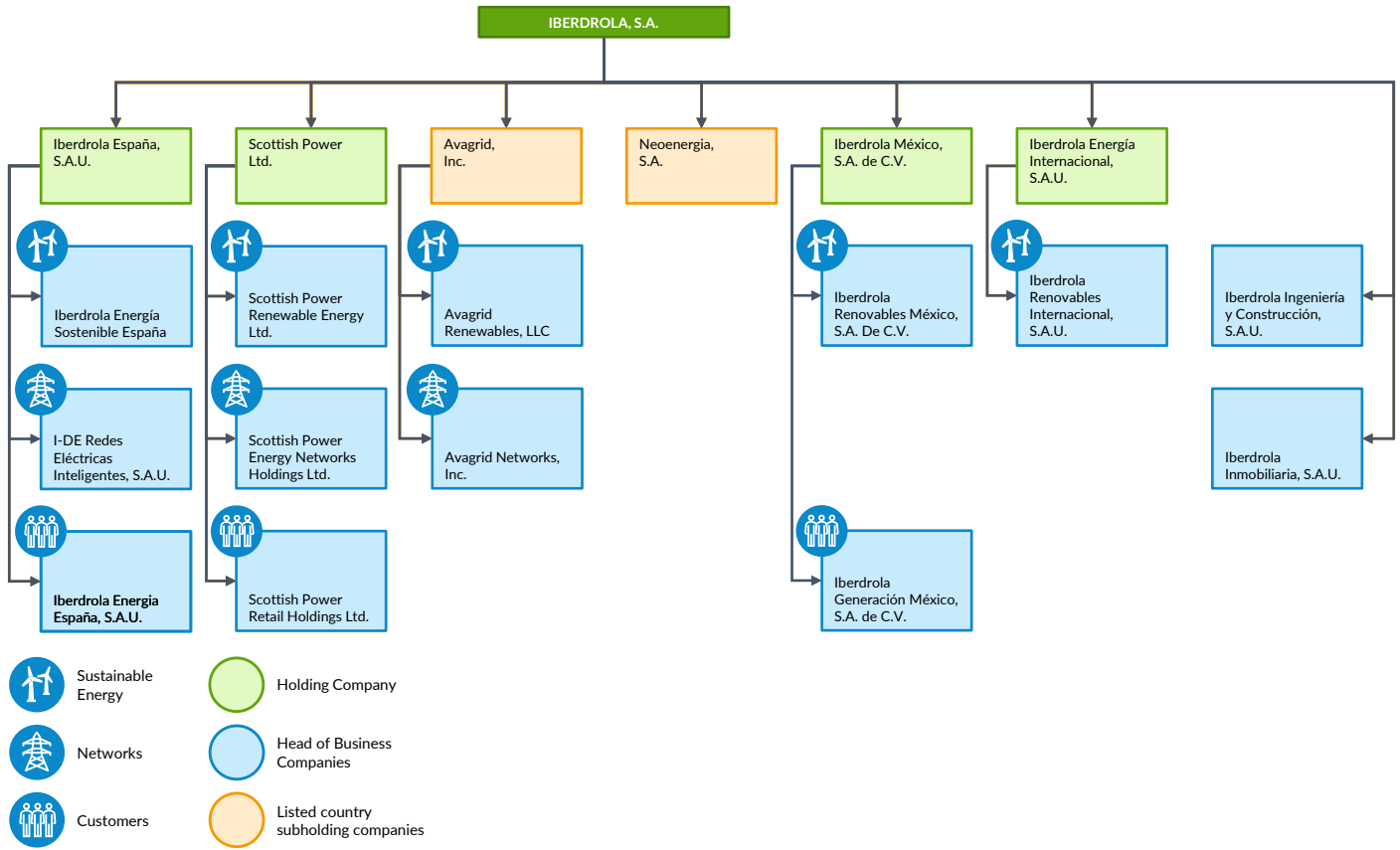
In addition to the risk assessment, a Monte Carlo Simulation was conducted to evaluate the impact that variations in the risk-free rate may have in Iberdrola's price (Figure 54). The current uncertainty regarding the increase in interest rates makes this a relevant analysis to conduct.

The simulation was performed using 100 000 trials, assuming that interest rates follow a Normal distribution. The current risk-free rate (2.514%), used in the valuation, was utilized as the average of the distribution and an estimated standard deviation of 0.15% based on the historical daily yields for the 10 Year German Bonds in 2023.

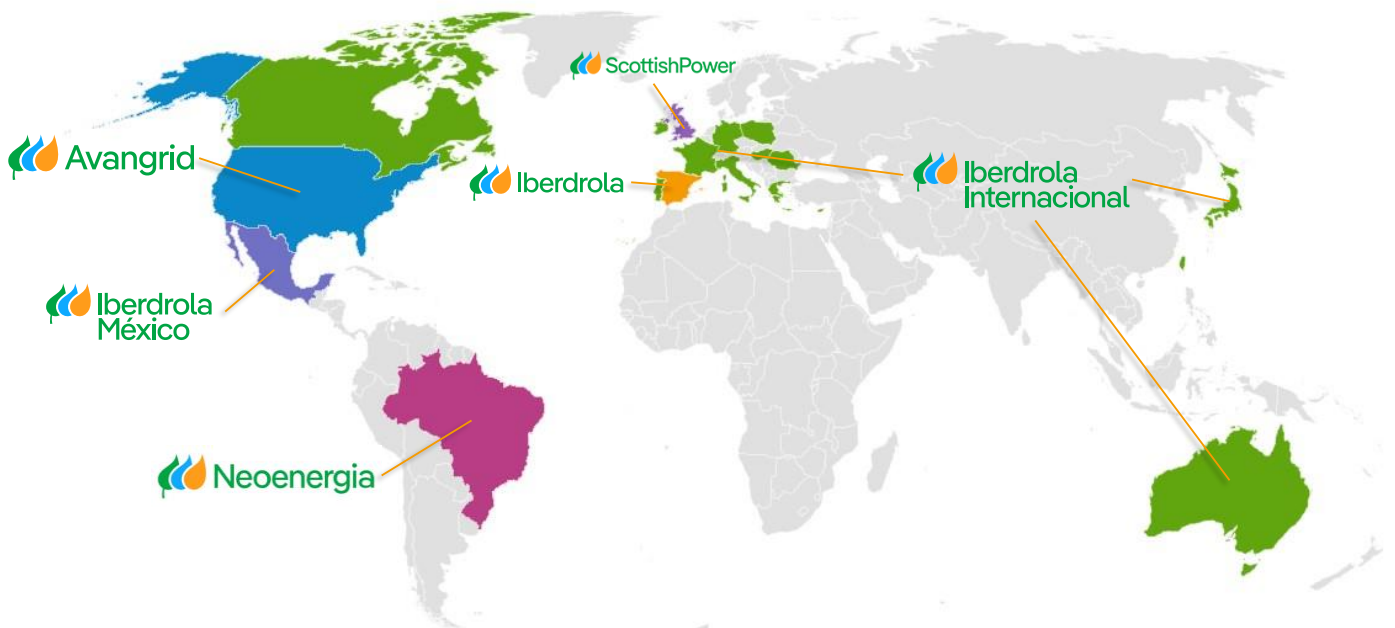
Based on the simulation results (Figure 54 and Appendix 21), the mean value of Iberdrola's stock was determined to be €12.00 per share, aligning with the base case Price Target of €12.02/Sh. The estimated probability of a HOLD recommendation was 20%, against a REDUCE/SELL probability of 53% and 27% of BUY/STRONG BUY. This indicates that there is a relevant probability of the stock being overvalued based on the possible outcomes in terms of the evolution of interest rates.

Appendices

Appendix 1: Iberdrola's Group Structure



Appendix 2: Iberdrola's worldwide presence



Appendix 3: Iberdrola's Sustainable Development Goals



Main Focus



Direct Contribution



Indirect Contribution



Appendix 4: CEO Remuneration Breakdown (€)

	Total CEO Remuneration	Salary	Fixed Remuneration	Attendance Fees	Short-term Variable Remuneration	Retribution in Kind	Other Remuneration Items
2017	6 149 000	2 250 000	567 000	92 000	3 185 000	55 000	0
2018	6 062 000	2 250 000	567 000	92 000	3 088 000	65 000	0
2019	6 231 000	2 250 000	567 000	92 000	3 250 000	72 000	0
2020	6 242 000	2 250 000	567 000	100 000	3 250 000	75 000	0
2021	6 266 000	2 250 000	567 000	92 000	3 250 000	0	107 000
2022	250 000	184 000	30 000	6 000	0	0	30 000

Appendix 5: Iberdrola's Group Companies' CEO's

Company	CEO
Iberdrola España	Mr. Mario Ruiz-Tagle
Scottish Power	Mr. Keith Anderson
Avangrid	Mr. Pedro Azagra Blázquez
Neoenergia	Mr. Eduardo Capelastegui Saiz
Iberdrola México	Mr. José Enrique Alba Carcelén
Iberdrola Renovables Internacional	Mr. José Oriol Hoyos
Iberdrola Inmobiliaria	Mr. José Sáinz Armada



Mr. Mario Ruiz-Tagle



Mr. Keith Anderson



Mr. Pedro Azagra Blázquez



Mr. Eduardo Capelastegui Saiz



Mr. José Enrique Alba Carcelén



Mr. José Oriol Hoyos



Mr. José Sáinz Armada

Appendix 6: PESTEL analysis

P	Governments and supranational organizations have been conducting large efforts to boost the green energy transition, and for energy independence to become a reality for most countries.
	Due to the Ukrainian invasion by Russia, and the consequent worldwide geopolitical instability, EU wants to become independent from Russia and renewable solutions will play a key role in this transformation.
	Tax-wise, renewable energy related investments are highly favorable, and might also include government subsidies and credits.
	The oil & Gas industry, although still important for the world energy supply, is gradually losing the political and economic importance it once had, consequently giving protagonist to "greener" industries.
	Adoption of clear standards of necessary energy standards and use of renewable energies by the most polluting country in the world, China.
E	Global economic disturbances, with Covid-19-related quarantines still affecting China.
	High-inflationary periods and an imminent global recession.
	Russia-Ukraine war will incentivize the acceleration for the sustainable energy transition and increase EU's energy independence.
	New economic stimulus packages are more than just an opportunity to align the economy sustainably and achieve the climate targets for politics – therefore there might be a chance that investments in the sector will increase
	Worldwide increase of sustainable energy consumption as social awareness for climate starts gaining political importance.
S	The world population will keep increasing, though at a slower pace, therefore energy consumption is expected to rise accordingly.
	Energy storage development, other solutions to batteries than lithium based.
	Solar, wind, and hydro utilities' development to improve performance, cost efficiency and environmental impacts.
	Development of carbon capture technologies to store, use or remove.
	Green hydrogen development – which has high energy density – is a potential solution to long distance transportation.
T	Artificial intelligence and big data to quick decision making in energy grids, may also be forecast energy consumption, maintenance needs and capacity levels.
	Blockchain usage to encrypt grid operations and monitoring data, facilitate digital transactions and track custody of grid materials.
	Renewable energy is at the center of an energy transition and climate protection, moving from fossil-fuels energy sources to more sustainable energy sources, such as renewables.
	Net zero carbon emissions are part of the agenda of every government and supranational organization, as defined in the Paris Agreement.
	The shift to "greener" energies is the main key for a sustainable future, where CO2 emissions are reduced as the energy consumption increases.
E	Economic indicators are starting to implement even more ESG indicators, making countries and companies consider sustainability standards.
	Intellectual property regulation that protects sustainable energy-related technology is an industry asset, and an indicator that regulators favor the investment on these types of solutions.
	Increase of legislation and regulation towards responsible energy consumption.
	Worldwide, 144 countries have set their own targets for the expansion of renewable energies and 138 countries and regions are implementing policies to increase the share of renewables in their energy supply.
	Legal concerns can thus be assessed positively as well as negatively and tend to have neutral effects on the progress of the renewable energy sector overall.
L	The adoption of the 2030 climate and energy framework by the EU in September 2020 to raise the 2030 greenhouse gas emission reduction target.

Appendix 7: Author assumptions

Assumptions	
Variable	Rationale
Macroeconomic Assumptions	
Inflation Rate	Based on the European Central Bank estimates for the 2023 to 2027 forecasted period (https://www.ecb.europa.eu/stats/ecb_surveys/survey_of_professional_forecasters/html/table_hist_hicp.en.html)
Operational Assumptions	
Efficiency (GWh/MW)	Author analysis. The evolution of operational efficiency was assumed to follow the same CAGR observed from the 2018 to 2022 period.
Total Installed Capacity (MW)	Author analysis. The evolution of Total Installed Capacity was assumed to follow the same CAGR observed from the 2018 to 2022 period.
Net Production (GWh)	Author analysis. Total Net Production (GWh) was estimated using the obtained values for the Total Installed Capacity and Efficiency.
Km of lines	Author analysis. The evolution of total Km of Lines was assumed to follow the same CAGR observed from the 2018 to 2022 period.
Financial Statement Assumptions	
Income Statement	
Revenues	
Customers	Author analysis. Revenues for the Customers and Renewables segments were estimated using the Net Production values and the price per GWh [Revenue/Net Production (€M/GWh)] growing at the inflation estimates.
Renewables	
Networks	Author analysis. Network revenues were estimated using the revenue per Km of Lines, growing at the inflation estimates.
Others	Author analysis. Due to the nature of the revenues for this segment (negative), it was assumed the constant value of 2022.
Supplies	Author analysis. Average of the historical percentage of revenues.
Operational Expenses	Author analysis. Average of the historical percentage of revenues.
Depreciation and Amortization	Author analysis. Average of the historical percentage of revenues.
Interest Expense	Author analysis. Average of the historical percentage of Finance Expense over Total Debt.
Income Tax	Author analysis. Real tax rate from 2022
Balance Sheet	
CAPEX	Author analysis. Average of the historical percentage of CAPEX over revenues.
Working Capital	Author analysis. Average of the historical percentage of Working Capital items over revenues.
Bank Loans	
Debt Issues	Author analysis. Percentage of issues of debt over total CAPEX from 2022.
Debt Redemption	Author analysis. Percentage of redemptions of debt over total issues from 2022.
Leasings	
New Lease Contracts	Author analysis. Average of the historical percentage of new lease contracts over revenues.
Payments from Principal	Author analysis. Average of the historical percentage of new lease contracts over leasings opening balance.
Market Data	
Cost of Capital	
Cost of Equity	Author analysis. Estimated using the Capital Asset Pricing Model.
Risk-Free Rate	10y German Bond Yields (27th May 2023)
Beta	Author analysis. Estimated through the Pure Play Method, using the selected peers from the SARD approach. Fernandez, P. (2023). Survey: Market Risk Premium and Risk-Free Rate used for 80 countries in 2023. 3. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4407839
Market Risk Premium	
Cost of Debt	Author analysis, based on the Credit Spread.
Terminal Period	
Long-Term Growth Rate	Author analysis. Target inflation rate of 2% + premium of 0.5% to consider the early stage of the industry.

Appendix 8: Balance Sheet Forecast

Balance Sheet	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Intangible Assets	21 000	20 368	18 222	19 909	20 118	19 481	18 803	18 084	17 325	16 525
Investment Property	429	342	301	310	307	256	202	144	84	20
Property, Plant and Equipment	66 109	71 289	71 779	79 981	86 326	93 498	101 126	109 216	117 755	126 754
Right-of-Use Assets	0	1 782	1 974	2 260	2 370	3 368	4 362	5 353	6 339	7 323
Non-Current Financial Investments	5 191	5 819	5 461	6 499	10 508	11 311	11 863	12 443	13 020	13 628
Non-Current Trade and Other Receivables	815	2 851	3 161	3 764	4 614	4 486	4 771	5 060	5 341	5 629
Non-Current Tax Assets	666	666	666	729	736	736	736	736	736	736
Deferred Tax Assets	5 486	5 695	5 982	5 917	6 321	6 321	6 321	6 321	6 321	6 321
Non-Current Assets	99 696	108 811	107 546	119 369	131 300	139 457	148 183	157 357	166 920	176 935
Assets Held for Sale	62	0	0	124	308	308	308	308	308	308
Nuclear Fuel	273	306	260	267	259	422	449	476	503	530
Inventories	2 174	2 542	2 443	2 639	2 159	3 708	3 943	4 182	4 414	4 652
Current Trade and Other Receivables	6 855	7 499	7 664	10 956	11 220	13 129	13 934	14 751	15 544	16 358
Current Financial Investments	1 178	1 098	1 178	4 364	4 813	5 286	5 621	5 962	6 292	6 632
Cash and Cash Equivalents	2 801	2 113	3 427	4 033	4 608	6 058	7 941	9 659	11 200	12 599
Current Assets	13 342	13 558	14 972	22 383	23 367	28 911	32 196	35 338	38 261	41 079
Total Assets	113 038	122 369	122 518	141 752	154 667	168 368	180 379	192 695	205 181	218 015
Parent Company	36 582	37 678	35 412	40 479	41 119	45 669	50 446	55 191	59 810	64 432
Subscribed Capital	4 798	4 772	4 762	4 775	4 772	4 772	4 772	4 772	4 772	4 772
Valuation Adjustments	(32)	(544)	(242)	547	(932)	(932)	(932)	(932)	(932)	(932)
Other Reserves	32 732	33 582	34 420	35 911	36 839	38 268	42 818	47 342	51 771	56 200
Treasury Shares	(1 010)	(1 436)	(1 985)	(1 860)	(1 756)	(1 756)	(1 756)	(1 756)	(1 756)	(1 756)
Translation Differences	(2 919)	(2 101)	(5 154)	(2 779)	(2 143)	(2 143)	(2 143)	(2 143)	(2 143)	(2 143)
Net Profit for the Year	3 014	3 406	3 611	3 885	4 339	7 460	7 687	7 908	8 099	8 290
Non-Controlling Interests	7 394	9 516	11 806	15 647	16 995	17 179	17 453	17 742	18 046	18 364
Equity	43 977	47 195	47 218	56 126	58 114	62 848	67 899	72 934	77 856	82 796
Capital Grants	1 478	1 399	1 240	1 261	1 247	1 247	1 247	1 247	1 247	1 247
Facilities Assigned and Financed by Third Parties	4 823	4 987	5 043	5 424	5 673	5 673	5 673	5 673	5 673	5 673
Non-Current Provisions	5 268	5 990	5 836	5 330	4 225	4 225	4 225	4 225	4 225	4 225
Non-Current Financial Liabilities	31 779	33 639	35 096	37 175	44 216	49 027	54 075	59 362	64 880	70 639
Other Non-Current Liabilities	375	407	262	418	309	309	309	309	309	309
Non-Current Tax Liabilities	180	261	285	300	362	362	362	362	362	362
Deferred Tax Liabilities	9 043	9 359	9 607	11 364	11 682	11 682	11 682	11 682	11 682	11 682
Non-Current Liabilities	52 945	56 043	57 369	61 272	67 714	72 525	77 573	82 860	88 378	94 137
Liabilities Linked to Assets Held for Sale	1	0	0	0	27	27	27	27	27	27
Current Provisions	580	660	579	789	922	922	922	922	922	922
Current Financial Liabilities	13 640	16 534	15 470	21 297	25 079	28 734	30 534	32 415	34 350	36 371
Other Current Liabilities	1 896	1 937	1 882	2 268	2 811	3 313	3 424	3 538	3 648	3 762
Current Liabilities	16 116	19 131	17 931	24 354	28 839	32 995	34 907	36 902	38 947	41 082
Total Equity and Liabilities	113 038	122 369	122 518	141 752	154 667	168 368	180 379	192 695	205 181	218 015

Appendix 9: Income Statement Forecast

Income Statement	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Revenue	35 076	36 438	33 145	39 114	53 949	59 247	63 007	66 826	70 532	74 338
Supplies	(19 641)	(20 175)	(17 000)	(22 052)	(33 750)	(33 366)	(35 484)	(37 635)	(39 722)	(41 865)
Gross Income	15 435	16 263	16 145	17 062	20 199	25 880	27 523	29 191	30 810	32 472
Personnel Expenses	(2 679)	(2 841)	(2 810)	(3 002)	(3 365)	(4 417)	(4 696)	(4 980)	(5 255)	(5 538)
Capitalised Personnel Expenses	659	695	661	716	847	0	0	0	0	0
External Services	(2 797)	(2 843)	(2 841)	(2 936)	(3 602)	(4 566)	(4 855)	(5 150)	(5 435)	(5 729)
Other Operating Income	662	659	704	995	911	1 191	1 267	1 343	1 418	1 494
Net Operating Expenses	(4 155)	(4 330)	(4 286)	(4 227)	(5 209)	(7 792)	(8 285)	(8 787)	(9 273)	(9 772)
Taxes Other Than Income Tax	(1 931)	1 829	(1 821)	(829)	(1 762)	(870)	(925)	(981)	(1 035)	(1 091)
Gross Operating Profit (EBITDA)	9 349	10 104	10 038	12 006	13 228	17 219	18 313	19 423	20 502	21 609
Impairment Losses, Trade and Other Receivables	(254)	(297)	(381)	(369)	(470)	0	0	0	0	0
Amortisation, Depreciation and Provisions	(3 656)	(3 929)	(4 093)	(4 294)	(4 774)	(5 633)	(6 059)	(6 489)	(6 908)	(7 337)
Operating Profit (EBIT)	5 439	5 877	5 564	7 343	7 984	11 585	12 254	12 935	13 593	14 272
Result of Equity - Accounted Investees	-	14	480	(39)	146	0	0	0	0	0
Finance Income	-	864	1 038	1 265	1 204	1 204	1 204	1 204	1 204	1 204
Finance Expense	-	(2 164)	(2 029)	(2 268)	(3 042)	(3 022)	(3 368)	(3 732)	(4 113)	(4 510)
Net Finance Expense	-	(1 300)	(991)	(1 003)	(1 838)	(1 818)	(2 164)	(2 528)	(2 909)	(3 306)
Profit Before Tax	4 348	4 794	5 053	6 301	6 292	9 768	10 090	10 406	10 685	10 966
Income Tax	(959)	(914)	(1 083)	(1 914)	(1 161)	(1 663)	(1 718)	(1 772)	(1 819)	(1 867)
Net Profit for the Year from Continuing Operations	3 389	3 880	3 970	4 387	5 131	8 105	8 372	8 635	8 865	9 099
Net Profit (Loss) for the Year from Discontinued Operations (Net of Taxes)	(51)	(66)	(18)	(35)	(71)	0	0	0	0	0
Non-Controlling Interests	(323)	(348)	(341)	(467)	(721)	(644)	(685)	(727)	(767)	(808)
Net Profit for the Year Attributable to the Parent	3 014	3 466	3 611	3 885	4 339	7 460	7 687	7 908	8 099	8 290
Basic Earnings Per Share In Euros From Continuing Operations	0,455	0,520	0,536	0,585	0,655	1,179	1,215	1,250	1,280	1,310

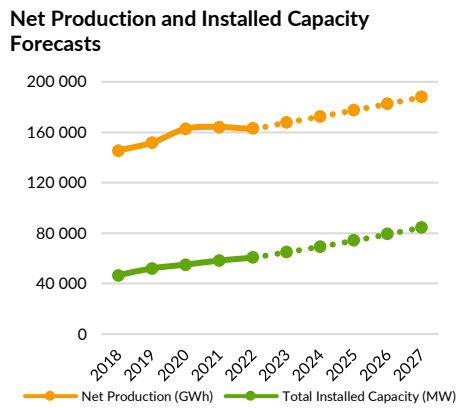
Appendix 10: Cash Flow Statement Forecast

Cash Flow Statement	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Profit Before Tax from Continuing Operations	4 348	4 794	5 053	6 301	6 292	9 768	10 090	10 406	10 685	10 966
Profit Before Tax from Discontinued Operations	(65)	(56)	(25)	(45)	(96)	0	0	0	0	0
Adjustments	4 889	5 348	4 899	5 820	6 883	5 633	6 059	6 489	6 908	7 337
Changes in Working Capital	(748)	(1 808)	(256)	(2 728)	(1 136)	(539)	(708)	(719)	(697)	(716)
Provisions Paid	(511)	(626)	(538)	(459)	(512)	0	0	0	0	0
Income Taxes Paid	(333)	(797)	(843)	(832)	(1 055)	(1 663)	(1 718)	(1 772)	(1 819)	(1 867)
Dividends Received	55	60	57	49	67	0	0	0	0	0
Net Cash Flows From Operating Activities	7 586	6 915	8 347	8 106	10 443	13 199	13 723	14 405	15 076	15 719
Acquisition of Subsidiaries	0	0	(391)	(536)	0	0	0	0	0	0
Change in Cash Flow Due to Modification of the Consolidation Scope	0	0	114	21	0	0	0	0	0	0
Acquisition of Intangible Assets	(1 040)	(411)	(446)	(591)	(510)	(368)	(392)	(415)	(438)	(462)
Acquisition of Associates	(91)	(205)	(59)	(203)	(65)	141	119	100	84	71
Acquisition of Investment Property	(12)	(3)	(2)	(3)	(1)	41	43	46	48	51
Acquisition of Property, Plant and Equipment	(4 655)	(5 169)	(5 405)	(6 327)	(6 277)	(11 601)	(12 337)	(13 085)	(13 811)	(14 556)
Capitalised Interest Paid	(193)	(223)	(149)	(145)	(189)	0	0	0	0	0
Capitalised Personnel Expenses Paid	(659)	(695)	(661)	(716)	(847)	0	0	0	0	0
Capital Grants and Other Deferred Income	14	12	8	8	1	0	0	0	0	0
Proceeds/(Payments) for Securities Portfolio	(2)	(17)	(1)	0	(7)	0	0	0	0	0
Proceeds/(Payments) for Other Investments	(676)	(925)	(930)	(1 103)	(1 631)	(541)	(384)	(390)	(379)	(389)
Proceeds/(Payments) for Current Financial Assets	(63)	(135)	(104)	(364)	(834)	(876)	(622)	(631)	(613)	(629)
Interest Received	192	49	25	33	172	0	0	0	0	0
Income Tax	22	0	0	0	0	0	0	0	0	0
Proceeds from Disposal of Non-Financial Assets	7	340	235	305	23	0	0	0	0	0
Proceeds from Disposal of Financial Assets	47	0	1 122	133	11	0	0	0	0	0
Disposal of Subsidiaries	1 059	0	0	0	0	0	0	0	0	0
Net Cash Flows Used in Investing Activities	(6 050)	(7 382)	(6 644)	(9 488)	(10 154)	(13 204)	(13 573)	(14 376)	(15 108)	(15 914)
Acquisition of Free Allocation Rights	(98)	0	0	0	0	0	0	0	0	0
Dividends Paid	(143)	(330)	(562)	(570)	(890)	(2 910)	(2 910)	(3 163)	(3 479)	(3 669)
Dividends Paid to Non-Controlling Interests	(161)	(179)	(150)	(229)	(419)	(460)	(411)	(437)	(464)	(489)
Perpetual Subordinated Bonds	133	759	2 927	2 646	(169)	0	0	0	0	0
Bank Borrowings, Bonds and Other Marketable Securities	(148)	(470)	435	1 366	3 059	5 065	5 386	5 713	6 030	6 355
Financial Liabilities from Leases	(10)	(189)	(198)	(203)	(236)	(240)	(333)	(424)	(514)	(602)
Equity Instruments Having the Substance of a Financial Liability	111	15	181	162	(47)	0	0	0	0	0
Cash Outflows Due to Capital Decrease	(0)	(1)	0	0	0	0	0	0	0	0
Cash Outflows Due to Capital Increase	(1)	(1)	0	0	0	0	0	0	0	0
Acquisition of Treasury Shares	(1 674)	(1 404)	(2 710)	(1 897)	(1 885)	0	0	0	0	0
Proceeds from Disposal of Treasury Shares	63	50	127	73	91	0	0	0	0	0
Transactions with Non-Controlling Interests	132	1 473	-	-	-	0	0	0	0	0
Payments for Transactions with Non-Controlling Interests	-	-	(327)	(94)	(51)	0	0	0	0	0
Proceeds from Transactions With Non-Controlling Interests	-	-	206	615	698	0	0	0	0	0
Net Cash Flows From/(Used in) Financing Activities	(1 796)	(277)	(71)	1 869	151	1 455	1 733	1 689	1 573	1 594
Effect of Exchange Rate Fluctuations on Cash and Cash Equivalents	(136)	56	(318)	119	135	0	0	0	0	0
Net Increase/(Decrease) in Cash and Cash Equivalents	(396)	(688)	1 314	606	575	1 450	1 883	1 718	1 541	1 399
Cash and Cash equivalents at Beginning of Year	3 197	2 801	2 113	3 427	4 033	4 608	6 058	7 941	9 659	11 200
Cash and Cash Equivalents at End of Year	2 801	2 113	3 427	4 033	4 608	6 058	7 941	9 659	11 200	12 599

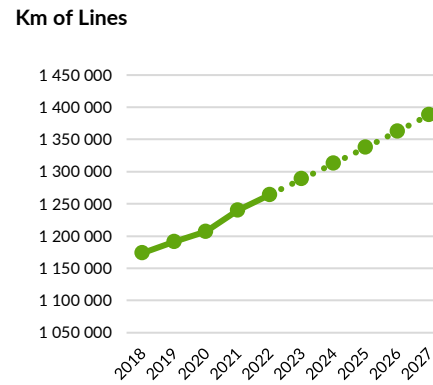
Appendix 11: Operational and Revenues Forecast

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	CAGR 18-22
Total Installed Capacity (MW)	46 694	52 082	55 111	58 320	60 761	64 896	69 312	74 028	79 066	84 446	6,80%
Energy Revenues/Total Installed Capacity (€/MW)	0,54	0,47	0,41	0,56	0,74	0,76	0,75	0,74	0,73	0,72	
Efficiency (GWh/MW)	3,12	2,91	2,95	2,82	2,68	2,58	2,49	2,40	2,31	2,22	-3,69%
Average			2,90								
Net Production (GWh)	145 605	151 758	162 842	164 266	163 031	167 704	172 511	177 456	182 543	187 775	
Price: Revenue/Net Production (€/GWh)	0,17	0,16	0,14	0,20	0,28	0,29	0,30	0,31	0,32	0,32	
Km of lines	1 173 672	1 191 288	1 206 783	1 240 137	1 264 641	1 288 464	1 312 736	1 337 466	1 362 661	1 388 331	
Revenue per Km	10 958	11 928	10 690	12 004	14 514	15 327	15 756	16 166	16 521	16 868	

Revenues	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	CAGR 23-27
Customers	20 992	20 726	18 305	23 764	34 939	37 953	40 134	42 358	44 531	46 769	5,36%
Renewables	4 045	3 834	4 161	8 969	10 322	11 212	11 857	12 514	13 156	13 817	5,36%
Networks	12 861	14 210	12 900	14 887	18 355	19 748	20 683	21 621	22 513	23 419	4,35%
Others	(2 823)	(2 332)	(2 221)	(8 506)	(9 667)	(9 667)	(9 667)	(9 667)	(9 667)	(9 667)	0,00%
Total	35 076	36 438	33 145	39 114	53 949	59 247	63 007	66 826	70 532	74 338	5,84%



Source: Author analysis



Source: Author analysis

Appendix 12: CAPEX and D&A

CAPEX and D&A	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Depreciation Charges for:										
Intangible Assets	737	911	144	890	1 058	1 006	1 069	1 134	1 197	1 262
Investment Property	8	8	7	7	5	10	11	12	12	13
Property, Plant and Equipment	2 842	2 815	3 033	3 156	3 452	4 428	4 709	4 995	5 272	5 556
Right-of-Use Assets	0	140	138	144	167	189	269	348	427	506
Total	3 656	3 929	4 093	4 294	4 774	5 633	6 059	6 489	6 908	7 337
CAPEX for:										
Intangible Assets	-	(210)	(695)	1 132	1 222	368	392	415	438	462
Investment Property	-	(79)	(34)	16	2	(41)	(43)	(46)	(48)	(51)
Property, Plant and Equipment	-	8 022	3 305	11 235	9 501	11 601	12 337	13 085	13 811	14 556
Total CAPEX	0	7 733	2 576	12 383	10 725	11 928	12 686	13 454	14 201	14 967

Appendix 13: WACC calculation

WACC		CAPM		Credit Spread	
Cost of Equity	6,28%	Risk-Free Rate	2,514%	Risk-Free Rate	2,514%
Cost of Debt	4,51%	Beta	0,5707	Credit Rating	BBB+
Tax Rate	25%	Market Risk Premium	6,60%	Credit Spread	2,00%
Total Debt (2023YE)	55 037	Cost of Equity	6,28%	Cost of Debt	4,51%
Total Equity (2023YE)	62 848				
WACC	4,93%				

Appendix 14: Beta estimation

Company Name	Beta	Total Debt (2022YE)	Market Cap	WACC Tax Rate (%)	Beta Unlevered	Median
Sempra Energy	0,74	28 919 000 000	46 096 000 000	21%	0,4948	0,3697
Nextera Energy, Inc.	0,47	64 966 000 000	150 057 000 000	21%	0,3502	
Consolidated Edison, Inc.	0,37	24 415 000 000	32 533 000 000	21%	0,2323	
The Southern Company	0,51	59 135 000 000	77 582 000 000	21%	0,3183	
Public Service Enterprise Group Inc.	0,58	20 439 000 000	30 592 000 000	21%	0,3796	
EDP Energias de Portugal S.A.	0,50	22 110 594 000	21 498 000 000	21%	0,2759	
Drax Group Plc	1,04	1 594 000 000	2 566 000 000	35%	0,7420	
Endesa, S.A.	0,51	10 378 000 000	21 255 000 000	22%	0,3697	
Orsted A/S	0,58	71 547 000 000	270 626 000 000	14%	0,4728	
Iberdrola S.A.	0,5707	49 025 000 000	67 669 000 000	25%	0,3697	

Appendix 15: Free Cash Flow to Firm

DCF Valuation	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Terminal
EBIT	-	5 877	5 564	7 343	7 984	11 585	12 254	12 935	13 593	14 272	-
(1 - Tax Rate)	-	92%	83%	83%	87%	83%	83%	83%	83%	83%	-
Depreciation and Amortization	-	(3 929)	(4 093)	(4 294)	(4 774)	(5 633)	(6 059)	(6 489)	(6 908)	(7 337)	-
Changes in NWC	-	3 262	85	3 293	606	539	708	719	697	716	-
CAPEX	-	7 733	2 576	12 383	10 725	11 928	12 686	13 454	14 201	14 967	-
Free Cash Flow to Firm	-	(1 645)	6 060	(5 270)	365	2 779	2 833	3 048	3 289	3 496	147 460

Appendix 16: Dividend Discount Model

Dividend Discount Model	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Terminal
Dividends	143	330	562	570	890	2 910	2 910	3 163	3 479	3 669	99 484

Cost of Equity	6,28%
Growth	2,50%
DDM	87 587
Price	13,85

Sensitivity Analysis

		Cost of Equity				
		5,78%	6,03%	6,28%	6,53%	6,78%
Growth	2,0%	14,09	13,21	12,44	11,76	11,14
	2,3%	14,95	13,96	13,10	12,34	11,66
	2,5%	15,95	14,82	13,85	12,99	12,23
	2,8%	17,12	15,81	14,70	13,73	12,88
	3,0%	18,49	16,97	15,68	14,57	13,61

Appendix 17: Multiples Valuation

Company Name	Market Data (31/12/2022)*			Financial Data (2022YE)				Valuation				
	Price €/share	Market Cap. M	Enterprise Value M	Sales M	EBITDA M	EBIT M	Earnings M	EV/Sales x	EV/EBITDA x	EV/EBIT x	P/E x	P/Sales x
Iberdrola S.A.	10,93	€68 515	€112 700	€53 949	€13 228	€7 984	€4 339					
Sempra Energy	\$153	\$48 577	\$77 427	\$14 439	\$5 211	\$2 557	\$2 094	5,4x	14,9x	30,3x	23,2x	3,4x
Nextera Energy, Inc.	83,60	\$166 127	\$229 492	\$20 956	\$10 139	\$3 559	\$4 147	11,0x	22,6x	64,5x	40,1x	7,9x
Consolidated Edison, Inc.	\$95	\$33 822	\$55 727	\$15 670	\$7 685	\$2 624	\$1 660	3,6x	7,3x	21,2x	20,4x	2,2x
The Southern Company	\$71	\$77 671	\$77 761	\$29 279	\$10 821	\$5 564	\$3 524	2,7x	7,2x	14,0x	22,0x	2,7x
Public Service Enterprise Group Inc.	61,27	\$30 571	\$50 376	\$9 800	\$2 604	\$1 504	\$1 031	5,1x	19,3x	33,5x	29,7x	3,1x
EDP Energias de Portugal S.A.	4,6560	€18 378	€18 378	€20 651	€5 017	€1 471	€679	0,9x	3,7x	12,5x	27,1x	0,9x
Drax Group Plc	£703	£2 818	£4 024	£7 775	£1 023	£241	£85	0,5x	3,9x	16,7x	33,2x	0,4x
Endesa, S.A.	€18	€18 668	€29 537	€20 522	€5 158	€2 161	€1 435	1,4x	5,7x	13,7x	13,0x	0,9x
Orsted A/S	631,30	265 253	295 824	126 091	28 928	13 388	14 549	2,3x	10,2x	22,1x	18,2x	2,1x
Peer Trimmed Average (75%)	-	-	-	-	-	-	-	2,9x	8,2x	20,0x	24,1x	2,3x
Implied Price	-	-	-	-	-	-	-	14,62	7,48	15,55	16,53	19,7 €

*Source: Yahoo Finance

Average Implied Price 14,77

Appendix 18: Adjusted Present Value

Adjusted Present Value	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Terminal
Free Cash Flow to Firm	-	(1 645)	6 060	(5 270)	365	2 779	2 833	3 048	3 289	3 496	147 460
Interest expense	-	2 164	2 029	2 268	3 042	3 022	3 368	3 732	4 113	4 510	
Tax Shield	-	540	506	566	759	754	840	931	1 026	1 125	
PV of Tax Shield						754	804	853	899	943	
PV of FCFF (2023YE)	129 765										
Net Value of Debt Financing	4 252										
Adjusted Present Value (APV)	134 017										
+ Cash	6 058										
- Total Debt	55 037										
- Non-Controlling Interests	17 179										
- Preferred Stock	0										
Equity Value	67 859										
Number of Shares	6 326 094 000										
Equity Value per Share	10,73										
						Risk-Free Rate		2,51%			
						Unlevered Beta		0,37			
						MRP		6,60%			
						Unlev. Cost of Equity		4,95%			
						Cost of Debt		4,51%			

Appendix 19: Investment Risks

Risk	Category	Code	Severity	Probability	Risk Impact	Classification
Increase in Energy Production Equipment Cost	Economical	ECON1	3	5	15	High
Decrease in Polluting Energy Sources Prices	Economical	ECON2	3	2	6	Low
Financing Costs Increase	Economical	ECON3	3	4	12	Medium
Climate Change (Weather Instability)	Environmental	ENV1	2	5	10	Medium
Tighter Regulations Regarding Energy Consumption	Legal	LEG1	1	4	4	Low
Change in Political Support for Renewable Energy	Political	PLT1	4	1	4	Low
Less Social Concern for the Environment	Social	SOC1	2	1	2	Low
Development of New Competitor Technologies	Technological	TEC1	3	3	9	Medium

Scale of Severity	
1	Negligible - the risk will have few consequences if it occurs
2	Minor - the consequences of the risk will be easy to manage
3	Moderate - the consequences of the risk will take time to mitigate
4	Major - the consequences will be significant and may cause long-term damage
5	Catastrophic - the consequences will be detrimental and may be difficult to recover from

Scale of Probability	
1	Very unlikely - there is a remote chance that the risk will occur
2	Not likely - there is a good probability that the risk will not occur
3	Possible - the risk has a 50% chance of occurring
4	Probable - there is a good probability that the risk will occur
5	Very likely - the risk will certainly occur

Appendix 20: Sensitivity Analysis

		WACC												
		4,33%	4,43%	4,53%	4,63%	4,73%	4,83%	4,93%	5,03%	5,13%	5,23%	5,33%	5,43%	5,53%
Growth	1,90%	12,18	11,32	10,52	9,77	9,08	8,44	7,84	7,28	6,75	6,25	5,78	5,34	4,93
	2,00%	13,08	12,14	11,28	10,48	9,73	9,05	8,40	7,80	7,24	6,71	6,22	5,75	5,31
	2,10%	14,06	13,04	12,10	11,23	10,44	9,70	9,01	8,37	7,77	7,21	6,68	6,19	5,72
	2,20%	15,13	14,01	12,99	12,06	11,19	10,40	9,66	8,97	8,33	7,73	7,18	6,65	6,16
	2,30%	16,30	15,08	13,96	12,95	12,01	11,15	10,36	9,62	8,94	8,30	7,70	7,14	6,62
	2,40%	17,60	16,25	15,03	13,92	12,90	11,97	11,11	10,32	9,58	8,90	8,26	7,67	7,11
	2,50%	19,03	17,54	16,20	14,98	13,87	12,86	11,93	11,07	10,28	9,54	8,86	8,23	7,63
	2,60%	20,64	18,98	17,49	16,15	14,93	13,83	12,81	11,89	11,03	10,24	9,51	8,83	8,19
	2,70%	22,44	20,58	18,92	17,44	16,10	14,88	13,78	12,77	11,84	10,99	10,20	9,47	8,79
	2,80%	24,47	22,38	20,52	18,87	17,38	16,05	14,84	13,73	12,73	11,80	10,95	10,16	9,43
	2,90%	26,80	24,41	22,31	20,46	18,81	17,33	16,00	14,79	13,69	12,68	11,76	10,91	10,12
3,00%	29,46	26,72	24,34	22,25	20,40	18,76	17,28	15,95	14,74	13,64	12,64	11,72	10,87	
3,10%	32,57	29,39	26,65	24,28	22,19	20,34	18,70	17,23	15,90	14,69	13,60	12,60	11,68	

Appendix 21: Monte Carlo statistics

Indicator	Value
No of Trials	100 000
Base case	11,93 €
Min.	8,00 €
Max	18,39 €
Mean	11,99 €
Median	11,93 €
St. Deviation	1,21
10th percentil	10,50
90th percentil	13,58

Risk Free Rate	
Mean	2,51%
Std. Dev.	0,15%

The standard deviation of the risk-free rate (10 Year German Bonds Yield) was estimated using the daily closing price of these bonds in 2023, to capture the variability observed in the risk-free rate throughout the year. The mean value was assumed to be the same of the base case in the Discounted Cash Flow method (2.514%), in order to ensure that the Monte Carlo simulation is centred around the base case scenario.

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