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Equity Research on Siemens Gamesa Renewable Energy - Market expectations and Valuation

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Abstract

The purpose of this project is to evaluate the equity value of Siemens Gamesa Renewable Energy. In this sense, this project contains a comprehensive financial analysis of the company, as well as an in-depth understanding of the wind market worldwide. A Discounted Cash Flow valuation was performed grounded on the company and industry knowledge, delivering a price target of 24,38€ per share for FY22 and a final recommendation of BUY, with an annualized upside of 23% to the current stock price.
Our consolidated report is divided into 6 parts: Company Overview, The Wind Energy Market, The market outlook - expectations for the future per region, Financial – Forecast and Long-term Estimates, Valuation and Conclusions and Recommendations. In this report, it will cover the following 3 parts: The market outlook - expectations for the future per region, Financial – Forecast and Long-term Estimates, Valuation and Conclusions and Recommendations.

Keywords
Valuation, Equity Research, Renewable Energy, SGRE

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This report is part of the Siemens Gamesa Renewable Energy Equity Research report (annexed) and should be read has an integral part of it.

Table of Contents

The market outlook - expectations for the future

EMEA

The European market is one of the most mature in the Onshore sector. The Middle East and Africa continue growing even though they are still in a very early stage of the wind sector development.

In Europe, 16% of the energy used comes from the wind, and within this segment, around 89% of the total European installations are Onshore[1]. The main driver in this market is clearly the targets imposed by the EU in search of carbon neutrality, which are then adapted to the countries considering their size and natural resources. In this sense, Germany is the largest market, with around 63 GW of accumulated capacity in 2020, followed by the UK, Spain, and France.

In 2020, the evolution of new installations was delayed due to restrictions in the supply chain related to COVID-19, reaching only 14.7 GW of new installed capacity, compared to 15.6 GW in 2019, with the largest market, Germany, having the lowest number of installations since 2010.

Until 2025 an average of **21 GW** of new installations per year in Europe is expected, according to GWEC. However, such scenarios may change with the new incentives from the European Union to combat the effects of COVID-19, with the NextGenerationEU incentive package, in addition to the existing ones. Another point to consider is the process of replacing older turbines with newer and more powerful ones, which may have an impact on obtaining forecast targets, especially Onshore turbines, where it is estimated that around 72% of new installations will be in the next years, while in the Offshore market a constant record of new installations is expected in the coming years, with the completion of projects that are currently underway, mainly in the UK, which is set to become the largest Offshore market in Europe.

Regarding the Middle East and Africa region, an average installation of **3.2 GW** per year is expected until 2025, according to GWEC. Guided by new projects in South Africa, Egypt and Morocco and Saudi Arabia, this market is still not considered to play a big role in the wind energy's global market, due to its small volume of installations. It ends up being marked by political risks that prevent further development of the wind market in the regions.

In the Middle East, we highlight the Saudi Arabia project, Vision 2030[2]. This project holds as one of its main goals to turn 50% of its energy produced into green energy and to lose its dependence on oil, aiming to reach 9 GW in 2030 between solar and wind energy.

Latin America

Regarding this region, it is important to highlight the meeting in 2019, a historic moment, where for the first time in history, the countries of Latin America and the Caribbean (LAC) joined efforts towards a regional goal of renewable energy[3]. During the COP25 UN (25th Conference of the

[1] https://windeurope.org/intelligence-platform/product/wind-energy-in-europe-in-2020-trends-and-statistics/
[2] https://www.vision2030.gov.sa/thekingdom/explore/energy/
[3] https://ledsgp.org/2019/12/latin-america-and-the-caribbeans-historic-commitment-towards-renewable-energy/?loclang=en_gb

Parties to the United Nations Framework Convention on Climate Change) Conference in Madrid, LAC countries took a tremendous leap towards fulfilling an ambitious renewable energy promise. As part of the Renewable Energy Initiative for Latin America and the Caribbean (RELAC), 10 countries in the LAC region committed to achieving a regional target of 70% renewable energy by 2030.

The most important market in the region, Brazil, accounts for more than 50% of the total installations in the region. At the moment, the production of wind energy represents 8% of the total energy produced in Brazil with the objective that this value rises to 13% in 2030, according to the Ministry of Mines and Energy. It also announced a target for wind energy growth of 2.2% per year.[4]

When considering growing markets, it is important to highlight the Chilean market, which was elected the most attractive market for investment in renewable energy in 2020 by Bloomberg's Climatescope[5]. Chile's exceptional natural resources make it an attractive country for clean energy investments, along with the ambitious long-term goals to add clean energy capacity set by the government. The targets include a clean energy production target of 20% by 2025 and 60% by 2035. But Chile's ambition did not stop there, having presented its ambitious project for green hydrogen in 2020. The plan aims to accelerate its production to 5 GW by 2025, produce the world's cheapest green hydrogen by 2030 and make the country one of the top three exporters of the fuel by 2040.

For the coming years, according to GWEC, an average of **4.5 GW** of installations per year is expected until 2025, driven by Argentina, Mexico and Colombia, in addition to the aforementioned markets.

North America

When mentioning this region, it is clearly essential to highlight the USA, the second largest market in the world after China. In the last year, despite the impacts inherent to the COVID-19 pandemic, new installed capacity hit records, with around 16 GW installed in 2020, for an accumulated capacity of around 122 GW.

These records led to wind becoming the largest source of capacity additions in the US, representing 42% of new installed capacity among other energy sources.

From this installed capacity, around 9% came from Siemens Gamesa, in a market that is dominated by General Electric and Vestas, where together they reach around 87% of the market share in the region. However, when considering the total energy produced, only 8% derived from wind energy, in the same year.

Onshore wind installations in the US will likely decline in 2022 and 2023 but can be expected to recover thereafter due to the extension of the PTC, which will continue to be the main driver in the region for Onshore growth, but also for growth of Offshore projected from 2023 and beyond. Corporate demand for clean energy and state-level policies will also continue to impact wind

[4] https://economia.uol.com.br/noticias/redacao/2019/02/11/brasil-eua-e-mexico-lideram-producao-de-energia-eolica-nas-americas.htm
[5] https://global-climatescope.org/results/CL

power deployment.[6]

Finally, Biden's election in early 2021 brought a new breeze to the fight against climate change in the USA. His administration has set strong goals for clean energy, such as the zero-carbon power sector by 2035. To that end, it has put forward legislative proposals for the long-term extension of the PTC, a federal clean energy standard, and other policies to support a clean energy transition. The success of these proposals and their execution will be decisive for the achievement of the forecasts.

The other market to consider in this region is Canada. Currently ranked as the world's 9th largest market, Canada recently announced more ambitious climate commitments[7], including exceeding 2030 emissions targets and achieving zero net emissions by 2050 and a new investment in Canada's Net-Zero Accelerator that will encourage Canadian business and industry to develop net-zero technologies, and build their clean industrial advantage. In this regard, the Energy Regulator of Canada[8] predicts that the installed capacity of wind energy will increase from around 13.5 GW in 2020, to 23.6 GW in 2030 and finally to 40.5 GW in 2050, which will represent around 20% of the total capacity of installed energy contrasting with about 10% of 2020.

Overall, according to GWEC an average installations of **11.8 GW** per year through 2025 is expected.

APAC

This region is dominated by the People's Republic of China, which owns about 83% of the region's total installations, which corresponds to around 288 GW. China has made a set of promises for its carbon neutrality goals, with president Xi Jinping announcing in September 2020 to reach carbon neutrality by 2060. In December, it was announced the goal of having 25% of energy consumed originated from solar and wind, by 2030. As previously mentioned, China has also created a support mechanism, Feed-in Tariff that has helped to subsidize many projects in the country. In 2020, of the 86.9 GW of new Onshore installations, around 56.3% had this support mechanism, demonstrating its importance in the new installations.

It is therefore not surprising that China is the world leader in Onshore installations, with about 39% of global installations. According to GWEC, it is expected that China has an average of **39 GW** of new installations per year until 2025. In the Offshore market, China finished 2020 in 2nd place with 28% market share, with the UK reaching 29%, ending the year as the world leader in Offshore installations. This scenario, however, promises to change the coming years with China positioning itself as the world leader in Onshore and Offshore in order to reach its carbon neutrality goals in 2060. Also according to GWEC, China will dominate the average volume of around **7 GW** of new Offshore installations for the APAC region until 2025.

These numbers are boosted by specific market conditions, since its wind market is dominated by local companies such as Goldwind, Envision and Mingyang, in which the Chinese state has

[6] https://www.energy.gov/sites/default/files/2021-08/Land-Based%20Wind%20Market%20Report%202021%20Edition_Full%20Report_FINAL.pdf
[7] https://pm.gc.ca/en/news/news-releases/2021/04/22/prime-minister-trudeau-announces-increased-climate-ambition
[8] https://www-statista-com.eu1.proxy.openathens.net/statistics/208616/wind-power-generation-in-canada/

relevant functions, as in the case of the 23% that it holds in Goldwind, the market leader. These companies have their predominant exposure in the Chinese market, therefore not focusing on large foreign markets. This existing combination does not open many doors to foreign companies, as is the case of Siemens Gamesa that announced in August 2021, the end of Onshore sales in the country. In the announcement of this measure, CEO Andreas Nauen concluded that: "China is a market for domestic manufacturers."[9]

In other markets, it is important to highlight India, where according to GWEC, an average of **4 GW** of new installations per year is expected until 2025, which means an increase of around 50% in the total of its current installations, currently at around 39 GW. The Government is promoting wind power projects across the country through private sector investments, providing various fiscal and financial incentives, such as the Accelerated Depreciation benefit.

India has about 7600 km of coastline and this does not go unnoticed for potential Offshore projects in the country. From December 2013 to March 2018, a consortium led by the Global Wind Energy Council (GWEC) and supported by the European Union implemented the Facilitating Offshore Wind Energy in India (FOWIND) project to help India develop wind energy Offshore and, in turn, contribute to India's transition to the use of clean technologies in the energy sector, which has as its ultimate goals the installation of 5 GW by 2032.

Finally, it is worth mentioning Vietnam, the Southeast Asia's most attractive energy growth market. On February 22, 2021, the Vietnam Ministry of Industry and Commerce (MOIT) released the draft national energy development plan for the period 2021-2030, with a vision for 2045 ("Draft PDP8") for public comments[10]. In this proposal, Vietnam, which has about 600 MW of installed capacity in 2020 corresponding to about 1% of electricity production, wants to have around 11-12 GW Onshore in 2025 and move to 16 GW Onshore and 2-3 GW Offshore in 2030 of installed capacity, reaching 13% of the installed energy capacity. After 2030 and until 2045, solar and wind energy will aim to reach more than 42% of the installed capacity, highlighting the 21 GW, approximately, of Offshore planned for that date.

In final notes, all in all, according to GWEC an average of **54 GW** of installations per year through 2025 is expected for the APAC region.

[9] https://renews.biz/71883/siemens-gamesa-to-stop-sales-to-china/
[10] https://www.globalcompliancenews.com/2021/03/13/vietnam-key-highlights-of-new-draft-of-national-power-development-plan-draft-pdp8-04032021-2/

Financials- Forecasts and Long-term estimates

Revenues

Due to the restructuring taking place at Siemens Gamesa and the current market situation, we anticipate on the **Onshore segment,** a decrease of 2% in 2022 in line with Siemens Gamesa outlook for the next year. After that we anticipate an annual growth of **0.3%** between 2022 and 2025. Afterwards, an **2,7%** growth from 2025-2030 on MWE sold is expected. These figures reflect, above all, in the first half of the decade, Siemens Gamesa's weak positioning in this market in terms of growth, resulting in a very conservative growth, already announced by itself in past events. From 2025, we believe that after this restructuring period, Siemens Gamesa will have the capacity to increase its growth in Onshore. In relation to the Average Selling Price (ASP) per MWe, we forecast, in line with the trend of the past years, a decrease of around 1% per year until the end(2030).

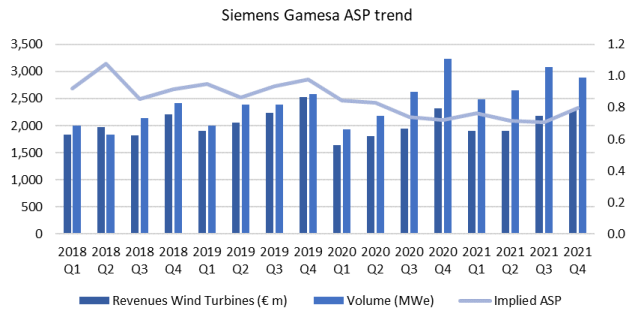


Figure 1 Source: Company Data and Analyst Team

In the **Offshore segment**, where Siemens Gamesa is the market leader, we however also expect a decrease of 2% in 2022, also due to the currently market environment and Siemens Gamesa announced outlook. But then we forecast an annual growth of **29%** until 2025 due to the large Offshore investments that will materialize in the coming years, mainly by China and the USA. Thereafter, we anticipate a slowdown, leaving the 2025-2030 CAGR at **7%**. Although there are higher growth forecasts for the second half of the decade, we do not believe that Siemens Gamesa will be able to keep up due to its imposed management restrictions, namely the capex investment limit. Regarding the ASP in Offshore, we predict it will maintain a downward trend of around 1% until 2030, in accordance with the trend seen in recent years.

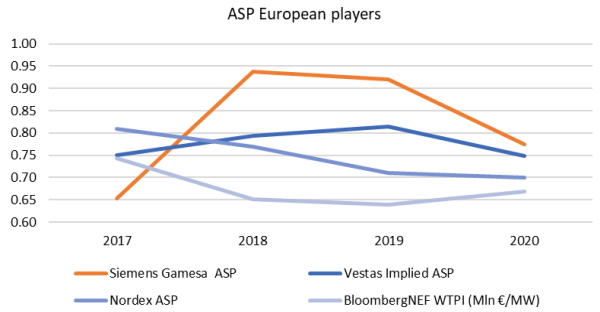


Figure 2 Source: Analyst Team, Company Data and Bloomberg

It should be noted that despite the downward trend in Siemens Gamesa prices as referred to and shown in Figure 2, Siemens Gamesa's ASP remains above its closest European competitors and above the Bloomberg index. It should be noted that the influence of Offshore prices (higher than Onshore currently) and the weight of this sub-segment, makes these values to be verified. Such values also demonstrate Siemens Gamesa's difficulties in finding its way onshore towards profitability, despite its prices being close to its competitors.

In the **Services segment**, we anticipate that Siemens Gamesa will achieve a long-term retention rate of 70% resulting in an increase from 74,240 MWe under maintenance in 2020 to 194 289 in 2030. Regarding the price of services rendered by Siemens Gamesa, we forecast a decrease over the years, following the reduction seen in the segment of Onshore and Offshore wind turbines, and to fight the trend (threat) of new service providers entering this market other than the OEM. This will result in a CAGR for the next decade of around 8%, in line with Siemens Gamesa's own forecasts.

Costs and Margins

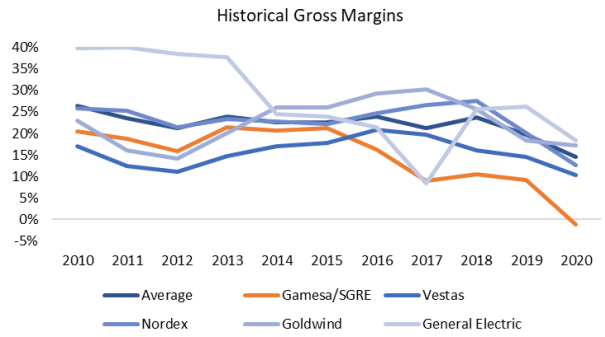


Figure 3 Source: Bloomberg and Companies Data

Within the COGS, it is worth highlighting two main items: procurement costs and staff costs.

Procurement costs have seen a growth in its weight in relation to revenues from 63% in 2016 to 70% in 2021 with a peak of 73% in 2020. This caption includes the acquisition of raw materials and the changes in inventories. As such, it is highly dependent on the price changes of the raw materials, mainly steel and iron, which make up 90% of the turbines. As stated before, these were heavily influenced by the COVID-19 pandemic, therefore increasing underlying values in the financial statements.

However, we believe that in the long term such price rises should stabilize and decline gradually over the next few years, due to the fact that we are reaching historic highs, due to the temporary deregulation between demand and supply caused by the years 2019 and 2020, which will benefit Siemens Gamesa. Consequently, we predict that the weight of procurements in relation to revenues will see a decrease from 67% in 2021 to 63% in 2030.

Regarding Staff Costs, Siemens Gamesa went from about 14 thousand employees in 2017 to 26 thousand in 2021. This caption was greatly influenced by the merger between Siemens Wind Power and Gamesa between 2016 and 2017. Since this merger, Siemens Gamesa has recorded an average increase of around 5% of employees per year (2018-2020, we excluded the values of 2021 as it was considered an exceptional year due to uncertainty, caused by covid-19), due to the increase in demand and the appearance of new jobs related to the expansion of the renewable energies, specifically wind energy, have undergone in recent years. In this sense, we forecast that this growth rate will continue until 2030 at least. In relation to costs per employee, SGRE sustains an annual cost of 67 thousand euros per employee in the last 4 years, a value that we expect to be maintained in the future.

The SG&A expenses at Siemens Gamesa are composed by the advertising costs, travel expenses, professional services, among others. In recent years, Siemens Gamesa has controlled these costs, reaching an average of 6%, a value that we predict will be the trend until the end.

Regarding **R&D**, the investments are carried out mainly through seven technology centres located across Europe in Spain, Germany, and Denmark, in the US and India. In these centres, different activities are carried out, such as testing and validating software systems for wind energy, photovoltaics, energy storage and hybrid energy systems and developments in engineering and technology related to software engineering and design for Onshore and Offshore wind turbines, with a focus on building next generation “smart” wind turbines. At Siemens Gamesa, each year a technological development plan is developed, where the activities for the year are established and a budget is assigned to each activity. In recent years, R&D budgets at Siemens Gamesa represented around 2% of Revenues of the same period, a figure that we expect will be maintained for the following periods.

Considering what was previously announced, we anticipate that Siemens Gamesa will start a recovering from lower margins in 2023, achieving an average long-term **gross margin** of **20%**, boosted by the Service Segment. We also anticipate that the target of 8%-10% EBIT pre PPA and I&R margin will be achieved in 2029, reaching a long-term **Ebit pre PPA and I&R costs margin** of around **8%**.

Capex and Working Capital

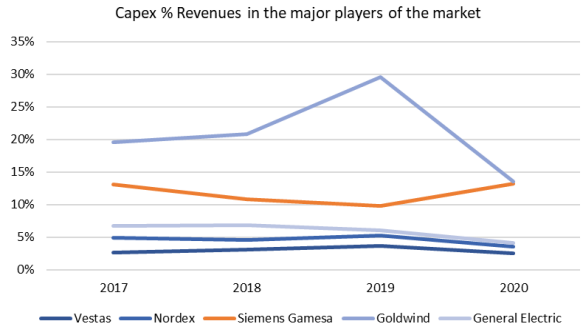


Figure 4 Capex % Revenues in the major players. Source: Company Data and Bloomberg

Capex includes lands and buildings, technical facilities, and machinery, among other equipment, therefore we anticipate that its biggest driver will be the number of MWe sold by Siemens Gamesa during the same periods. Thus, we anticipate, and average growth of 6% until 2025 and a long-term growth of 5% of the PP&E. This will go in line with Siemens Gamesa financial framework previous described, that the Capex value 2021 and 2022 will be around 6% in relation to revenues. However, we expect that between 2023 and 2025 such percentage will grow to 7%, until stabilized at 5%, as foreseen in its financial plan. In figure 28, we can see that Siemens Gamesa and Goldwind in recent years have been the leaders in Capex investment in % of Revenues and that the 5% limit described in their financial plan is in line with what their western competitors have been doing.

As previously announced in the LEAP program, Siemens Gamesa wants a strict control of working capital by maintaining an optimal target level below 0% of revenues. However, in our opinion, such values, considering the current scenario, are unlikely to be realized in the coming years. We anticipate that there is a path of reducing Working Capital in % of revenues from 18% in 2020 to around 11% in 2030. The decline will be helped mainly by the stabilization of the Cash Conversion Cycle.

Valuation

WACC highlights	
Rf	-0,39%
Beta	0,876
MRP	6,70%
Re	**5,48%**
Rd	**0,57%**
E/(E+D)	97%
D/(E+D)	3%
Tax Rate	24,00%
WACC	**5,32%**

Figure 5 WACC inputs. Source: Analyst Team

Discounted Cash Flow Valuation

- WACC

Cost of Equity

The equity cost was computed using the CAPM leading to a **5.48%** rate at which investors charge for their investment risk.

The risk-free rate was derived using the yield of the German government bond with 10-year maturity and for the market risk premium, we used, generally accepted value based on historical averages.[11]The levered Beta was calculated correlating the weekly excess return of SGRE and the MSCI World EUR excess returns of the past three years (12//2018 – 12/2021) using a linear regression. When verifying the D/E ratio of the different competitors, we verify that there is no trend, with each company having a very particular D/E. Therefore, we decided

[11] https://jnf.ufm.edu/cgi/viewcontent.cgi?article=1009&context=journal

to use the SGRE D/E ratio of 2021 and use it as the long-term D/E target giving us the final levered Beta of 0.88.

Rd	WACC
-0,39%	5,297%
0,57%	5,297%
1,11%	5,333%
5,48%	5,439%

Figure 6 Results from sensitivity analysis of Rd.
Source: Analyst Team

Cost of Debt

Siemens Gamesa has no outstanding bonds in the market, currently financing itself with lines of credit. Thus, we use the Bloomberg fair yield curve to estimate what values the market is demanding to provide financing for Baa3 European company. This resulted in YTM of 0.75%.

Afterwards, to get the cost of debt, the loss given default (LGD) weighted by the probability of default (p (d)) was deducted from the YTM. The LGD and the Probability of Default values were based on the Annual Default Study: Corporate Default and Recovery Rates, 1920 – 2017, published in 2018 by Moody's, considering the bond is unsecured and the SGRE credit rating of Baa3. The marginal tax rate considered was the tax rate in Spain, where SGRE's headquarters are located.

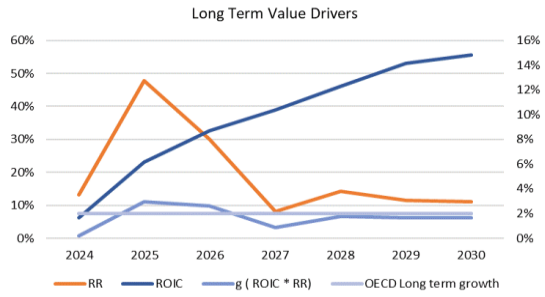


Figure 7 Source: Analyst Team. Note: Left axis with % of RR and right axis with % of remaining captions

This gives us the final value of 0.57%, which goes in line with the average cost of the credit lines of Siemens Gamesa.

Then, a sensitivity analysis was carried out to analyze the variation in the WACC values, considering the cost of debt values. Between the minimum value tested (risk free rate) and the maximum value (cost of equity), the WACC varied around **0.141 p.p**. Given this minor fluctuation, due to the capital structure of Siemens Gamesa, we did not go into further analysis of these values.

Value Creation Drivers

To determine the perpetuity value of Siemens Gamesa, we begin by analysing the evolution of its value creations drivers: Reinvestment Rate (RR) and Return on Invested Capital (ROIC).

From figure 7, we can see that from 2028 onwards, there begins to be a greater stabilization of the normal downward trend of perpetual growth of 2%. This goes in line with the long-term GDP growth predictions by the OECD of 2%[12]. In this sense, since Siemens Gamesa have a global exposition, we believe that **long-term growth will stay at 2%.**

- Valuation Outcome

In the end, considering the 9 years forecasted period followed by a perpetuity from 2030 onwards, with a **WACC of 5,34%** and a Terminal Growth rate of **2%,** the **DFC Model** originated in a share price of **€24,23** for fiscal year end 2022**.**

Company	EV/ Sales
Siemens Gamesa	1,56x
Vestas	2,30x
Nordex	0,48x
General Electric	0,77x
Goldwind	1,88x
Ming Yang	2,07x
Average	**1,50x**
Median	**1,88x**

Figure 8 Source: Bloomberg

Multiples Valuation

As a way to complement our DCF model we performed a relative valuation. Therefore, we used an EV/Sales multiple. As a first step, we verify in which % the sales of each company are transformed into FCF, calculating the average of the last 3 years. This resulted in a standard deviation of only 5% in the sample, a value that we consider reasonable, and thus we continued the analysis of this multiple. Then to calculate this multiple use sales from the last 12 months to

[12] https://www.oecd.org/economy/lookingto2060long-termglobalgrowthprospects.htm

calculate the ratio. This was aimed at diluting, as far as possible, the effects of the COVID-19 pandemic on company sales in order to assume them under normal conditions.

After computing the median of the **EV/Sales** ratio for the chosen peers, we got a multiple of **1,88x**, which implied a share price for Siemens Gamesa of **€28.20**. This result means that Siemens Gamesa is **undervalued**, which goes in favour of our valuation through the DCF Model. On the other hand, using the simple average, we got a multiple of **1.50x**, which implied a share price for Siemens Gamesa of **€22.50**. This result means that Siemens Gamesa is **fairly valued (hold recommendation)** demonstrating once again the lack of an existing standard in the industry**.** It is important to highlight, however, that one of the gaps of this type of valuation is that it only analyses the company from a static perspective, not considering neither the expected growth, nor the outcomes of it.

In this sense, if we analyse the results, we may be surprised with the result of General Electric, the market leader in 2020. However, it is necessary to bear in mind that Renewable Energy is only one of the 5 business segments present in the company. In this sense, there may be a clear interference of these remaining segments in the result of the multiple. In this sense, GE itself started to take measures due to its underperformance, having as plans to divide its group into 3 companies: healthcare, energy and aviation.[13] Another aspect is General Electric's exposure to a very mature market like the USA, especially in the segment that is expected to have less growth, the Onshore. Goldwind and Ming Yang, as mentioned above, their practically total exposure to China, causes them to be linked to high growth rates and, consequently, positive forecasts for them that lead them to be above the market average and median. Finishing in Europe, Vestas, being the great market leader in recent years, lives from this status, mainly due to its preponderance in the world onshore and the confidence that it will be able to replicate the same in the Offshore market, having the highest multiple on the list. Nordex, on the other hand, clearly finds itself in the most complicated position, living between the leader of the last years of the Onshore market, Vestas, and the leader of the Offshore market, Siemens Gamesa, having the same difficulties in finding its way, demonstrated by the disappearance in 2020 of the market leaders. Siemens Gamesa, as mentioned, being the leader in the Offshore market, lives on the expectations of this growth, to offset the lack of growth and profitability in the Onshore segment, resulting in a multiple close to the sector average.

Scenario Analysis - Green Hydrogen revolution

Based on what was mentioned on the Hydrogen topic, we decided to analyse the impact, of the extra demand derived from hydrogen can have on Siemens Gamesa.

In this sense, taking into account Hydrogen EU's[14] projections of having an accumulated capacity of 40 GW by 2030, we decided to check it taking into account the different future perspectives of Siemens Gamesa's market share in Onshore Europe[15]. Although there is a target of 6 GW of Green Hydrogen until 2024, in this analysis we will only consider the period

[13] https://www.ft.com/content/fb73e702-e885-4c20-8857-ddd29dc623af
[14] https://ec.europa.eu/commission/presscorner/detail/en/FS_20_1296
[15] https://energywatch.eu/EnergyNews/Renewables/article12829369.ece

between 2026 and 2030, which is when, according to Siemens Gamesa, large scale projects are expected[16]. In this way we design 3 different scenarios and their impact on Siemens Gamesa's final price. Starting with our assumptions we expect an average of 6.1 GW of extra demand in Europe due to the green hydrogen. We only consider the period from 2026 to 2030, as already mentioned, because this is when Siemens Gamesa projects that the larger projects will start and thus, we predict that the costs of an onshore hydrogen project will be similar to the cost of an onshore project that do not involve hydrogen. From data from the end of 2020, Siemens Gamesa have about of 20% of market share of the EMEA regions, where Europe have a has quite considerable weight. Then, maintaining this market share will be our base scenario. The difference between the positive and negative scenario is whether Siemens Gamesa managed to increase its current market share until that date or lose it. For the study we marked 10% as the potential up and down. Finally, we calculated, taking into account the potential new demand and market share, which would be the additional Mwe deliveries that Siemens Gamesa would potentially make. The results can be found in the table below.

Hydrogen Scenarios	Market Share	Extra average Onshore deliveries (Mwe)	Price (€)	Return(annualized) %
Hydrogen - Base scenario	20%	1220	33,44 €	83%
Hydrogen - Positive scenario	30%	1830	39,53 €	127%
Hydrogen - Negative scenario	10%	610	28,48 €	50%
Current Price		**20.75 €**		

Despite the fact that in all scenarios the outcome is positive, it should be noted that there are risks associated with this increase in demand. What is clearly highlighted is Siemens Gamesa's ability to manage its PP&E and Capex, which, as mentioned above, is driven by the MWe sold. Without this extra demand, the % of Capex in relation to Revenues would be around 5%. With this extra demand this % could reach 6%/6.5% of the positive scenario. Not being a dramatic change, it was a change that would no longer respect the limit imposed by Siemens Gamesa by its long-term financial plan. The second would clearly be the opportunity for new players to enter the market that could influence Siemens Gamesa's market share in the market and, consequently, the potential for new revenues generated. Therefore, nothing guarantees that the 10% is in any way the bottom line of a potential market share. But not only new players can affect market share, as the current ones, where this demand associated with hydrogen may be reflected in strategic changes of the current players, leading to changes in market share among them. As described above, such differences may diminish potential hydrogen associated revenues, but may also affect the remaining revenues in Siemens Gamesa's Onshore market. It will undoubtedly be one of the most impactful trends in the wind market to be analysed in the coming years.

[16] https://www.siemensgamesa.com/-/media/siemensgamesa/downloads/en/products-and-services/hybrid-power-and-storage/green-hydrogen/210318-siemens-energy-hydrogen-day.pdf

Conclusions and Recommendations

Final notes we leave below a table with the results of the evaluations carried out in this report together with the study of the potential impacts of Hydrogen.

	Price (€)	Return (annualized) %	Recomendation
Current Price	**20,75 €**	-	
DCF Model	24,38 €	23%	Buy
Multiple EV/Sales (Median)	28,20 €	48%	Buy
Hydrogen - Base scenario	33,44 €	83%	Buy
Hydrogen - Positive scenario	39,53 €	127%	Buy
Hydrogen - Negative scenario	28,48 €	50%	Buy

As it is possible to verify all valuations give a buying recommended with returns between 23% and 127% for the investor. Therefore, our recommendation is to buy shares of Siemens Gamesa as it is an investment with a strong expected fundamental value for valuation.

It is important to consider the current scenario, where it was expected that the pandemic would evolve in a positive way until the appearance of the new variant Omicron and its consequent risks. As such, the market is now very sceptical in its expectations, contrasting to our valuation where we consider these risks to be temporary and therefore not impacting the long-term value of SGRE.

The worldwide need to shift from fossil fuel sources to clean energy will undoubtedly be the biggest driver for Siemens Gamesa's growth. Within this change, Siemens Gamesa's market position in the Offshore segment brings the prospect of considerable growth, which is the market within the Wind Energy sector that promises the greatest evolution for the next decade.

In another sense, green hydrogen promises to be one of the most interesting topics to follow in the coming years, and it may unlock extra demand and, as such, it may lead to changes in the market for wind turbine producers.

However, for all this to be good news for Siemens Gamesa, it has to successfully carry out its financial plan and the necessary restructuring in the Onshore segment so that it has the capacity to capitalize on this expected growth in the sector.

Appendix

"SIEMENS GAMESA"

"WIND ENERGY INDUSTRY"

STUDENTS: MADALENA BRITO; RODRIGO ALEIXO

COMPANY REPORT

17 DECEMBER 2021

The Green Age

Is Offshore the turning point for Siemens Gamesa?

- The offshore market has the greatest growth potential at this stage, with an expected CARG of 21% for this decade according with GWEC. Siemens Gamesa is the market leader in this market. In this sense, maintaining this leadership is crucial for this price target. A significant increase or decrease in this will lead to a review of this price target.
- Siemens Gamesa´s ability to solidly recover the profitability of the Onshore segment may further boost its performance. The success of the LEAP program will be crucial for this. The failure could cause impacts in the opposite direction and could jeopardize the potential of the Offshore.
- Government policies will continue to be the main driver of the sector´s growth with the Conference of the Parties in the frontline.
- Although expectations for 2022 are not for growth, we believe that the sentiment around renewable energies will support the stock's performance in the coming months, which, as verified by the sector indices, has performed above the market in general in the last years.

Company description

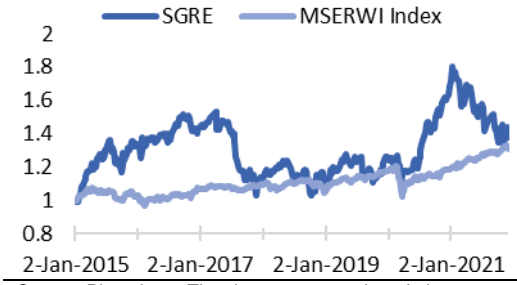
With more than 35 years of experience, Siemens Gamesa Renewable Energy is a global leader in the development, manufacturing, installation, and maintenance of wind turbines. With over 107 GW of wind turbines installed in 75 countries and more than 33.000 wind turbines under maintenance, SGRE is considered a key player and innovative pioneer in the renewable energy sector, being among the top 5 OEMs worldwide.

Recommendation:	**BUY**
Price Target FY22:	**24.38 €**
Price (as of 17-Dec-21)	**20.75€**

Reuters: SGREN.MC, Bloomberg: SGRE:SM

52-week range (€)	18.34 - 39.35
Market Cap (€m)	14108.05
Outstanding Shares (m)	679.906

Source: Bloomberg and Company Data



Source: Bloomberg. The chart measures the relative performance against the MSERWI Index.

(Values in € millions)	2020	2021	2022F
Revenues	9483	10198	10087
GW sold	9.97	11	10.78
Gross Margin %	8%	10%	8%
EBITDA	-113	-235	-15
Ebit Margin pre PPA and I&R %	-2%	-1%	-2%
Net Profit	-1310	-485	-447

Source: Company Data and analyst calculations

Table of Contents

Company Overview

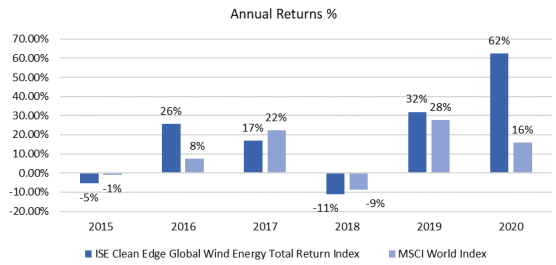


Figure 1 Annual Returns of ISE Clean Global Wind Energy Index and MSCI World Index. Source: Nasdaq and MSCI

Siemens Gamesa Renewable Energy S.A. is one of the largest manufacturers of wind turbines in the world, being presented as one of the top performers in the renewable energy industry, one of the fastest growing industries worldwide (see figure 1 and 2)

It was created in 2017 resulting from the merger between Siemens Wind Power and Gamesa Corporación Tecnológica S.A thus benefiting from the know-how already acquired by these two companies. The company's operations are centred around three segments: Onshore, Offshore and Service.

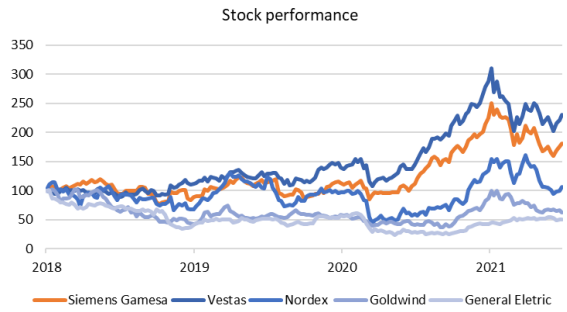


Figure 2 Stock performance on the major players in this market. Source: Bloomberg

Shareholder Structure

Siemens Gamesa has a very unique shareholder structure where around 67% of the shares are held by Siemens Energy AG, the energy division of the Siemens group, leaving only around 33% of float free shares. With this type of structure, the company itself becomes more vulnerable to potential future sales or to the total takeover (leading to delisting from the market) of Siemens Energy, as it was in the past as something potential to happen[1]. On the other hand, it allows Siemens Energy to have margin to sell part of its percentage to raise money for considerable investments in Siemens Gamesa. Another factor to take into account is the synergies that Siemens Gamesa manages to have with Siemens Energy, such as the financial guarantees, procurement agreements, and strategic collaborations and combined offerings potential, such as the project of 120€ million over five years, starting in 2021, in developments to lead to a fully integrated offshore wind-to-hydrogen solution.[2]

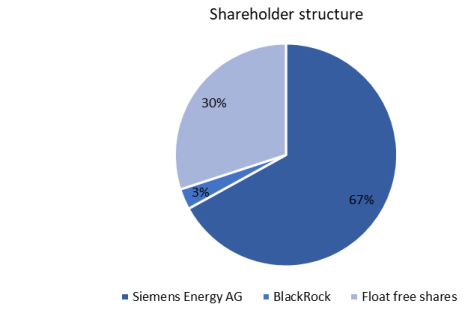


Figure 3 Siemens Gamesa shareholder structure. Source: Company Data

If we look at its closest peers (Europe Wind sector), in this case Nordex and Vestas, we see that in the case of Nordex, around 33% of the shares belong to Acciona S.A., a group that merged with Nordex in 2016 his wind turbine manufacturing subsidiary[3]. However, unlike Siemens Gamesa, this type of structure does not guarantee the same stability in the future due to the

[1] https://www.reuters.com/article/siemens-gamesa-r-ma-siemens-energy-stock-idCNL5N2N51SR
[2] https://www.siemensgamesa.com/newsroom/2021/01/210113-siemens-gamesa-press-release-siemens-energy-agreement-green-hydrogen
[3] http://ir.nordex-online.com/websites/Nordex/English/2400/shareholder-structure.html

minority position of Acciona S.A and due to the lower financing capacity through the stock market. In the case of Vestas, it owned about 50% of the total shares[4], having, therefore, security about its own future and some financing capacity through the sale of some of its percentage of shares.

Another aspect to be analysed is the type of investor owning shares in Siemens Gamesa and leading to around 77% of the total shares being owned by corporations (where around 67% are from Siemens Energy) and around 21% are from investment advisors, where we highlight Blackrock with about 3%. Such share indicates that the company has a certain degree of credibility in the investment community.[4]

Sustainability vision towards 2040

The impact of a persistently unhappy workforce, the safeness of the company's data and how vulnerable it is to climate changes, among others, are fundamental sustainable business questions that are not captured in traditional financial analysis but are increasingly recognized as having financial material impact.

Consequently, in addition to being a leader in the renewable energy industry, SGRE aims to be a leader and an example in sustainability. To achieve this, Siemens Gamesa designed a plan that aims at a path to sustainability leadership towards 2040, guided by the goals of sustainable development.

Environmental goals	2017/2018	2020	2040 (objective)
CO_2 emissions (tCO_2 / MW installed)	12.3	3.2	0
Suppliers signatories of SBTi (% Purch Vol.)	Not tracked	Not tracked	50%
Product recyclability (% Turbine recyclability)	85%	85%	100%
Social goals			
Total Recordable Injury Rate (# recordable cases/10^6 hours)	6.31	3.14	Sector leader
Sustainable Engagement Index (SEI) %	74%	81%	X% Above manufact norm
Women in workforce (women in senior mgmt.) %	19% (11%)	19% (12%)	30% (30%)
Return of Social Investment €/€	Not tracked	5.5	7.7
Governance goals			
Products and CAPEX with carbon pricing(% of total products)	0%	0%	100%
Supplier Code of Conduct acceptance (% Purch. Vol.)	65%	84%	100%
Compliance and responsible business training (% of employees)	Not tracked	65%	100%

Figure 4 Siemens Gamesa Sustainability goals

In this sense the plan's vision in the environmental area is to have a Supply Chain Net Zero emissions, ensure that 100% of the turbines are recyclable and reduce their CO2 emissions to zero. However, if we check the information provided by Siemens Gamesa, we see that, to this day, it does not check if its

[4] Source: Bloomberg

suppliers are aligned with the same objectives. Regarding CO_2 emissions, Siemens Gamesa wants to achieve 0% in 2040, but for example Vestas has the same objective, but for ten years before (2030)[5], which doesn't sound good for Siemens Gamesa when they claim to have a major goal of being a leader in sustainability. However, in September 2021, Siemens Gamesa launched a recyclable wind turbine blade, which it claims to be "the world's first recyclable wind turbine blades ready for commercial use Offshore"[6] , which compared to other competitors, especially Vestas is a significant advance to making turbines fully recyclable by 2040. In the social area, the efforts are driven towards becoming a leader in work safety, inclusion of women in its workforce and to be a leader in inclusion and diversity. Again, comparing with Vestas[5], we see that Siemens Gamesa has good results in terms of injury rate, with slightly better results for the year 2020, but leaves a vague objective for 2040, without any objective value, setting to being the leader in the sector. Compared to the percentage of women in the workforce, there are values identical to the date of 2020, but once again, as mentioned above, the same goals are intended to be achieved 10 years earlier at Vestas than at Siemens Gamesa, i.e., achieving the 30%. With regard to senior management positions, these figures are much lower than those presented by Vestas (25% vs 11%)[5], which demonstrates that the path to leadership in these topics is still long for Siemens Gamesa. Finally, in the area of Governance, the plan focuses on the commitment to having a responsible supply chain through a code of conduct and being a leader in responsible business practices. Here we want to highlight that Siemens Gamesa, in fact, has work to do. In recent months, the company has restructured its staff due to poor performance, as in the case of India, due to lack of due diligence in consultancy dealings[7]. This sends a very negative message abroad, as it does not fully guarantee any shareholder that what happened in India is not happening in another important location for Siemens Gamesa.

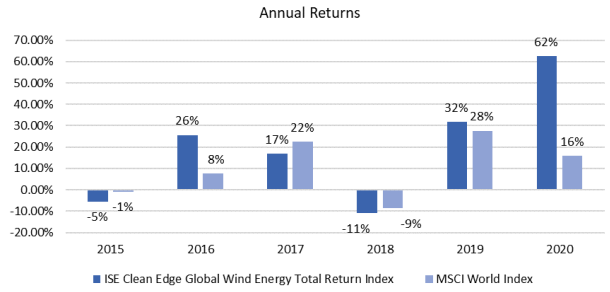


Figure 5 MSCI Europe Index vs MSCI Europe SRI Index performance. Source: MSCI

However, the work already done is demonstrated by the assessment of the various entities and ESG ratings. Siemens Gamesa currently has a score of 84/100 in the S&P Global ESG, being top percentile in ESG Rating agencies Sustainalytics (98/100) and S&P Corporate Sustainability Assessment- DJSI (97/100). In addition, this company is a member of the Dow Jones Sustainability

[5] https://www.vestas.com/content/dam/vestas-com/global/en/sustainability/reports-and-ratings/sustainability-reports/2020_Sustainability_Report_2020.pdf.coredownload.inline.pdf
[6] https://www.siemensgamesa.com/newsroom/2021/09/launch-world-first-recyclable-wind-turbine-blade
[7] https://www.reuters.com/article/siemens-gamesa-india-compliance-idUSKBN28D0JT

Indices World & Europe and FTSE4Good indices. These ESG ratings are designed to help investors identify and understand financially material ESG risks to a business.

In recent years, it has been shown that companies with excellent ESG ratings perform better, as can be seen by comparing the MSCI Europe Index that captures large and mid-cap representation across 15 Developed Markets (DM) countries in Europe and the MSCI Europe SRI Index that provides exposure to companies with outstanding Environmental, Social and Governance (ESG) ratings and excludes companies whose products have negative social or environmental impacts (Figure 5).

This demonstrates that the more work done in this chapter, the better performance companies will be able to give their shareholders. Siemens Gamesa demonstrates its commitment to the matter, due to the results it presents in its reports, however, in order to be the total leader in the sector, it has some way to go, even with some objectives outlined by its biggest rival at this stage, Vestas.

New CEO and the LEAP Program

The COVID-19 pandemic had a huge impact across every industry, in some more than others. The renewable energy sector was mainly affected in the supply chain and in the manufacture of the wind turbines, where the pandemic caused delays. For SGRE, these delays are a consequence of government measures across the globe, such as lockdowns. Additionally, SGRE's main business unit, Onshore Wind, was going through periods where it did not contribute to SGRE's profitability.

To overcome these challenges, SGRE appointed a new CEO, Andreas Nauen (the former CEO of the Offshore Wind business unit) and a new management team. With this new CEO and team, SGRE decided to set a new business strategy in Q3 2020, the LEAP program sustained by a financial framework, with several objectives to be archived until 2023: guarantee an EBIT Margin pre PPA and I&R between 8% and 10%, Capex % of Revenues of 6% until 2023 and 5% then, strict cash management and control (Working Capital < 0% revenues).

Financial framework for FY21 - FY23 and beyond	2020 Q4	FY 2020	2021 Q1	2021 Q2	2021 Q3	2021 Q4	FY 2021
Profitble Growth							
EBIT Margin pre PPA and I&R costs: 8-10%	1,1%	-2,50%	5,30%	4,80%	-5,60%	-6,20%	-0,90%
Book to Bill > 1 and < 2	0,90	1,60	1,00	2,40	0,60	1,00	1,20
Focus on Cash							
Capex <= 5% Revenues and in 2021 and 2022 less or equal of 6%	8,70%	6,30%	6.1%	6.4%	6,00%	7,90%	6,60%
Working Capital < 0% revenues	-20,80%	-20,80%	-17,40%	-16,50%	-15,90%	-24,50%	-24,50%
Net Financial Debt / EBITDA < 1.0x	N.A.	0.96	-3,45	-3,25	-2,25	-0,88%	-0,88%

Figure 6 Siemens Gamesa results, and objectives defined in the financial framework.

As it can be seen from the image, the situation at Siemens Gamesa has not been the brightest in recent quarters. The second half of the fiscal year of 2021 hindered an evolution that was taking place over the previous quarters. As major highlights, the NWC registered a decrease of about 5 p.p. until the last quarter of 2021, where the increase in the raw materials, constraints in the supply chain were felt, delaying projects and delaying decisions on potential new projects. This increase from 15.9% to 24.5% was largely due to the Contract Assets and Contract Liabilities items, which were impacted for the reasons described above. The EBIT margin, which was undergoing a recovery in the same direction, felt the same impact. On the positive side, despite this troubled period, Siemens Gamesa managed to maintain a book-to-bill above 1 in fiscal year 2021, demonstrating good prospects for sales volume in the future. The financial position (Net Financial Debt / EBITDA), after a deterioration in the first phase of fiscal year 2021, has been improving since then. Regarding investment, Siemens Gamesa showed an investment in the last quarter of 2021 above the rest, justified by the new facility in Le Havre and in new Onshore and Offshore products that promise to have greater demand from 2023. Overall, we can say that the goals are far from being achieved, however, it is to be seen that Siemens Gamesa has, in fact, been working to achieve them and is on the right path to achieve them. Having as current CEO, the former CEO of the Offshore Business Unit, who presented the best results in recent years in the Wind turbines segment, leads us to believe that Siemens Gamesa seems to start to consolidate its path for the future.

Siemens Gamesa Wind Turbine Segment

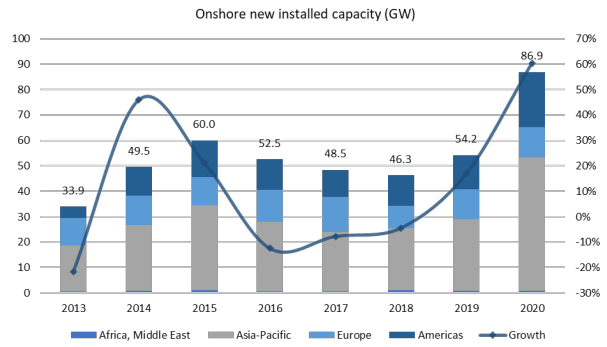


Figure 7 Source: GWEC Market Intelligence Archives

This segment presents two distinct business units – Onshore and Offshore Wind Turbines. On the Onshore, Gamesa's product portfolio starts with Siemens Gamesa 2.X in the 2.0 to 2.9 MW segment and ends with the new Siemens Gamesa 5.X in the 6.2 to 5.5 MW segment. Currently in this segment, Siemens Gamesa has 94.6 GW of accumulated installations around the globe. Regarding the Offshore, Siemens Gamesa has 3 turbines under its portfolio: the SG 8.0-167 DD with a nominal power of 8 MW, the SG 11.0-200 DD with a nominal power of 11 MW, which will be mass produced from 2022 onwards, and finally, the G 14-222 DD with a nominal power of 14 MW, which will be mass produced from 2024 onwards. So far it has 14 GW of accumulated installations around the globe.

Even though both regard production and sale of wind turbines, their characteristics in terms of profit and capacity factors are quite different.

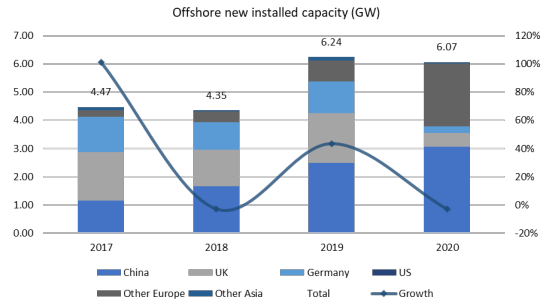


Figure 8 Source: GWEC Market Intelligence Archives

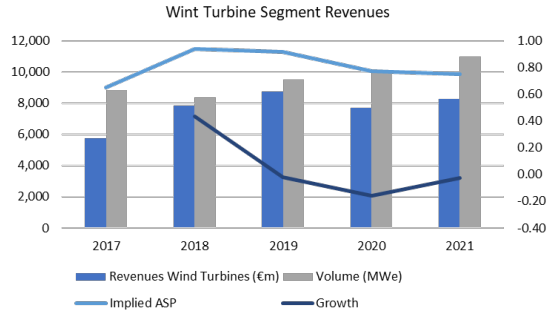


Figure 9 Source: Company Data

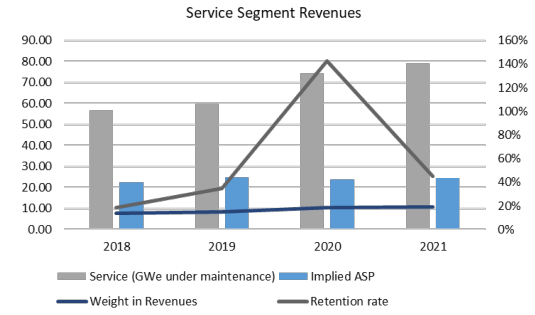


Figure 10 Source: Company Data

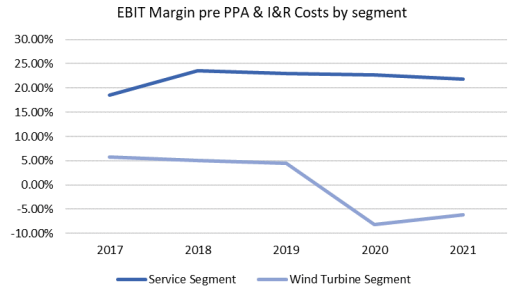


Figure 11 Source: Company Data

A key difference is the consistency at which both generate energy. As expected, due to higher wind speeds, Offshore wind farms have the potential to generate more electricity but have, on the other hand, higher costs associated with transport and infrastructure, for instance.

Another notable difference is the pre-installation assessment. Onshore wind farms require careful analysis when choosing the installation site, namely regarding the wind speeds, environment surrounding it and the difficulty in connecting them to the power grids.

As a consequence, the cost of the wind turbines in comparison to the total installed costs differs, impacting the profitability of the different business units. In the Onshore business, the cost of the wind turbine stands between 64% and 84% of the total installed cost, while in the Offshore reaches only 33%-43%[18].

Even though the new installed capacity has been increasing throughout the years for the Onshore segment, the Offshore decreased in 2020. In addition, the low ASP when compared to previous years and to the competition, contributed to the poor financial performance delivered in these same years.

Siemens Gamesa Service Segment

In addition to the two segments described before, SGRE also provides services of operation and maintenance. Currently, more than 33,000 turbines in around 58 countries, accounting for a total of around 74.2 GW, are under maintenance and service by Siemens Gamesa.

This segment comprises, for instance, maximization of wind farm revenue through efficient maintenance and repair, mitigation of business and financial risk through warranties which include cyber security and grid compliance, increase of energy production through performance upgrades, among others.

This business unit has higher profit margins when compared to the previous ones, however, the technologic improvements of the wind turbines, the increased competition among service providers and increased operator experience are driving down the overall operation and maintenance prices.

Even though the prices are decreasing, the weight of this segment on the company's revenues is increasing. This means SGRE is keeping a good retention rate, maintaining the wind turbine clients in the service segment.

The wind energy market

Wind as part of renewable energy market

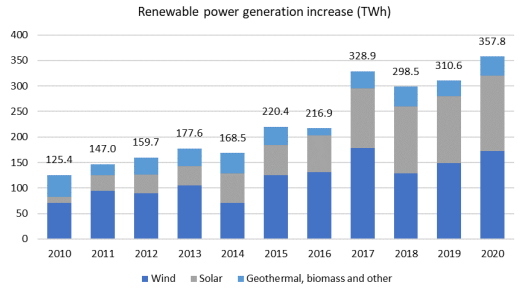


Figure 12 Source: BP Statistical Review of World Energy

The market for clean energy has been growing substantially over the years. Driven by the increased awareness towards climate change, the consequent economic benefits to using clean energy and the sharply falling costs of generating renewable power, the fossil fuels are becoming more and more vulnerable to being surpassed by renewable energy. In 2020 in the US, renewables generated more electricity than fossil fuels for the first time[8].

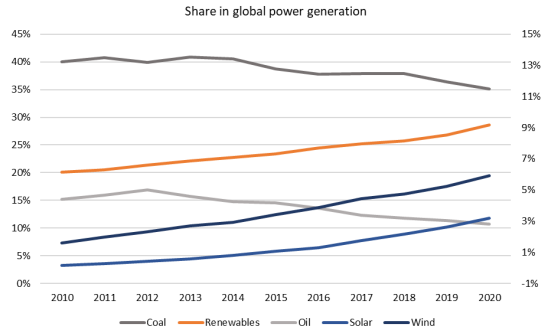


Figure 13 Source: BP Statistical Review of World Energy
Left axis with % of coal and right axis with % of remaining captions

As expected, the pandemic led to a decrease in energy consumption, with a 4,5% decline in 2020[9], the largest since the end of World War II. However, despite the consumption decrease, wind, solar and hydroelectricity grew, achieving a total of 358 TWh global increase, the largest nominal increase to date, with wind accounting for the largest share, 149 TWh.

Consequently, the overall share of renewables in global electricity generation reached 29% in 2020, an increase of 2% compared to the previous year[9].

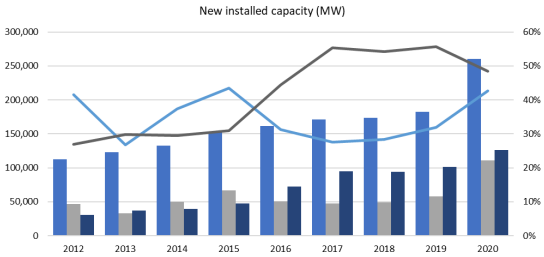


Figure 14 Source: IRENASTAT Archives

Even though solar and wind still own a relatively small share in the global power generation, they are growing at a fast pace, taking advantage of the decrease in fossil fuel sources, with onshore wind alone generating more electricity than solar.

When considering new installed capacity however, solar and wind take the lead. In 2020, these power sources together reached 91% of new installations in the renewable sources, in a setting where annual renewable capacity additions increased 43% to almost 260 GW, in contrast to other fuel sources.

[8] https://gwec.net/wp-content/uploads/2021/03/GWEC-Global-Wind-Report-2021.pdf
[9] https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2021-full-report.pdf

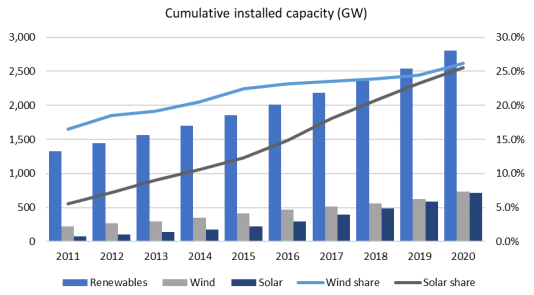


Figure 15 Source: IRENASTAT Archives

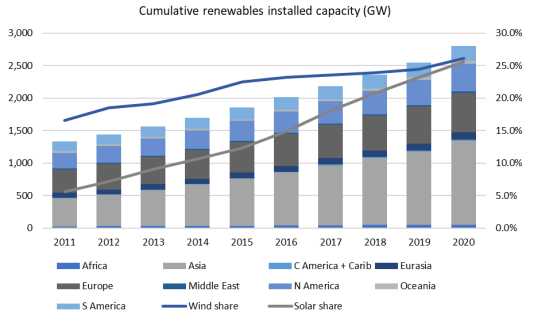


Figure 16 Source: IRENASTAT Archives

The main contributor for the high share of both industries in the renewables market is the dramatic decrease in costs in recent years. This is due to the increase in efficiency and productivity, expansion into newer markets with better resources and better financing conditions along with greater competition for long-term Power Purchase Agreements (PPAs)[10].

Despite wind having more cumulative capacity installed, solar investments are increasing substantially, having higher share in new MW installed since 2016 (Figure 14). This could be connected to the fact that, in general, despite wind being able to generate electricity at night and with cloudy conditions, their outcomes are less certain than solar, and therefore riskier. Solar projects tend to exceed forecast expectations while wind tends to underperform. In addition, wind projects require a lot more planning since they take up a lot of space and produce more noise than solar, having to stay further away from the population.

Most of the new capacity investments are concentrated in Asia, Europe and North America, with Asia reaching almost 65% of new installed capacity in 2020, in terms of GW installed (Figure 16).

The regions with the highest growth are Asia, Oceania, and Middle East, with approximately 15%, 20% and 10% growth from 2019 to 2020, respectively.

Bearing in mind all these trends, it's clear what direction the energy market is taking. Coal is slowly losing share towards the renewables with wind and solar taking the lead. It is expected that renewables continue growing and at a faster pace, as the incentives towards green policies and overall concern towards sustainability continue to evolve.

Global Trends and Developments

- Drivers

R&D Development

The R&D in wind energy is focused mainly on 2 points: the hub size and the rotor diameter. These are responsible for the increase in the capacity factors of the turbines and, as a consequence, for the reduction of the LCOE. A study carried out by the Lawrence Berkeley National Laboratory (Berkeley Lab)[11] predicts a reduction of costs between 17% and 35% by 2035 and 37% to 49% by 2050,

[10] PPAs are long-term contracts to buy renewable energy in agreed volumes and at prices that meet the needs of the generator and the consumer.
[11] https://www.nature.com/articles/s41560-021-00810-z.pdf

over the medium or best scenario. This reduction, as mentioned previously, is driven by larger and more efficient turbines and lower capital and operating costs, beside other developments.

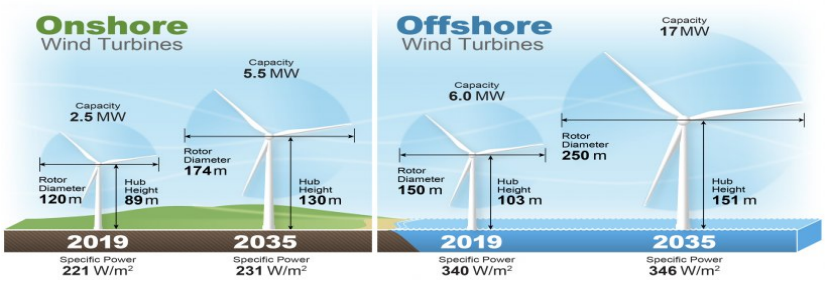


Figure 12 - Anticipated growth in land-based and Offshore wind turbine size, based on responses to a global expert survey (m: meters; W: watts).Source: Graphic by John Frenzl, National Renewable Energy Laboratory (NREL)

Auctions

The support mechanisms defined for the wind farms have been changing over the years. Their different characteristics affect the price for the renewable energy fed into the grid.

Consequently, with the set prices changing, the demand for the wind turbines is affected as new cheaper alternatives are required.

The most common established support mechanism until a few years was the Feed-in-Tariff, which guarantees a fixed price for renewable energy fed into the grid. This scheme allows a more stable revenue guarantee for energy producers.

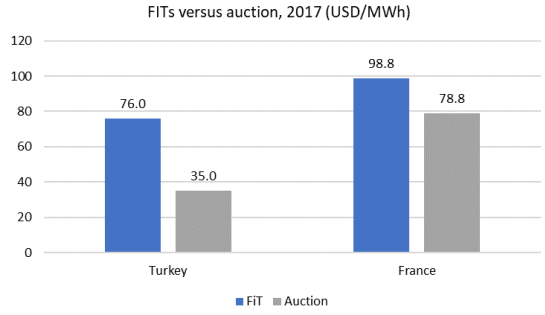


Figure 17 Source: https://www.iea.org/articles/have-the-prices-from-competitive-auctions-become-the-new-normal-prices-for-renewables

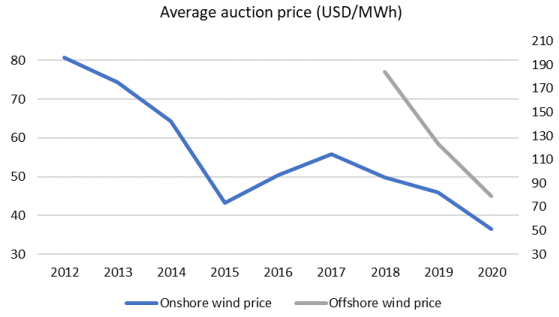


Figure 18 Source: https://www.iea.org/articles/have-the-prices-from-competitive-auctions-become-the-new-normal-prices-for-renewables

Auctions, another support mechanism, started by the government, specify some of the characteristics of the projects, such as the electricity generation, the technology, or the location. Project developers then submit their project proposal along with the price (bid) at which they believe to be able to carry out their project, and if successful sign a long-term contract for energy supply.

Even though this mechanism sets a more transparent and cost-efficient distribution of the renewable energy along with more flexibility, it has risks associated which then impact the OEM[12] for the wind farms.

If an energy producer is able to generate electricity at a lower price, it will have a higher chance of winning the auction. This increases the competition among equipment manufacturers, increasing the pressure to

[12] OEM – Original Equipment Manufacturers

lower the prices. Additionally, there is the risk of underbidding.

Underbidding is when a certain entity offers a bid price below the break-even point, to increase the risk of competitors' projects not being carried out until the end, thus breaching contracts, which then impact the suppliers of the wind turbines.

Governmental policies

One of the biggest drivers for installing more renewable energy is governmental policies and frameworks. In this field, most of the impact clearly comes from the Paris Agreement at COP21 and all the meetings that follow it. In the US, Biden's election had a positive influence in this agreement, by gaining a $2 trillion investment plan to put this country back on the path to reaching total decarbonization in 2050[13]. Also in the US, Production Tax Credits (PTC) have been the biggest driver for new installations, especially Onshore, in the coming years, with its extension to 2021. More recently, the Biden administration, regarding the aforementioned initiatives, announced the ambition of expanding the offshore network in the USA. The objective is to create 7 large offshore wind farms in order to guarantee the installation of 30 GW by 2030[14].

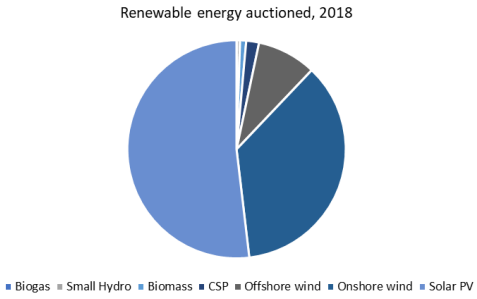


Figure 19 Source: IRENA Auctions Status and Trends 2019

In another important market, China, the Feed-in-Tariff (FiT) has also helped the investment and development of renewable energy in the region in recent years.

In Europe, the Long-Term Budget & NextGenerationEU[15] was approved, the biggest stimulus package ever created by the EU, with an investment of 2.018 trillion euros, which will fund European countries to combat the damage caused by the COVID-19 pandemic, but also to create a greener, more digital, and more resilient Europe. About 30% of the Long-Term Budget & NextGenerationEU budget will be spent on combating climate change, combining national and EU public funds, public and private investments to support the EU on its path to climate neutrality in 2050. The plan will focus on areas such as sustainable mobility, decarbonization and bioeconomy and energy efficiency and renewable roadmaps. In addition, other initiatives such as the Just Transition Fund, which also seeks carbon neutrality, were reinforced. As an example, one of the resilience packages highly praised by Ursula von der Leyen was that of Lithuania[16], which has foreseen €242 million to be allocated to develop offshore

[13] https://joebiden.com/clean-energy/
[14] https://www.theguardian.com/us-news/2021/oct/13/biden-wind-farms-environment-climate-crisis
[15] https://op.europa.eu/en/publication-detail/-/publication/d3e77637-a963-11eb-9585-01aa75ed71a1/language-pt
[16] https://portal.ieu-monitoring.com/editorial/nextgeneu-eu-commission-disburses-e289-million-in-pre-financing-to-lithuania

and onshore wind and solar power, as well as to create public and private energy storage facilities and €341 million to be invested to phase out the most polluting road transport vehicles and increase the share of renewable energy sources in the transport sector. Another example was the Fit-for-55 package[17], a series of legislative proposals. The package includes higher renewables target and new rules to support the expansion of renewables. The ultimate objective is to guarantee an average of 30 GW of installations by 2030, helped by the other initiatives mention above as well.

Overall, this will result in more state subsidies/support and private investment that will act as a driver for greater integration of sustainability into society, whether individual or corporate. In this sense, the process of transformation to carbon neutrality will directly drive the search for clean energy sources, which should play a fundamental role in pursuing the objectives of the aforementioned plans and, consequently, increase the growth of renewable energy and the entire surrounding chain.

Storage possibilities

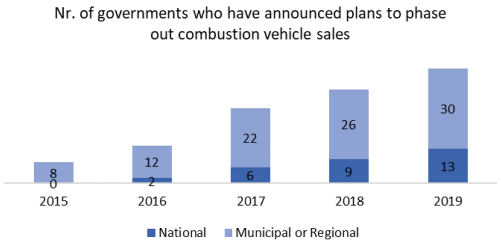


Figure 20 Source: UNEP, Frankfurt School-UNEP Centre, BloombergNEF

Due to the nature of renewable energies, ensuring stability of energy supply is one of the major objectives present in the sector to guarantee its significant contribution to the overall supply in the energy grid. To achieve this, the development of storage possibilities would secure the stability of its supply and the expansion of its use. In this sense, the development of electric cars has led to the development of better batteries, which are useful for energy storage. Such demand for electric cars has been steadily increasing, helped by more governments announcing plans to end sales of internal combustion engine (ICE) vehicles (Figure 20). This type of measures, as already mentioned, will increase the demand for electric vehicles and, consequently, increase the demand for electricity, at this stage essential for these same vehicles. This necessary energy increase will therefore be an indicator for an increase in demand for turbines, solar panels, among others. On the other hand, the realization of plans for the development and production of green hydrogen through wind could have a great impact, due to its ease of storage, clearly being one of the trends that will attract more attention in the coming years.

Levelized cost of electricity

Onshore and Offshore

[17] https://windeurope.org/newsroom/press-releases/its-official-the-eu-commission-wants-30-gw-of-new-wind-a-year-up-to-2030/

Levelized cost of electricity is the average net present cost of electricity generation for a plant over its lifetime. It is determined by the total installed costs, lifetime capacity factor, operation and maintenance (O&M) costs, economic lifetime of a project and cost of capital. This cost reflects the evolution of the market prices.

It has been decreasing over the years, falling 56% on Onshore and 48% on the Offshore sector, since 2010. The year-on-year reduction was 13% and 9% in 2020, for Onshore and Offshore, respectively[18].

The capacity factor expresses the energy output from a wind farm on an annual basis, proportional to the farm's maximum capacity. This is one of the most relevant factors for the LCOE, along with total installed costs.

In accordance with the decrease in LCOE, the capacity factors have been increasing over time, mainly due to increased turbine technology.

As developers gain more experience, they are able to integrate the knowledge from operating wind farm models into new, more reliable designs.

Higher turbine capacity allows larger and more efficient projects, thus decreasing total installed costs. The turbine technologic development includes larger turbines, longer blades with higher hub-heights and larger rotor diameters. As mentioned before, larger rotor diameters allow higher energy capture and smoother energy output throughout the year.

When considering all the factors that comprise the LCOE, it is important to differentiate between Onshore and Offshore, given their different characteristics. Unlike Onshore wind projects, Offshore wind farms are sometimes established in harsh marine environments, making the construction more complex and significantly longer from the beginning to the end of the project, which increases total installation costs. In addition, there is also the grid connection costs, which are naturally lower for Onshore projects.

Apart from the increased costs and complexity, Offshore wind projects are more valuable to the electricity system than Onshore projects. This is due to the higher capacity factors and more stable wind output, given the higher wind speeds and lower wind shear[19].

When considering the installation costs for the Offshore sector, it is important to note that China has a very significant weight on the renewables market. As such, the weighted average of total installed costs is very affected by this country's

[18] https://www.irena.org/publications/2021/Jun/Renewable-Power-Costs-in-2020
[19] Change in wind speed and direction over a short period of time

costs. Aside from the lower commodity prices and labor costs, most Chinese wind farms are near shore, which have a lot less costs associated than projects located further Offshore.

Also particular to the Offshore business, the access to better wind resources as the wind farms moved further from the shore has contributed to increase the capacity factor of these projects.

Apart from capacity factor and installation costs, there are several other factors that can be considered major contributors for the decline in LCOE, such as the maturity of the industry and the competitive procurement. The shift from feed-in-tariff, which guaranteed a fixed price for renewable energy, to competitive auctions is pushing down the costs as it is increasing the competition among the players in the industry.

Operation and Maintenance

O&M makes up from 10% to 30% of the LCOE for the Onshore sector and from 16% to 25% for Offshore[18]. As expected, these costs are higher for Offshore projects due to their difficult access and weather conditions. In addition, they require specialized vessels to perform the maintenance.

Service contracts have expected higher profit margins that the two sectors mentioned before. However, the share of this market covered by OEM such as SGRE, is becoming smaller over time. This happens because farm owners are starting to internalize most of these services or using independent service providers to reduce costs.

Similar to the factors mentioned before, the O&M prices are decreasing due to technologic improvements, increased competition among service providers, increase in capacity factors, increased operator and service provider experience and maturity of the market.

Project costs for OEMs

Input costs for OEMs are increasing over time, having an impact mainly on the Onshore sector. This is because Offshore wind is less dependent on inter-continental flow of goods, given that wind turbines are produced close to installation sites and some of the variable costs, particularly commodities, are transferred to customers with indexation mechanisms.

Indexation mechanisms are more common in the Offshore sector than Onshore because, as stated before, Offshore projects have significantly higher lead times (time between the initiation and completion of a production process).

Firm backlog in this sector has a big impact on the firm's exposure to the increase in costs. When an order is placed, it is very unlikely for the firm to be able to renegotiate the price with the customer, therefore, the bigger the backlog, the more risk for the firm to take on the increase in input costs.

The biggest risk factors to the increase in costs are shipping and material costs included in the turbines (mainly steel). A typical representation of this is the pandemic, where transportation has seen sea freight costs rise dramatically. In addition, material costs can also be seen as a relevant factor considering they depend highly on demand, on low inventory levels and high utilization rates.

The increasing reliance on supplies from low-cost countries for the Onshore sector has driven the overall project risks, especially during the COVID-19 pandemic. Several components are produced very far from the project sites and have been subject to shortages of containers in Asia, for instance, and consequent supply bottlenecks, which drive up the costs.

Given the highly competitive nature of the sector and the introduction of auctions, it becomes quite difficult to manage this increase in input costs. This is why some wind OEMs use hedging has a protection mechanism. SGRE uses financial hedging for commodities like copper and secures prices for months or years for other materials, such as resin or steel, working with mills directly. In addition, SGRE works with Siemens AG and Siemens Gamesa to optimize shipping costs.

- Green Hydrogen revolution

With several countries setting net zero goals, green hydrogen promises to play a key role in renewable energy market where wind is expected to be at the heart of this revolution, unlocking the potential additional demand for wind power installations.

As such, we decided to analyse the potential impacts of the different future scenarios at Siemens Gamesa.

Types and applications

One of the key elements to decarbonizing the planet is to decarbonize hydrogen, through green hydrogen, which is derived from renewable power, opposite to grey and blue hydrogen.

Hydrogen is already produced and consumed, mostly in the refining industry. However, 96% of all hydrogen is produced from fossil fuels, mainly generated from natural gas.

Originally, hydrogen uses were focused on fuel for electric vehicles, but overtime it has been broadened to many different applications across the entire economy.

Overall, green hydrogen can be used as feedstock, fuel, or energy carrier and storage across industry, transport, power and building sectors, which account for a large share of greenhouse gas emissions.

This energy source is, however, still very far from reaching its full potential. Considering the current scenario, replacing just the grey hydrogen would require an energy production from renewable sources equivalent to the current Europe's demand.

Challenges

Despite its recent popularity due to the increase in environmental concerns, green hydrogen is still more expensive than hydrogen originated from fossil fuels.

Aside from the high production costs and lack of infrastructure, green hydrogen has the downside of energy loss. About 30-35% of the energy used through electrolysis is lost throughout the value chain. In addition, transporting hydrogen requires additional energy inputs, which correspond to 10-12% of the energy of hydrogen itself.

Due to these impediments, there is still no market for green hydrogen. Hydrogen is not counted in official energy statistics, there is no green steel, nor green shipping fuel being produced. The lack of incentives to promote the use of this renewable hydrogen limits its demand.

Opportunities

Green hydrogen can become particularly important in non-dispatchable[20] renewable sources such as wind or solar considering it can be stored in large amounts in gas or liquid form in underground reservoirs and converted into electricity and fuel when needed, thus providing flexibility, and balancing these sectors' seasonality.

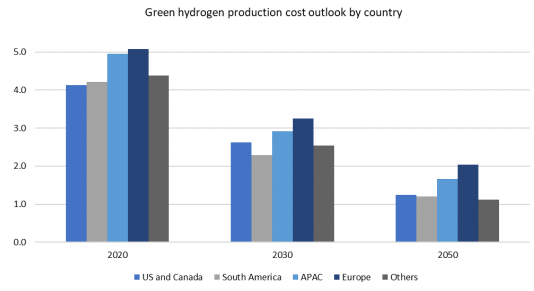


Figure 21 Source: Statista

Even though there are still some challenges to overcome, hydrogen is gaining a lot of popularity and is expected to become a competitive energy carrier in the future.

This is because hydrogen costs are decreasing rapidly due to lower renewable energy costs along with the reduced electrolyser cost arising from technologic developments. In addition, hydrogen pipelines are the most cost-efficient means of distribution, transmitting 10 times the energy at 1/8 the cost associated with the current electricity

[20] Non-dispatchable renewable sources are characterized by an impossibility in controlling its output to meet the electricity needs.

transmission lines[21].

The increase in pricing of CO2 emissions as a mechanism to address climate change, which is becoming increasingly popular can also further improve green hydrogen cost competitiveness.

Siemens

In 2021, SGRE announced to join forces with Siemens Energy to start a new era of Offshore green hydrogen production. The two companies are developing an electrolyzer to be fully integrated into an Offshore wind turbine as a single synchronized system to directly produce green hydrogen, as stated in a press release by SGRE.

Announced in the same press release, the total investment is expected to reach €120 million over the next five years, with a full-scale Offshore demonstration expected by 2025/2026.

In the Onshore segment, SGRE is developing a hydrogen production plant in Denmark. The project, called Brande Hydrogen, is being tested in "island mode", meaning without any connection to the grid, with the purpose of demonstrating that green hydrogen can be produced without using any power from the grid.

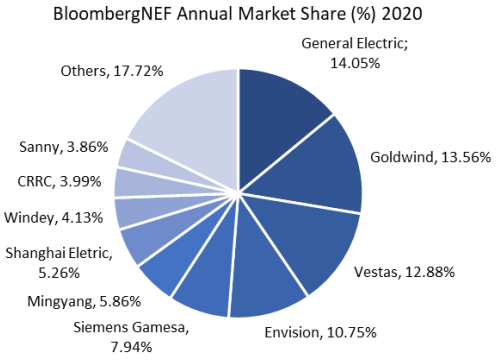


Figure 22 GW commissioned of each company as a percentage of the total GW commissioned. Sources: BloombergNEF

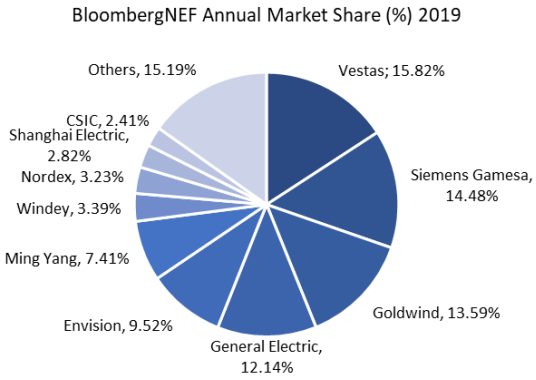


Figure 23 GW commissioned of each company as a percentage of the total GW commissioned. Sources: BloombergNEF

Competitive Landscape

The market for wind turbine producers is divided into 3 main blocks: U.S. with General Electric, Europe with Siemens Gamesa and Vestas, and China, where Goldwind, Envision and Mingyang stand out. These 3 blocks have a great weight in the market, having, in the most recent data, referring to 2020, a market share of around 60%.

In 2020, the leader of market share was General Electric with about 14% of market share. This performance was exclusively due to its capacity as an Onshore segment. And that is perhaps the most revealing point of the analysis of data provided by BloombergNEF[22]. Companies with greater preponderance in the Onshore market were the least affected in terms of GW commissioned by the year marked by Covid-19, and companies with greater exposure to the Offshore market were the most affected (Figure 24).

[21] https://hydrogencouncil.com/wp-content/uploads/2021/02/Hydrogen-Insights-2021-Report.pdf
[22] https://about.bnef.com/blog/global-wind-industry-had-a-record-near-100gw-year-as-ge-goldwind-took-lead-from-vestas/

In the Offshore market, the highlight clearly goes to Siemens Gamesa, which dominates with 31% of Market Share in 2020 and 44% in 2019[23]. The difference in the 2 years is due to the drop in GW overall in the market ordered from 2019 to 2020, that greatly affected Siemens Gamesa. On the other hand, Siemens Gamesa demonstrates that it has a solid base in this market segment, which has more growth potential at this stage. Its biggest competitor in 2020 was Shanghai Electric, however it is worth mentioning that this company's exhibition is almost exclusive to China, a region where Siemens Gamesa has the greatest competition.

Vestas continues as the benchmark company in the European market, having the 3rd largest market share in 2020, after having been the market leader in 2019. For Vestas, as for General Electric, the Onshore market continues to have an almost exclusive preponderance in its performance. However, it is worth mentioning the appearance of Vestas in 2020, in the Offshore market with a market share of 4%.

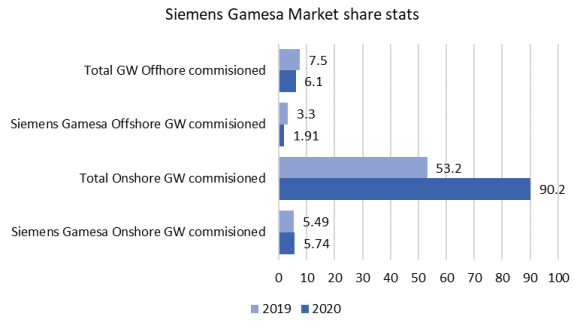


Figure 24 Changes in Siemens Gamesa Market share
Source: BloombergNEF

In this sense, Siemens Gamesa's biggest direct competitors, that is, those that compete for the same geographic zones more intensely (America and EMEA) are General Electric and Vestas, which are clearly at a level above Siemens Gamesa in the Onshore segment.

Finally, we highlight Goldwind, Envision and Mingyang that take advantage of the giant Chinese market, where their exposure is practically total, to grow their sales and increase their market share, due to the increasing preponderance of China in the world market of the wind turbines.

The market outlook - expectations for the future

EMEA

The European market is one of the most mature in the Onshore sector. The Middle East and Africa continue growing even though they are still in a very early stage of the wind sector development.

In Europe, 16% of the energy used comes from the wind, and within this segment, around 89% of the total European installations are Onshore[24]. The main driver in this market is clearly the targets imposed by the EU in search of

[23] https://about.bnef.com/blog/vestas-still-rules-turbine-market-but-challengers-are-closing-in/
[24] https://windeurope.org/intelligence-platform/product/wind-energy-in-europe-in-2020-trends-and-statistics/

carbon neutrality, which are then adapted to the countries considering their size and natural resources. In this sense, Germany is the largest market, with around 63 GW of accumulated capacity in 2020, followed by the UK, Spain, and France.

In 2020, the evolution of new installations was delayed due to restrictions in the supply chain related to COVID-19, reaching only 14.7 GW of new installed capacity, compared to 15.6 GW in 2019, with the largest market, Germany, having the lowest number of installations since 2010.

Until 2025 an average of **21 GW** of new installations per year in Europe is expected, according to GWEC. However, such scenarios may change with the new incentives from the European Union to combat the effects of COVID-19, with the NextGenerationEU incentive package, in addition to the existing ones. Another point to consider is the process of replacing older turbines with newer and more powerful ones, which may have an impact on obtaining forecast targets, especially Onshore turbines, where it is estimated that around 72% of new installations will be in the next years, while in the Offshore market a constant record of new installations is expected in the coming years, with the completion of projects that are currently underway, mainly in the UK, which is set to become the largest Offshore market in Europe.

Regarding the Middle East and Africa region, an average installation of **3.2 GW** per year is expected until 2025, according to GWEC. Guided by new projects in South Africa, Egypt and Morocco and Saudi Arabia, this market is still not considered to play a big role in the wind energy's global market, due to its small volume of installations. It ends up being marked by political risks that prevent further development of the wind market in the regions.

In the Middle East, we highlight the Saudi Arabia project, Vision 2030[25]. This project holds as one of its main goals to turn 50% of its energy produced into green energy and to lose its dependence on oil, aiming to reach 9 GW in 2030 between solar and wind energy.

Latin America

Regarding this region, it is important to highlight the meeting in 2019, a historic moment, where for the first time in history, the countries of Latin America and the Caribbean (LAC) joined efforts towards a regional goal of renewable energy[26]. During the COP25 UN (25th Conference of the Parties to the United Nations Framework Convention on Climate Change) Conference in Madrid, LAC

[25] https://www.vision2030.gov.sa/thekingdom/explore/energy/
[26] https://ledsgp.org/2019/12/latin-america-and-the-caribbeans-historic-commitment-towards-renewable-energy/?loclang=en_gb

countries took a tremendous leap towards fulfilling an ambitious renewable energy promise. As part of the Renewable Energy Initiative for Latin America and the Caribbean (RELAC), 10 countries in the LAC region committed to achieving a regional target of 70% renewable energy by 2030.

The most important market in the region, Brazil, accounts for more than 50% of the total installations in the region. At the moment, the production of wind energy represents 8% of the total energy produced in Brazil with the objective that this value rises to 13% in 2030, according to the Ministry of Mines and Energy. It also announced a target for wind energy growth of 2.2% per year.[27]

When considering growing markets, it is important to highlight the Chilean market, which was elected the most attractive market for investment in renewable energy in 2020 by Bloomberg's Climatescope[28]. Chile's exceptional natural resources make it an attractive country for clean energy investments, along with the ambitious long-term goals to add clean energy capacity set by the government. The targets include a clean energy production target of 20% by 2025 and 60% by 2035. But Chile's ambition did not stop there, having presented its ambitious project for green hydrogen in 2020. The plan aims to accelerate its production to 5 GW by 2025, produce the world's cheapest green hydrogen by 2030 and make the country one of the top three exporters of the fuel by 2040.

For the coming years, according to GWEC, an average of **4.5 GW** of installations per year is expected until 2025, driven by Argentina, Mexico and Colombia, in addition to the aforementioned markets.

North America

When mentioning this region, it is clearly essential to highlight the USA, the second largest market in the world after China. In the last year, despite the impacts inherent to the COVID-19 pandemic, new installed capacity hit records, with around 16 GW installed in 2020, for an accumulated capacity of around 122 GW.

These records led to wind becoming the largest source of capacity additions in the US, representing 42% of new installed capacity among other energy sources.

From this installed capacity, around 9% came from Siemens Gamesa, in a market that is dominated by General Electric and Vestas, where together they

[27] https://economia.uol.com.br/noticias/redacao/2019/02/11/brasil-eua-e-mexico-lideram-producao-de-energia-eolica-nas-americas.htm
[28] https://global-climatescope.org/results/CL

reach around 87% of the market share in the region. However, when considering the total energy produced, only 8% derived from wind energy, in the same year.

Onshore wind installations in the US will likely decline in 2022 and 2023 but can be expected to recover thereafter due to the extension of the PTC, which will continue to be the main driver in the region for Onshore growth, but also for growth of Offshore projected from 2023 and beyond. Corporate demand for clean energy and state-level policies will also continue to impact wind power deployment.[29]

Finally, Biden's election in early 2021 brought a new breeze to the fight against climate change in the USA. His administration has set strong goals for clean energy, such as the zero-carbon power sector by 2035. To that end, it has put forward legislative proposals for the long-term extension of the PTC, a federal clean energy standard, and other policies to support a clean energy transition. The success of these proposals and their execution will be decisive for the achievement of the forecasts.

The other market to consider in this region is Canada. Currently ranked as the world's 9th largest market, Canada recently announced more ambitious climate commitments[30], including exceeding 2030 emissions targets and achieving zero net emissions by 2050 and a new investment in Canada's Net-Zero Accelerator that will encourage Canadian business and industry to develop net-zero technologies, and build their clean industrial advantage. In this regard, the Energy Regulator of Canada[31] predicts that the installed capacity of wind energy will increase from around 13.5 GW in 2020, to 23.6 GW in 2030 and finally to 40.5 GW in 2050, which will represent around 20% of the total capacity of installed energy contrasting with about 10% of 2020.

Overall, according to GWEC an average installations of **11.8 GW** per year through 2025 is expected.

APAC

This region is dominated by the People's Republic of China, which owns about 83% of the region's total installations, which corresponds to around 288 GW. China has made a set of promises for its carbon neutrality goals, with president Xi Jinping announcing in September 2020 to reach carbon neutrality by 2060. In December, it was announced the goal of having 25% of energy consumed

[29] https://www.energy.gov/sites/default/files/2021-08/Land-Based%20Wind%20Market%20Report%202021%20Edition_Full%20Report_FINAL.pdf
[30] https://pm.gc.ca/en/news/news-releases/2021/04/22/prime-minister-trudeau-announces-increased-climate-ambition
[31] https://www-statista-com.eu1.proxy.openathens.net/statistics/208616/wind-power-generation-in-canada/

originated from solar and wind, by 2030. As previously mentioned, China has also created a support mechanism, Feed-in Tariff that has helped to subsidize many projects in the country. In 2020, of the 86.9 GW of new Onshore installations, around 56.3% had this support mechanism, demonstrating its importance in the new installations.

It is therefore not surprising that China is the world leader in Onshore installations, with about 39% of global installations. According to GWEC, it is expected that China has an average of **39 GW** of new installations per year until 2025. In the Offshore market, China finished 2020 in 2nd place with 28% market share, with the UK reaching 29%, ending the year as the world leader in Offshore installations. This scenario, however, promises to change the coming years with China positioning itself as the world leader in Onshore and Offshore in order to reach its carbon neutrality goals in 2060. Also according to GWEC, China will dominate the average volume of around **7 GW** of new Offshore installations for the APAC region until 2025.

These numbers are boosted by specific market conditions, since its wind market is dominated by local companies such as Goldwind, Envision and Mingyang, in which the Chinese state has relevant functions, as in the case of the 23% that it holds in Goldwind, the market leader. These companies have their predominant exposure in the Chinese market, therefore not focusing on large foreign markets. This existing combination does not open many doors to foreign companies, as is the case of Siemens Gamesa that announced in August 2021, the end of Onshore sales in the country. In the announcement of this measure, CEO Andreas Nauen concluded that: "China is a market for domestic manufacturers."[32]

In other markets, it is important to highlight India, where according to GWEC, an average of **4 GW** of new installations per year is expected until 2025, which means an increase of around 50% in the total of its current installations, currently at around 39 GW. The Government is promoting wind power projects across the country through private sector investments, providing various fiscal and financial incentives, such as the Accelerated Depreciation benefit.

India has about 7600 km of coastline and this does not go unnoticed for potential Offshore projects in the country. From December 2013 to March 2018, a consortium led by the Global Wind Energy Council (GWEC) and supported by the European Union implemented the Facilitating Offshore Wind Energy in India (FOWIND) project to help India develop wind energy Offshore and, in turn,

[32] https://renews.biz/71883/siemens-gamesa-to-stop-sales-to-china/

contribute to India's transition to the use of clean technologies in the energy sector, which has as its ultimate goals the installation of 5 GW by 2032.

Finally, it is worth mentioning Vietnam, the Southeast Asia's most attractive energy growth market. On February 22, 2021, the Vietnam Ministry of Industry and Commerce (MOIT) released the draft national energy development plan for the period 2021-2030, with a vision for 2045 ("Draft PDP8") for public comments[33]. In this proposal, Vietnam, which has about 600 MW of installed capacity in 2020 corresponding to about 1% of electricity production, wants to have around 11-12 GW Onshore in 2025 and move to 16 GW Onshore and 2-3 GW Offshore in 2030 of installed capacity, reaching 13% of the installed energy capacity. After 2030 and until 2045, solar and wind energy will aim to reach more than 42% of the installed capacity, highlighting the 21 GW, approximately, of Offshore planned for that date.

In final notes, all in all, according to GWEC an average of **54 GW** of installations per year through 2025 is expected for the APAC region.

Financials- Forecasts and Long-term estimates

Revenues

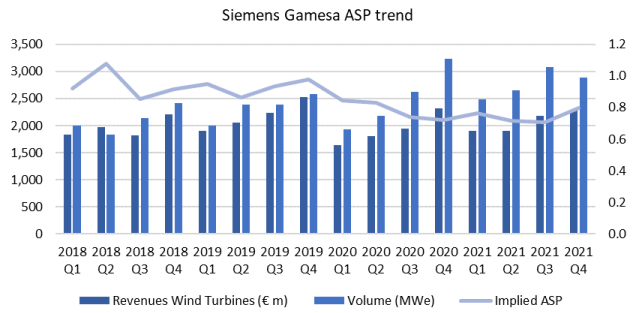


Figure 25 Source: Company Data and Analyst Team

Due to the restructuring taking place at Siemens Gamesa and the current market situation, we anticipate on the **Onshore segment,** a decrease of 2% in 2022 in line with Siemens Gamesa outlook for the next year. After that, we anticipate an annual growth of **0.3%** between 2022 and 2025. Afterwards, an **2,7%** growth from 2025-2030 on MWE sold is expected. These figures reflect, above all, in the first half of the decade, Siemens Gamesa's weak positioning in this market in terms of growth, resulting in a very conservative growth, already announced by itself in past events. From 2025, we believe that after this restructuring period, Siemens Gamesa will have the capacity to increase its growth in Onshore. In relation to the Average Selling Price (ASP) per MWe, we forecast, in line with the trend of the past years, a decrease of around 1% per year until the end (2030).

[33] https://www.globalcompliancenews.com/2021/03/13/vietnam-key-highlights-of-new-draft-of-national-power-development-plan-draft-pdp8-04032021-2/

In the **Offshore segment**, where Siemens Gamesa is the market leader, we however also expect a decrease of 2% in 2022, also due to the currently market environment and Siemens Gamesa announced outlook. But then we forecast an annual growth of **29%** until 2025 due to the large Offshore investments that will materialize in the coming years, mainly by China and the USA. Thereafter, we anticipate a slowdown, leaving the 2025-2030 CAGR at **7%**. Although there are higher growth forecasts for the second half of the decade, we do not believe that Siemens Gamesa will be able to keep up due to its imposed management restrictions, namely the capex investment limit. Regarding the ASP in Offshore, we predict it will maintain a downward trend of around 1% until 2030, in accordance with the trend seen in recent years.

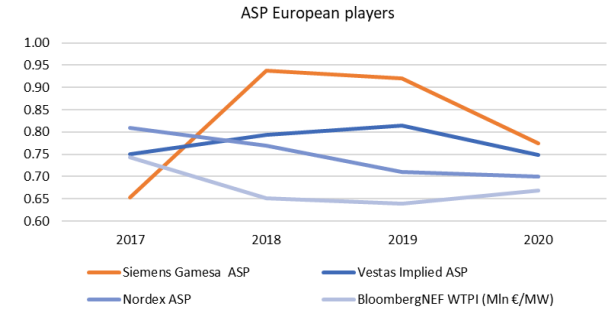


Figure 26 Source: Analyst Team, Company Data and Bloomberg

It should be noted that despite the downward trend in Siemens Gamesa prices as referred to and shown in Figure 18, Siemens Gamesa's ASP remains above its closest European competitors and above the Bloomberg index. It should be noted that the influence of Offshore prices (higher than Onshore currently) and the weight of this sub-segment, makes these values to be verified. Such values also demonstrate Siemens Gamesa's difficulties in finding its way onshore towards profitability, despite its prices being close to its competitors.

In the **Services segment**, we anticipate that Siemens Gamesa will achieve a long-term retention rate of 70% resulting in an increase from 74,240 MWe under maintenance in 2020 to 194 289 in 2030. Regarding the price of services rendered by Siemens Gamesa, we forecast a decrease over the years, following the reduction seen in the segment of Onshore and Offshore wind turbines, and to fight the trend (threat) of new service providers entering this market other than the OEM. This will result in a CAGR for the next decade of around 8%, in line with Siemens Gamesa's own forecasts.

Costs and Margins

Within the COGS, it is worth highlighting two main items: procurement costs and staff costs.

Procurement costs have seen a growth in its weight in relation to revenues from 63% in 2016 to 70% in 2021 with a peak of 73% in 2020. This caption includes the acquisition of raw materials and the changes in inventories. As such, it is highly dependent on the price changes of the raw materials, mainly steel and iron, which make up 90% of the turbines. As stated before, these were

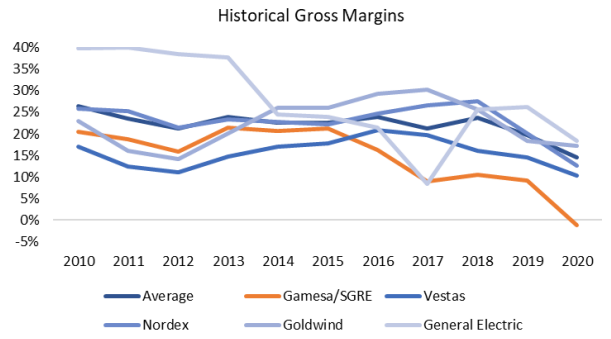


Figure 27 Source: Bloomberg and Companies Data

heavily influenced by the COVID-19 pandemic, therefore increasing underlying values in the financial statements.

However, we believe that in the long term such price rises should stabilize and decline gradually over the next few years, due to the fact that we are reaching historic highs, due to the temporary deregulation between demand and supply caused by the years 2019 and 2020, which will benefit Siemens Gamesa. Consequently, we predict that the weight of procurements in relation to revenues will see a decrease from 67% in 2021 to 63% in 2030.

Regarding Staff Costs, Siemens Gamesa went from about 14 thousand employees in 2017 to 26 thousand in 2021. This caption was greatly influenced by the merger between Siemens Wind Power and Gamesa between 2016 and 2017. Since this merger, Siemens Gamesa has recorded an average increase of around 5% of employees per year (2018-2020, we excluded the values of 2021 as it was considered an exceptional year due to uncertainty, caused by covid-19), due to the increase in demand and the appearance of new jobs related to the expansion of the renewable energies, specifically wind energy, have undergone in recent years. In this sense, we forecast that this growth rate will continue until 2030 at least. In relation to costs per employee, SGRE sustains an annual cost of 67 thousand euros per employee in the last 4 years, a value that we expect to be maintained in the future.

The SG&A expenses at Siemens Gamesa are composed by the advertising costs, travel expenses, professional services, among others. In recent years, Siemens Gamesa has controlled these costs, reaching an average of 6%, a value that we predict will be the trend until the end.

Regarding **R&D**, the investments are carried out mainly through seven technology centres located across Europe in Spain, Germany, and Denmark, in the US and India. In these centres, different activities are carried out, such as testing and validating software systems for wind energy, photovoltaics, energy storage and hybrid energy systems and developments in engineering and technology related to software engineering and design for Onshore and Offshore wind turbines, with a focus on building next generation "smart" wind turbines. At Siemens Gamesa, each year a technological development plan is developed, where the activities for the year are established and a budget is assigned to each activity. In recent years, R&D budgets at Siemens Gamesa represented around 2% of Revenues of the same period, a figure that we expect will be maintained for the following periods.

Considering what was previously announced, we anticipate that Siemens Gamesa will start a recovering from lower margins in 2023, achieving an average

long-term **gross margin** of **20%**, boosted by the Service Segment. We also anticipate that the target of 8%-10% EBIT pre PPA and I&R margin will be achieved in 2029, reaching a long-term **Ebit pre PPA and I&R costs margin** of around **8%**.

Capex and Working Capital

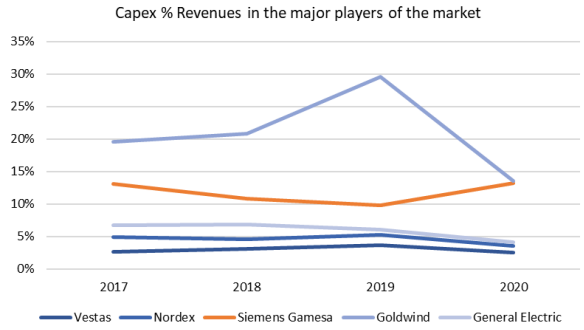


Figure 28 Capex % Revenues in the major players. Source: Company Data and Bloomberg

Capex includes lands and buildings, technical facilities, and machinery, among other equipment, therefore we anticipate that its biggest driver will be the number of MWe sold by Siemens Gamesa during the same periods. Thus, we anticipate, and average growth of 6% until 2025 and a long-term growth of 5% of the PP&E. This will go in line with Siemens Gamesa financial framework previous described, that the Capex value 2021 and 2022 will be around 6% in relation to revenues. However, we expect that between 2023 and 2025 such percentage will grow to 7%, until stabilized at 5%, as foreseen in its financial plan. In figure 28, we can see that Siemens Gamesa and Goldwind in recent years have been the leaders in Capex investment in % of Revenues and that the 5% limit described in their financial plan is in line with what their western competitors have been doing.

As previously announced in the LEAP program, Siemens Gamesa wants a strict control of working capital by maintaining an optimal target level below 0% of revenues. However, in our opinion, such values, considering the current scenario, are unlikely to be realized in the coming years. We anticipate that there is a path of reducing Working Capital in % of revenues from 18% in 2020 to around 11% in 2030. The decline will be helped mainly by the stabilization of the Cash Conversion Cycle.

Valuation

Discounted Cash Flow Valuation

- WACC

Cost of Equity

The equity cost was computed using the CAPM leading to a **5.48%** rate at which investors charge for their investment risk.

The risk-free rate was derived using the yield of the German government bond with 10-year maturity and for the market risk premium, we used, generally

WACC highlights	
Rf	-0,39%
Beta	0,876
MRP	6,70%
Re	**5,48%**
Rd	**0,57%**
E/(E+D)	97%
D/(E+D)	3%
Tax Rate	24,00%
WACC	**5,32%**

Figure 29 WACC inputs. Source: Analyst Team

accepted value based on historical averages.[34]The levered Beta was calculated correlating the weekly excess return of SGRE and the MSCI World EUR excess returns of the past three years (12//2018 – 12/2021) using a linear regression. When verifying the D/E ratio of the different competitors, we verify that there is no trend, with each company having a very particular D/E. Therefore, we decided to use the SGRE D/E ratio of 2021 and use it as the long-term D/E target giving us the final levered Beta of 0.88.

Cost of Debt

Siemens Gamesa has no outstanding bonds in the market, currently financing itself with lines of credit. Thus, we use the Bloomberg fair yield curve to estimate what values the market is demanding to provide financing for Baa3 European company. This resulted in YTM of 0.75%.

Afterwards, to get the cost of debt, the loss given default (LGD) weighted by the probability of default (p (d)) was deducted from the YTM. The LGD and the Probability of Default values were based on the Annual Default Study: Corporate Default and Recovery Rates, 1920 – 2017, published in 2018 by Moody's, considering the bond is unsecured and the SGRE credit rating of Baa3. The marginal tax rate considered was the tax rate in Spain, where SGRE's headquarters are located.

Rd	WACC
-0,39%	5,297%
0,57%	5,297%
1,11%	5,333%
5,48%	5,439%

Figure 30 Results from sensitivity analysis of Rd.
Source: Analyst Team

This gives us the final value of 0.57%, which goes in line with the average cost of the credit lines of Siemens Gamesa.

Then, a sensitivity analysis was carried out to analyze the variation in the WACC values, considering the cost of debt values. Between the minimum value tested (risk free rate) and the maximum value (cost of equity), the WACC varied around **0.141 p.p**. Given this minor fluctuation, due to the capital structure of Siemens Gamesa, we did not go into further analysis of these values.

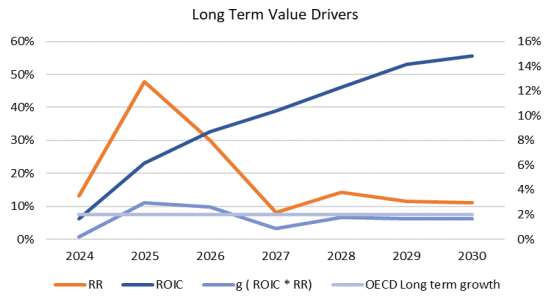


Figure 31 Source: Analyst Team. Note: Left axis with % of RR and right axis with % of remaining captions

Value Creation Drivers

To determine the perpetuity value of Siemens Gamesa, we begin by analysing the evolution of its value creations drivers: Reinvestment Rate (RR) and Return on Invested Capital (ROIC).

From figure 26, we can see that from 2028 onwards, there begins to be a greater stabilization of the normal downward trend of perpetual growth of 2%. This goes

[34] https://jnf.ufm.edu/cgi/viewcontent.cgi?article=1009&context=journal

in line with the long-term GDP growth predictions by the OECD of 2%[35]. In this sense, since Siemens Gamesa have a global exposition, we believe that **long-term growth will stay at 2%.**

- Valuation Outcome

In the end, considering the 9 years forecasted period followed by a perpetuity from 2030 onwards, with a **WACC of 5,34%** and a Terminal Growth rate of **2%,** the **DFC Model** originated in a share price of **€24,23** for fiscal year end 2022**.**

Multiples Valuation

Company	EV/ Sales
Siemens Gamesa	1,56x
Vestas	2,30x
Nordex	0,48x
General Electric	0,77x
Goldwind	1,88x
Ming Yang	2,07x
Average	**1,50x**
Median	**1,88x**

Figure 32 Source: Bloomberg

As a way to complement our DCF model we performed a relative valuation. Therefore, we used an EV/Sales multiple. As a first step, we verify in which % the sales of each company are transformed into FCF, calculating the average of the last 3 years. This resulted in a standard deviation of only 5% in the sample, a value that we consider reasonable, and thus we continued the analysis of this multiple. Then to calculate this multiple use sales from the last 12 months to calculate the ratio. This was aimed at diluting, as far as possible, the effects of the COVID-19 pandemic on company sales in order to assume them under normal conditions.

After computing the median of the **EV/Sales** ratio for the chosen peers, we got a multiple of **1,88x**, which implied a share price for Siemens Gamesa of **€28.20**. This result means that Siemens Gamesa is **undervalued**, which goes in favour of our valuation through the DCF Model. On the other hand, using the simple average, we got a multiple of **1.50x**, which implied a share price for Siemens Gamesa of **€22.50**. This result means that Siemens Gamesa is **fairly valued (hold recommendation)** demonstrating once again the lack of an existing standard in the industry**.** It is important to highlight, however, that one of the gaps of this type of valuation is that it only analyses the company from a static perspective, not considering neither the expected growth, nor the outcomes of it.

In this sense, if we analyse the results, we may be surprised with the result of General Electric, the market leader in 2020. However, it is necessary to bear in mind that Renewable Energy is only one of the 5 business segments present in the company. In this sense, there may be a clear interference of these remaining segments in the result of the multiple. In this sense, GE itself started to take measures due to its underperformance, having as plans to divide its group into 3 companies: healthcare, energy and aviation.[36] Another aspect is General

[35] https://www.oecd.org/economy/lookingto2060long-termglobalgrowthprospects.htm
[36] https://www.ft.com/content/fb73e702-e885-4c20-8857-ddd29dc623af

Electric's exposure to a very mature market like the USA, especially in the segment that is expected to have less growth, the Onshore. Goldwind and Ming Yang, as mentioned above, their practically total exposure to China, causes them to be linked to high growth rates and, consequently, positive forecasts for them that lead them to be above the market average and median. Finishing in Europe, Vestas, being the great market leader in recent years, lives from this status, mainly due to its preponderance in the world onshore and the confidence that it will be able to replicate the same in the Offshore market, having the highest multiple on the list. Nordex, on the other hand, clearly finds itself in the most complicated position, living between the leader of the last years of the Onshore market, Vestas, and the leader of the Offshore market, Siemens Gamesa, having the same difficulties in finding its way, demonstrated by the disappearance in 2020 of the market leaders. Siemens Gamesa, as mentioned, being the leader in the Offshore market, lives on the expectations of this growth, to offset the lack of growth and profitability in the Onshore segment, resulting in a multiple close to the sector average.

Scenario Analysis - Green Hydrogen revolution

Based on what was mentioned on the Hydrogen topic, we decided to analyse the impact, of the extra demand derived from hydrogen can have on Siemens Gamesa.

In this sense, taking into account Hydrogen EU's[37] projections of having an accumulated capacity of 40 GW by 2030, we decided to check it taking into account the different future perspectives of Siemens Gamesa's market share in Onshore Europe[38]. Although there is a target of 6 GW of Green Hydrogen until 2024, in this analysis we will only consider the period between 2026 and 2030, which is when, according to Siemens Gamesa, large scale projects are expected[39]. In this way we design 3 different scenarios and their impact on Siemens Gamesa's final price. Starting with our assumptions we expect an average of 6.1 GW of extra demand in Europe due to the green hydrogen. We only consider the period from 2026 to 2030, as already mentioned, because this is when Siemens Gamesa projects that the larger projects will start and thus, we predict that the costs of an onshore hydrogen project will be similar to the cost of an onshore project that do not involve hydrogen. From data from the end of 2020, Siemens Gamesa have about of 20% of market share of the EMEA regions,

[37] https://ec.europa.eu/commission/presscorner/detail/en/FS_20_1296
[38] https://energywatch.eu/EnergyNews/Renewables/article12829369.ece
[39] https://www.siemensgamesa.com/-/media/siemensgamesa/downloads/en/products-and-services/hybrid-power-and-storage/green-hydrogen/210318-siemens-energy-hydrogen-day.pdf

where Europe have a has quite considerable weight. Then, maintaining this market share will be our base scenario. The difference between the positive and negative scenario is whether Siemens Gamesa managed to increase its current market share until that date or lose it. For the study we marked 10% as the potential up and down. Finally, we calculated, taking into account the potential new demand and market share, which would be the additional Mwe deliveries that Siemens Gamesa would potentially make. The results can be found in the table below.

Hydrogen Scenarios	Market Share	Extra average Onshore deliveries (Mwe)	Price (€)	Return(annualized) %
Hydrogen - Base scenario	20%	1220	33,44 €	83%
Hydrogen - Positive scenario	30%	1830	39,53 €	127%
Hydrogen - Negative scenario	10%	610	28,48 €	50%
Current Price		**20.75 €**		

Despite the fact that in all scenarios the outcome is positive, it should be noted that there are risks associated with this increase in demand. What is clearly highlighted is Siemens Gamesa's ability to manage its PP&E and Capex, which, as mentioned above, is driven by the MWe sold. Without this extra demand, the % of Capex in relation to Revenues would be around 5%. With this extra demand this % could reach 6%/6.5% of the positive scenario. Not being a dramatic change, it was a change that would no longer respect the limit imposed by Siemens Gamesa by its long-term financial plan. The second would clearly be the opportunity for new players to enter the market that could influence Siemens Gamesa's market share in the market and, consequently, the potential for new revenues generated. Therefore, nothing guarantees that the 10% is in any way the bottom line of a potential market share. But not only new players can affect market share, as the current ones, where this demand associated with hydrogen may be reflected in strategic changes of the current players, leading to changes in market share among them. As described above, such differences may diminish potential hydrogen associated revenues, but may also affect the remaining revenues in Siemens Gamesa's Onshore market. It will undoubtedly be one of the most impactful trends in the wind market to be analysed in the coming years.

Conclusions and Recommendations

Final notes we leave below a table with the results of the evaluations carried out in this report together with the study of the potential impacts of Hydrogen.

	Price (€)	Return (annualized) %	Recomendation
Current Price	**20,75 €**	-	
DCF Model	24,38 €	23%	Buy
Multiple EV/Sales (Median)	28,20 €	48%	Buy
Hydrogen - Base scenario	33,44 €	83%	Buy
Hydrogen - Positive scenario	39,53 €	127%	Buy
Hydrogen - Negative scenario	28,48 €	50%	Buy

As it is possible to verify all valuations give a buying recommended with returns between 23% and 127% for the investor. Therefore, our recommendation is to buy shares of Siemens Gamesa as it is an investment with a strong expected fundamental value for valuation.

It is important to consider the current scenario, where it was expected that the pandemic would evolve in a positive way until the appearance of the new variant Omicron and its consequent risks. As such, the market is now very sceptical in its expectations, contrasting to our valuation where we consider these risks to be temporary and therefore not impacting the long-term value of SGRE.

The worldwide need to shift from fossil fuel sources to clean energy will undoubtedly be the biggest driver for Siemens Gamesa's growth. Within this change, Siemens Gamesa's market position in the Offshore segment brings the prospect of considerable growth, which is the market within the Wind Energy sector that promises the greatest evolution for the next decade.

In another sense, green hydrogen promises to be one of the most interesting topics to follow in the coming years, and it may unlock extra demand and, as such, it may lead to changes in the market for wind turbine producers.

However, for all this to be good news for Siemens Gamesa, it has to successfully carry out its financial plan and the necessary restructuring in the Onshore segment so that it has the capacity to capitalize on this expected growth in the sector.

Appendix

Income Statement

In Thousands of €	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Core Operations															
Revenues by segment	**6 163 896**	**6 538 198**	**9 122 272**	**10 226 879**	**9 483 209**	**10 197 818**	**10 087 682**	**11 088 988**	**12 351 156**	**13 947 752**	**14 686 344**	**15 459 349**	**16 268 574**	**17 115 923**	**18 003 411**
Wind Turbines	5 534 409	5 763 818	7 847 191	8 733 498	7 714 823	8 271 540	8 005 199	8 840 980	9 924 886	11 326 145	11 841 946	12 384 011	12 953 770	13 552 740	14 182 521
Onshore	-	-	*4 876 114*	*5 225 124*	*4 907 043*	*5 005 077*	*4 837 892*	*4 788 086*	*4 738 794*	*4 690 009*	*4 816 315*	*4 946 022*	*5 079 223*	*5 216 011*	*5 356 483*
Offshore	-	-	*2 971 077*	*3 508 374*	*2 807 780*	*3 266 463*	*3 167 307*	*4 052 893*	*5 186 092*	*6 636 136*	*7 025 632*	*7 437 988*	*7 874 547*	*8 336 729*	*8 826 038*
Operation and maintenance	629 487	774 380	1 275 081	1 493 381	1 768 386	1 926 278	2 082 484	2 248 008	2 426 270	2 621 607	2 844 397	3 075 339	3 314 803	3 563 183	3 820 890
% Revenue Growth		*6,07%*	*39,52%*	*12,11%*	*-7,27%*	*7,54%*	*-1,08%*	*9,93%*	*11,38%*	*12,93%*	*5,30%*	*5,26%*	*5,23%*	*5,21%*	*5,19%*
Cost of sales (excluding D&A)	**-5 001 930**	**-5 518 460**	**-7 522 554**	**-8 631 856**	**-8 748 702**	**-9 175 910**	**-9 296 342**	**-9 834 735**	**-10 671 245**	**-11 716 980**	**-12 069 978**	**-12 583 297**	**-13 118 286**	**-13 675 827**	**-14 370 270**
Procurements	-3 887 419	-4 092 843	-5 803 636	-6 785 645	-6 953 064	-7 104 017	-6 921 885	-7 494 818	-8 222 673	-9 146 309	-9 534 338	-9 935 810	-10 351 343	-10 781 589	-11 340 631
Other Cost	-157 898	-691 971	-782 043	-879 231	-912 180	-1 032 726	-542 548	-412 537	-420 746	-437 165	-290 945	-285 809	-282 184	-279 987	-279 143
PPA amortization on intangibles	*0*	*-235 000*	*-306 000*	*-266 000*	*-262 000*	*-230 000*	*-209 461*	*-190 757*	*-173 723*	*-158 210*	*-144 082*	*-131 216*	*-119 498*	*-108 827*	*-99 109*
Integration costs & Restructuring costs	*0*	*-111 000*	*-176 000*	*-206 000*	*-462 000*	*-197 000*	*-131 333*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Other	*-157 898*	*-345 971*	*-300 043*	*-407 231*	*-188 180*	*-605 726*	*-201 754*	*-221 780*	*-247 023*	*-278 955*	*-146 863*	*-154 593*	*-162 686*	*-171 159*	*-180 034*
Staff Costs	-1 118 045	-1 171 950	-1 582 097	-1 613 771	-1 727 655	-1 796 306	-1 831 909	-1 927 380	-2 027 826	-2 133 507	-2 244 695	-2 361 678	-2 484 758	-2 614 252	-2 750 495
Gross Profit	**1 161 966**	**1 019 738**	**1 599 718**	**1 595 023**	**734 507**	**1 021 908**	**791 340**	**1 254 253**	**1 679 911**	**2 230 771**	**2 616 365**	**2 876 052**	**3 150 288**	**3 440 095**	**3 633 141**
Gross Margin %	*19%*	*16%*	*18%*	*16%*	*8%*	*10%*	*8%*	*11%*	*14%*	*16%*	*18%*	*19%*	*19%*	*20%*	*20%*
Research and development expenses	-198 388	-140 957	-165 594	-207 936	-231 403	-292 391	-244 295	-258 664	-288 105	-325 348	-342 576	-360 607	-379 483	-399 249	-419 951
Selling and general administrative expenses	-289 859	-414 198	-567 495	-496 249	-624 374	-492 200	-563 590	-619 532	-690 048	-779 249	-881 181	-927 561	-976 114	-1 026 955	-1 080 205
Other operating income	3 487	4 264	18 347	36 342	14 069	19 119	17 651	19 403	21 612	24 405	25 698	27 050	28 466	29 949	31 502
Other operating expenses	-7 619	-30 546	-28 885	-27 727	-6 178	-21 625	-16 676	-18 331	-20 417	-23 057	-24 278	-25 556	-26 893	-28 294	-29 761
EBITDA	**669 587**	**438 301**	**856 091**	**899 453**	**-113 379**	**234 811**	**-15 569**	**377 130**	**702 952**	**1 127 524**	**1 394 028**	**1 589 379**	**1 796 263**	**2 015 546**	**2 134 727**
EBITDA Margin %	*11%*	*7%*	*9%*	*9%*	*-1%*	*2%*	*0%*	*3%*	*6%*	*8%*	*9%*	*10%*	*11%*	*12%*	*12%*
EBITDA Margin pre PPA and I&R costs %	*11%*	*12%*	*15%*	*13%*	*6%*	*6%*	*3%*	*5%*	*7%*	*9%*	*10%*	*11%*	*12%*	*12%*	*12%*
Depreciations	-143 533	-188 768	-322 155	-338 355	-440 844	-430 601	-478 090	-513 719	-559 439	-618 207	-645 781	-674 863	-705 546	-737 930	-772 124
Amortization	-17 899	-249 536	-323 067	-308 436	-403 353	-326 538	-326 579	-343 819	-379 945	-424 620	-457 425	-476 756	-501 036	-527 286	-556 261
EBIT	**508 155**	**-3**	**210 869**	**252 662**	**-957 576**	**-522 328**	**-493 659**	**-136 590**	**143 513**	**509 316**	**748 247**	**914 516**	**1 090 717**	**1 277 616**	**1 362 603**
EBIT Margin %	*8%*	*0%*	*2%*	*2%*	*-10%*	*-5%*	*-5%*	*-1%*	*1%*	*4%*	*5%*	*6%*	*7%*	*7%*	*8%*
EBIT Margin pre PPA and I&R costs %	*8%*	*5%*	*8%*	*7%*	*-2%*	*-1%*	*-2%*	*0%*	*3%*	*5%*	*6%*	*7%*	*7%*	*8%*	*8%*
Statutory tax	-142 283	1	-59 043	-65 692	229 818	125 359	118 478	32 782	-34 443	-122 236	-179 579	-219 484	-261 772	-306 628	-327 025
Tax Rate	*28%*	*28%*	*28%*	*26%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*	*24%*
Adjustments Core	-3 675	1 822	-10 485	-34 628	-147 533	-205 581	-3 657	-2 446	-5 293	-3 750	-11 112	-11 996	-13 647	-15 392	-18 551
Core Result	**362 197**	**1 820**	**141 341**	**152 342**	**-875 291**	**-602 550**	**-378 838**	**-106 254**	**103 776**	**383 331**	**557 556**	**683 036**	**815 298**	**955 596**	**1 017 027**
Profit Margin %	*6%*	*0%*	*2%*	*1%*	*-9%*	*-6%*	*-4%*	*-1%*	*1%*	*3%*	*4%*	*4%*	*5%*	*6%*	*6%*
Non Core Operations															
Income (loss) from investments accounted for using the equity method, net	0	410	-431	-1 479	-2 509	9 867	4 824	5 886	6 859	5 857	6 201	6 306	6 121	6 209	6 212
Interest income	-673	9 389	15 167	13 810	10 109	12 251	10 960	9 723	10 688	11 505	12 992	13 680	14 400	15 154	15 944
Other financial income (expenses), net	2 341	-1 455	-3 190	-21 625	-2 307	-2 389	2 119	2 330	2 508	2 832	2 982	3 139	3 303	3 475	3 655
Result before taxes	**1 668**	**8 344**	**11 546**	**-9 294**	**5 293**	**19 729**	**17 904**	**17 939**	**20 055**	**20 194**	**22 175**	**23 125**	**23 825**	**24 839**	**25 811**
Statutory tax	-467	-2 336	-3 233	2 416	-1 270	-4 735	-4 297	-4 305	-4 813	-4 847	-5 322	-5 550	-5 718	-5 961	-6 195
Adjustments Non Core	83 825	1 956	-40 392	34 649	2 796	296	0	0	0	0	0	0	0	0	0
Other comprehensive income	16 988	-90 812	-228 977	213 794	-391 751	140 036	0	0	0	0	0	0	0	0	0
Non Core Result	**102 014**	**-82 848**	**-261 056**	**241 565**	**-384 932**	**155 326**	**13 607**	**13 634**	**15 242**	**15 347**	**16 853**	**17 575**	**18 107**	**18 877**	**19 616**
Financial Operations															
Interest expenses	-5 812	-31 337	-54 628	-52 940	-66 430	-50 854	-107 388	-97 850	-110 988	-117 584	-128 944	-134 976	-141 440	-147 364	-153 979
Result before taxes	**-5 812**	**-31 337**	**-54 628**	**-52 940**	**-66 430**	**-50 854**	**-107 388**	**-97 850**	**-110 988**	**-117 584**	**-128 944**	**-134 976**	**-141 440**	**-147 364**	**-153 979**
Statutory tax	1 627	8 774	15 296	13 764	15 943	12 205	25 773	23 484	26 637	28 220	30 946	32 394	33 946	35 367	36 955
Financial Result	**-4 185**	**-22 563**	**-39 332**	**-39 176**	**-50 487**	**-38 649**	**-81 615**	**-74 366**	**-84 351**	**-89 364**	**-97 997**	**-102 582**	**-107 494**	**-111 997**	**-117 024**
Total Comprehensive Result	**460 026**	**-103 591**	**-159 047**	**354 732**	**-1 310 710**	**-485 873**	**-446 847**	**-166 986**	**34 667**	**309 314**	**476 412**	**598 029**	**725 911**	**862 477**	**919 620**

Balance Sheet

In Thousands of €	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Core Operations															
Operating Cash [1]	148 223	163 455	228 057	255 672	237 080	254 945	252 192	277 225	308 779	348 694	367 159	386 484	406 714	427 898	450 085
Inventories	1 647 892	3 455 098	1 499 178	1 863 919	1 820 137	1 626 846	1 863 225	2 046 959	2 193 324	2 398 455	2 487 907	2 585 274	2 694 826	2 812 669	2 953 307
Trade and other receivables	365 535	1 081 139	1 113 918	1 286 781	1 140 855	900 612	1 124 576	1 321 830	1 445 023	1 616 438	1 723 635	1 804 881	1 898 031	2 001 318	2 102 474
Contract assets	0	0	1 572 188	2 056 255	1 537 953	1 468 240	1 360 008	1 501 999	1 686 144	1 924 205	2 011 835	2 103 926	2 200 723	2 302 483	2 409 476
Receivables from SIEMENS ENERGY Group	1 142 866	62 010	28 486	21 516	631	5 439	0	0	0	0	0	0	0	0	0
Other current assets	63 595	341 456	362 382	461 265	398 108	519 713	464 026	510 086	568 144	641 587	675 561	711 119	748 343	787 320	828 144
Operating Current Assets	**3 368 111**	**5 103 158**	**4 804 209**	**5 945 408**	**5 134 764**	**4 775 795**	**5 064 026**	**5 658 098**	**6 201 414**	**6 929 378**	**7 266 096**	**7 591 684**	**7 948 637**	**8 331 688**	**8 743 486**
Trade payables	-697 003	-2 231 589	-2 416 394	-2 599 836	-2 956 372	-2 899 603	-2 959 688	-3 138 865	-3 469 768	-3 759 915	-3 883 342	-4 059 293	-4 220 694	-4 403 939	-4 628 945
Contract liabilities	0	0	-1 670 176	-2 839 670	-3 147 830	-3 386 478	-2 658 356	-2 935 484	-3 295 687	-3 760 934	-3 932 127	-4 112 199	-4 301 367	-4 500 247	-4 709 385
Payables to SIEMENS ENERGY Group	-110 218	-363 543	-341 710	-285 690	-8 121	-21 583	0	0	0	0	0	0	0	0	0
Other current liabilities	-1 964 989	-2 644 758	-683 559	-797 563	-761 089	-709 287	-763 459	-839 240	-934 764	-1 055 598	-1 111 496	-1 169 999	-1 231 243	-1 295 372	-1 362 540
Operating Current Liabilities	**-2 772 210**	**-5 239 890**	**-5 111 839**	**-6 522 759**	**-6 873 412**	**-7 016 951**	**-6 381 503**	**-6 913 589**	**-7 700 219**	**-8 576 447**	**-8 926 965**	**-9 341 492**	**-9 753 304**	**-10 199 558**	**-10 700 869**
Property, plant and equipment	868 940	1 537 357	1 442 503	1 425 901	2 239 155	2 578 543	2 578 543	2 770 708	3 017 294	3 334 256	3 482 974	3 639 823	3 805 308	3 979 973	4 164 395
Goodwill	164 848	4 660 212	4 557 607	4 744 153	4 550 105	4 634 593	4 634 593	4 634 593	4 634 593	4 634 593	4 634 593	4 634 593	4 634 593	4 634 593	4 634 593
Other intangible assets	38 841	2 302 857	2 022 423	1 915 730	1 779 511	1 650 658	1 912 970	2 013 954	2 225 568	2 487 256	2 679 411	2 792 645	2 934 869	3 088 630	3 258 354
Other financial assets [2]	167 890	461 501	411 263	418 198	446 650	450 694	500 056	549 692	612 259	691 404	728 017	766 335	806 449	848 453	892 447
Other assets	65 888	109 385	100 906	89 379	4 127	8 134	8 046	8 845	9 852	11 125	11 714	12 331	12 976	13 652	14 360
Current income tax net	-5 416	33 848	5 913	6 481	20 144	7 223	17 099	18 796	20 935	23 641	24 893	26 204	27 575	29 012	30 516
Deferred tax net	67 821	-174 745	2 799	80 092	300 007	367 706	190 928	209 879	233 768	263 987	277 966	292 597	307 913	323 950	340 748
Other Operating Assets	**1 368 812**	**8 930 415**	**8 543 414**	**8 679 934**	**9 339 699**	**9 697 551**	**9 842 236**	**10 206 466**	**10 754 269**	**11 446 262**	**11 839 569**	**12 164 526**	**12 529 684**	**12 918 264**	**13 335 412**
Provisions	-1 247 441	-2 305 127	-2 432 630	-2 161 982	-2 145 220	-2 272 948	-2 220 972	-2 441 426	-2 719 313	-3 070 831	-3 233 444	-3 403 634	-3 581 798	-3 768 356	-3 963 752
Other Liabilities	-18 060	-16 306	-31 060	-30 968	-28 775	-26 906	-29 472	-32 398	-36 085	-40 750	-42 908	-45 166	-47 530	-50 006	-52 599
Other financial liabilities [3]	-104 196	-297 255	-288 735	-300 231	-252 990	-293 435	-300 662	-330 506	-368 125	-415 711	-437 725	-460 764	-484 883	-510 138	-536 590
Other Operating Liabilities	**-1 369 697**	**-2 618 688**	**-2 752 425**	**-2 493 181**	**-2 426 985**	**-2 593 289**	**-2 551 106**	**-2 804 329**	**-3 123 523**	**-3 527 291**	**-3 714 076**	**-3 909 564**	**-4 114 211**	**-4 328 500**	**-4 552 940**
Core Business Invested Capital	**595 016**	**6 174 995**	**5 483 359**	**5 609 402**	**5 174 066**	**4 863 106**	**5 973 653**	**6 146 646**	**6 131 941**	**6 271 902**	**6 464 624**	**6 505 155**	**6 610 805**	**6 721 893**	**6 825 089**
Non-Core Operations															
Investments accounted for using the equity method	0	73 609	73 036	70 876	66 353	78 492	78 492	78 492	78 492	78 492	78 492	78 492	78 492	78 492	78 492
Post-employment benefits	-7 082	-12 617	-12 635	-14 823	-19 862	-21 409	-21 773	-22 143	-22 520	-22 902	-23 292	-23 688	-24 090	-24 500	-24 916
Non Core Business Invested Capital	**-7 082**	**60 992**	**60 401**	**56 053**	**46 491**	**57 083**	**56 719**	**56 349**	**55 972**	**55 590**	**55 200**	**54 804**	**54 402**	**53 992**	**53 576**
Total Invested Capital	**587 934**	**6 235 987**	**5 543 760**	**5 665 455**	**5 220 557**	**4 920 189**	**6 030 372**	**6 202 995**	**6 187 913**	**6 327 492**	**6 519 824**	**6 559 959**	**6 665 206**	**6 775 886**	**6 878 665**
Financing															
Excess Cash [1]	0	1 496 013	2 200 977	1 471 785	1 384 713	1 705 662	1 513 152	1 663 348	1 790 490	2 021 941	2 129 011	2 241 070	2 358 380	2 481 216	2 609 871
Financial debt	-1 827	-1 282 134	-1 813 786	-864 435	-1 670 408	-2 167 383	-1 974 874	-2 240 041	-2 373 153	-2 602 424	-2 724 175	-2 854 631	-2 974 192	-3 107 695	-3 246 707
Short Term	-104	-797 018	-990 538	-352 209	-434 313	-381 721	-430 646	-488 469	-517 495	-567 491	-594 040	-622 488	-648 560	-677 671	-707 985
Long Term	-1 723	-485 116	-823 248	-512 226	-1 236 095	-1 785 662	-1 544 228	-1 751 572	-1 855 657	-2 034 933	-2 130 135	-2 232 144	-2 325 633	-2 430 023	-2 538 722
Net Financial Assets	**-1 827**	**213 879**	**387 191**	**607 350**	**-285 695**	**-461 721**	**-461 721**	**-576 693**	**-582 663**	**-580 483**	**-595 163**	**-613 561**	**-615 812**	**-626 479**	**-636 836**
Equity Attributable to Siemens Gamesa	**586 107**	**6 449 866**	**5 930 951**	**6 272 805**	**4 934 862**	**4 458 468**	**5 568 650**	**5 626 303**	**5 605 250**	**5 747 009**	**5 924 661**	**5 946 398**	**6 049 394**	**6 149 407**	**6 241 829**

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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