Lisbon School of Economics & Management
Universidade de Lisboa

MASTERS IN
FINANCE

MASTERS FINAL WORK
PROJECT

EQUITY RESEARCH:
SIEMENS GAMESA RENEWABLE ENERGY

JOÃO CASIMIRO

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Abstract

Siemens Gamesa is a Spanish-German wind engineering firm based in Biscay, Spain. The company operates in three core segments: Onshore, Offshore and Operation & Maintenance (Service), and has a global presence servicing in more than 90 countries.

This report slightly differs from a typical Equity Research report, in the sense that no recommendation was provided. While drafting the MFW, an acquisition by Siemens Energy unfolded and SGRE's shares were delisted from the Madrid Stock Exchange. Having this in mind, I appraised the acquisition as Fairly Valued, since the difference between the acquisition price and my target price was 0.76%.

The valuation methodologies used were Discounted Cash Flow Model (using Free Cash Flow to the Firm) and Multiples Valuation (using EV / Sales). An emphasis was placed on the DCF method, and my final target price (€18.19/Sh.) was the result of a comprehensive and detailed forecast analysis (until 2027).

SGRE's main drivers for investment are: i) worldwide lead position in Offshore, ii) highly diversified operations by geography and iii) synergies and cost optimization strategies driven by its full integration of Siemens Energy.

Risk-wise, the company and the overall industry should particularly focus on the regulation risk. Concerns regarding noise pollution, wind farm-related accidents, and the fact that the turbines are not recyclable might be a deal-breaker for the foreseeable future when it comes to public subsidies allocation. Technologically speaking, the company also faces the risk that its solutions become obsolete – a normal occurrence in a fast-paced embryonic industry.

The biggest question mark on SGRE's future is on its indebtedness level. When compared to the peers, the company's level of solvency is concerning, especially considering next years' investment needs. Deleveraging is not only the key to future success, but it can also be the only chance of survival on such a capital-intensive industry.

JEL Classification: G00; G10; G30; G32; G34; G35

Key-words: M&A, Equity Research, Valuation, Siemens Gamesa

Resumo

A Siemens Gamesa é uma empresa hispano-alemã de engenharia eólica com sede na Biscay, em Espanha. A empresa opera em três segmentos principais: Onshore, Offshore e Operação e Manutenção (Serviço), e tem uma presença global, prestando serviços em mais de 90 países.

Este relatório difere ligeiramente de um relatório típico de Equity Research, no sentido em que não foi apresentada qualquer recomendação. Durante a elaboração do MFW, Siemens Energy adquiriu por inteiro a Siemens Gamesa e as acções da SGRE foram retiradas da Bolsa de Madrid. Tendo em conta este facto, avaliei a aquisição como Fairly Valued, uma vez que a diferença entre o preço de aquisição e o meu preço-alvo foi de 0,76%.

As metodologias de avaliação utilizadas foram o modelo DCF (utilizando o FCFF) e a Avaliação por Múltiplos (utilizando EV / Vendas). A ênfase foi colocada no método DCF, e o meu preço-alvo final (€18,19/Sh.) foi o resultado de uma análise abrangente e pormenorizada das previsões (até 2027).

Os principais factores de investimento da SGRE são: i) posição de liderança mundial no sector Offshore, ii) operações muito geograficamente diversificadas e iii) sinergias e estratégias de otimização de custos impulsionadas pela integração total da Siemens Energy.

Em termos de risco, a empresa e o sector em geral devem centrar-se especialmente no risco regulatório. As preocupações com a poluição sonora, os acidentes relacionados com os parques eólicos e o facto de as turbinas não serem recicláveis podem ser um obstáculo num futuro próximo no que respeita à atribuição de subsídios públicos. Do ponto de vista tecnológico, a empresa corre também o risco de as suas soluções se tornarem obsoletas, o que é normal numa indústria embrionária e de ritmo acelerado.

O maior ponto de interrogação sobre o futuro da SGRE reside no seu nível de endividamento. Quando comparado com os seus pares, o nível de solvência da empresa é preocupante, especialmente tendo em conta as necessidades de investimento para os próximos anos. A desalavancagem não é apenas a chave para o sucesso futuro, mas pode também ser a única hipótese de sobrevivência num sector com tão capital-intensivo.

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

Palavras chave: M&A, Equity Research, Valuation, Siemens Gamesa

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The Masters Final Work is the result of several years of work, perseverance and discipline. It would be naïve and selfish to think that I did it all by myself. I'm lucky enough to have met beautiful, inspiring, and loving people in my journey that makes my life easier and everything worth it.

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Glossary

AMER	North, Central, and South America
APAC	Asia Pacific
Bn	Billions
BNEF	BloombergNEF
CAGR	Compounded Annual Growth Rate
CAPEX	Capital Expenditures
CAPM	Capital Asset Pricing Model
CO2	Carbon Dioxide
COP	Conference of the Parties
D/E	Debt to Equity
D&A	Depreciation & Amortization
ECB	European Central Bank
EEA	European Environment Agency
EMEA	Europe, Middle East, and Africa
ESG	Environmental, Social, and Governance
EU	European Union
F	Forecast
FY	Final Year
GDP	Gross Domestic Product
Gt	Gigatonnes
GW	Gigawatt
GWEC	Global Wind Energy Council
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
Mt	Megatonnes
PPA	Power Purchase Agreement
PPE	Power, Plant and Equipment
rD	Cost of Debt
rE	Cost of Equity
ROIC	Return on Invested Capital
R&D	Research and Development
SE	Siemens Energy
SGRE	Siemens Gamesa Renewable Energy
TFEC	Total Final Energy Consumption
tn	Trillion
TW	Terawatt
UN	United Nations
USA	United States of America
USD	United States Dollars
Y	Year
YoY	Year-over-year

1. Research Snapshot

Siemens Gamesa is a Spanish-based key player in the European renewable energy market, especially in the wind-energy industry, that is present in more than 90 countries worldwide and has more than 24.500 employees. Since SGRE was delisted from Madrid stock exchange in February 2023, this report will not provide any investment recommendations, but assess the valuation at which the Siemens Energy acquired Siemens Gamesa – therefore, the terms **"undervalued", "fairly valued"** and **"overvalued"** will be used instead of the typical **"sell", "hold"** or **"buy".**

The acquisition by Siemens Energy (SE) **started in May 2022**, with the announcement of a **voluntary tender offer** that consisted of an **offering of €18.05/Sh** (representing a **premium of 27.7% against the price of €14.13/Sh**) **(Figure 1)**. The deal was valued at roughly **€4.05B**, and the main objective of SE was to delist SGRE's shares and fully integrate the company in its business while **keeping operational independence**.

By conducting a DCF model using Free Cash Flows to the Firm (FCFF), it was concluded that the acquisition price was **fairly valued** since the target price was **18.19** (upside **of 0.76%**), and that SGRE's market price (14.13) on the day of the acquisition's announcement was **highly undervalued** (by 28.7%). This **"fairly valued"** appraisal is a **Low Risk** assessment **(Figure 2).**

The company's strong position for the future can be defined in one word: offshore. It's relatively safe to assume that the outlook for SGRE will highly depend on how steep and quick the offshore growth will be in the foreseeable future. As a global segment leader, SGRE has all the conditions to become the most important wind-energy industry player.

Siemens Energy's acquisition of Siemens Gamesa has a lot of strategic reasons behind it. The German consortium expects to generate **annual cost synergies of up to €300 million within three years after full integration**, and this forecast was vital for the valuation's assumptions. This was also one of rationales behind the non-dividend policy assumption after the full integration takes place; it's clear that SE's objectives are medium to long-term with this acquisition, and it's expected that every positive net result that the SGRE might have in the coming years will be reinvested in **capacity expansion** and **technology development**.

All in all, the wind-energy industry is still **highly embryonic**. Despite a spike in global energy capacity in the past few years, the sub-sector is still in its infancy – especially the offshore segment. SGRE is already a key player in the European renewable energy market, but with acquisition from SE, the whole wind-energy industry will become more competitive in the coming years because Siemens Gamesa is well positioned to overtake the world leader in terms of energy capacity – Vestas.

2. Business Description

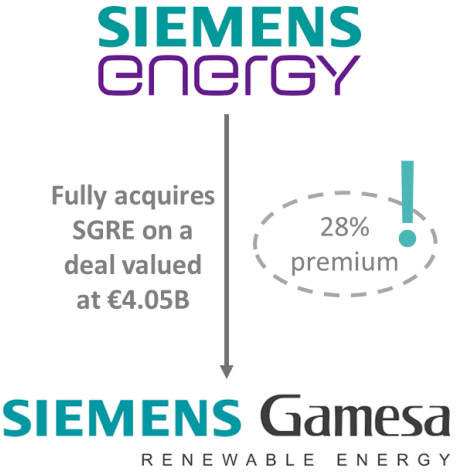
Siemens Gamesa Renewable Energy (SGRE) specializes in the development and construction of wind farms, as well as the engineering solutions, design, production and sale of wind turbines. It was created in 2017 as a result of the merger between Siemens Wind Power and Gamesa Corporación Tecnológica S.A, and is currently one of the top performers in the renewable energy industry. Siemens Gamesa is a subsidiary of Siemens Energy, is headquartered in Bilbao, Spain, and since February 2023, its shares are no longer listed on Madrid Stock Exchange.

Table 1 - Siemens Gamesa Overview

Conclusion	Fairly Valued
Date (DCF descounted as of)	31/12/2022
Acquisition price	18.05 €
Target price	18.19 €
Upside	0.8%
Industry	Energy
Sector	Wind
Ticker	SGRE.MC
Stock Exchange	Delisted
Shares outstanding	N/A
Market capitalization	€12.29B

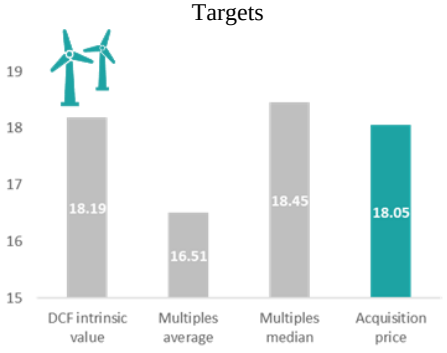
Source: Author analysis

Figure 1 - Siemens Energy Acquisition



Source: Author analysis

Figure 2 - Acquisition Price and Different Price Targets



Source: Author analysis

Siemens and Gamesa announced their intention to merge their respective wind operations on July 17, 2016, with Siemens holding a 59% interest and former Gamesa shareholders holding a 41% stake in the new entity. With headquarters in Spain and offshore operations headquartered in Hamburg, Germany, and Vejle, Denmark, Siemens acquired its part in Gamesa for €1 billion in cash. By installed capacity (69 GW), the combined company was the biggest wind turbine producer in the world. The merger went into effect on April 3, 2017.

Geographic and business segments

Siemens Gamesa is present **in more than 90 countries** around the world, and its turbines **are installed in 79 countries**. It operates more than **15 manufacturing plants in over 10 countries** and has approximately **40 sales offices**. On a geographical level, the company recognizes four different segments: **Spain, EMEA (excluding Spain), America, and APAC (Taiwan, India, Vietnam and China),** where each segment accounts for 5%, 43%, 26%, and 26%, respectively **(Figure 4; Appendix 1).** When compared to the FY21, SGRE's order backlog increased by 7.7%, mostly driven by a c.€1.5B increase in Americas **(Figure 5).**

SGRE operates through three business segments: the **Onshore** and **Offshore** wind turbines, and **Operation and Maintenance**. Onshore represents 49% of total revenue, Offshore accounts for 32%, followed by 19% from Operation and Maintenance **(Figure 3).** In FY2022, the company's overall revenue was **c.€9.8bn**, which represented a **decrease of c.4%** when comparing to FY2021. According to company releases, **supply chain disruptions** and **worldwide political instability** were the main responsible for this setback in the top line. Additionally, Siemens Gamesa faced challenges with the execution of certain projects and experienced higher-than-anticipated costs related to warranty and logistics, which further impacted its financial performance. The company has stated that it is taking steps to address these issues and improve its operational efficiency going forward**, including some changes in the executive board.**

The company's unique position is reflected on end-to-end solutions, from turbine design, installation, and operation through service and maintenance, maintaining a fully integrated value chain – reducing outsourcing risk. As a result, SGRE exercises full authority over each step of the supply chain, aligning with the company's commitment to delivering exceptional services. Additionally, this approach enables the company to gradually reduce reliance on third parties.

Onshore | The onshore segment represents the biggest source of revenue for SGRE. This unit comprises mostly the design, manufacturing and installation of onshore wind turbines and related components. SGRE's most profitable division offers wind turbines ranging from **2 MW to 5 MW**, as well as associated services such as digital services, technical support, and training for customers. markets for this segment include **Europe, India**, and the **Americas**, and its main products include Siemens Gamesa 5.X and Siemens Gamesa 4.X platforms.

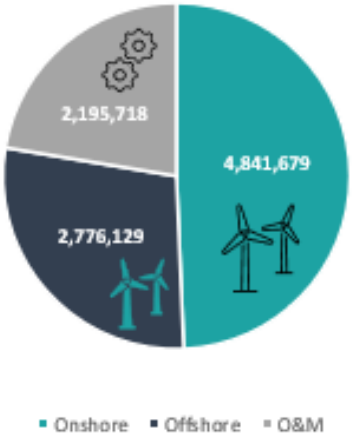
In the past few years, the **SG 6.6-155 and SG 6.6-170** turbine prototypes have been installed, and testing has started to make sure they can function in any environment, condition, and geography.

These devices offer one of the **lowest Levelized Cost of Energy to users** and have an enhanced **nominal capacity of 6.6MW** and the first 5.X turbines have already left the assembly lines and are being set up at the initial Scandinavian locations.

This industry-leading solution will be crucial to Onshore growth in the upcoming years, play a key role in the transition to green energy and enable Siemens Gamesa to become even stronger in the Onshore segment.

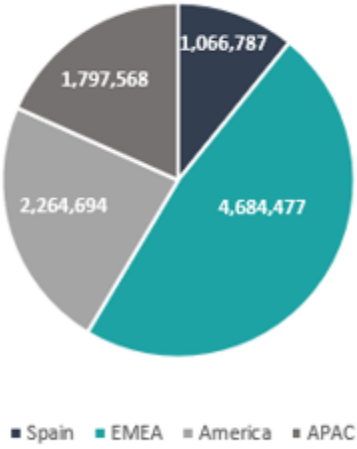
Offshore | The offshore segment offers wind turbines ranging from **8 MW to 15 MW**, as well as project management, engineering and logistics for offshore wind farms. Key markets for this segment include **Europe, Asia**, and the **Americas**. This emerging operational segment has experienced significant growth in recent years

Figure 3 - Business Segments



Source: SGRE's Annual Report

Figure 4 - Geographical Segments



Source: SGRE's Annual Report

Table 2 - SGRE's Key Data

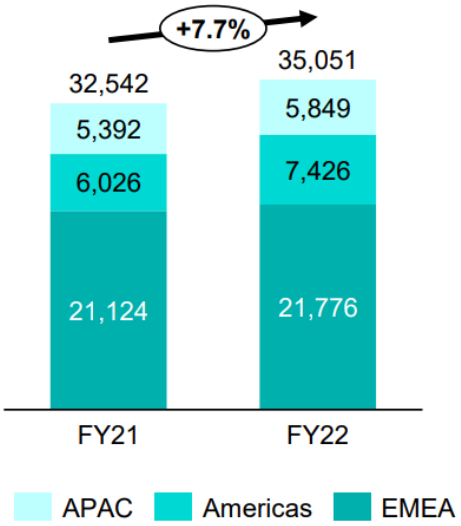
Siemens Gamesa at a glance	
Order backlog (€ min)	35,000
Revenue (€ min)	9813
EBIT (€ min)	(898)
EBIT margin	-9%
Net income (€ min)	(939)
D/E	0.75
CFO (€ min)	(54)
Net debt (€ min)	1,667
Employees	24,500
Countries	>90
S&P Rating	BBB
Parent compamy	Siemens Energy

Source: SGRE's Annual Report

and is expected to continue to grow at a rapid pace in the future. With increasing demand for clean energy sources and a shift towards decarbonization, governments around the world are investing heavily in offshore wind power, which is a reliable and sustainable source of renewable energy. Offshore wind turbines have the advantage of being in areas with stronger and more consistent wind resources than onshore turbines, allowing for higher energy generation and increased efficiency. Additionally, technological advancements from SGRE and cost reductions have made offshore wind more competitive with traditional energy sources, making it an attractive investment for any company that wants to position itself as market leader. With offshore wind installations expected to grow rapidly in the coming years, Siemens Gamesa has a promising future and is poised to play a significant and leading role in the transition to a low-carbon economy.

SGRE is now launching the **enhanced SG 14-236 DD** turbine which will feature **115-meter-long blades**, with the first prototype expected to be up and running by 2023 - as well as **the SG 14-222 DD**, whose first prototype was recently installed in Osterild (Denmark), becoming **the world's largest wind turbine currently in operation**. Its energy capacity is 31 times bigger than the turbines placed at Vindeby, with a maximum capacity of 15 MW with Power Boost and a rotor diameter of 22 meters. This turbine's genuinely worldwide strategy is supported by an outstanding backlog of orders from numerous clients in areas as diverse as Taiwan, the US, and the UK.

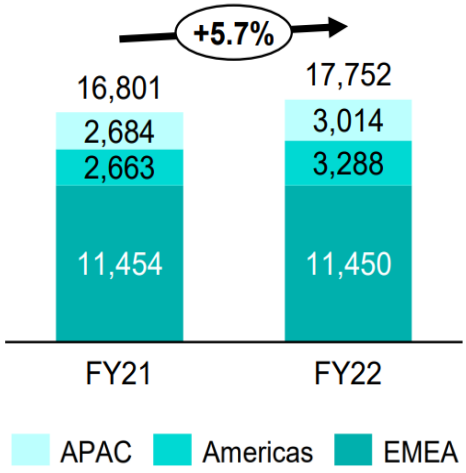
Figure 5 - Order Backlog (€m) per Region



Source: SGRE's Annual Report

Operation & Maintenance | O&M englobes the maintenance, repair, and upgrade services for both onshore and offshore wind turbines throughout their entire life cycle, helping to ensure the continuous performance and longevity of the turbines. In FY2022, the fleet under maintenance increased by 7% annually **(+7% y/y to 82.1 GW as of 30 September 2022, vs. 76.8 GW as of 30 September 2021)**, and Service accounted for **51% of Siemens Gamesa's order backlog at the end of the fiscal year (€17,7 billion**) **(Figure 6).** SGRE's contract renewal rate increased **from 70% in FY21 to 83% in FY22**, and the **retention rate was 67%.** The Service division, which continues to produce the highest profitability margins out of the company's three business units, delivered an **EBIT margin of 17.5% in FY22**. Future growth prospects are bright thanks to a stronger aftermarket focus and continuous long-term relationships with recurring clients.

Figure 6 - Service Order Backlog (€m)

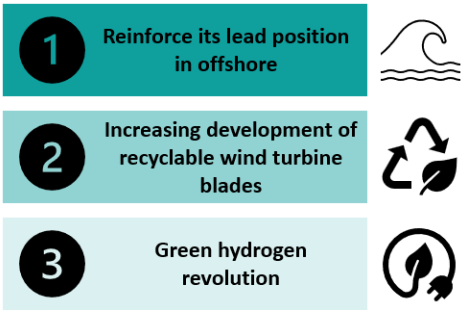


Source: SGRE's Annual Report

Company Strategies

Reinforce its lead position in offshore | This increasingly important business segment of the company is expected to experience a steep growth until 2030, especially in emerging markets like Taiwan and Vietnam. Therefore, Siemens Gamesa will have to boost its productivity through **cost optimization yet increasing R&D**, and by developing even more **operational synergies**. Installations of **more than 180GW** are expected in this decade (global wind capacity as for June 2022 is 54.9GW), and to capture this market growth SGRE must continuously invest in innovative solutions, such as the new **SG 14-222 DD turbine** – the company's flagship wind turbine.

Figure 7 - Company's Strategies



Source: Author Analysis

Increasing development of recyclable wind turbine blades | SGRE launched the world's first recyclable wind turbine blade, **RecyclableBlade**. This is a crucial and defining milestone since it structurally reduces the carbon footprint of the wind energy industry, making it into an even more sustainable solution for the present and future of worldwide green energy supply. SGRE's ambition to make **turbines fully recyclable by 2040** will completely revolutionize the industry, and its effects will possibly unlock similar solutions in the remaining green energy sub-sectors.

Green hydrogen revolution | SGRE was the pioneer in the development and commissioning the **world's first project that enabled green hydrogen production directly from wind.** This initiative represents a huge strategic step towards

delivering large-scale green hydrogen from this decade onwards. Siemens Gamesa also partnered with Siemens Energy to develop a fully integrated offshore wind-to-hydrogen solution. Hard-to-electrify sectors stand in the way of achieving the world's 2050 net-zero targets, thus the magnifying role that green hydrogen plays on this worldwide energy shift. According to scientific reports published by SGRE, green hydrogen price parity with fossil-based hydrogen could be achievable from onshore wind by 2030 and offshore wind by 2035.

Key Drivers of Profitability

Global decarbonization efforts | The gradual shift to a **green-economy that governments and supranational organizations are pushing forward** in the past few years has been a main driver for any wind energy-focused company. With carbon-neutrality targets to meet in the next years and decades, it's expected that regulatory landscape will look extremely favourable for SGRE.

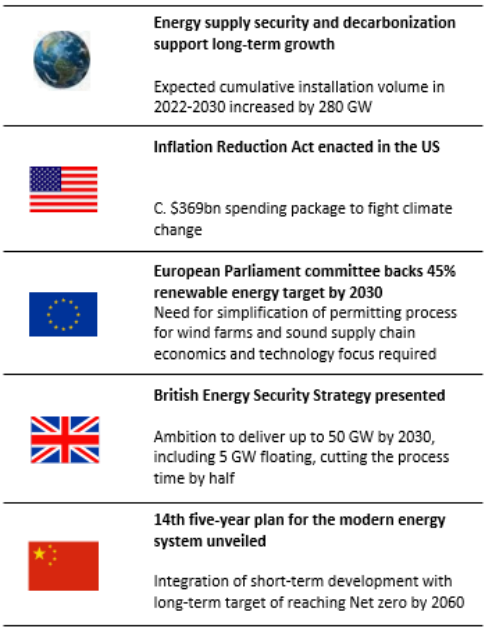
Increasing access to capital financing | Banks and the overall financial system, for **regulatory but also reputational purposes**, will channel a significant part of its funds into **"green assets"**. This will massively impact **SGRE's cost of capital**, allowing the company to fund its expansion plans in a more affordable way. It's also worth noting that Siemens Gamesa is now a subsidiary of Siemens Energy, making capital markets much more accessible and much cheaper (due to economies of scale and better credit ratings) than before.

Rising social awareness for environmentally–friendly energies | The social and demographic aspect play a huge role in the future outlook of wind-energy focused companies. On the business side, there has been a significant effort to increase **Corporate Social Responsibility** and consequently the proportion of companies that use "green" energies. Adding to this, households have also become more aware of this much needed energy shift and are now also **main drivers of profitability for SGRE.**

Shareholder Structure

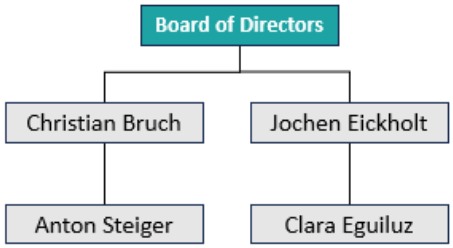
Within the period this report is being drafted, Siemens Energy, the biggest shareholder of Siemens Gamesa with two-thirds of the company's shares, **increased its position in the Spanish-based subsidiary** and consequently **delisted SGRE's shares from the Spanish stock exchange**. In May 2022, the **German consortium made a €4.05B tender offer for the remaining third of SGRE's stock,** valuing the **company at c.€12B**. The voluntary cash tender offer was concluded in December 2022 with an **acceptance rate of 77.88%**. This corresponds to 174.686.626 shares tendered by SGRE's shareholders at the fixed offer price of **€18.05 per share**. As of June 2023, **Siemens Energy owns c.98%** of SGRE, making its free float slightly above 2%.

Figure 8 - International Sustainable Regulations



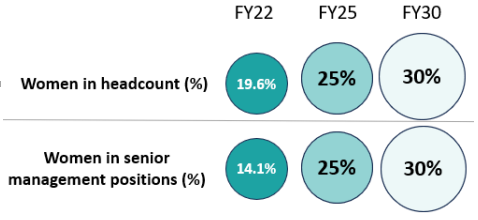
Source: SGRE's Activity Report

Figure 9 - Board Members



Source: SGRE's Website

Figure 10 - Equality Objectives



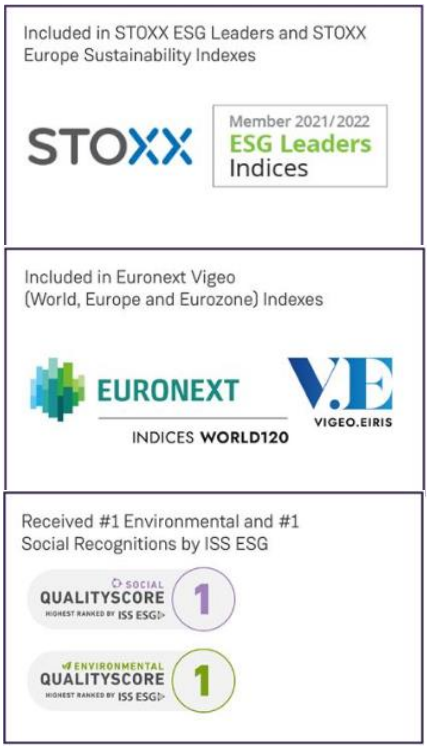
Source: SGRE's Annual Report

3. Management and ESG

ESG | The whole company revolves around ESG's principles. Its main value proposal is in a worldwide change of how governments and corporations consume energy, and on the betterment of local communities. Siemens Gamesa achieves top ESG performance and highest recognition from almost all internationally recognized ESG rating agencies **(Figure 11).** SGRE obtained #1 ranking in the sector from ESG rating agencies ISS ESG and FTSE Russell, and # 2 in the sector from Moody´s Vigeo Eiris, also #3 in the Corporate Sustainability Assessment (CSA) from S&P

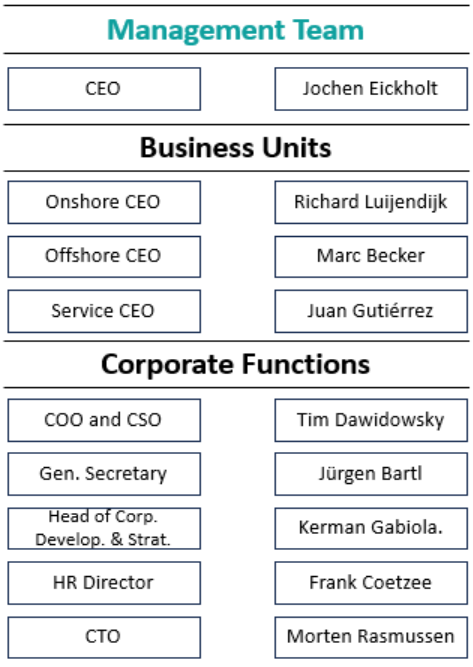
Global (and 99th industry percentile). Furthermore, Sustainalytics included Siemens Gamesa in its "Industry Top Rated List" reaching a top 3rd industry percentile.

Figure 11 - ESG Accomplishments



Source: SGRE's Website

Figure 12 - Top Executives



Source: SGRE's Website

Environmental | SGRE's business model is by itself compliant with the environmental aspect of ESG. The company's main mission is to reduce the world's dependency on fossil fuels by creating sustainable and scalable wind-based energy supply solutions. Siemens Gamesa aims for net-zero emissions and **100% recyclable wind turbines by 2040**, and its efforts of reducing energy consumption rate and CO2 emissions intensity have been very successful, with a **year-over-year reduction of 18% and 13%**, respectively. If we only look at CO2 emissions, there was a **63% decrease** from **FY2018 to FY2022, representing a CAGR of c.-13%.**

Siemens Gamesa is also heavily investing in reducing its carbon footprint is the fact that in FY2022 100% of its electricity originates from renewable sources, up from **61% in FY2019**.

Furthermore, SGRE is a worldwide pioneer in designing and manufacturing 100% recyclable blades, which is a massive cornerstone to the industry's environmental footprint. With the objective of manufacturing recyclable wind turbines by 2040, Siemens Gamesa affirms itself as one of the main drivers for sustainability on this industry.

Social | The company pledged to reduce poverty, fight climate change, and promote technical education in its Sustainability Strategy Report 2021-2040. Despite being hard to quantify the real effects on the betterment of society, SGRE prioritizes local customers and suppliers, investing in local communities and consequently improving regional development in emerging markets. Within the corporate scope, the firm invested **in over 1300 hours in training** in the last 2 years and has increased the number of **women in management positions by 11%**. Regarding average remuneration and equal pay, SGRE is in a very good position. Average remuneration in **FY2022 was €52,159/year**, up from €48,507/year in 2021, representing a yearly **increase of 7.5%** (can also be explained due to the significant increase of director and management's remuneration - €7.7 million in FY22 and €5,6 million in FY21). And in regard to Equal Pay, the company is committed to the application of the equal pay principle through pay transparency and improved enforcement mechanisms. SGRE conducts regular pay equity reviews to identify differences in pay and discloses statistics on the gender pay gap. In China, Germany, United Kingdom and United States, women earned in fact more than men, on average.

Management and Corporate Governance | SGRE suffered a massive restructuring on its management team in the early months of 2022. **Project delays, cost overruns, and the consequent deterioration of margins** can explain former CEO Andreas Nauer's resignation earlier that year. Jochen Eickholt was appointed CEO in March 2022, with a huge task on his hands: to **make Siemens Gamesa profitable**. This is especially difficult in a period where inflation is high and unpredictable, and when supply chain disruptions are still a daunting reality.

On late 2022, the company's Chairman also changed. The Board of Directors of Siemens Gamesa has appointed Christian Bruch, President and Chief Executive Officer of Siemens Energy AG and member of Siemens Gamesa's Board of Directors, as its new non-executive Chairman. This change of Chairman was the logical next step in the **now-completed takeover and integration of Siemens Gamesa into Siemens Energy**. As expected, this acquisition shortened SGRE's BoD, leaving it with solely 4 members members: Christian Bruch (Chairman), Jochen Eickholt (CEO and Vice Chairman), Anton Steiger and Clara Eguiluz **(Figure 9).**

Moving on to the management team, there's only 1 woman in the C-level executives' positions (Beatriz Puente as CFO), **revealing an incompatibility with SGRE's goals for diversity (Figure 10).**The company has one CEO per business unit, which is a good practice operationally speaking, and most of its top executives have a wind-energy background, either coming from Siemens Energy or even from Siemens Gamesa. The backgrounds, work experience and academic education of the

remaining senior management members are highly diverse, and qualification-wise, they are the right people to take SGRE to the next level **(Figure 12).**

4. Industry Overview and Competitive Positioning

Global Economic Outlook

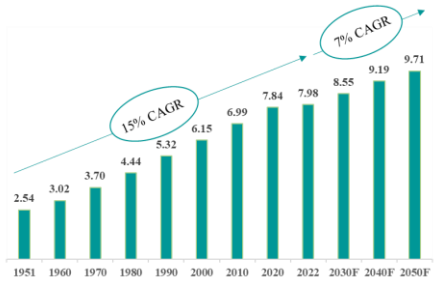
World population has a YoY positive growth. In 1951, there were 2.54 billion people, while this year, the **world population grew to 7.98bn people**, leading to a 1.65% CAGR through this period. In the 2022-50 period, a +0.66% CAGR is expected by United Nations, reaching a population of 9.71bn people in 2050 **(Figure 13)**. Looking for **Figure 14**, in the 1990-2010 period, global real GDP growth increased, with growth rates ranging **between 3.4% and 5.4% YoY**. However, it is visible a decrease in 2020, due to COVID-19 which has significantly impacted the global economy, with global real GDP growth **reaching -3% YoY**. In 2021, the global economy has recovered to **6% YoY despite a decrease in the year ahead**. Historically, global energy consumption follows global GDP growth, so it is expected to maintain stable as 2027F for real GDP growth has a similar value from the one of 2022.

Market Overview

In 2021, was expected the capacity growth of renewables by 45% until 2026, but Russia's invasion in Ukraine has increased the accelerated renewables expansion to a much faster pace. In consequence of the invasion and dependence on Russian fossil fuel (especially in Europe), prices of fossil fuel and electricity increased, making renewables the cheapest form of power today in most countries. Also, that was due to a **decrease in the weighted average levelized cost of electricity** from newly solar photovoltaic projects as well as a reduction in the cost of concentrated solar power, onshore and offshore wind. Consequently, the share of renewable energy has been rising recently, as ambitious renewable policies and the continuous fall in the costs of solar and wind technologies have contributed to a surge in renewable power generation **(Figure 15).** In 2021, **22% of the energy consumed in the European Union was generated from renewable sources**, according to EEA. The share of renewable energy in the EU **grew by only 0.1 percentage points**, from **22.1% in 2020 to 22.2% in 2021**. However, it should be noted that 2020 was an extraordinary year during which consumption of non-renewables dropped considerably because of lower energy demand during the COVID-19 pandemic, thus pushing up the renewable energy share. In addition, regarding the life cycle of the industry, renewables are on the growth stage as sales have been increasing, costs reducing, and companies are already getting profits.

Present Trend | Climate change is already happening throughout the world: **temperatures are rising, drought** and **wildfires are starting to occur more often, rainfall patterns are shifting, glaciers and snow are melting, and the global average sea level is rising.** To mitigate climate change, it is necessary to reduce or prevent the emissions linked to human activities. Since 1800, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas. Looking to **Figure 16**, it is possible to notice an increasing trend of CO_2 emissions **from 1990 to 2019, giving a 1.77% CAGR through this period**. However, CO_2 emissions fell further than energy demand in 2020 owing to the pandemic hitting demand for oil and coal harder than other energy sources while renewables increased. In 2022, global carbon dioxide emissions from burning fossil fuels are expected to rise by just under 1%, as the expansion of renewables and electric vehicles outweighed coal demand, IEA said. Solar photovoltaic and wind turbines led to an increase in global renewable electricity generation of more than 700 terawatt hours (TWh). Without this increase, global CO_2 emissions would have been more than 600 million tons higher this year. According to IRENA, the achievement of the 2050 goal will reduce 36.9 gigatons of annual CO_2.

Figure 13 - World Population Growth (in Bn)

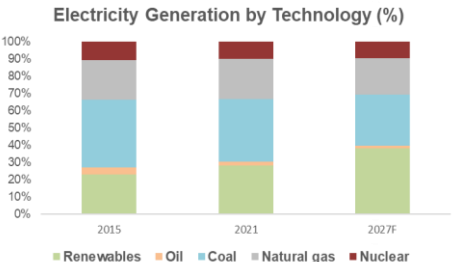


Source: United Nations

Figure 14 - World Real GDP Growth and Change in Energy Consumption (%)

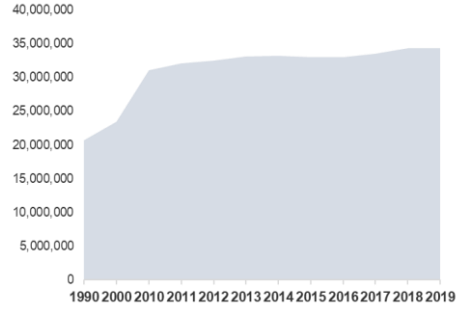
Source: IMF

Figure 15 - Electricity Generation by Source (%)



Source: Financial Times

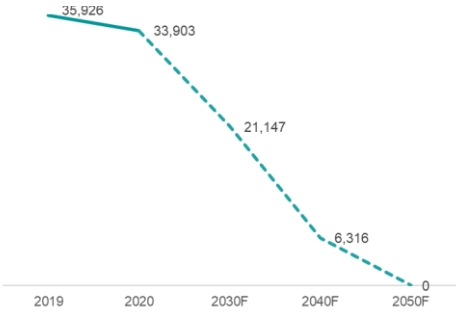
Figure 16 - Historical CO2 Emissions (Mt)



Source: World Bank

Path to 2050 Decarbonization | According to McKinsey, **to keep the 1.5°C Pathway in sight (emissions reduced by 45% by 2030 and reach net zero by 2050** – **Figure 17 -** CO2 Emissions Forecast for Decarbonization Goal (Mt)), the global energy system needs to accelerate its transformation significantly, shifting away from fossil fuels toward efficiency, electrification, and new fuels, quicker than even the announced net-zero commitments **(Figure 18** – KPI for achieving 1.5C by 2030). Global energy consumption would need to **decrease by 11% from 2019 levels** through ambitious energy efficiency improvements, with a simultaneous increase in the share of renewables in final energy consumption, **increasing from 19% in 2019 to 38% by 2030**. Also, an improvement of energy intensity (Ratio between gross inland energy consumption (GIEC) and GDP, calculated for a calendar year) is mandatory, achieving a value of 3.1% by 2030. The effort of especially major economies is needed to fight against climate change and to reach a sustainable world. That's why many countries are implementing new policies and regulations to mitigate the energy crisis and achieve the decarbonization goal by 2050, as in Europe the REPowerEU, in USA the Inflation Reduction Act (IRA), and in China the 14th Five-Year Plan and market reforms **(Figure 8).**

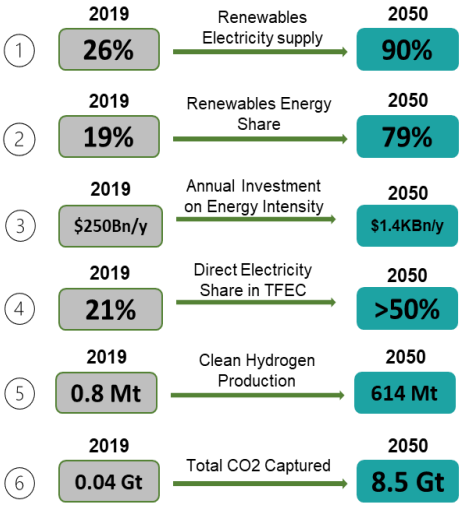
Figure 18 - CO2 Emissions Forecast for Decarbonization Goal (Mt)



Source: IEA

Figure 17 – KPI for achieving 1.5C by 2030

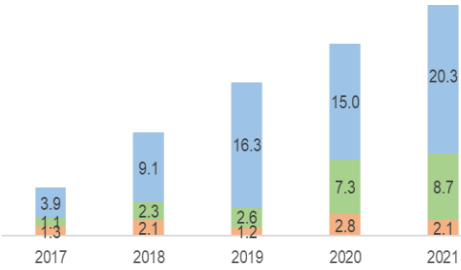
Future Trend for Renewables | Almost all growth is expected to come from decarbonization technologies and power, which **by 2050 will exceed today's total energy investments**. Renewables is expected to **contribute 25% to this goal**, **energy efficiency 25%**, **electrification 20%**, bioenergy with carbon capture and **storage 14%, hydrogen 10%** and carbon capture and **storage 6%.** Nowadays utility-scale segment (solar and wind) **represents c.90% of all renewable installations, and it's because China and European Union are commissioning for projects.** This trend will continue, as there are limited policy support and technological issues that difficult expansion of other ways of energy generation such as hydropower, bioenergy, geothermal, concentrated solar power and ocean technologies. Big companies are shifting their energy mix towards more sustainable solutions, as ESG standards compliance is becoming crucial for regulatory reasons and in an investment attractiveness perspective. This bet on renewable energies from major players is confirmation that this environmentally friendly sources of energy are the best long-term solution, and that is only a matter of time until they become completely massified.



Source: IRENA

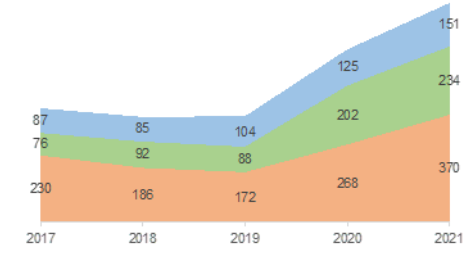
M&A Trends | In such a **capital-intensive** and **regulatory-demanding** industry like renewables, **M&A is one of the preferred options that companies take to expand**. Either as vertical or horizontal integration, **synergies optimization is definitely a strategy that has been quite favorable** to the industry's shareholders in the past years. M&A is especially successful in the renewables industry because of the persistence of **several operational inefficiencies** caused by the still relatively early stage of the entire sector. Furthermore, there has been a gradual divesting of carbon-intensive business units by big firms. Potential sellers of such assets will need to rigorously engage with a wide range of stakeholders and **adjust their M&A strategy accordingly to avoid accusations of greenwashing and the risk of derailment of their divestment processes.** Due to the clear signs of **imminent recession, high inflation** and **overall geopolitical uncertainty**, **M&A activity was somewhat lower than expected in 2022**. It is, however, a period where executives can zoom out, analyze the bigger picture and then act with clarity and rationality. Despite the macroeconomic prospects for the foreseeable future not being particularly favorable, **M&A activity should recover its fast pace in 2023** since stakeholders are more interested than ever in the energy transition, and consequently on the shift to "greener" energies.

Figure 19 - Global Corporate PPA Annual Volume (GW)



Source: BNEF

Figure 20 - Annual Investments in Energy Transition by Region ($bn)



Source: BNEF

Corporate PPAs | With the rise of renewable power generation, lower renewable energy prices and a greater desire to decarbonize, corporate power purchase agreements (PPAs) are becoming increasingly common. Many companies are looking for renewable energy as a key part of their sustainability strategy and corporate renewable PPAs help to reduce their environmental footprint and often lower their energy costs. **In 2021, more than 137 companies in 32 different countries** announced they would sign power purchase agreements, through which electricity producers sell their output to energy utilities or corporate end users over a

fixed period. In the same year, **corporations purchased 31.1 GW of clean power** through long-term contracts, according to BloombergNEF. US tech companies are at the forefront of the movement. Amazon, for example, has signed power purchase agreements with 44 renewable energy projects in nine different countries, totaling a capacity of 6.2 GW in 2021 alone, after it committed to power its operations with 100% renewable energy by 2030 and **reach zero carbon emissions by 2040**. However, this form of financing has gained importance in the European Union over the last few years, where it has been used to **finance almost 9 GW of production, led by large contracts in Spain.**

Demand Drivers

Worldwide Green Trends | Creating a green world requires a shift to zero carbon energy sources in energy system sectors – **power, industry, transport, and buildings** – and special incentives for major electricity consumers. The need to accelerate green power deployment has attracted solid investments (**a total of USD3.1-5.8tn/year over the subsequent 30 years estimated by BNEF**) from both corporations and governments **(Figure 20).** Additionally, the volume of corporate PPAs for renewable solutions **increased to 31.1GW in 2021 (+49% CAGR in 2017-21FY), with 65% of this activity in the Americas.**

Declining Costs | Amid the energy crises and rising commodity prices in 2021, the cost of clean energy continues to fall significantly (despite a **temporary increase in 1H22 due to the inflation experienced**). Indeed, the projected growth in global IC **(5.4TW by 2030)** combined with technological development and economies of scale is positively impacting the cost of onshore wind and solar PV, the **cheapest forms of electricity generation**. The global weighted average LCOE of these technologies dropped by **88% and 68%,** respectively, between 2010-21FY **(Figure 21).** In parallel with a complex energy market, RES auctions (conducted by multiple players) continue to reveal a competitive price (varying according to the cost of power) and renewables hybridization seems to be a long-term key to cost efficiency, promoting a steady electricity supply.

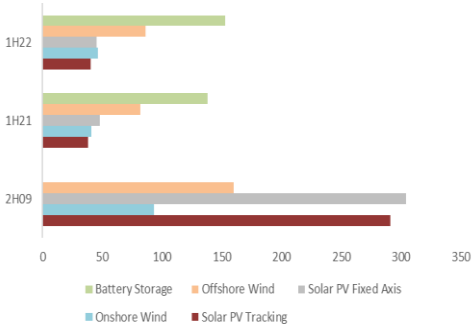
Supply Drivers

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 Net Zero Emissions 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 rises sevenfold until 2050**, 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.

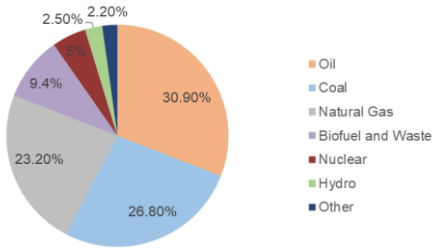
Commodity Prices | Renewable energy still falls behind oil, coal, and gas in the share of world energy supply. **In 2019**, these sources of **energy accounted for 80.9% of the energy supply worldwide (Figure 22).** This means that renewable energy sources need to be a cheaper alternative in order to 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

Figure 21 - Global LCOE Benchmarks by Energy Source ($/MWh, nominal)



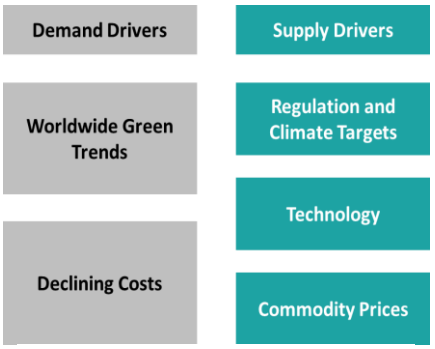
Source: BNEF

Figure 22 - World Total Energy Supply by Source (2019)



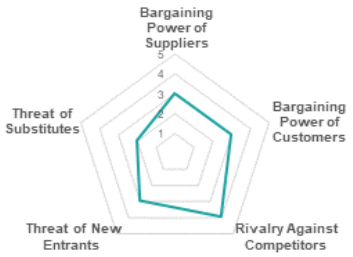
Source: IEA

Figure 23 - Demand and Supply Drivers



Source: Author Analysis

Figure 24 - Porter's Five Forces



Source: Author Analysis

carbon taxes, it is expected that those will become a more expensive way to produce energy, making renewable sources more attractive to invest in.

Competitive Positioning

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 and 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. For the sake of a better analysis, one should distinguish between the electricity distributors and the alternative renewable solutions market. 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 continuously fast development in technology and consequent high prices, the threat of new entrants is considered to be 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, making part of c.50% of power generation globally by 2030 and c.80% by 2050, predicts McKinsey.

Wind energy industry

Wind energy is one of the **fastest-growing energy generation technologies** among the other renewable energy solutions. International Renewable Energy Agency (IRENA) data show that the wind energy's consumption **has grown over the past 20 years, with onshore and offshore wind generation capacity increasing from 7.5 GW in 1997 to 906 GW in 2021**. **Continuous technology developments** followed by **cost reductions**, among other things, enable an increasing competitiveness of the wind-energy sector when comparing to other players in Renewables. The use of wind energy is essential for cutting carbon emissions and the global wind industry **reduced CO2 emissions by almost 1.1 billion metric tons just in 2020**. This large decrease in greenhouse gases is equivalent to **taking 236 million cars off the road**, displaying the advantages of wind energy for the environment. Apart from this, it's estimated that the wind energy industry employs roughly 1.25 million people worldwide.

Figure 25 - SWOT Analysis

Strengths	Weaknesses
• Geographical diversification (>90 countries) • Technology advancement and good market positioning due to its newly parent company	• Difficulties in penetrating Asian markets • High reliance of wind-energy on government subsidies and incentives
Opportunities	**Threats**
• Developing countries will start heavy investments on renewable energies • ESG seen as an important investment factor	• Substitute products and solutions • Civil unrest regarding building offshore and onshore wind farms

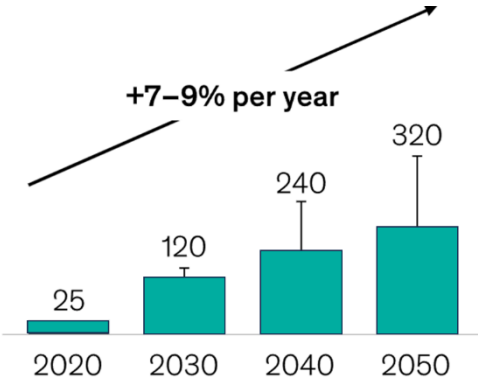
Source: Author Analysis

Table 3 - SGRE's Peers

Company	Market Cap (€ Bn)	Country
Vestas	27.4	Denmark
Nordex	2.4	Germany
General Electric	110.5	United States
Goldwind	47.2	China
Ming Yang SEG	42.3	China
Siemens Gamesa	12.3	Spain

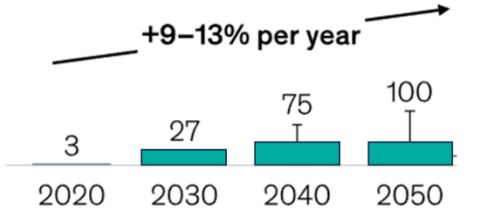
Source: Bloomberg & Refinitiv

Figure 26 - Offshore Installed Capacity EMEA



Source: McKinsey

Figure 27 - Offshore Installed Capacity Americas



Source: McKinsey

Peers Identification

The identification of Siemens Gamesa's peers consisted of a selection of **5 companies that have a multi-billion-dollar market capitalization** and that almost exclusively operate within the wind-energy industry. It's the short-list of all the competitors that Bloomberg and Refinitiv provided with, and whilst picking the most direct peers, I prioritized the ones which would have **similar business segments** and a **global scope**. Since SGRE is a company that operates **in more than 90 countries**, the selection of peers also took that into consideration, identifying a major player in the US market (General Electric), two from China (Xinjiang Goldwind Science & Technology and Ming Yang Smart Energy Group), and also two from Europe (Vestas and Nordex) **(Table 3).**

R&D Development in the wind-energy industry

The principal components of wind energy R&D revolve around two key aspects: the **hub size** and **rotor diameter**. These factors play a major role in increasing the efficiency of turbines, leading to a **decrease in the LCOE.** Based on a study conducted by the Lawrence Berkeley National Laboratory, it is projected that **costs will decrease by approximately 17% to 35% by 2035 and 37% to 49% by 2050**, based on different scenarios. This **cost reduction** can be easily explained by the utilization of larger and more efficient turbines, as well as **reductions in both capital** and **operating expenditures**.

In the wind energy industry, R&D efforts are contributing to huge advancements, mainly in the sphere of offshore wind (where **SGRE is the world's leading manufacturer wind turbines**). R&D in offshore wind is driven by the potential for **generating stronger and more consistent wind resources and facilitate turbines installation in the ocean**. Wind specialists are focusing on developing innovative technologies to overcome challenges such as installation, maintenance, and transmission of power from offshore wind farms. Breakthroughs in turbine design, including larger and more efficient models, are being pursued to enhance energy production and optimize costs. Furthermore, **R&D efforts aim to optimize turbine structures**, **improve grid integration**, and **optimize environmental monitoring and impact mitigation measures**, ensuring that the offshore wind energy's future is sustainable and efficient. Worldwide, this still emerging segment **supports an estimated 300,000 jobs globally and is poised for substantial growth**.

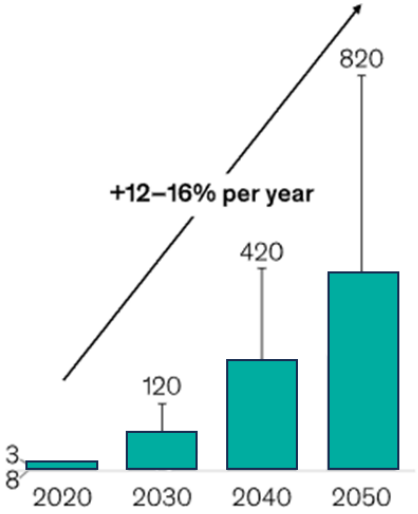
Pricing practices

Support mechanisms for wind farms have undergone significant transformations over time, exerting an influence on the pricing of renewable energy supplied to the grid. Consequently, the demand for wind turbines is affected, **increasing the urgency for more cost-effective alternatives**. The predominant support mechanism, until recently, was the **Feed-in-Tariff**, which ensured a fixed price for renewable energy injected into the grid. This approach provided energy producers with a **more stable revenue stream**.

Another support mechanism, **known as auctions**, introduced by governments, involves specifying certain project characteristics such as electricity generation capacity, technology type, and location. Project developers then submit their proposals, including a bid price, to demonstrate their capability to execute the project. If successful, they enter into **long-term contracts for energy supply**.

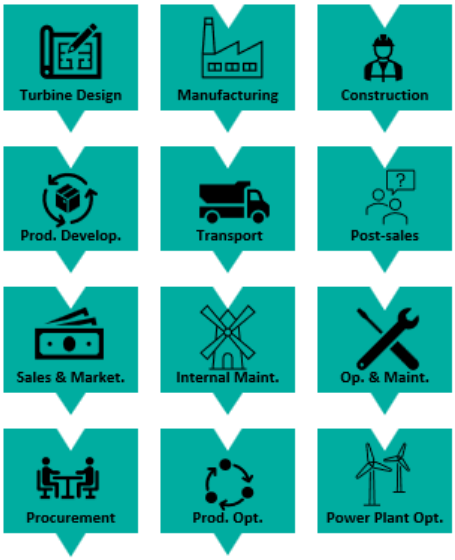
In auctions, energy producers with the ability to generate electricity at lower costs have a higher likelihood of winning bids, intensifying competition among equipment manufacturers and **placing downward pressure on prices**. One can look at the example of off-shore wind price that was **c.$184/MWh in 2018**, and **$67/MWh in 2022 – a c.64% decrease in 4 years (CAGR 22.3%) (Figure 30).** However, there

Figure 28 - Offshore Installed Capacity APAC



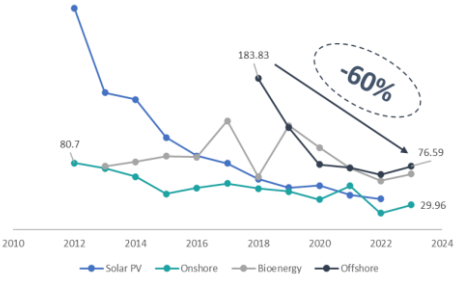
Source: McKinsey

Figure 29 - Wind Industry Value Chain



Source: Author Analysis

Figure 30 - Pricing by source of Energy



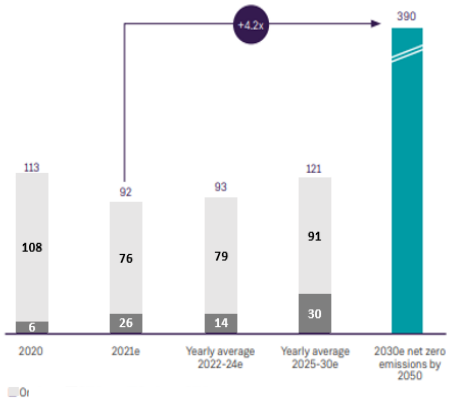
Source: IEA

exists the risk of **underbidding**, where an entity submits a bid below the **break-even point deliberately**, in order to increase the likelihood of competitors' projects not reaching completion, thereby breaching contracts. This, in turn, negatively affects wind turbine suppliers.

Onshore capacity dominates, but offshore growth gains momentum

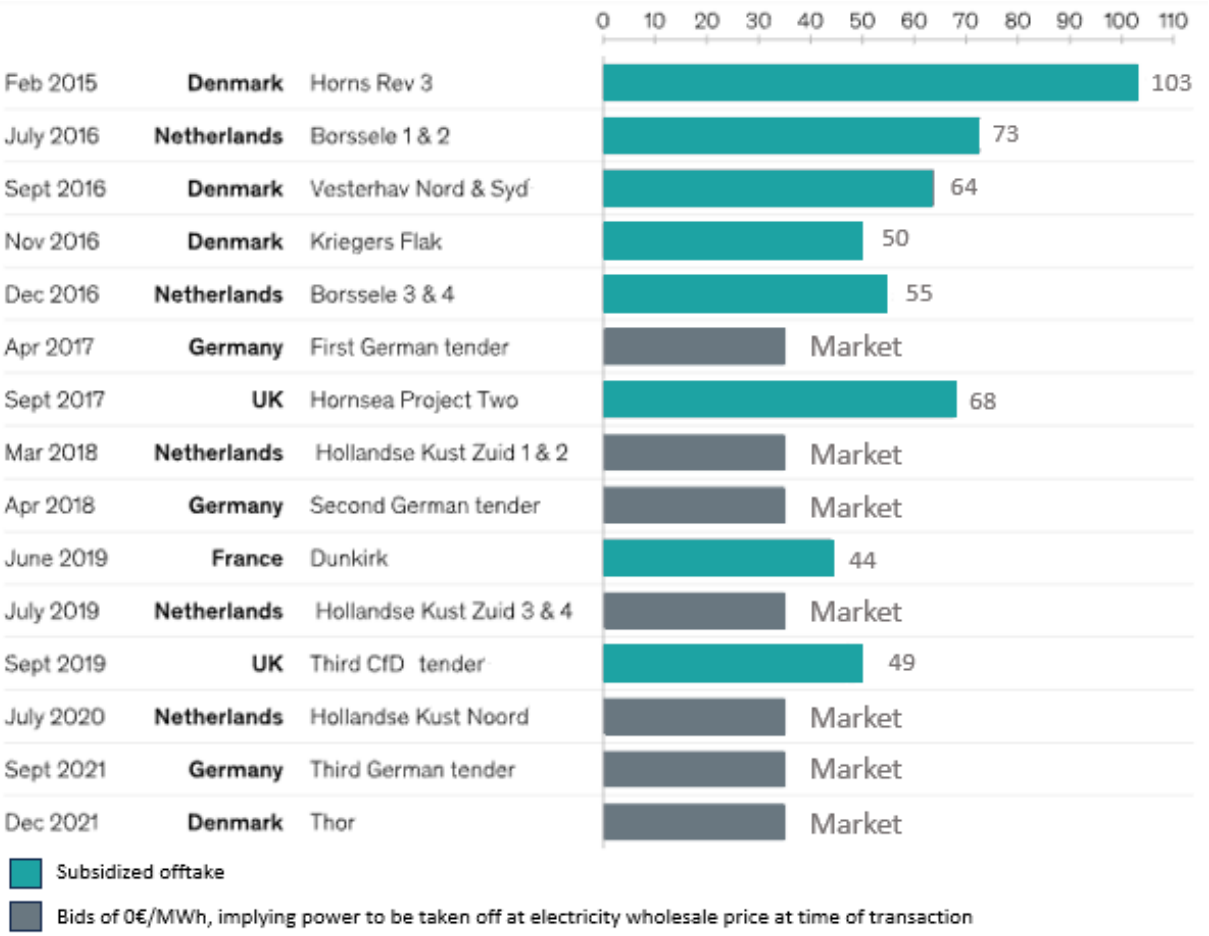
By the end of 2022, the cumulative **installed wind capacity worldwide amounted to 906 GW**. Among this total, onshore wind systems constituted approximately **93%, while offshore wind farms made up the remaining 7%.** Onshore wind technology could be considered a mature sub-industry and is currently implemented in 115 countries globally. On the other hand, offshore wind is still in its early stages, with a **presence limited to just 19 countries**. However, there is a growing trend towards offshore wind expansion as more countries are actively involved in the development or planning of their initial offshore wind projects. This indicates a **promising future for offshore wind**, with its reach and significance expected to increase significantly in the coming years. Especially for SGRE, which is the main manufacturer of offshore wind turbines, this can represent a golden opportunity to become a major player in the whole renewable energy sector, and not only in the wind-energy sphere.

Figure 31 - Onshore and Offshore Worldwide Mix



Source: SGRE's Annual Report

Figure 32 - Recent Offshore Wind Tenders in Europe



Source: McKinsey

5. Investment summary

The **Base Case** estimated intrinsic value for SGRE's share price is **€18.19/Sh**. This valuation is aligned with the acquisition price at which Siemens Energy bid for SGRE's shares - **€18.05/Sh** – appraising the deal as **fairly valued**.

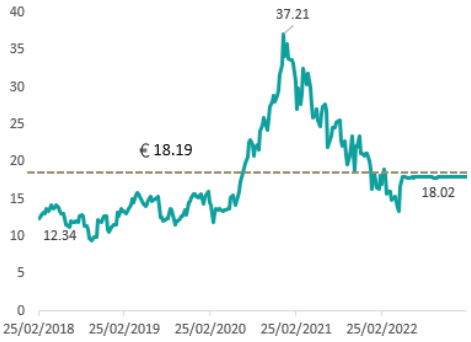
SGRE's stock returns in the **last 5 years were not particularly strong**; i) changes in executive management; ii) high exposure to supply chain disruptions; and iii) weaker-than-expected growth in the wind energy industry are to blame. 5-year stock returns were **c.46.35% (7.9% CAGR**), assuming 18.05 as the final share price **(Figure *33*).** If we disregard the tender offer and analyze the share return with the market price at which the share was trading before the acquisition announcement, the share returned a disappointing **14.5% in the last 5 years (2.7% CAGR**) – contrasting with its main competitor, Vestas, which observed a **137% share price increase in the same period**. It's likely that this relatively weak period for SGRE's stock was one of the reasons why Siemens Energy decided to fully integrate Siemens Gamesa.

Valuation methodologies | For the equity research, 2 methods were used: Discounted Cash Flow Model (using FCFF), and the Multiples (using EV/Sales). The final target price is the result of the DCF method, since it's **forward-looking** and embeds all the assumptions underlying the company and the overall industry. It's highly important and worth emphasizing that the assumptions used for the forecasted period take into consideration that SGRE is fully integrated into Siemens Energy and will, in fact, take advantage of synergies-optimization and in-house expertise. The valuation was based on the more recent public SGRE's data available - **end of FY22, i.e., September 2022**. Since the acquisition was announced in May but only completed by December of the same year, I discounted all the cash flows back to **to the end of the FY22**.

Key investment risks | SGRE's value is highly dependent on a handful of external factors. **Geopolitical turbulence**, **political and economic regulations** that can suppress the development of offshore plants and **volatile upward movements of interest rates** are the biggest threats that SGRE faces as a global enterprise. However, for being such a geographically diversified company, is less liable to most risks than the majority of its direct competitors. A risk that is also worth mentioning is the environmental risk. It might seem paradoxical, but this is a major risk that any wind-energy company faces due to the possibility of incidents and also because the turbines are not recyclable – **SGRE is a worldwide pioneer in recyclable blades**.

Financial position | If it wasn't for the **high levels of indebtedness**, SGRE would be assessed as a financially sound firm. With the full integration into Siemens Energy underway, the company is expected to start gradually deleveraging up to 2027F, but not to the peers' average extent. Other than that, liquidity levels are higher than sector's average and the firm's capacity to produce OCF even in economically abnormal periods is also something worth noting.

Figure 33 - SGRE's 5y stock returns



Source: Yahoo Finance

Figure 34 - Appraisal Thresholds

Deal Appraisal	Threshold (Upside)
Highly Overvalued	<-25%
Overvalued	<-5% & >-25%
Fairly Valued	>-5% & <5%
Undervalued	>5% & <25%
Highly Undervalued	>25%

Acquisition Price	18.05
Target price	18.19
Upside	0.76%

Source: Author Analysis

Table 4 - Credit Ratings

Standard & Poor's		
Long-term	Outlook	Date of Assessment
BBB	Negative	01/03/2022
BBB	Stable	21/12/2021
BBB	Stable	04/06/2021
BBB	Stable	28/09/2020
BBB-	Positive	06/05/2019

Source: SGRE's Website

6. Valuation

DCF – Free cash flow to the firm | For this valuation, it was used **the Free Cash Flow to the Firm (FCFF)** method to determine the intrinsic value of SGRE **(Appendix 6).** This approach was chosen due to SGRE's innovative profile as a company, and the high growth potential it is expected to experience in the future. The FCFF model enables a thorough consideration of the company's future growth prospects, **independently of its capital structure.** This method resulted in an **EV of EUR 14,034,147,000**, and after subtracting the **net debt – EUR 1,667,169,000** (interest-bearing liabilities minus cash) and the **non-controlling interests – EUR 1,117,000**, an **Equity Value of 12,365,861,000** was achieved. Simply dividing the **intrinsic equity value** by the number of **outstanding shares (679,906,438)**, it was concluded that the **12-month intrinsic value is EUR 18.19 per share.**

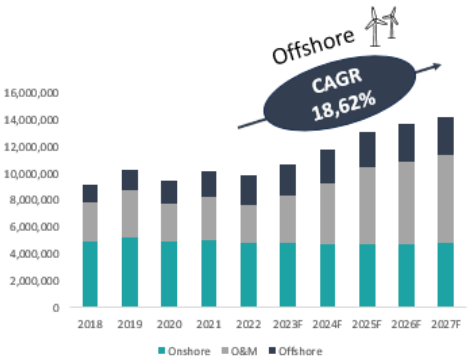
Wind Turbine Revenue | In terms of WT revenue modelling, which made up for **c.78% of FY2022 revenues**, it was ramified into 2 different sub-segments: **onshore and offshore**. The main key top-line drivers were the average price (in thousands) per Mwe, and the respective volume generated by SGRE **(Appendix 7)**. In estimating the onshore and offshore volumes, **GWEC** data was used for a better understanding of the future worldwide installed capacity, and for the average price per Mwe an average of the values from 2016 to 2021 was used, concluding that the onshore and offshore prices will **decrease at a pace of c.-1% per year**. Revenue will **grow at a c.7.5% CAGR** from **2023F to 2027F**, mainly boosted by the offshore **revenue growth of 18.62% CAGR** in the same period **(Figure 35).**

CAPEX and D&A | For the CAPEX computations, it was assumed that the required future capital investments would be strictly linked to the expected growth of offshore and onshore volume capacity (in Mwe). **From 2023F to 2027F**, the company is expected to spend roughly **more than €8.102M**, resulting in **a c.7.4% CAGR of net PPE from 2023F to 2027F**. with the main purpose of taking full advantage of the best opportunities that the wind industry will offer, namely on the offshore segment. D&A rates for PP&E and intangible assets were obtained historically as **the average of last 5 years, being 21% the yearly depreciation rate, and 19% the yearly amortization rate.**

Cost of equity | When estimating cost of equity, the single-factor model – **CAPM** – was the method used. For the risk-free rate, the **German 10-Year Bond yield (2.46% - 26/05/2023)** was the preferred option, since SGRE's cash flows are in euros and the company is headquartered in the Euro Area (Spain), and for the Market Risk Premium, **Fernandez (2022)** was the foundation for the final MRP value: **6.7%**. For the Beta, it was estimated through four different methods: Blume-adjusted linear regression of the 5-year weekly returns of SGRE and IBEX 35 (**0.779**), Blume-adjusted linear regression of the 5-year weekly return of SGRE and STOXX 600 (**0.872**), Blume-adjusted linear regression of the 5-year weekly return of SGRE and MSCI World Energy (**0.435**) and the pure-play method **(Appendix 11)** using SGRE's 5 chosen peers (**1.141**). After recognizing that SGRE is an extremely regionally diversified company and that the capital structure was modelled to be much more equity-dependent on a foreseeable future, the correlation between SGRE and STOXX 600's 5-year weekly returns was selected as the method to determine the company's beta – **0.872.** When computing CAPM, SGRE's cost of equity resulted in **8.3% (Appendix 9).**

Cost of debt | The **Default Risk model** was the preferred method to estimate rD – adding the risk-free rate (**2.46%**) to the SGRE's credit spread, which by its credit rating (**BBB and BBB- by S&P and Fitch, respectively**), amounts to **2%** (Damodaran data). The final cost of debt for SGRE is **3.35%** (**4.46%** before-tax) **(Appendix 10)**. Due to the fact that the last years were highly atypical when it comes to monetary policy (**negatively affecting interest rates - Figure *37***), computing rD by simply dividing **interest expense by the book or market value of debt** would be a redundant exercise to estimate a realistic and appropriate cost of debt

Figure 35 - SGRE's Revenue Mix



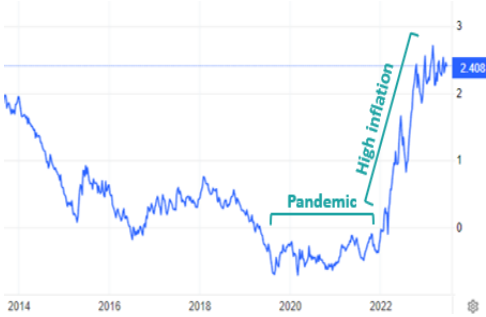
Source: Author Analysis

Figure 36 - Different Methods for Beta

Beta	
Linear Regression (BA)	
IBEX 35	0.779
STOXX 600	0.872
MSCI World Energy	0.435
Pure-play method	
Average D/E of 5 peers (0.277)	1.141

Source: Author Analysis

Figure 37 - German 10-Y bond yield



Source: Refinitiv

(Appendix 8). If this method would have been used (with market value), **1.62%** (**2.16%** before tax) would be the cost of debt – a value that is definitely not a good approximation for the rD in the forecasted period.

WACC | After computing rD and rE, the only remaining variable for the WACC calculation is the **capital structure mix.** For the equity / debt allocation, 3 methods were used to estimate the optimal mix: the actual capital structure of SGRE in market values (**D/E = 0.23**), the wind-energy peers average (**D/E = 0.28**), and the whole European renewables sector average by Damodaran (**D/E = 0.48**). Since the wind-energy industry is very unique and the **selection of peers was geographically diversified**, **0.28** was the preferred mix for the WACC's computation. The wind-energy industry is capital intensive, it was estimated believe that SGRE will want to target its peers' capital mix in the next years (by deleveraging). The only reason why target capital structure was not used for the company's guidance is that, unfortunately, SGRE never disclosed to the public in any investor-related documentation. Finally, with a **rD (after-tax) of 3.35%**, a **rE of 8.3%** and a **D/E of 0.28**, SGRE's **WACC is 7.24%** for the whole forecasted period **(Table 5).**

Terminal growth rate | Because of the non-dividend pay-out assumption, the growth rate could not be deducted by multiplying the **ROE FY27** by the **Retained Earnings ratio FY27 – SGRE's TV growth rate would be the same as its ROE FY27** (=**15%**). Therefore, the growth rate was calculated by multiplying the firm's reinvestment rate by the **Return on Invested Capital (ROIC)**. With a **RR FY27 of 31%** and a **ROIC FY27 of 11%**, it was concluded that an adequate growth rate for SGRE would be **3.45%.** Even though it might seem relatively high, data suggests that the overall renewable energy sector will massively benefit from increasing government support and that the Russia – Ukraine war will be a very important driver for this worldwide transformation. Adding to this, the wind-energy industry is still currently in an embryonic stage and highly underemployed due to some external factors (e.g., concerns regarding visual pollution, not recyclable turbines, etc.) – with a huge emphasis that Offshore is still on its infancy and SGRE is a world leader in that specific segment.

Multiples | The final target price was fully based on the DCF model using FCFF, therefore, the multiples analysis might lack complexity when comparing with the aforementioned method, and it's only based on a single valuation ratio – **EV/Sales**. SGRE's 5 identified peers **TTM EV/Sales** were computed and the average was **1.38** (deducting a target price for SGRE of **16.51**) and the **median 1.54** (deducting a target price for SGRE of **18.45**). SGRE's EV/Sales is **1.42** (and its acquisition price per share was **18.05**), resulting in a conclusion that the deal price was within both intrinsic values computed through multiple's valuation – sustaining the **Fairly Valued** appraisal **(Table 6; Table 7).**

Table 5 - WACC Components

Input	Rate	Source
Risk free rate	2.46%	German 10-year yield bund
Beta	0.874	Regression with STOXX 600
ERP	6.70%	Fernandez paper
Cost of equity	8.30%	CAPM
Cost of debt	4.46%	Int Expense / Book Debt
Tax rate	25%	Marginal Spain tax rate
D/E Ratio	0.28	Peers Average
WACC	7.18%	

Source: Author Analysis

Table 6 - Multiples Valuation

Company	EV/ Sales
Siemens Gamesa	1.42x
Vestas	1.91x
Nordex	0.40x
General Electric	1.38x
Goldwind	1.66x
Ming Yang	1.54x
Average	1.38x
Median	1.54x

16.51 18.45

Source: Author Analysis

Table 7 - Price Target by Multiples

Company	Enterprise Value(Current)/Sales (Last 12 Months)
Siemens Gamesa	1.42x
Vestas Wind Systems A/S (VWS DC)	1.91x
Nordex SE (NDX1 GR)	0.40x
General Electric Co (GE US)	1.38x
Xinjiang Goldwind Science & Technology Co Ltd	1.66x
Ming Yang Smart Energy Group Ltd	1.54x
Average	1.38x
Median	1.54x
Siemens Gamesa Sales 2022	9,813,526
Shares outstanding	679,906
Net debt 2022	1,667,169
Minority interests 2022	1,117
Price for Siemens Gamesa (Average)	16.51
Price for Siemens Gamesa (Median)	18.45
Acquisition price	18.05
Analysis - Average	Overvalued
Analysis - Median	Fairly Valued

Source: Author Analysis

7. Financial Analysis

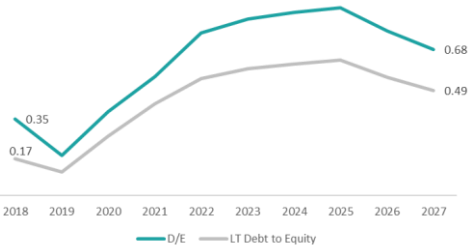
Table 8 - Key Financial Metrics

KEY FINANCIALS	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F
Revenue	9,122,272	10,226,879	9,483,209	10,197,818	9,813,526	10,658,058	11,730,829	13,096,016	13,644,918	14,218,838
Onshore Volume (MWe)	6,677	6,936	7,704	8,298	6,021	6,042	6,062	6,083	6,247	6,415
Offshore Volume (Mwe)	1,696	2,556	2,264	2,697	2,137	2,764	3,574	4,622	4,946	5,292
EPS	0.10	0.21	(1.35)	(0.92)	(1.38)	0.57	0.82	1.14	1.21	1.28
CAPEX		523,496	1,520,446	968,460	994,247	1,586,725	1,566,301	1,824,092	1,527,634	1,597,583
Net Working Capital	196,702	550,864	6,078	(372,145)	17,809	145,665	131,633	111,191	112,392	113,960
EBITDA	855,660	897,974	(115,888)	244,678	(89,644)	1,492,601	1,791,238	2,181,698	2,292,211	2,407,749
PROFITABILITY RATIOS										
Gross profit margin	10.46%	9.27%	-1.16%	2.60%	-1.69%	12.30%	13.60%	15.05%	15.19%	15.30%
Operating profit margin	2.31%	2.47%	-10.10%	-5.12%	-9.59%	4.68%	5.96%	7.39%	7.51%	7.63%
Pretax proft margin	1.84%	1.86%	-10.74%	-5.43%	-9.31%	4.31%	5.62%	7.04%	7.16%	7.27%
Net proft margin	0.77%	1.38%	-9.69%	-6.14%	-9.57%	3.64%	4.74%	5.94%	6.04%	6.13%
ROE	1.18%	2.25%	-18.62%	-14.04%	-24.31%	10.71%	14.55%	18.81%	16.68%	15.00%
ROA	0.43%	0.84%	-5.62%	-3.76%	-5.32%	2.32%	3.05%	3.86%	3.81%	3.77%
LEVERAGE AND LIQUIDITY RATIOS										
Current ratio	1.03	0.99	0.83	0.79	0.71	0.78	0.82	0.85	0.93	1.00
Cash ratio	0.37	0.25	0.22	0.25	0.16	0.18	0.22	0.27	0.34	0.42
D/E	0.35	0.19	0.39	0.55	0.75	0.82	0.85	0.87	0.76	0.68
Debt/EBITDA	2.46	1.30	(16.60)	10.06	(32.45)	1.98	1.81	1.65	1.64	1.64
Interest coverage	3.86	4.77	(14.41)	(10.27)	(14.99)	8.82	11.29	14.07	14.26	14.42

Source: Author Analysis

Consistent OCFs despite intensive CAPEX plans | Assuming SGRE maintains its market share in the coming years, the company will have to aggressively invest in increasing its capacity to meet the increasing worldwide demand. The offshore market will start heating, and new players might want to take advantage of this "new" and prosperous segment. **From 2023F to 2027F**, SGRE is expected to invest **more than €8.102M**, and therefore increasing its **cumulative volume (Mwe) by c.40%** and specifically the offshore volume by **c.150%**. In the same period, FCFFs (net of CAPEX) will surpass **€1.150M**, due to a gradual increase in the gross profit and operating margin mainly boosted by **technological leadership and operational excellence.** It should also be worth mentioning that since SGRE is now fully integrated into Siemens Energy, big efforts will be conducted in order to create synergies and optimize costs. That's the main reason why a decrease in **Goodwill from 2023F to 2027F** was included in the financial model – a gradual divestiture by SGRE of entities that would cause a duplication of costs otherwise.

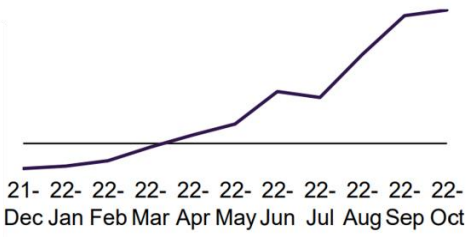
Figure 38 - SGRE's Solvency



Source: Author Analysis

High leverage might be a concern for the growth plans | By the end of FY2022, SGRE's **D/E ratio was 0.75**, **(Table 8)** contrasting with its peers' value of **0.28**. **This is a massive gap with the market benchmark** and even if it's believed that SGRE will be able to grow organically in the coming years, and the leverage will consequentially decrease due to very good operational results, the company is much more liable and susceptible to unforeseen events (for instance, another pandemic, or even the increase of interest rates). Even though this situation is not alarming, SGRE's **capacity to incur debt is slightly weaker than its peers**, putting the company in a disadvantageous position in such an industry where capital rules. D/E ratio was modelled to be **0.68 by 2027F**, **(Figure 38; Appendix 13)** which is slightly lower than the current indebtedness levels, but still high and possibly problematic for SGRE. While the company is already world leader in the segment with the highest growth potential and capital intensity – offshore – this level of solvency can still trouble the firm's expansion plans.

Figure 39 - Euribor 10Y



Source: ECB

R&D and human capital as key metrics | The wind industry, although already quite relevant in today's world, still possesses some embryonic characteristics. Major technological breakthroughs are the main differentiators between the top players and SGRE doesn't want to lag. **From 2023F to 2027F**, SGRE intends to **spend c.€1.266M in R&D**, mainly focusing on the offshore business, and on massifying recyclable wind turbines. It's undoubtable that on a sector in which technology and

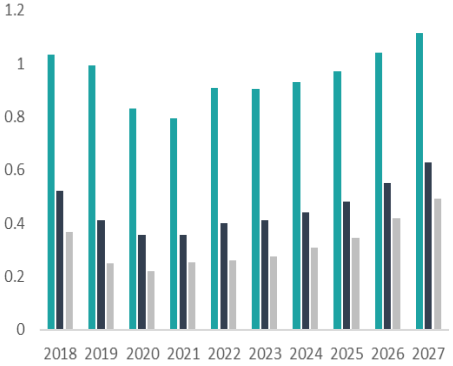
innovation are the main drivers for growth, R&D is one of the key differentiators between the industry's top players.

Also, the manpower crisis is expected to last (qualified and non-qualified). With this in mind, staff costs were estimated to be slightly higher in the forecasted period - **€70K per year, up from €66K in 2019** - from anticipating struggles in finding enough human capital to meet the company's demands. It's also expected that in some countries in which SGRE operates, the labor laws will get stricter and consequently costlier for the company. The forecast takes that into consideration.

Profitability is the *Elephant in the Room* | **SGRE is not profitable since 2019**. The pandemic is not a valid excuse because Vestas – the company's main competitor – had remarkable results in FY2020 and very satisfactory results in FY2021. The forecast that SGRE will become indeed profitable from 2023F onwards heavily relies on the **assumption that its margins will significantly improve**. With an average gross profit margin between **FY2018 and FY2022 of 4%** (incl. 2 years in which the margin was negative), it was assumed a **GPM of 12.3% in 2023F** and a gradual increase up to **15.3% in 2027F**, which are values compatible with the sector's average. With **almost $1 billion in losses in FY2022**, the company faces a tough challenge to turn around its current situation, but the investments in Offshore and on gradual technology development might eventually start to payout now (**Figure 41)**.

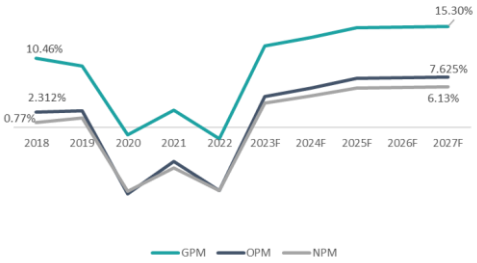
Furthermore, profitability is the key for any company's financial health and prospects. The optimism regarding to SGRE's future results mostly comes from the Siemens Energy acquisition. Full integration will be vital for cost-reduction, in-house expertise, and synergies optimization, saving SGRE several millions in administrative and operational expenses.

Figure 40 - SGRE's Liquidity



Source: Author Analysis

Figure 41 - SGRE's Profitability



Source: Author Analysis

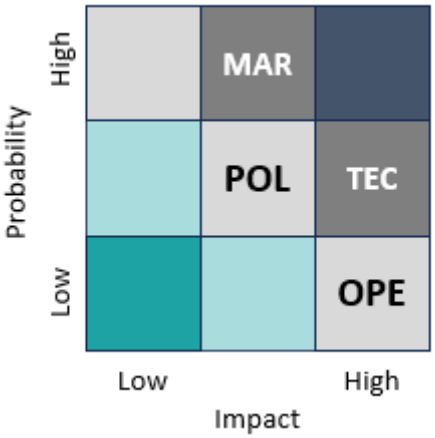
8. Investment risks

Economic and Market risks

Market volatility and economic fluctuations (MAR 1) | SGRE's operations are influenced by economic factors such as GDP growth, interest rates, and currency fluctuations. Economic downturns can impact the demand for renewable energy projects, financing availability, and overall business performance.

Mitigation – Besides the traditional practices of financial hedging, the company should also diversify its operations within its current product mix i.e., even though Offshore is a key driver of future growth, SGRE should not be fully reliable on that segment. Also, if the company's assets are mostly funded by debt, it will be much more exposed to economic fluctuations than otherwise – gradual deleveraging might be the key to mitigate market risk.

Figure 42 - Risk Matrix



Source: Author Analysis

Operational risks

Natural disasters and pandemics (OPE 1) | In the case of a natural catastrophe or pandemic, SGRE is vulnerable to both direct supply chain expenses and indirect project delay or cancellation costs.

Mitigation - The possibility of a complete halt in production is decreased by the geographical diversity of SGRE's plants and its high level of vertical integration. By utilizing grid modernizations and weather protection devices, SGRE further reduces this danger, and its possible impacts. SGRE quite successfully handled Covid-19 with only a "slight" decrease in revenue, which is a sign of future resilience - it was considered an "essential service".

Cybercrime (OPE 2) | Risks associated with cyber security are a problem for many businesses, including Siemens Gamesa. These dangers can take many different forms, including hacking, data breaches, and phishing attempts, and they can have detrimental effects on the business, including financial losses and reputational harm. A special emphasis should be in the fact that SGRE's turbines can be accessed via remotely; this is a huge liability since a possible cyber-attack on one of its turbine parks can have catastrophic consequences.

Mitigation – The company could adopt regular security audits, invest in employee's training, and installing firewalls and intrusion detection systems, as well as implementing strong password policies and regularly updating software to fix vulnerabilities. Furthermore, SGRE should continuously review the access management to its critical facilities.

(Geo)political risks

Regulatory risk (POL 1) | SGRE must adjust to an auction-based market and compete on LCOE to win bids as governments might gradually wipe away subsidies. Protests against the noise pollution caused by onshore wind have the potential to change governmental attitudes and result in the termination of green stimulus programs, falling short of investors' high expectations.

Mitigation - SGRE should become less reliant on government aid because of the management's desire to maintain its position as a technology leader and ensure that its products are profitable on their own. Additionally, SGRE's many revenue sources reduce the dangers of political shifts. SGRE offers a top-of-the-line sound power optimization system that includes computational fluid dynamics modeling in response to noise concerns.

Spread of Russia-Ukraine war (POL 2) | Even though SGRE's exposure is minimal in the affected areas (incl. Russia), it's an imminent risk for virtually every company in the world the fact that the war can spread to Eastern Europe and consequently have a global impact. Because of its decentralized supply chains and high geographical diversification, the company finds itself well positioned if the risk materializes.

Mitigation – Any company can only mitigate a war-related risk on a very limited basis. The biggest efforts that SGRE can effectively perform are on the reputational level – disassociate from suppliers, clients, or any stakeholders that might be directly involved in the proliferation of the war. Reputation is a key risk that should be taken seriously by any company in 2023, especially by a company that has as it missions the betterment of the world through the production of environmental-friendly energy.

Figure 43 - SGRE's Top Risks and Mitigation Measures

Risks	Mitigation
Economic and Market Risks	
MAR 1 – Market volatility and economic fluctuations	Gradual deleveraging
	Operational diversification
Operational Risks	
OPE 1 – Natural disasters and pandemics	Geographical diversification
	Robust crisis management framework
OPE 2 – Cyber attacks	Regular security audits
	Installing firewalls and intrusion detection systems
(Geo)political Risks	
POL 1 – Regulatory risk	Investing in noise--efficient turbines
	Gradually reduce dependence on public subsidies
POL 2 – Spread of Russia / Ukraine war	Decentralize supply chains
	Reduce exposure to affected areas
Technological Risks	
TEC 1 – Development of competitive technology	Continuously invest in R&D
	Update the technology portfolio

Source: Author Analysis

Technology risks

Development of competitive technology (TEC 1) | In such a relatively young and somewhat embryonic industry, technology obsolescence is a constant risk that companies need to face and SGRE is no exception. If either hydrogen-based energy sources or even nuclear become more efficient and cheaper due to a tech breakthrough, SGRE's business model will definitely suffer.

Mitigation - To mitigate the risk of technological obsolescence, Siemens Gamesa could adopt a proactive approach to technology management. This could include regularly reviewing and updating its technology portfolio, investing in research and development, and maintaining strong relationships with key technology partners. It could also involve staying up to date with industry trends and developments, to ensure that the company is not using outdated technology.

Monte-Carlo simulation | For the Monte-Carlo simulation, **10.000 iterations** were performed, with the flexed variables being the beta and the TV growth rate. According to Bloomberg (terminal), the **average** and the **standard deviation** of SGRE's beta and growth rate in the last 5 years were **0.824** and **0.055**, and **3.29%** and **0.34%** respectively **(Table 9).**

The trial results were interesting and slightly surprising, with **a base case of 18.19**, **the mean was 19.22** and the **median was 18.89**. The **standard deviation** of the distribution was **2.79**, but the **range was 12.34 – 39.54**, with a **width of 27.20**, which can be considered to be extremely high – this can be explained by a relatively large growth rate's standard deviation. As graphed on the **Figure 44**, **41% of the trials' output were a value lower than the acquisition price (18.05) and 59% were higher**. Since the final target price is 18.19 (slight upside of 0.76%), this simulation corroborates the analysis that the acquisition price was **fairly valued**.

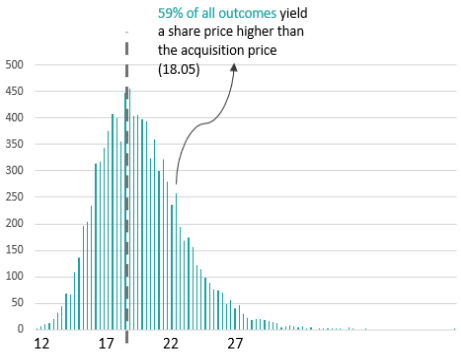
Sensitivity analysis | Considering the WACC and the TV growth rate as the main driver for SGRE's value, a sensitivity analysis on the EV (Enterprise value - **Appendix 15**) and the final target price was performed by flexing the 2 above-mentioned variables. Since the company does not define its target capital structure in any of its reports since 2018, the chosen **capital structure mix** for the WACC computation was the **average of its closest peers (D/E = 0.28).** However, since the company's capital structure is expected to change in the forecasted period and it's quite different from the peers' average, it makes sense to estimate the EV and final target price by assuming a **WACC interval of 6.63% – 7.83%.** For the terminal growth rate, its oscillation really depends on how much will governments support the wind-energy industry in the coming years, and how efficient the full integration of Siemens Gamesa into Siemens Energy will turn out to be – therefore, the sensitivity analysis will assume an interval for the **g rate of 3.15% - 3.75% (Table 10).**

Table 9 - Monte Carlo Statistics

Statistics	Forecast values
Trials	10,000
Base Case	18.19
Mean	19.22
Median	18.89
Mode	---
Standard Deviation	2.79
Variance	7.79
Skewness	0.8133
Kurtosis	4.39
Coeff. of Variation	0.1452
Minimum	12.34
Maximum	39.54
Range Width	27.20
Mean Std. Error	0.03

Source: Oracle Crystal Ball

Figure 44 - Monte Carlo Simulation



Source: Oracle Crystal Ball

Table 10 - Target Price Sensitivity Analysis

TV growth rate \ WACC	18.19	6.63%	6.83%	7.03%	7.23%	7.43%	7.63%	7.83%
3.15%		20.51	19.11	17.87	16.75	15.73	14.80	13.96
3.25%		21.15	19.69	18.38	17.20	16.14	15.18	14.30
3.35%		21.84	20.29	18.92	17.68	16.57	15.56	14.65
3.45%		22.57	20.94	19.48	18.19	17.02	15.97	15.02
3.55%		23.35	21.62	20.09	18.72	17.50	16.40	15.40
3.65%		24.18	22.34	20.72	19.28	18.00	16.84	15.80
3.75%		25.07	23.11	21.40	19.88	18.53	17.32	16.23

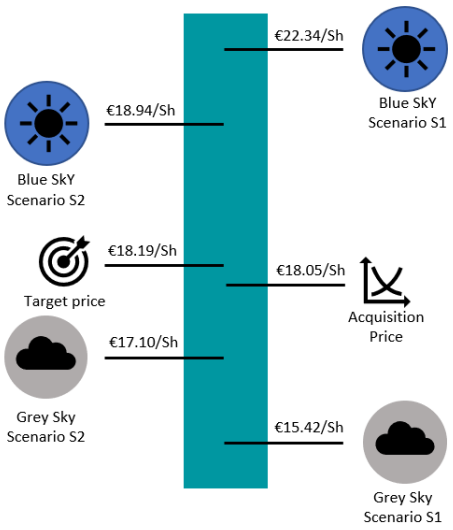
Source: Author Analysis

Scenario Analysis

Offshore average price growth (S1) | For the forecasted period – 2023F to 2027F – an average yearly decrease of 1% in the Offshore price per Mwe was assumed **(Appendix 16)**. This value, as explained before, is based on an historical average and on the assumption that the current pricing practices will continue to further reduce the wind-energy costs. For the Grey Sky Scenario, in which the decrease of the average price gets accelerated by either the increase of competition or the proliferation of underbidding, **a yearly average decrease of 3% was assumed** – resulting in an implied target price of **€15.42/Sh** (**15% lower than the Base Case scenario of €18.19/Sh**) **(Figure 45).** For the Blue-Sky scenario, it was estimated that the average price would increase at a pace of 1% per year, and this resulted in a target price of **€22.34/Sh (23% higher than €18.19/Sh**). This analysis was indeed insightful since it enabled a better understanding of how sensitive SGRE's future is on the evolution of Offshore future prices.

Cost of debt (S2) | Regarding the stress-testing of the cost of debt, the results were relatively optimistic for a SGRE's bullish investor **(Appendix 18)**. Defining the Grey Sky Scenario as the one in which the after tax rD is **4.2%** (instead of 3.35% = Base Case), the share price would suffer a **5.4% decrease comparing to the €18.19/Sh price (€17.10/Sh)**. The scenario could be caused by 3 events: i) company's credit rating deteriorates; ii) Germany 10Y Bund (rf rate) would significantly increase and iii) the marginal tax rate at which the company is exposed would decrease substantially. For the Blue-Sky Scenario (possibly caused by the opposite of the events that were just listed), an after-tax cost of debt of 2.8% was assumed, valuing SGRE's shares at **€18.94/Sh (4.7% upside comparing to €18.19/Sh)**. This reveals a lack of sensitivity between the company's valuation and its cost of debt, and that can be explained by the relatively low proportion of debt in the WACC capital structure mix.

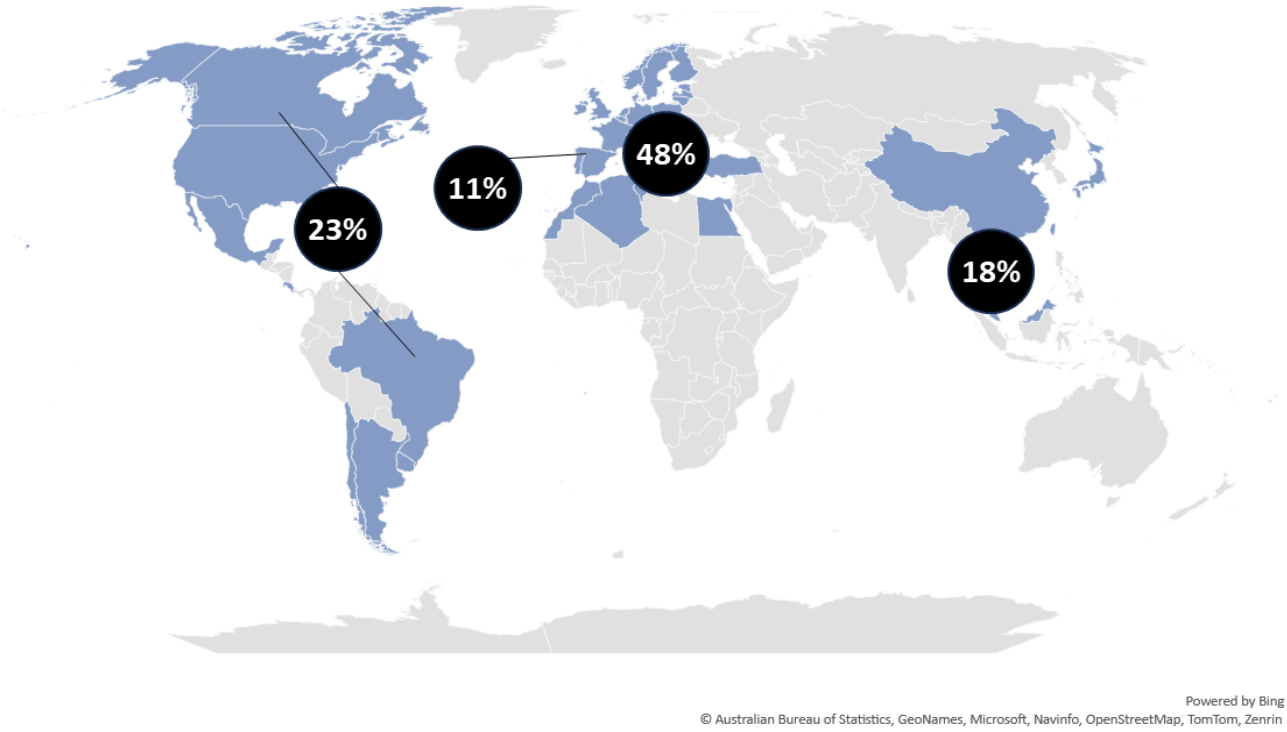
Figure 45 - Scenario Analysis S1 & S2



Source: Author Analysis

9. Appendix

Appendix 1 - Revenue by Region



Source: Company Data

Appendix 2 - 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.
S	Worldwide increase of sustainable energy consumption as social awareness for climate starts gaining political importance. The world population will keep increasing, though at a slower pace, therefore energy consumption is expected to rise accordingly.
T	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. 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.
E	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. Economic indicators are starting to implement even more ESG indicators, making countries and companies consider sustainability standards.
L	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. The adoption of the 2030 climate and energy framework by the EU in September 2020 to raise the 2030 greenhouse gas emission reduction target.

Source: Author Analysis

Appendix 3 - Balance Sheet

Balance Sheet	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F
Cash and cash equivalents	2,429,034	1,727,457	1,621,793	1,960,607	1,241,622	1,343,065	1,868,079	2,592,440	3,556,411	4,591,206
Trade and other receivables	1,113,918	1,286,781	1,142,313	900,612	1,100,291	1,212,511	1,334,554	1,489,864	1,552,310	1,617,602
Other current financial assets	171,036	274,736	212,077	238,616	401,781	282,049	310,438	346,565	361,091	376,279
Receivables from SIEMENS ENERGY Group	28,486	21,516	631	5,439	5,794	12373.20	12373.20	12373.20	12373.20	12373.20
Contract assets	1,572,188	2,056,255	1,537,953	1,468,240	1,419,298	1,667,106	1,855,692	2,099,866	2,180,157	2,264,608
Inventories	1,499,178	1,863,919	1,820,137	1,626,846	2,313,098	1,759,555	1,907,966	2,094,247	2,178,565	2,267,039
Current income tax assets	172,856	207,445	197,543	208,495	209,628	217,147	239,004	266,818	278,002	289,695
Other current assets	362,382	461,265	398,108	519,713	690,788	486,451	486,451	486,451	486,451	486,451
Total current assets	**7,349,078**	**7,899,374**	**6,930,555**	**6,928,568**	**7,382,300**	**6,980,257**	**8,014,559**	**9,388,625**	**10,605,360**	**11,905,253**
Goodwill	4,557,607	4,744,153	4,562,386	4,634,593	4,966,517	3,973,214	3,933,481	3,894,147	3,855,205	3,816,653
Other intangible assets	2,022,423	1,915,730	1,779,989	1,650,658	1,584,766	1,961,244	2,158,650	2,409,865	2,510,871	2,616,481
Property, plant and equipment	1,442,503	1,425,901	2,237,891	2,578,543	2,798,888	3,020,987	3,306,168	3,672,924	3,840,142	4,016,644
Investments accounted for using the equity method	73,036	70,876	66,353	78,492	93,269	78,492	78,492	78,492	78,492	78,492
Other financial assets	240,227	143,462	234,573	212,078	239,155	213,899	213,899	213,899	213,899	213,899
Deferred tax assets	366,957	400,538	525,631	539,129	575,964	481,644	481,644	481,644	481,644	481,644
Other assets	100,906	89,379	4,127	8,134	7,332	7,461	8,212	9,167	9,551	9,953
Total non-current assets	**8,803,659**	**8,790,039**	**9,410,950**	**9,701,627**	**10,265,891**	**9,736,940**	**10,180,546**	**10,760,137**	**10,989,804**	**11,233,766**
Total assets	**16,152,737**	**16,689,413**	**16,341,505**	**16,630,195**	**17,648,191**	**16,717,197**	**18,195,105**	**20,148,763**	**21,595,165**	**23,139,019**
Liabilities and equity										
Financial debt	990,538	352,209	434,313	381,721	546,193	654,687	716,490	795,971	832,209	870,459
Trade and other payables	2,416,394	2,599,836	2,956,372	2,899,603	3,395,580	2,826,401	3,110,888	3,472,920	3,618,483	3,770,680
Other current financial liabilities	103,772	130,396	126,666	180,352	269,887	176,220	193,957	216,529	225,604	235,094
Payables to SIEMENS ENERGY Group	341,710	285,690	8,121	21,583	56,703	142761.40	142761.40	142761.40	142761.40	142761.40
Contract liabilities	1,670,176	2,839,670	3,170,912	3,386,478	4,147,680	3,175,601	3,534,832	3,999,948	4,152,891	4,313,758
Current provisions	730,522	761,730	715,269	949,097	1,020,233	910,240	1,001,859	1,118,451	1,165,330	1,214,345
Current income tax liabilities	166,943	200,964	180,208	201,272	212,032	209,531	230,621	257,460	268,251	279,533
Other current liabilities	683,559	797,563	735,199	709,287	747,430	801,832	882,539	985,246	1,026,541	1,069,718
Total current liabilities	**7,103,614**	**7,968,058**	**8,327,060**	**8,729,393**	**10,395,738**	**8,897,273**	**9,813,947**	**10,989,285**	**11,432,070**	**11,896,349**
Financial debt	823,248	512,226	1,236,095	1,785,662	1,927,097	1,964,062	2,149,469	2,387,912	2,496,627	2,611,378
Post-employment benefits	12,635	14,823	19,862	21,409	10,852	11,536	11,928	12,202	12,446	12,695
Deferred tax liabilities	364,158	320,446	225,253	171,423	82,982	481,644	481,644	481,644	481,644	481,644
Provisions	1,702,108	1,400,252	1,443,274	1,323,851	1,150,886	1,540,712	1,695,790	1,893,139	1,972,488	2,055,453
Other financial liabilities	184,963	169,835	126,324	113,083	165,614	166,625	183,396	204,739	213,321	222,293
Other liabilities	31,060	30,968	28,775	26,906	52,048	37,110	40,845	45,599	47,510	49,508
Total non-current liabilities	**3,118,172**	**2,448,550**	**3,079,583**	**3,442,334**	**3,389,479**	**4,201,688**	**4,563,073**	**5,025,235**	**5,224,035**	**5,432,971**
Issued capital	115,794	115,794	115,794	115,794	115,794	115,794	115,794	115,794	115,794	115,794
Share premium	5,931,874	5,931,874	5,931,874	5,931,874	5,931,874	5,931,874	5,931,874	5,931,874	5,931,874	5,931,874
Unrealised asset and liability revaluation reserve	40,075	(4,520)	(8,745)	26,327	23,799	15,387	15,387	15,387	15,387	15,387
Retained earnings	583,832	712,833	(232,577)	(855,943)	(1,800,550)	(2,739,812)	(2,352,164)	(1,796,534)	(1,019,073)	(195,374)
Treasury shares, at cost	(20,343)	(21,616)	(23,929)	(15,836)	(4,719)	0	0	0	0	0
Currency translation differences	(722,507)	(464,261)	(848,323)	(745,032)	(404,341)	293,708	105,909 -	133,563 -	106,207 -	59,266
Non-controlling interest	2,226	2,701	768	1,284	1,117	1,284	1,284	1,284	1,284	1,284
Total equity	**5,930,951**	**6,272,805**	**4,934,862**	**4,458,468**	**3,862,974**	**3,618,235**	**3,818,085**	**4,134,242**	**4,939,059**	**5,809,699**
Total liabilities and equity	**16,152,737**	**16,689,413**	**16,341,505**	**16,630,195**	**17,648,191**	**16,717,197**	**18,195,105**	**20,148,763**	**21,595,165**	**23,139,019**

Source: Company Data and Author Analysis

Appendix 4 - Income Statement

Income Statement	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F
Revenue	9,122,272	10,226,879	9,483,209	10,197,818	9,813,526	10,658,058	11,730,829	13,096,016	13,644,918	14,218,838
Cost of sales	(8,167,776)	(9,278,647)	(9,592,899)	(9,933,049)	(9,979,779)	(9,347,024)	(10,135,407)	(11,124,957)	(11,572,867)	(12,042,855)
Gross profit	**954,496**	**948,232**	**(109,690)**	**264,769**	**(166,253)**	**1,311,034**	**1,595,422**	**1,971,060**	**2,072,051**	**2,175,983**
Research and development expenses	(165,594)	(207,936)	(231,403)	(292,391)	(290,893)	(213,161)	(234,617)	(261,920)	(272,898)	(284,377)
Selling and general administrative expenses	(567,495)	(496,249)	(624,374)	(492,200)	(510,985)	(639,483)	(703,850)	(785,761)	(818,695)	(853,130)
Other operating income	18,347	36,342	14,069	19,119	31,995	24,323	24,323	24,323	24,323	24,323
Other operating expenses	(28,885)	(27,727)	(6,178)	(21,625)	(5,440)	16,037	17,651	19,705	20,531	21,394
Income (loss) from investments accounted for using the equitymethod, net	(431)	(1,479)	(2,509)	9,867	12,138	5,705	8,596	8,172	7,491	8,086
Interest income	15,167	13,810	10,109	12,251	11,494	14,069	15,486	17,288	18,012	18,770
Interest expenses	(54,628)	(52,940)	(66,430)	(50,854)	(62,828)	(56,563)	(61,903)	(68,770)	(71,901)	(75,205)
Other financial income (expenses), net	(3,190)	(21,625)	(2,307)	(2,389)	66,757	(2,389)	(2,389)	(2,389)	(2,389)	(2,389)
Income from continuing operations before income taxes	**167,787**	**190,428**	**(1,018,713)**	**(553,453)**	**(914,015)**	**459,571**	**658,718**	**921,706**	**976,524**	**1,033,455**
Income tax	(97,857)	(49,490)	99,754	(72,456)	(25,247)	(71,922)	(103,089)	(144,246)	(152,825)	(161,734)
Income from continuing operations	**69,930**	**140938.00**	**(918,959)**	**(625,909)**	**(939,262)**	**387,648**	**555,630**	**777,461**	**823,700**	**871,720**
Income from discontinued operations, net of income taxes	-	-	-	-	-					
Net income	**69,930**	**140,938**	**(918,959)**	**(625,909)**	**(939,262)**	**387,648**	**555,630**	**777,461**	**823,700**	**871,720**

Source: Company Data and Author Analysis

Appendix 5 - Cash Flow Statement

Cash flow statement	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F
CASH FLOWS FROM OPERATING ACTIVITIES										
Income before taxes	167,787	190,428	(1,018,713)	(553,453)	914,015	459,571	658,718	921,706	976,524	1,033,455
Adjustments to reconcile income before taxes to cash flowsfrom operating activities										
Interest (Income) expenses, net	42,651	60,755	58,628	40,992	(15,423)	44,883	48,806	53,871	56,277	58,824
Amortization, depreciation and impairments	645,222	646,791	844,197	757,139	839,794	1,039,173	1,145,066	1,270,699	1,326,347	1,391,548
Other (Income) losses from investments	(6,979)	(6,755)	12,467	(185)	(363)	(363)	(363)	(363)	(363)	(363)
Other non-cash (income) expenses	24,195	23,273	(1,701)	12,484	15,256	15,256	15,256	15,256	15,256	15,256
Change in operating net working capital										
Contract assets	(359,384)	(449,427)	289,791	74,437	112,944	(366,763)	(408,252)	(461,970)	(479,635)	(498,214)
Inventories	552,086	(342,766)	(48,460)	207,545	(587,651)	11,001	11,929	13,094	13,621	14,174
Trade and other receivables	(79,928)	(148,348)	117,314	278,578	(129,337)	27,648	24,544	19,351	23,641	26,052
Trade and other payables	164,990	170,615	336,143	(105,586)	492,166	201,316	221,579	247,366	257,734	268,574
Contract liabilities	(10,439)	1,126,440	373,018	187,067	624,816	453,443	504,738	571,152	592,990	615,960
Change in other assets and liabilities	(322,454)	(316,160)	(133,417)	29,118	(257,344)	(257,344)	(257,344)	(257,344)	(257,344)	(257,344)
Income taxes paid	(102,850)	(190,655)	(172,103)	(134,138)	(111,646)	(72,346)	(103,696)	(145,095)	(153,725)	(162,687)
Dividends received	302	5,384	780	345	648	345	345	345	345	345
Interest received	13,544	14,106	6,052	6,837	9,519	10,972	12,077	13,482	14,047	14,638
CASH FLOWS FROM OPERATING ACTIVITIES	**728,743**	**783,681**	**663,996**	**801,180**	**(54,340)**	**1,566,793**	**1,873,403**	**2,261,549**	**2,385,716**	**2,520,219**
CASH FLOWS FROM INVESTING ACTIVITIES										
Additions to intangible assets and property, plant and equipment	(415,076)	(497,766)	(601,285)	(676,755)	(783,199)	(1,586,725)	(1,566,301)	(1,824,092)	(1,527,634)	(1,597,583)
Acquisitions of businesses, net of cash acquired	-	-	(177,094)	-	-	0	0	0	0	0
(Purchase) Sale of investments	(3,895)	3,930	(14)	(1,967)	-	(487)	(487)	(487)	(487)	(487)
Disposal of intangible assets and property, plant and equipment	1,719	19,223	28,795	42,739	17,437	27,828	27,470	31,991	26,791	28,018
CASH FLOWS FROM INVESTING ACTIVITIES	**(417,252)**	**(474,613)**	**(749,598)**	**(635,983)**	**(765,762)**	**(1,559,383)**	**(1,539,318)**	**(1,792,587)**	**(1,501,329)**	**(1,570,051)**
CASH FLOWS FROM FINANCING ACTIVITIES										
(Purchase) Sale of treasury shares	(22)	811	129	-	-	0	0	0	0	0
Changes in financial debt	552,758	(965,397)	146,880	186,818	143,282	145,459	247,210	317,923	144,953	153,002
Dividends paid	(65)	(17,888)	(35,675)	(473)	(1,207)	0	0	0	0	0
Interest paid	(50,913)	(55,131)	(53,804)	(45,544)	(54,470)	(51,426)	(56,280)	(62,524)	(65,370)	(68,375)
CASH FLOWS FROM FINANCING ACTIVITIES	**501,758**	**(1,037,605)**	**57,530**	**140,801**	**87,605**	**94,033**	**190,929**	**255,399**	**79,583**	**84,627**
EFFECT OF FOREIGN EXCHANGE RATES ON CASH AND CASHEQUIVALENTS	(43,683)	26,960	(77,592)	32,816	13,512	0	0	0	0	0
CHANGE IN CASH AND CASH EQUIVALENTS	769,566	(701,577)	(105,664)	338,814	(718,985)	101,443	525,015	724,361	963,971	1,034,795
CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD	1,659,468	2,429,034	1,727,457	1,621,793	1,960,607	1,241,622	1,343,065	1,868,079	2,592,440	3,556,411
CASH AND CASH EQUIVALENTS AT END OF PERIOD	2,429,034	1,727,457	1,621,793	1,960,607	1,241,622	1,343,065	1,868,079	2,592,440	3,556,411	4,591,206

Source: Company Data and Author Analysis

Appendix 6 - Free Cash Flow Map

	2023F	2024F	2025F	2026F	2027F	TV
EBIT	504'461	707'544	975'614	1'032'854	1'092'349	
EBIT (1-t)	425'514	596'814	822'932	871'214	921'398	
Depreciation	622'782	681'573	757'180	791'652	828'039	
Amortizations	365'367	402'144	448'946	467'765	487'441	
Impairments	51'026	61'352	64'579	66'937	76'077	
Δ Net Working Capital	127'856	- 14'034	- 20'444	1'199	1'567	
CAPEX	1'586'731	1'566'312	1'824'109	1'527'652	1'597'605	
FCFF	- 249'899	189'604	289'971	668'716	713'783	19'545'125
Years	1	2	3	4	5	6
Discounted CFs	**- 233'054**	**164'905**	**235'198**	**505'841**	**503'537**	**12'858'675**
g rate	**3.4498%**					
WACC	**7.22771%**					
Enterprise Value	**14'035'101.00**					
Debt (FY2022)	2'908'791.00					
Cash (FY2022)	1'241'622.00					
Minority interests (FY2021)	1'117.00					
Equity value	**12'366'815.00**					

Source: Company Data and Author Analysis

Appendix 7 - Main Assumptions

Item	Assumption/Description
Revenue	Assumed wind turbine revenue to be a function of average price per Mwe, and of installed capacity by SGRE. For the average price, it was used the average of the growth rates of the last 6 years, resulting in a -1% CAGR for the period 2023F to 2027F. Regarding installed capacity, GWEC and Wood Mackenzie were the base for the assumptions and assumed that SGRE would maintain its market share. In terms of O&M revenues, the main driver was the amount of MWe under maintenance, and also the average price per MWe.
COGS	COGS were split in 2 main groups: procurements and staff costs. For the procurements, there was a gradually decrease in the weight that it had on revenues from 70% in 2021 to 66% in 2027F because as the company expanded, it would benefit more in terms of economies of scale. Regarding staff costs, it was assumed a 5% CAGR from 2023F to 2027F in number of employees because of the firm's expansion plans, and also an increase in average salary per employee due to inflation and increasing taxation on income.
Staff costs	The 2 drivers for the staff costs are average remuneration per employee and total number of employees. Regarding the staff costs, €70k per year were assumed and as mentioned before, number of employees grew 5% a year until 2027.
R&D and SG&A	In modeling both items, it was assumed their proportion to revenues to be the average of the last 5 years. This makes sense since these items are expected to increase as the company also scales up, and also because the values were not volatile at all from 2018 to 2022.
Income tax	This item was modelled as simply the average effective rate of the 2018-2022 period. There are no reasons to believe that there will be any structural change to income taxes on the coming years
CAPEX	Evolution of PPE throughout the forecasted period was based on the estimations of future installed capacity. This means that CAPEX is strictly linked to the forecasts of Mwe sold in the coming years.
Depreciation & Amortization	Regarding D&A, it was simply assumed the average of the past 5 years, being 21% depreciation rate and 19% yearly amortization rate
Debt	No radical change was embedded in the debt's use by the company until 2027. Because of that, debt's growth will be proportional to PPE's growth.
Contract assets and contract liabilities	Customer contracts: Revenue recognition using the percentage of completion method, based on costs incurred to date over total estimated costs. Nevertheless, the amounts invoiced to the customer are based on achieved milestones set out in the contract. Therefore, amounts recognized as revenue in a period do not have to match the amounts invoiced in the same period. In contracts where recognized revenue is greater than the volume invoiced, the difference is recognized in the "Contract assets" account, while in contracts where recognized revenue is less than the volume invoiced, the difference is recognized in the "Contract liabilities" account.
Post-employment benefits	Assumed that will grow at expected inflation rate
Risk-free rate	Used the German 10Y Bund yield as of May 2023
Market Risk Premium	Fernandez (2022) paper was used
Beta	After Blume-adjusting linear regressions with several indices and conducting a pure-play method analysis with SGRE's 5 peers, the chosen beta was Blume-adjusted linear regression with STOXX 600.
Cost of debt	Default risk model, since Int Expense / Value of debt was not providing a good aproximation of the furure rD.
Credit Spread	Damodaran data
WACC Capital Structure Mix	Since target capital structure was never publicly disclosed, SGRE's D/E peers average was used
Terminal Value growth rate	TV growth rate was calculated by multiplying the ROIC by the Firm's Reinvestment rate
Dividends	It was assumed that SGRE will stop paying dividends as the full integration into SE has as its main purpose technology development and deleveragin - paying-out dividends would not be a wise strategy by the company.

Source: Company Data and Author Analysis

Appendix 9 - CAPM

Risk-free rate	2.46%
Beta	0.872
Market risk premium	6.70%
Cost of equity	**8.30%**

Source: Author Analysis

Appendix 8 - Cost of debt (Int Expense / Debt Method)

Book value of debt as of FY2022	2'908'791
Interest expense FY2022	62'828
Before tax Cost of debt	**2.16%**
Marginal tax rate Spain 2022	25%
After-tax cost of debt (rD)	**1.62%**

Source: Author Analysis

Appendix 10 - Cost of debt (Default Risk Model)

Risk-free rate	**2.46%**	as of 24/05/2023
10-year German Government Bonds yield		
since SGRE cash flows are in EUR		
Credit Rating	**BBB**	Standard & Poor's
	BBB-	Fitch
Credit Spread	**2.00%**	Damodaran Data
Before tax Cost of debt	**4.46%**	
After-tax cost of debt (rD)	**3.35%**	

Source: Author Analysis

Appendix 11 - Pure-play method

	Vestas	Nordex	General Electric	Goldwind	Ming Yang SEG
Levered Betas (Yahoo Finance)	1.18	1.96	1.21	0.95	0.36
Market Cap as for 24/05/2023 (in Bn)	27.442	2.395	110	47.274	42.282
Total Book Debt (as last reported period)	2.427	0.2095	26.148	37.448	7.628
Marginal tax rate	22%	15.90%	21%	25%	25%
Unlevered betas	1.104	1.826	1.019	0.596	0.317
D/E	0.088	0.087	0.238	0.792	0.180

Source: Author Analysis and Refinitiv

Appendix 12 - SGRE's Debt Weighted Maturity

Maturities	< 1 year	1-2 years	2-3 years	3-4 years	4-5 years	> 5 years	**Total**
Book Value of debt (in thousands) 2022	407,766	673,124	549	349,022	200,001	326	1,630,788
Weight on total debt	25.00%	41.28%	0.03%	21.40%	12.26%	0.02%	100.00%
Midpoint	0.5	1.5	2.5	3.5	4.5	7	
Weighted time to maturity (years)	2.05						

Source: Author Analysis and Company Data

Appendix 13 - Financial Ratios

PROFITABILITY RATIOS	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F
Gross profit margin	10.46%	9.27%	-1.16%	2.60%	-1.69%	12.30%	13.60%	15.05%	15.19%	15.30%
Operating profit margin	2.312%	2.471%	-10.098%	-5.122%	-9.595%	4.680%	5.958%	7.387%	7.514%	7.625%
Pretax proft margin	1.84%	1.86%	-10.74%	-5.43%	-9.31%	4.31%	5.62%	7.04%	7.16%	7.27%
Net proft margin	0.77%	1.38%	-9.69%	-6.14%	-9.57%	3.64%	4.74%	5.94%	6.04%	6.13%
ROE	1.18%	2.25%	-18.62%	-14.04%	-24.31%	10.71%	14.55%	18.81%	16.68%	15.00%
ROA	0.43%	0.84%	-5.62%	-3.76%	-5.32%	2.32%	3.05%	3.86%	3.81%	3.77%
ROIC	0.87%	1.89%	-13.40%	-9.05%	-13.87%	5.89%	7.87%	10.05%	9.46%	8.94%
EFFICIENCY RATIOS										
Asset Turnover	0.56	0.61	0.58	0.61	0.56	0.64	0.64	0.65	0.63	0.61
Fixed asset turnover	6.32	7.17	4.24	3.95	3.51	3.53	3.55	3.57	3.55	3.54
Receivables turnover	8.19	7.95	8.30	11.32	8.92	8.79	8.79	8.79	8.79	8.79
Inventory turnover	5.45	4.98	5.27	6.11	4.92	5.31	5.31	5.31	5.31	5.31
Payables Turnover	2.40	2.61	2.35	2.45	2.66	2.49	2.49	2.49	2.49	2.49
LIQUIDITY RATIOS										
Current ratio	1.03	0.99	0.83	0.79	0.71	0.78	0.82	0.85	0.93	1.00
Quick ratio	0.52	0.41	0.36	0.36	0.26	0.32	0.36	0.40	0.48	0.55
Cash ratio	0.37	0.25	0.22	0.25	0.16	0.18	0.22	0.27	0.34	0.42
SOLVENCY RATIOS										
Long term debt to equity	0.17	0.11	0.28	0.43	0.54	0.59	0.61	0.63	0.55	0.49
Debt to equity	0.35	0.19	0.39	0.55	0.75	0.82	0.85	0.87	0.76	0.68
Debt to assets	0.13	0.07	0.12	0.15	0.16	0.18	0.18	0.18	0.17	0.17
Debt to capital	0.26	0.16	0.28	0.36	0.43	0.45	0.46	0.47	0.43	0.40
Financial Leverage	2.72	2.66	3.31	3.73	4.57	4.62	4.77	4.87	4.37	3.98
Interest coverage	3.86	4.77	(14.41)	(10.27)	(14.99)	8.82	11.29	14.07	14.26	14.42
Debt to EBITDA	2.46	1.30	(16.60)	10.06	(32.45)	1.98	1.81	1.65	1.64	1.64
CASH FLOW PERFORMANCE RATIOS										
Cash flow to Revenue	0.08	0.08	0.07	0.08	(0.01)	0.15	0.16	0.17	0.17	0.18
Cash return on assets	0.05	0.05	0.04	0.05	(0.00)	0.09	0.11	0.12	0.11	0.11
Cash return on equity	0.12	0.12	0.14	0.14	0.19	(0.01)	0.42	0.47	0.50	0.44
Cash to Op. Income	3.46	3.10	(0.69)	(1.53)	0.06	3.14	2.68	2.34	2.33	2.32

Source: Author Analysis and Company Data

Appendix 14 - Key Risks Assessment

Risk	Code	Severity	Probability	Risk impact	Classification
Natural disasters and pandemics	OPE 1	3	3	9	Low
Cybercrime	OPE 2	4	4	16	High
Regulatory risk	POL 1	4	3	12	Medium
Spread of Russia Ukraine war	POL 2	5	2	10	Medium
Development of competitive technology	TEC 1	5	2	10	Medium
Market Volatility and Eco. Fluctuations	MAR 1	3	5	15	High

Source: Author Analysis

Appendix 15 - EV Sensitivity Analysis

	WACC						
14,034,147.70	6.63%	6.83%	7.03%	**7.23%**	7.43%	7.63%	7.83%
3.15%	15,609,928	14,664,211	13,816,970	13,053,704	12,362,622	11,734,041	11,159,935
3.25%	16,050,693	15,054,041	14,163,863	13,364,087	12,641,718	11,986,136	11,388,577
3.35%	16,518,352	15,466,288	14,529,619	13,690,478	12,934,503	12,250,017	11,627,431
3.45%	17,015,441	15,902,943	14,915,820	**14,034,148**	13,242,008	12,526,530	11,877,197
3.55%	17,544,831	16,366,240	15,324,230	14,396,505	13,565,372	12,816,605	12,138,640
3.65%	18,109,774	16,858,693	15,756,820	14,779,118	13,905,854	13,121,263	12,412,598
3.75%	18,713,977	17,383,146	16,215,804	15,183,733	14,264,852	13,441,634	12,699,992

TV growth rate

Source: Author Analysis

Appendix 16 - Offshore Future Price Growth Scenario Summary

Scenario Summary			
	Base Scenario	Grey Sky Scenario	Blue Sky Scenario
Changing Variable:			
Offshore Average Growth Price	-1%	-3%	1%
Result Variable:			
Target Price	18.19	15.42	22.34

Source: Author Analysis

Appendix 18 - Cost of Debt Scenario Summary

Scenario Summary			
	Base Scenario	Grey Sky Scenario	Blue Sky Scenario
Changing Variable:			
Cost of Debt	3.35%	4.20%	2.80%
Result Variable:			
Target Price	18.19	17.10	18.94

Source: Author Analysis

10. References

BloombergNEF. (2022). Global Clean Energy Outlook. Retrieved May 20, 2023 from https://www.dallasfed.org/-/media/Documents/research/events/2022/22energy/22energy-sethia.pdf

Damodaran. (2022). Credit Ratings and Default Spreads 2022. Retrieved June 11, 2023 from https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.html

Deloitte. (2022). 2023 renewable energy industry outlook. Retrieved June 14, 2023 from www.deloitte.com: https://www.deloitte.com/global/en/Industries/power-utilities-renewables/analysis/renewable-energy-industry-outlook.html

Eurostat. (2023). Shedding light on energy - 2023 edition. Retrieved May 14, 2023 from ec.europa.eu: https://ec.europa.eu/eurostat/web/interactive-publications/energy-2023

Fernandez (2022). Survey: Market Risk Premium and Risk-Free Rate used for 88 countries in 2021. Retrieved May 14, 2023 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3803990

Greenhouse Gas Protocol. (2012). A New Global Framework to Measure Greenhouse Gas Emissions from Cities. Retrieved May 25, 2023 from https://ghgprotocol.org/blog/new-global-framework-measure-greenhouse-gas-emissions-cities

GWEC. (2022). Global Wind Report 2022. Retrieved from https://gwec.net/global-wind-report-2022/

IEA. (2022, December). Renewable electricity 2022. Retrieved April 28, 2023 from IEA.org: https://www.iea.org/reports/renewables-2022/renewable-electricity

IRENA (2022). World Energy Transitions Outlook 2022. Retrieved June 17, 2023 from https://www.irena.org/Digital-Report/World-Energy-Transitions-Outlook-2022

Lawrence Berkeley National Laboratory (2022). Experts' Predictions for Future Wind Energy Costs Drop Significantly. Retrieved June 24, 2023 from https://newscenter.lbl.gov/2021/04/15/experts-predictions-for-future-wind-energy-costs-drop-significantly/

McKinsey. (2022). How to succeed in the expanding global offshore wind market. Retrieved May 16, 2023 from https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/how-to-succeed-in-the-expanding-global-offshore-wind-market

Refinitiv. (2022). Retrieved May 1, 2023 from https://www.refinitiv.com

Siemens Gamesa. (2017). Annual Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2017). Consolidated Annual Accounts. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2017). April – September Activity Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2018). Annual Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2018). Consolidated Annual Accounts. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2018). First Quarter FY23 - Activity Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2019). Annual Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2019). Retrieved April 13, 2023 from Consolidated Annual Accounts. https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2019). Annual Results FY2019 - Activity Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2020). Annual Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2020). Consolidated Annual Accounts. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2020). Third Quarter FY 2020 - Results Presentation. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2021). Annual Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2021). Consolidated Annual Accounts. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2021). Second quarter FY21 - Results Presentation. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2022). Annual Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2022). Consolidated Annual Accounts. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2022). Annual Results FY2022 - Activity Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2022). Annual Results FY2022 – Results Presentation. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2022). Third Quarter FY22 - Activity Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2022). Second Quarter FY22 - Activity Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Siemens Gamesa. (2022). First Quarter FY22 - Activity Report. Retrieved April 13, 2023 from https://www.siemensgamesa.com/en-int/investors-and-shareholders

Yahoo Finance. (2023). STXE 600 (STOXX). Retrieved June 2, 2023 from https://finance.yahoo.com/quote/%5ESTOXX/

Yahoo Finance. (2023). IBEX 35 (IBEX). Retrieved June 2, 2023 from https://finance.yahoo.com/quote/%5EIBEX

Yahoo Finance. (2023). MSCI World Energy. Retrieved June 2, 2023 from https://finance.yahoo.com/quote/WNRG.L/