Financing and investment trends

The European wind industry in 2020

WindEurope

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This report summarises financing activity across the European wind energy sector from 1 January to 31 December 2020. Unless stated otherwise the data and analysis covers the 27 EU Member States and the following countries: Belarus, Georgia, Kosovo, Montenegro, Norway, Russia, Serbia, Switzerland, Turkey, the UK and Ukraine.
The report includes investment figures for the construction of new wind farms, refinancing transactions for wind farms under construction or operation, project acquisition activity, company acquisitions and capital market financing. Rounding of figures is at the discretion of the author.
New asset figures pre-2020 have been restated from previous publications.

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EXECUTIVE SUMMARY

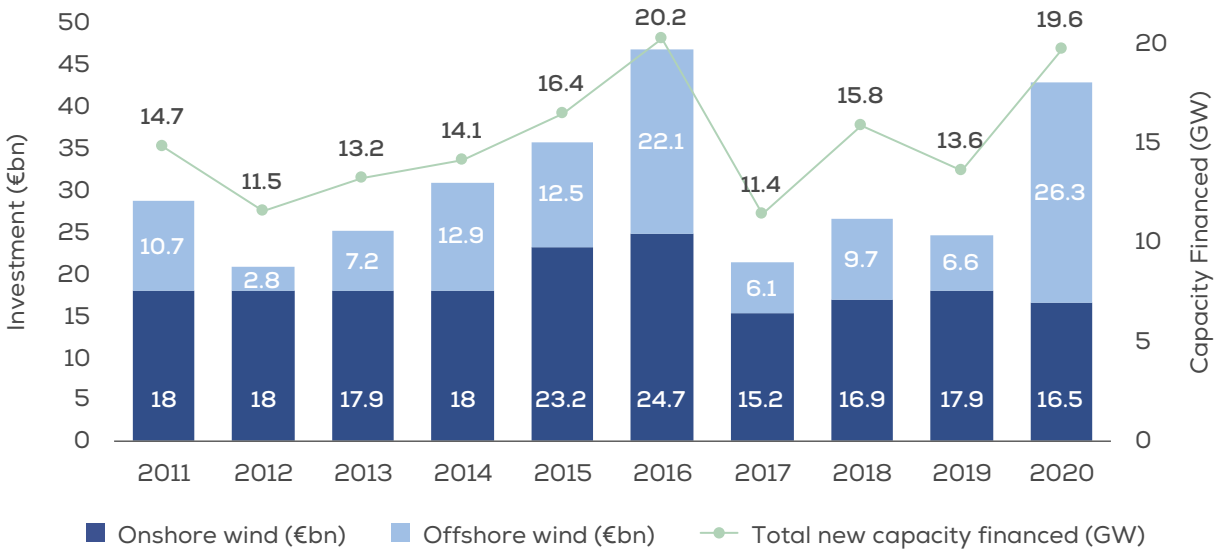
Despite the challenging circumstances brought about by COVID, Europe invested €42.8bn in new wind farms in 2020, the second highest annual amount on record.

Investments in offshore wind farms were a record €26.3bn, which financed 7.1 GW of new offshore capacity. Investments in new onshore wind farms were €16.5bn, which financed 12.5 GW of new onshore capacity.

The figure of €26.3bn in offshore wind investments was a new record. However, the figure of €16.5bn in onshore wind investments was the lowest amount since 2017. This is mainly due to delays in the permitting of new onshore wind farms in many countries in Europe.

Wind energy remains an attractive investment, and there is plenty of capital available to finance it. But it is critical that both EU and national economic recovery plans are aligned with the European Green Deal and help to accelerate the transition to a low-carbon energy system.

FIGURE 1
New asset finance in wind energy 2011 – 2020 (GW and €bn)



Source: WindEurope

2020 highlights

- Europe invested €42.8bn in the construction of new wind farms. This was 75% more than 2019 and the second highest amount on record (after 2016).
- The €42.8bn covered 19.6 GW of new capacity: 12.5 GW of onshore wind capacity and a record 7.1 GW of offshore wind capacity.
- Investments in new offshore wind projects were worth a record €26.3bn.
- The €16.5bn invested in new onshore wind farms was less than in previous years. It was the lowest figure for investment in new onshore projects since 2017.
- Banks extended a record €27.8bn in non-recourse debt for the construction and refinancing of wind farms. This continues the general trend of increased activity in this area since 2013.
- Non-recourse debt accounted for 36% of all investment in new onshore and 58% of all investment in new offshore wind farms, highlighting the importance of banks in wind energy financing.
- The debt ratio for new wind farms financed on a project finance basis remains at 70-90%.
- Project acquisitions, where investors purchase a share of a wind farm (in development or operating), were worth €15.1bn. This was slightly lower than in 2018 and 2019.

Country highlights

- The UK invested the most in new wind farms in 2020, €13.5bn, followed by the Netherlands which invested €7.9bn.
- The record amount invested in the UK was largely the result of the financing of Dogger Bank phases A&B for €9.4bn. This will allow for the construction of 2.4 GW out of the 3.6 GW wind farm, the largest wind farm in Europe to date.
- Germany (€2.2bn) and France (€1.8bn) invested the most in onshore wind, although these amounts were lower than in previous years.
- Northwest Europe accounted for €36.3bn of the investments in new wind farms, approximately 85% of the total.

Investment trends

- With interest rates likely to stay low in the medium term and a large number of lenders looking to invest in wind, the conditions for financing wind farms should remain favourable.
- 66% of the capital raised for new wind farms was on a project finance basis. The other 34% was corporate financed.
- Debt remains instrumental in wind energy financing with non-recourse debt providing 50% of all capital raised for new wind energy projects.
- Despite short-term market uncertainties, Interest rate premiums are continuing to fall for offshore wind financing.
- 2020 was a record year for corporate renewable PPAs. The cumulative renewable capacity in Europe now under a corporate PPA rose by 50% to 12 GW. There were 18 new PPAs signed with onshore wind farms and 6 with offshore wind farms.
- Permitting continues to be the main bottleneck for the financing and construction of onshore wind in Europe. Wind energy will not be able to deliver its share of the 2030 climate targets if this problem is not addressed.

Policy highlights

- The EU is committed to climate neutrality by 2050 and 55% reductions on greenhouse gas (GHG) emissions from 1991 levels by 2030.
- To achieve the 2030 GHG target the EU needs to install 27 GW of new wind farms a year between 2021 and 2030. As things stand, we expect to install only 15 GW a year over each of the next 5 years.
- The problem is not finance, provided government design their wind energy auctions in the right way. The problem is the number of new projects coming through. Solving permitting delays is the top priority.
- Governments need urgently to simplify permitting rules and procedures for new wind farms. They also need to improve staffing levels at the permitting authorities - and should consider using their Recovery and Resilience Plans (RRPs) to support this.

WIND ENERGY FINANCE BASICS

Debt and equity

The two main sources of capital in European wind energy finance have been sponsor equity and debt. Sponsor equity refers to a traditional equity investor, typically the owner(s) of the project and/or the developer. Equity capital faces the highest risk in the project, because the owners are the party responsible for bringing the initial concept idea through development, construction and commercial operation. In addition, the owners are also the last investors to be liquidated in case of a project default. Because of the tough requirements that equity capital faces, the returns are also higher.

Debt refers to a contractually-arranged loan that must be repaid by the borrower. The lender has no ownership shares in the company or project. However, it has some collateral coverage as a financial protection in case the project is unable to meet the debt repayment schedule. In the case of project default, the lenders are the first party to be liquidated, before equity-type investors. As such, debt is generally considered a lower-risk investment and therefore comes with lower-cost financing compared with equity.

There are two major types of debt in wind energy finance - construction debt and refinancing debt. Construction debt is raised for the purpose of financing new assets. Refinancing debt is raised for the purpose of financing construction debt at a longer maturity and/or lower interest rate.

Corporate finance and project finance

The proportion of debt and equity in a project, as well as the way they are used, will determine the capital or financial structure of the project. There are two types of financial structures: corporate finance and project finance. In a corporate finance structure, investments are carried out on the balance sheet of the owners and project sponsors. Debt is raised at corporate level, with the lenders having recourse to all the assets of the company to liquidate a non-performing project. The project management and many of the contractual obligations are internalised with the owners and project sponsors. Corporate finance is therefore quicker and usually less expensive than project finance.

In a project finance structure, typically called non-recourse finance, the investment is carried off the balance sheet of the original owners and project sponsors. The investment or the project is turned into a separate business entity called a Special Purpose Vehicle (SPV) with its own management team and financial reporting, capable of raising debt on its own. Because debt is raised at project level, the lenders do not have recourse to the company assets of the owners and project sponsors in cases of project default. Due to increased contractual obligations and a more sophisticated risk management structure, project finance can be more expensive and can take longer to finalise than corporate finance.

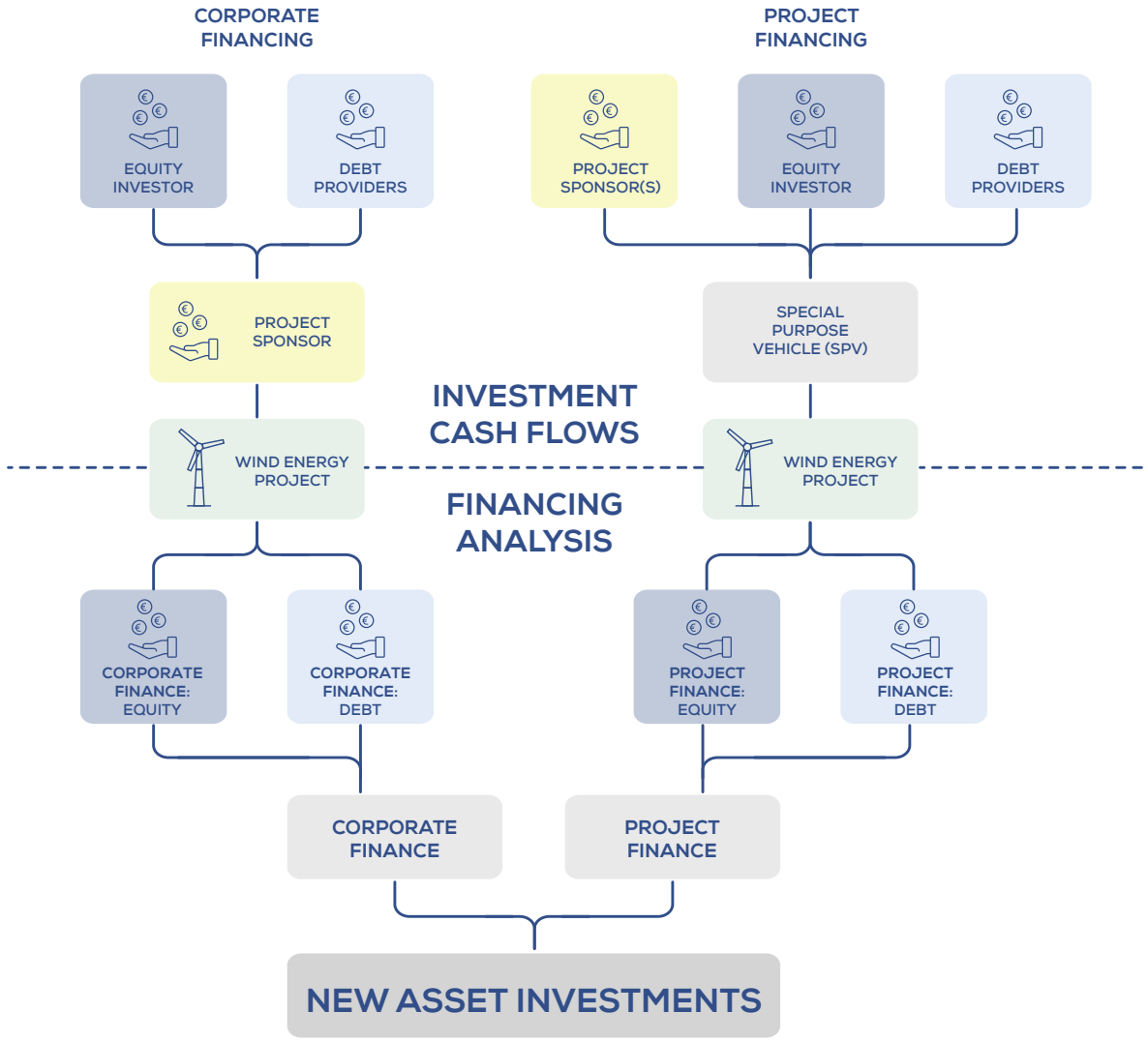
Debt-to-equity ratios in a project finance transaction may vary considerably depending on the project specifics,

availability of capital and risk profile of the project owners. For wind projects, they range between 70-80% debt and 20-30% equity.

A company's capital structure will be determined by its particular risk profile, size and industry sector. Power producers and utilities with a large balance sheet will typically opt for a corporate finance structure and bring the project through construction as a single player. Fundraising will occur at corporate level through debt and equity vehicles alike.

Unlike utilities, independent power producers with smaller balance sheets and companies whose primary business is not wind energy have better project finance capabilities. In a project finance structure, partnerships are key from a very early stage. Fundraising will occur at project level, through debt and equity vehicles alike. Project owners will need to form consortia to provide the required equity whereas lenders will come together to provide syndicated project loans on the debt side.

FIGURE 2
Corporate Finance vs. Project Finance



Source: WindEurope

Raising debt and equity

The project owners and sponsors can raise capital for project development from different sources. These may include own-balance sheet financing, external private investors, funding from commercial banks and public capital markets. The latter in particular has become more prominent for raising both debt and equity in wind energy financing.

Debt is usually raised through the issuance of bonds either at corporate or project level. Where a bond is issued at corporate level, the proceedings go towards financing a portfolio of projects. The bond can carry the 'green' label when the portfolio of projects it is financing is made exclusively of renewable energy investments. Where the bond is issued at project level, the proceedings are used for the specific renewable energy project and are therefore 'green'. Project bonds are issued on behalf of the SPV and are usually part of a non-recourse, project finance structure.

A bond is considered investment grade if its credit rating is a minimum of BBB by Standard & Poor's or a minimum of Baa3 by Moody's. Investment grade bonds are considered by rating agencies as likely to meet payment obligations for investors.

Capital availability for wind power projects

The financial markets have supported the growth of the wind sector with a strong liquidity on both debt and equity. The financing conditions of low interest rates, cost improvements and increased trust in the technology all contribute to a healthy deal flow of projects.

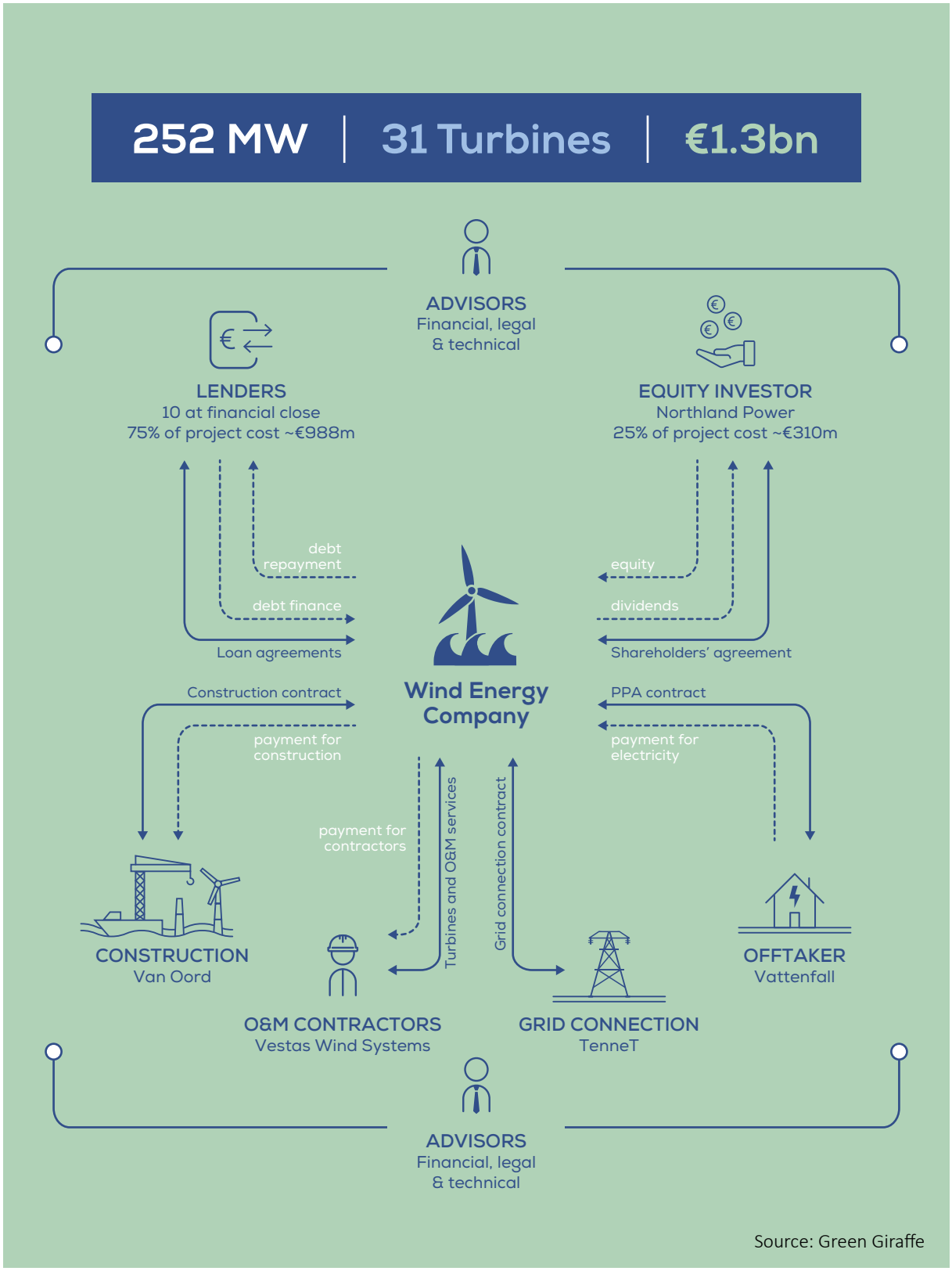
Debt liquidity has been available from construction phase with new financing and refinancing transactions in major markets. Lenders include a variety of bank and non-bank institutions such as Export Credit Agencies (ECAs). Multilateral Development Banks (MDBs) and other International Financial Institutions (IFIs) have also provided debt liquidity where commercial bank financing has not been available. International banks have also strengthened their presence in the European wind sector and introduced more competition to the sector. Japanese banks, driven by a prolonged low –interest rate environment in their domestic market, feature prominently in the top lending institutions for European wind power projects.

On the equity side, institutional investors are also bidding more aggressively for wind assets. Interest in the technology has picked up significantly both from institutional and strategic investors who are now looking at wind projects for steady, predictable returns to meet long-dated liabilities. Much like the banks, investor appetite for the technology applies to both greenfield and existing assets. However, as confidence in wind grows the positive track record of the industry continues, investors are also targeting more greenfield projects earlier in the construction phase.

SUMMARY

- Projects can be financed on the balance sheet of a company – **corporate finance**
- Capital can be raised with equity (**issuing company shares**) or debt (**bonds issued by the company**), the proceeds of which can be used to develop a wind farm
- Projects can also be made into a "company" in their own right with a Special Purpose Vehicle (SPV) structure – **project finance**
- Capital can be raised with equity (**issuing shares in the project**) or debt (**banks lend to the project on a non-recourse basis**), the proceeds of which can be used to develop the wind farm
- Debt is repaid from project revenues. If the project fails to repay the debt, banks do not have recourse to the project sponsors' assets for compensation, only the assets of the project itself

FIGURE 3
Example of financing structure for typical offshore wind farm

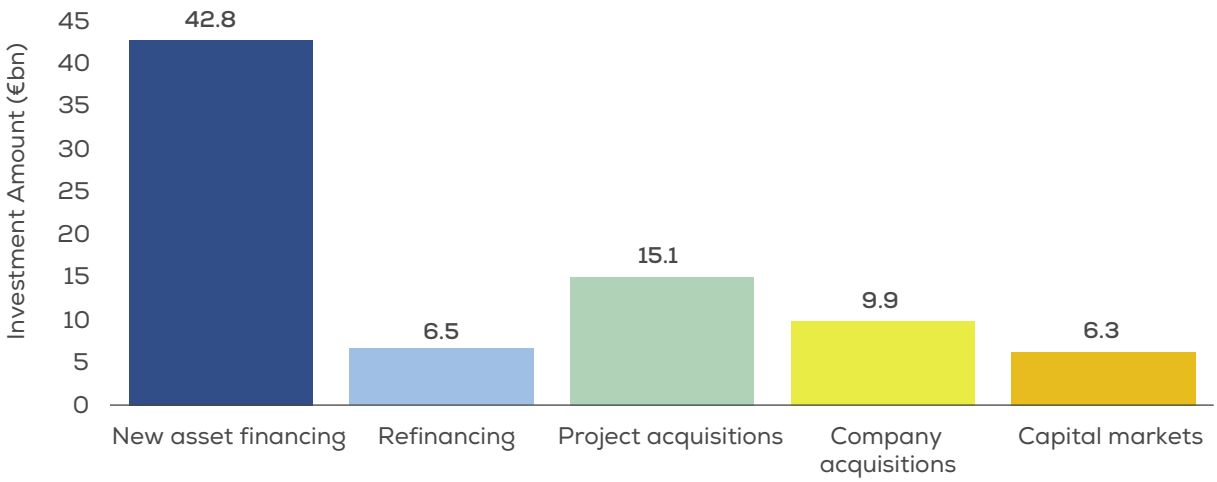


Source: Green Giraffe

1. INVESTMENT NUMBERS IN 2020

1.1 WIND ENERGY INVESTMENTS

FIGURE 4
European wind energy investments in 2020 per asset class (€bn)



Source: WindEurope

With €42.8bn in investments, new asset financing accounted for more than half of all wind energy investments. In total, there was more than €80bn of financing activity in the wind energy sector in 2020.

New wind farms investments were up 75% compared with the €24.5bn raised in 2019. The main driver for growth was the record year for offshore financing. The €26.3bn invested in new offshore wind farms should lead to a new

capacity build out of 7.1 GW over the next few years. With 12.5 GW of onshore capacity financed, there was a total of 19.6 GW of new wind projects financed in 2020, the second highest figure in a single year after a record 20.2 GW in 2016.

Project acquisitions, where investors purchase (a share of) a wind energy project, were down from €17.5bn in 2019 to €15.1bn in 2020, a 15% decrease. However, the last three years have seen far more wind project acquisitions (by value) than all previous years on record.

With a total of €9.9bn, company acquisition deals reached record highs with significant investments including Iberdola's acquisition of an 8.1% share in Siemens Gamesa Renewable Energy (SGRE), Vesta's acquisition of Mitsubishi Heavy Industries' share of MHI Vestas, and SGRE's acquisition of some of the stricken wind turbine manufacturer Senvion's assets, including a large part of its European onshore service business.

An additional figure of €6.3bn was raised by the wind energy sector in capital markets in 2020. This includes green bond issuances, initial and follow-on public offerings, extensions of credit facilities and corporate debt refinancing activity.

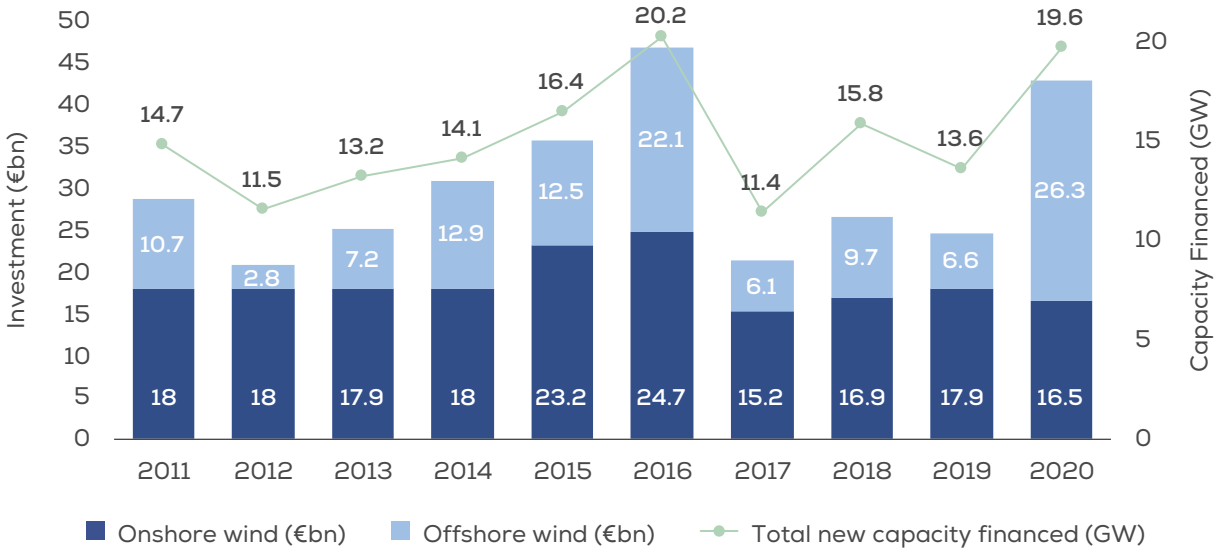
1.2 NEW ASSET FINANCING

Investments in new assets were worth €42.8bn, the second highest amount on record, financing 19.6 GW of new capacity.

Onshore wind financing totalled just €16.5bn, one of the lowest amounts and lower than pre-2017 when Feed-in-tariffs were still common across Europe. This is important as onshore wind is expected to play a major role in decarbonising the economy; the European Commission's long-term decarbonisation scenario expects onshore wind to be the largest source of electricity by 2030 and to remain so until at least 2050.

This low figure had been anticipated in the wake of the COVID-19 pandemic. However, it is vital that European onshore wind recovers quickly to meet the targets needed to deliver on the 2030 climate and energy goals, an outcome which will require significant further investment. To attract investment, governments will have an important role to play going forward. This is discussed in further detail in Part 3.

FIGURE 5
New asset finance in wind energy 2011 – 2020 (GW and €bn)



Source: WindEurope

The low investments in onshore were to some extent compensated for by huge investment in offshore wind. With €26.3bn in investment for the build out of 7.1 GW, 2020 was a record year. The €26.3bn figure also includes investment in offshore transmission infrastructure. In the UK, developers are responsible for building the transmission grid to the shore, and thus UK project investment figures cover the grid costs. In other countries the Transmission System Operator (TSO) is responsible for building the grid. In 2020 TSOs in Belgium, the Netherlands and Germany raised €2bn to finance the construction and upgrade of offshore grid infrastructure.

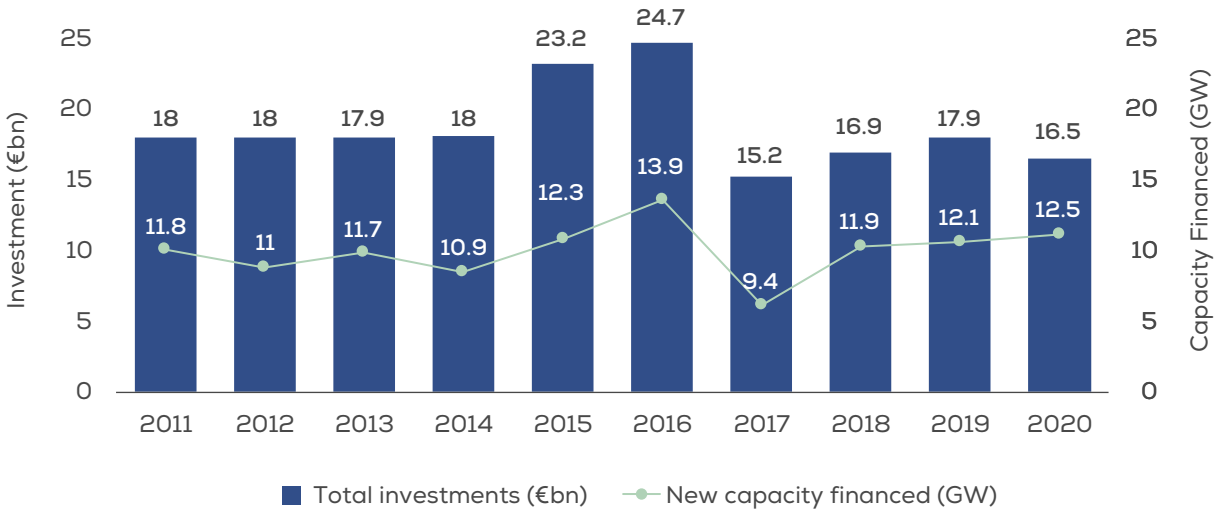
New capacity financed in 2020 totalled 19.6 GW, the second highest capacity financed in a year. A 2-year cyclical pattern of capacity financed is emerging, driven by patterns in auction schedules, particularly the UK's CfD auction that has covered most offshore projects.

€16.8bn (39% of the total investments in new assets) were in non-EU countries, including the UK which was the leading country in terms of capital raised and capacity financed.

Less than 330 MW of capacity was financed in the South East Europe (SEE) region, continuing a trend of decreasing annual amounts of capacity financed since 2016.

FIGURE 6

New asset finance in onshore wind energy 2011 - 2020 (€bn and GW)



Source: WindEurope

Onshore wind raised approximately €16.5bn to finance 12.5 GW of new assets. While the investment figure is one of the lowest in the last 10 years, the capacity financed is similar to amount over the last two years, showing that the cost per MW is falling steadily.

Financing data gives us an indication of what is likely to be built over the next few years. We estimate the time from FID to a wind farm's Commissioning Date to be up to one year for onshore wind and 2-3 years for offshore wind.

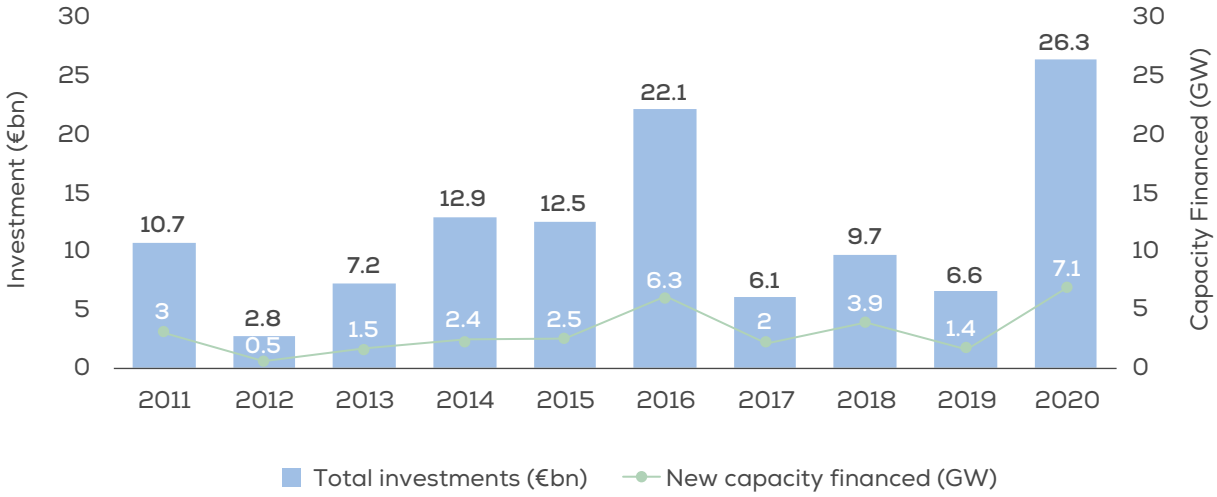
2020's lower figure is in part due to COVID. Onshore wind typically has a much higher proportion of transactions financed on the balance sheet of companies (corporate finance) than offshore wind. In 2020, 60% of the capital raised for onshore wind development was on a corporate finance basis compared with just 18% for offshore transactions.

Balance sheet transactions are more likely to suffer delays than project finance transactions since project finance depends on the characteristics and risks of a project.

Over a medium to long-term horizon, these risks should be largely unaffected by the pandemic. In contrast, corporate financing has an impact on companies' balance sheets and the uncertainty caused over the last year may have reduced risk appetite in the short-term and caused delays in financing decisions.

Onshore wind capacity financed over the past few years has been lower than the annual 15 GW needed in EU Member States to meet current 2030 targets, as we discuss in section 3.3.

FIGURE 7
New asset finance in offshore wind energy (€bn and GW)



Source: WindEurope

In terms of **offshore wind**, investments totalled a record €26.3bn for the financing of wind farms and offshore transmission assets. Offshore investment patterns are driven by auction schedules, in particular by the UK's CfD rounds. In 2016 almost €10.5bn was raised for three offshore wind farms which were awarded CfDs in UK auction rounds in 2014 and 2015 (Beatrice, Hornsea 1 and East Anglia One).

In 2020, almost half of the investments (€12.8bn) concerned 2 wind farms which had been awarded CfDs in the 2019 UK auction round (Dogger Bank phases A&B and Seagreen Alpha & Bravo). The 2.4 GW Dogger Bank A&B raised a record €9.4bn, 36% of the total financing amount in Europe.

In France, the 2nd and 3rd offshore projects reached final investment decision (Fécamp and Saint Brieuc) and raised €4.7bn, 18% of the total.

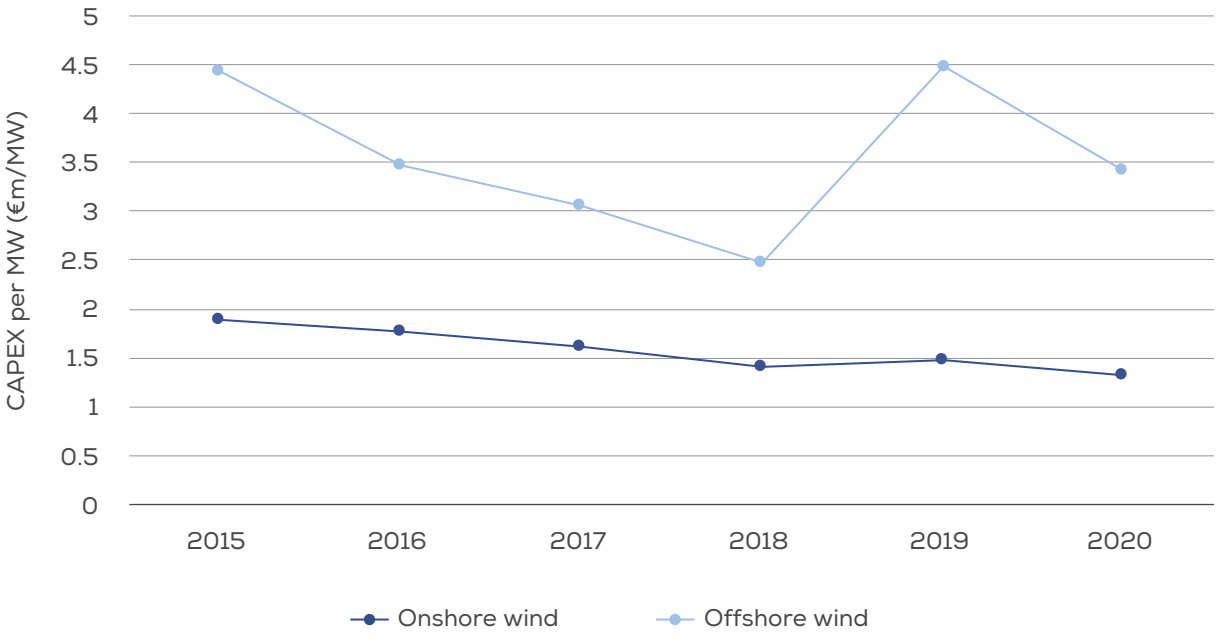
In the Netherlands Hollandse Kust Zuid (1.5 GW) and Hollandse Kust Noord (759 MW), both zero bid projects, reached financial close. In Germany the 342 MW Kaskasi offshore wind farm also reached FID.

These strong offshore investments illustrate confidence in the technology and the resilience of the industry. Despite all the issues faced last year, developers, investors and consumers have shown that the technology provides an attractive investment.

CAPITAL COST TRENDS

FIGURE 8

Average CAPEX per MW in new wind farm investments (€m/MW)



Source: WindEurope

Capital expenditure per MW for new onshore assets have decreased on average since 2015, from €1.9m per MW down to around €1.3m per MW of capacity financed today.

Spain and Sweden had the cheapest onshore wind farms in 2020 with farms being financed on average with €1m per MW.

Other notable countries with lower-than-average capital expenditures per MW include Norway (€1.1m), Poland (€1.2m) and Russia (€1.2m).

These countries have fewer land constraints and can build larger wind farms, benefiting from economies of scale. Countries facing greater permitting issues and land constraints see higher capital costs: Germany (€1.7m/MW), the Netherlands (€1.5m/MW), France (€1.5m/MW).

Capital expenditure per MW for new offshore wind farms also decreased between 2016 and 2018. However, 2019 and 2020 saw a reversal of this for several reasons.

Over the last couple of years, three French offshore wind projects have reached FID. Saint Nazaire was the first commercial offshore wind farm in France and was financed at €5m per MW in 2019. In 2020 Saint Brieuc and Fécamp offshore wind farms also took final investment decisions with capital expenditures of €4.6m and €4.9m per MW respectively. The design of the tender which was launched in 2011 specified that wind turbine factories for the project had to be built on French territory resulting in higher capital expenditure for these projects.

In 2019, the UK's Neart na Gaoithe was also financed at a higher than average €5.1m/MW due in part to the depth of the water and challenging seabed conditions. This and the French Saint Nazaire project alone accounted for 2/3rds of the financed capacity that year which contributed to the high cost for 2019.

The gargantuan 3.6 GW Dogger Bank wind farm reached FID for the first two phases A&B in 2020, raising €9.4bn to finance 2.4 GW at €3.9m/MW. Phase 3 of the project is expected to reach FID in 2021. Offshore wind farm

transactions in the UK include grid transmission costs. In this case the wind farm is located 130 km off the coast of Yorkshire in northern England, the farthest from shore to date globally. It will therefore use a High Voltage Direct Current (HVDC) connection to reduce otherwise significant energy losses, but this comes at a higher capital cost. Nevertheless, the CAPEX per MW is significantly lower than the UK average (€4.7m) owing to the economies of scale achieved with such an enormous project,

On the other side, reducing the average European CAPEX per MW, two wind farms in the Netherlands reached FID with an average of just €2.2m per MW, Hollandse Kust Noord (759 MW) and Holllandse Kust Zuid (1.5 GW). The wind farms are in favourable locations, relatively close to shore with shallow water. In addition, the government pays for the grid connection and supports all pre-development work such as wind resources assessment, seabed condition analysis and permitting (which includes environmental impact assessments). This contributes significantly to the lower-than-average capital costs for offshore projects.

Included in the 2020 figures is the financing of the 50 MW Kincardine floating offshore wind farm. Floating offshore technology is currently in the pre-commercial phase with higher CAPEX than the more mature bottom-fixed technology. However, with the ability to open up new offshore sea areas to wind energy, (either because seabeds are unsuitable or water depths are too great for traditional bottom-fixed turbines), and potential increases in efficiency (Hywind in Scotland is achieving capacity factors over 50%[1]), the technology is expected to play a significant role in Europe's transition to carbon neutrality,

Understanding the risks involved is essential for lenders to price risk correctly and as experience grows, financing costs are likely to fall which will attract more investment. As the technology matures, more investors should allow for further build-out and established supply chains and economies of scale should provide the CAPEX reductions witnessed with bottom-fixed offshore. On top of this, the sector is leveraging the relevant experience and established supply chains with bottom-fixed turbines, as well as those from the oil and gas sector with years of experience managing floating structures. We therefore expect floating wind costs (financing and capital expenditure) to reduce at a faster rate.

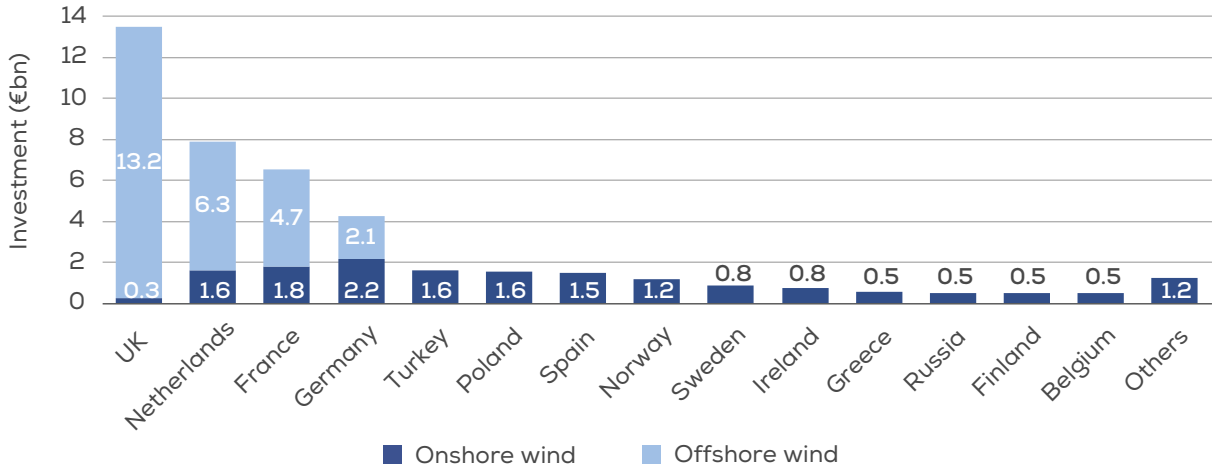
The reasons for a higher or lower capital expenditure are specific to project sites, but overall we expect to see further CAPEX reductions in future years as the technology continues to mature.

1. https://energynumbers.info/uk-offshore-wind-capacity-factors, extracted on March 2021

1.3 NEW ASSET FINANCE PER COUNTRY

In 2020, 22 countries saw investments in new wind energy assets. The top three investor countries - the UK, the Netherlands and France - were responsible for 65% of all capital raised. Different European wind energy markets are maturing at different rates and there are still a significant number of countries in Europe which are not attracting investment and have no new installations.

FIGURE 9
New asset finance in wind energy per country in 2020 (€bn)



Source: WindEurope

The UK was the biggest investor in 2020 with €13.5bn of total investments (albeit €9.4bn for a single wind farm, Dogger Bank A&B) representing 32% of all financing activity for the construction of new onshore and offshore wind farms in Europe.

Northwest Europe[2] still sees the bulk of new investments with 85% of the capital raised for new wind farms in Europe (€36.3bn).

The UK, the Netherlands and France all saw investments in new wind farms worth over €5bn whilst Germany had over €4bn and Turkey, Poland, Spain, and Norway all saw investments in excess of €1bn.

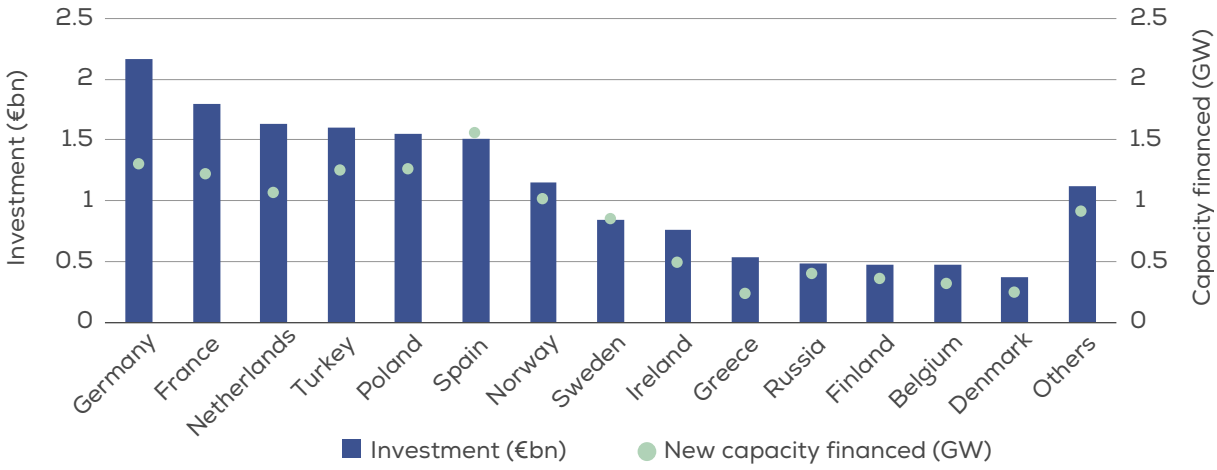
In many EU markets there are currently no wind investments, despite these countries having significant potential for further expansion of wind power. National energy policies and the lack of a stable regulatory environment have affected both the level of investment and financial commitments in half of EU Member States. This is the case in **South East Europe (SEE)**[3], where less than 330 MW of capacity was financed in 2020.

Investor confidence has been slow to recover mainly due to macroeconomic and political factors. With less than €0.7bn, the SEE region represents less than 2% of all new assets financed in Europe.

Of the €42.8bn worth of investments in new projects, €16.8bn (39%) were in non-EU countries: the UK, Turkey, Norway, Russia, and Montenegro. Excluding the UK, the figure is €3.4bn, just 8% of the total and down from €6.4bn in 2019. After the UK, Turkey had the most investment out of the non-EU countries with €1.6bn, followed by Norway with €1.2bn and Russia with €0.5bn.

2. Belgium; Denmark; Finland; France; Germany; Iceland; Luxembourg; Netherlands; Norway; Sweden; UK
3. Albania; Bosnia & Herzegovina; Bulgaria; Greece; Kosovo; North Macedonia; Montenegro; Romania; Serbia

FIGURE 10
New onshore asset finance in wind energy per country in 2020 (€bn and GW)



Source: WindEurope

Although Germany and France have seen the highest investment numbers for onshore wind these numbers are lower than what they have experienced in previous years.

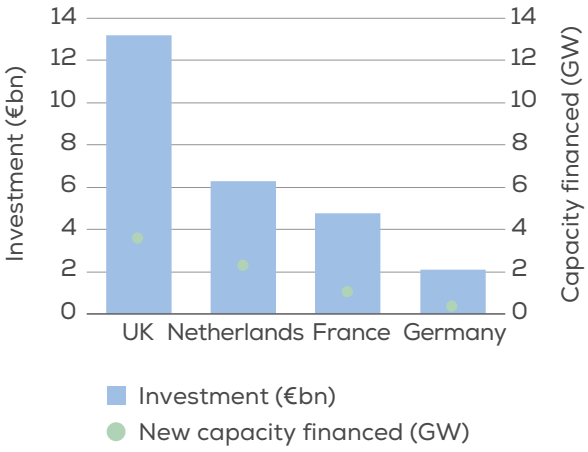
The Netherlands saw a record amount raised (€1.6bn), financing over 1 GW of new onshore wind projects. Poland saw an impressive amount of new asset financing, raising €1.6bn for a total capacity of 1.2 GW for many of the successful projects from the 2019 2.2 GW auction. Another auction was held in 2020 for 900 MW.

Spain raised €1.5bn to finance 1.5 GW, the largest amount of onshore capacity. Some of these projects reached FID through long-term corporate PPAs.

Ireland, Belgium, Turkey and Greece all saw higher investments than previous years.

Along with Germany and France, we expect Spain to be a strong onshore market in coming years[4]. The Spanish National Energy and Climate Plan (detailing Member State plans for decarbonising their economies) is aiming for 50 GW of onshore capacity by 2050 with auctions of 1.5 GW taking place annually between 2021 and 2025. In early 2021, as part of this new auctions plan, 1 GW of capacity has already been awarded.

FIGURE 11
New offshore asset finance per country in 2020 (€bn and GW)



Source: WindEurope

In 2019 the largest offshore investment amount for a single country was France with €2.4bn. This year both the Netherlands and France doubled this amount, raising a very significant €5bn and €4.7bn for the financing of new offshore wind farms respectively. Since the CAPEX per MW for French offshore wind is higher than the Netherlands (for reasons indicated above), the capital raised financed less capacity (shown by the yellow marker). The UK raised the most capital (€13.2bn) and financed the most capacity (3.6 GW) in 2020.

4. For more information, see WindEurope's Market Outlook: https://windeurope.org/intelligence-platform/product/wind-energy-in-europe-in-2020-trends-and-statistics/

Photo: Sahara Frost / Shutterstock

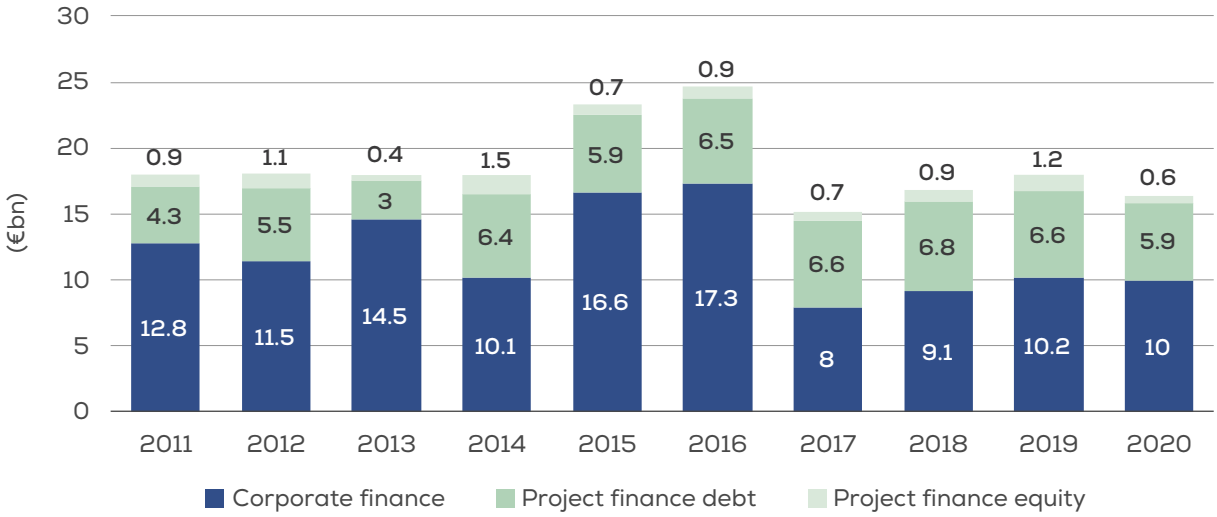
2. SOURCES OF FINANCE IN 2020

2.1 CORPORATE AND PROJECT FINANCE

Corporate finance transactions (where a company raises the capital to build a wind farm on its own balance sheet) typically account for 50-70% of the capital raised for onshore wind. In 2020 60% of the capital raised for onshore wind was financed on the balance sheet.

Economic uncertainty created by COVID has likely delayed wind farm investments as companies postpone investments that further impact their balance sheets. Additionally, if a company's credit rating deteriorates, it could increase financing costs and result in projects being delayed further or cancelled altogether. The data suggests, however, that there may have been delays to project financed onshore transactions as well, with the lowest amount raised on a project finance basis since 2015.

FIGURE 12
Onshore wind corporate and project financing 2011 - 2020 (€bn)



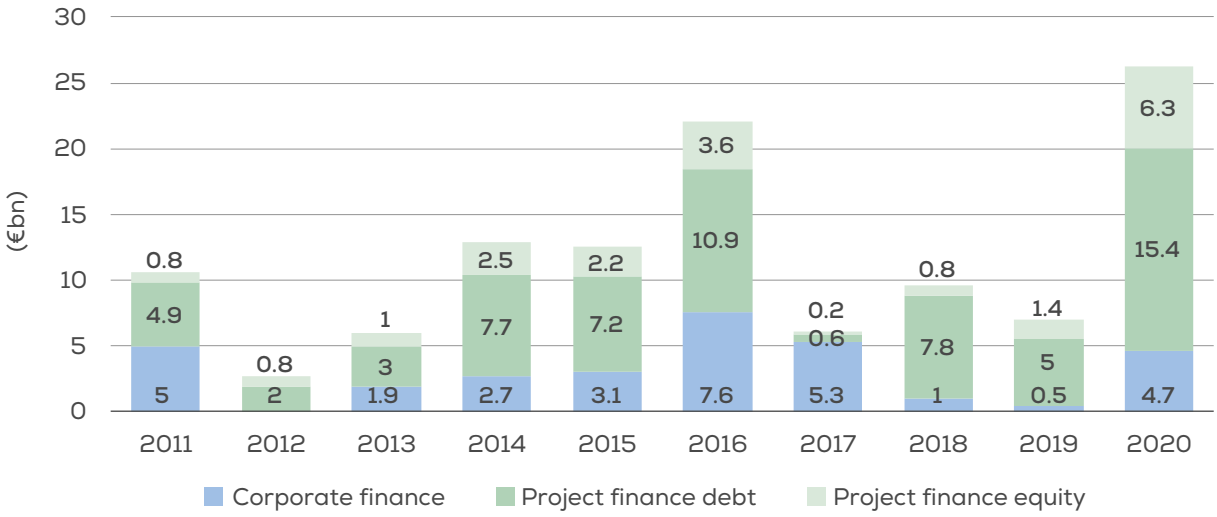
Source: WindEurope

After the high financing figures in 2015 and 2016 before the Feed-in-Tariff support schemes were phased-out in many countries, recent years have seen lower investments in onshore wind generally. The lower figures following the change in support have also been exacerbated by permitting issues in many countries in Europe. This is discussed in more detail in section 3.

Debt typically provides lower returns than equity since in the event of bankruptcy it is repaid before equity and is therefore a lower risk investment. From a project sponsor's point of view this means that raising debt is a cheaper method of financing than equity financing (particularly in the low interest rate environment). More mature technologies can raise more debt capital because banks understand and can price the risks, and a proven track record of successful projects increases confidence.

Onshore project financed investments have a high debt ratio reflecting technology maturity, and in 2020, debt accounted for over 90% of the capital raised on a project finance basis.

FIGURE 13
Offshore wind corporate and project financing 2011 - 2020 (€bn)



Source: WindEurope

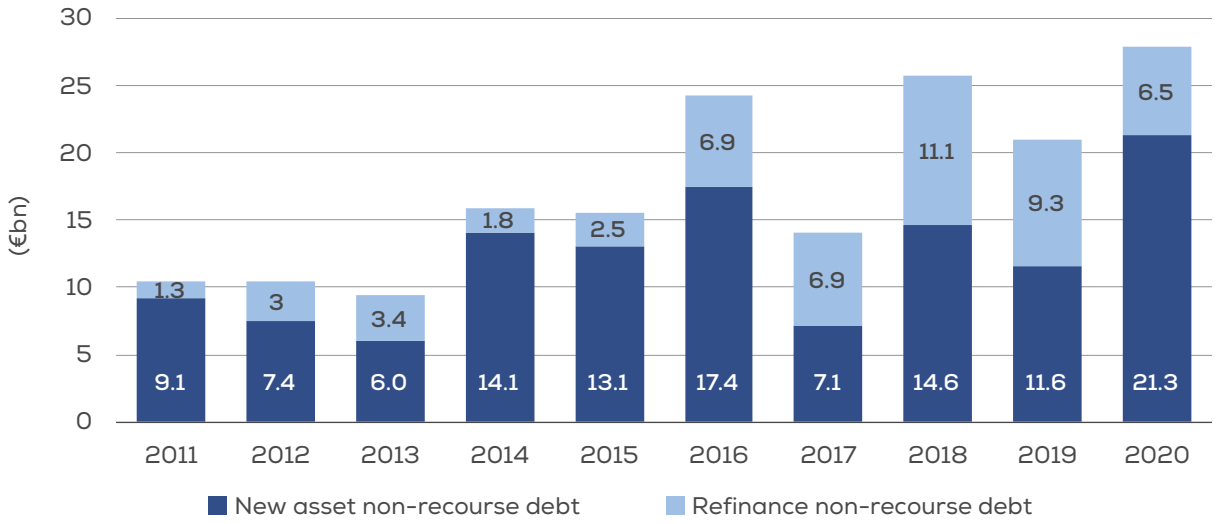
Offshore wind projects tend to be much larger than onshore projects and often lend themselves to project finance structures (very few developers are able to raise the required funds for such large projects on their own balance sheets). In 2020 €21.6bn worth of capital was raised on a project finance basis, representing 82% of the total.

Of the project finance transactions, debt accounted for 71% of the capital raised. This is lower than previous years but as with many statistics this year, the Dogger Bank transaction had a disproportionate impact here. The project raised €9.4bn and although this was financed with a record amount of debt (€6.5bn), the debt ratio was 69%, i.e. the sponsors also put forward €2.9bn in equity financing.

2.2 NON-RECOURSE DEBT

Non-recourse debt (debt raised on a project finance basis) has become more important in financing wind energy projects over recent years. New business and ownership models have diversified the pool of investors in wind energy and are unlocking the potential for long-term sources of finance from banks, institutional lenders and Export Credit Agencies (ECAs). This has led to a large amount of affordable debt, particularly in the form of non-recourse financing.

FIGURE 14
Non-recourse debt: new assets and refinancing 2011 - 2020 (€bn)



Source: WindEurope

2020 saw a record €27.8bn raised in non-recourse debt - €21.3bn for the construction of new projects and €6.5bn for the refinancing activities of wind farms.

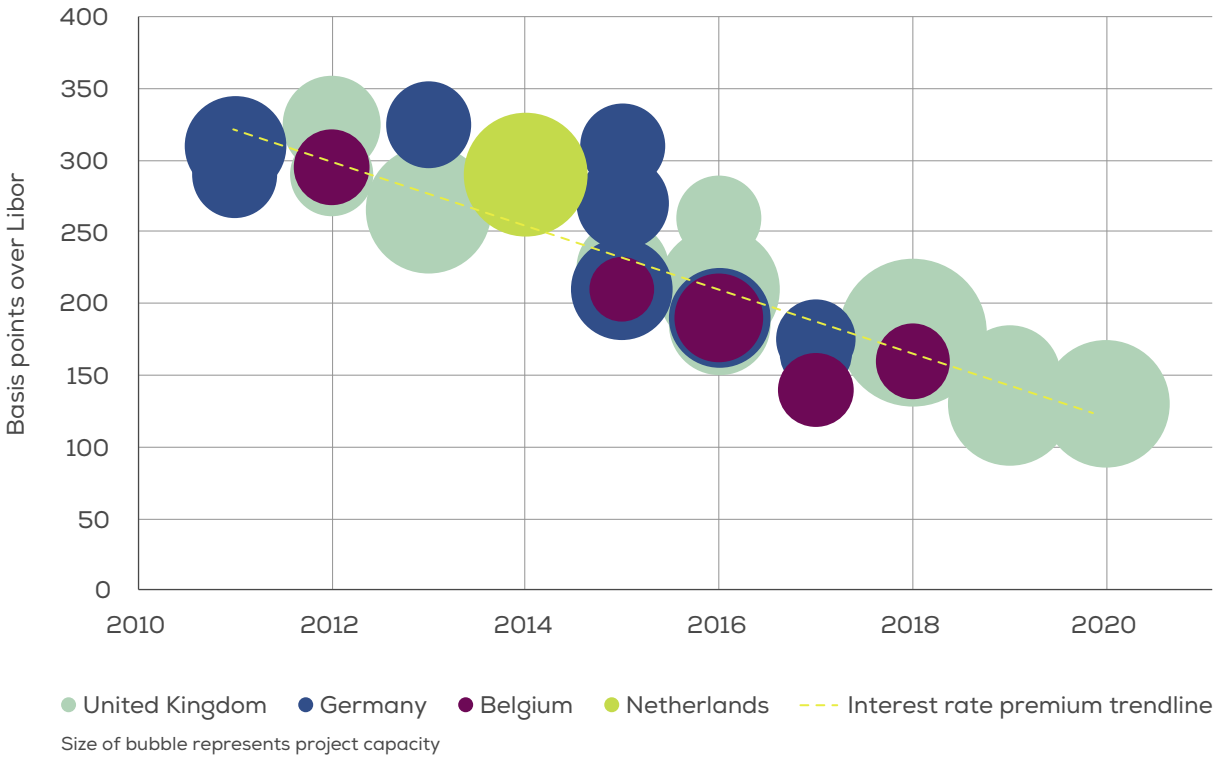
When a wind energy project is commissioned, its risk profile changes significantly. The risks present during construction are replaced by operational risks. This affects the probability of repaying lenders. In addition, lenders specialise in pricing risks at various stages of the development of a project. It is therefore common for a project to restructure its debts upon completion.

For example, banks might provide debt to cover the construction of the wind farm, which typically takes 1-2 years for onshore projects and 2-3 years for offshore wind projects. During this period the wind project is not producing any revenue. Additionally, there are risks such as losses from accidents or delays in construction (due to bad weather, for example). Once the wind farm has been commissioned, the risks of construction are transferred to operation.

Since there are fewer potential losses and risks for operational wind farms, they can attract better interest rates. The restructuring of debt in this way is known as refinancing.

FIGURE 15

Interest rates for offshore: basis points above LIBOR per MW financed 2010-2020



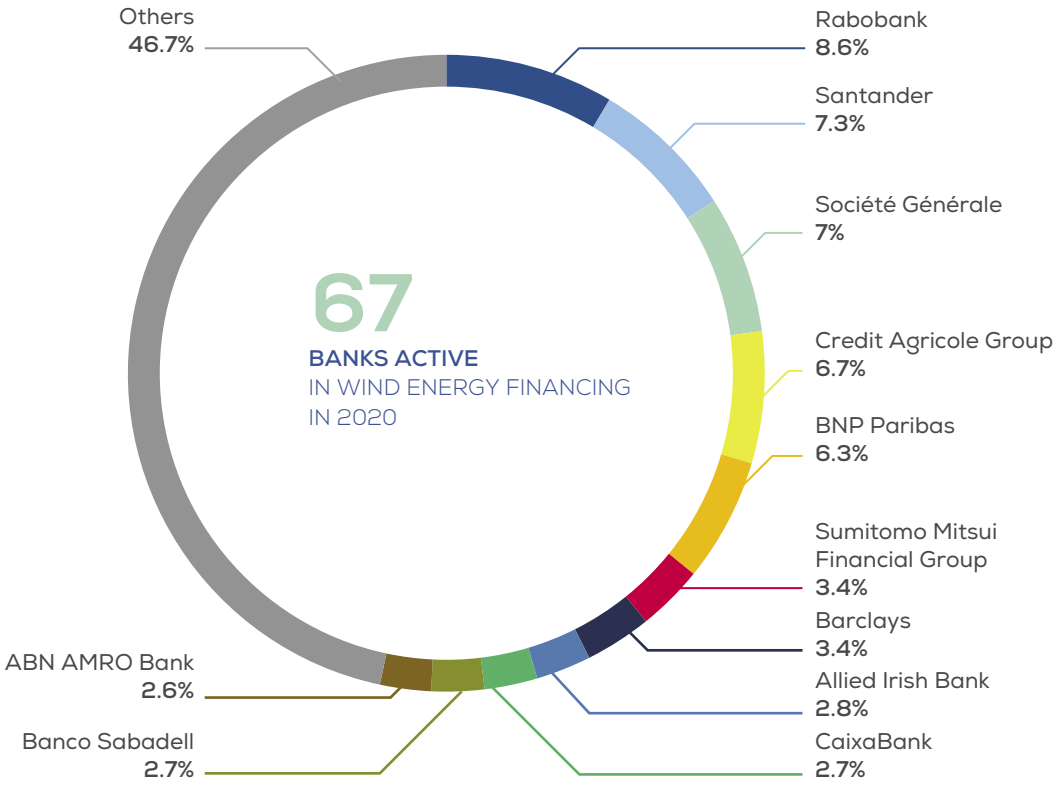
Source: WindEurope

The debt markets have supported construction activity on attractive terms, even in 2020, illustrating that the main drivers for interest rate premiums are technology maturity and long-term project risks and characteristics.

Transactions in 2020 continued to reflect the general trend of easing loan terms when it comes to pricing, maturity and tranche. The low interest rate environment continues to provide wind energy projects with competitive financing and low financing costs. The risk premium charged by lenders has been consistently falling as the offshore wind market matures, the technology's positive track record continues and lenders become more comfortable with the risks.

Over 67 lenders were active in 2020, slightly less than in 2019 (76). Lenders include multilateral financial institutions, export credit agencies and commercial banks.

FIGURE 16
Market share of banks in wind energy financing in 2020



Source: WindEurope

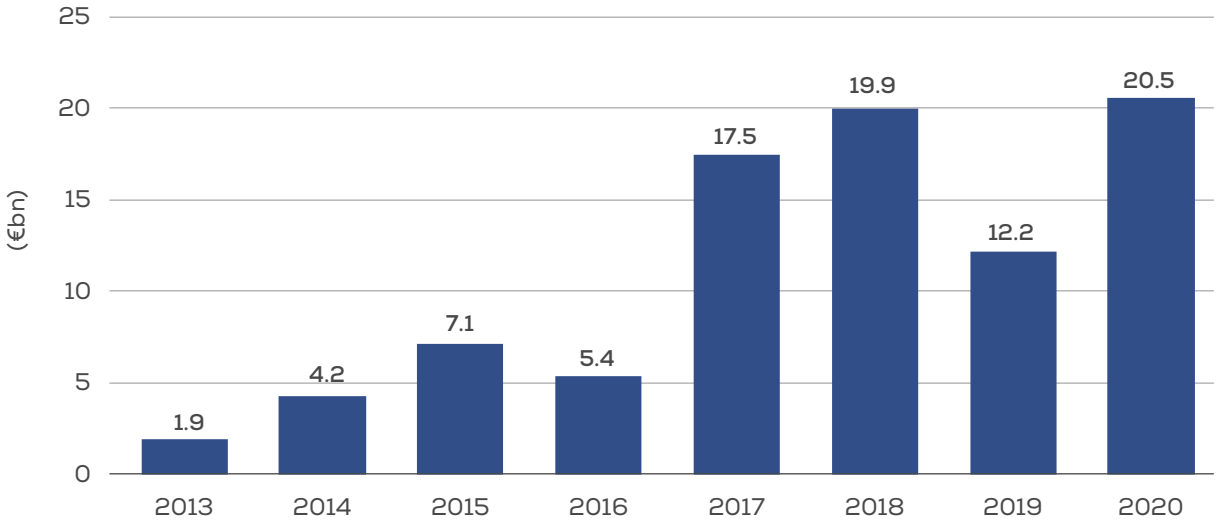
2.3 GREEN BONDS

Green bonds issued for the financing of wind energy projects and renewable portfolios (including wind energy projects) have seen steady growth overall since 2013, and 2020 was a record year with €20.5bn worth of capital raised.

The majority of the issuances came from corporate bonds, including over €5.3bn issued by banks, including ING, Allied Irish Banks, Commerzbank and Danske Bank, to finance and refinance their renewable energy portfolios.

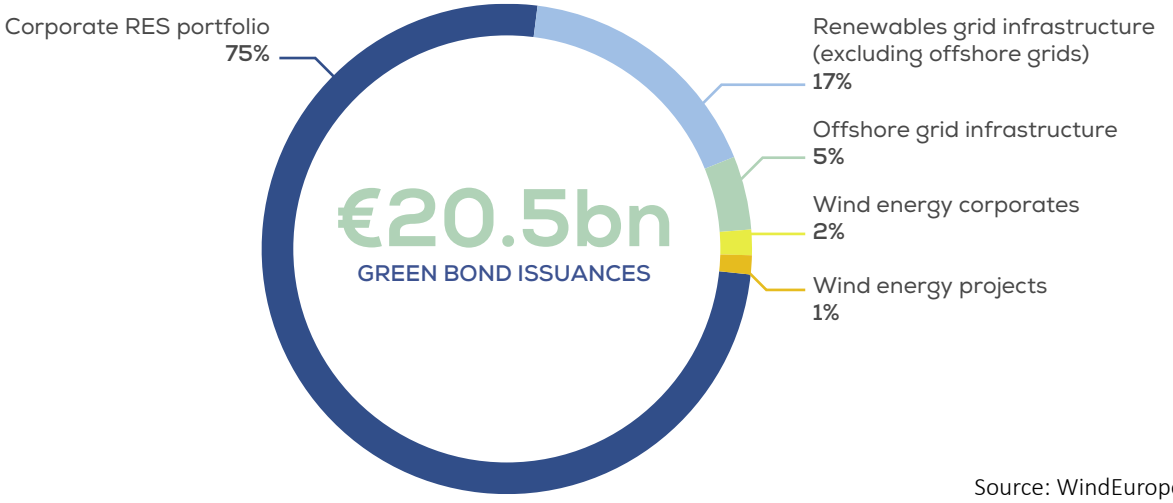
Some of the top individual issuers include ING (€2.6bn), EDF (€2.5bn), TenneT (€2.4bn) and E.ON (€2.2bn).

FIGURE 17
Green bond issuances 2013 - 2020 (€bn)



Source: WindEurope

FIGURE 18
Green bond issuances by technology in 2020



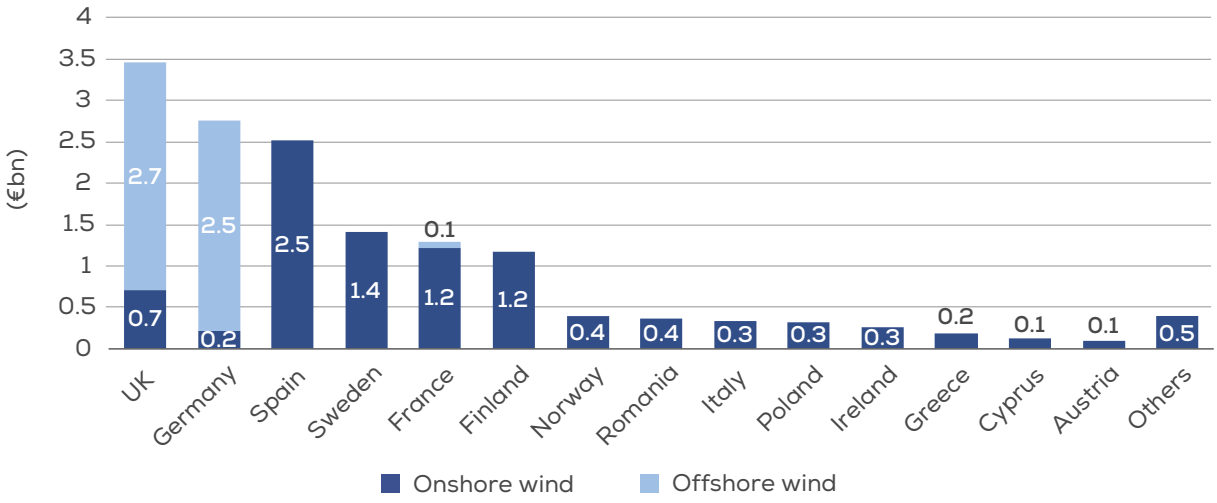
Source: WindEurope

Out of €20.5bn raised in green bonds, only €1.6bn (8%) of new issuances in 2020 came from companies exclusively operating in the wind industry, either through project or corporate bonds. Another 17% (€3.5bn) was raised to finance expansion and improvements in general grid infrastructure.

The remaining €15.5bn (76%) of green bonds were issued to finance corporate renewable energy portfolios which include wind energy but are not exclusively wind-based.

2.4 PROJECT ACQUISITIONS

FIGURE 19
Project acquisitions by country in 2020 (€bn)



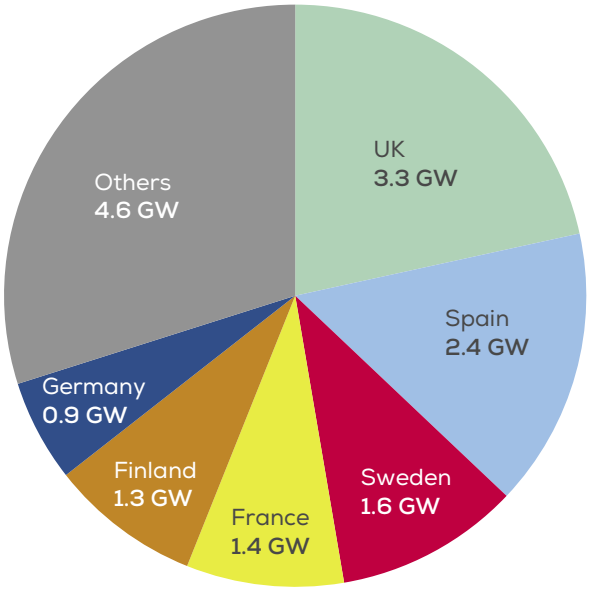
Source: WindEurope

In a project acquisition, an investor purchases (a share of) a wind farm. Wind energy projects can be acquired at any stage, from pre-development, through development and construction, to operational wind farms. The differing risks and characteristics of the various stages attract a wide range of investors.

Project acquisition activity in 2020 totalled €15.1bn, less than the previous two years (€17.5bn and €19.6bn in 2019 and 2018 respectively). It is possible that the lower figure in 2020 is to some extent a result of delays caused by market uncertainties, however equity investments were quick to recover after the initial shock brought on by COVID.

The UK market saw the most acquisition activity in monetary terms (€3.5bn) and capacity acquired (3.3 GW). Germany saw €2.8bn of project acquisition activity but less than 1 GW of capacity changed ownership. Spain was the market with most onshore wind acquisition activity, with €2.5bn of wind project equity investment.

FIGURE 20
Project acquisitions by country in 2020 (GW)



Source: WindEurope

In terms of the capacity, 15.5 GW of projects were acquired. The relative value of a wind farm depends on its stage of development. Wind farms gain value through the development stages and then there is a large increase in value during construction as tangible assets are installed. A wind farm is at its most valuable upon commissioning (there is some slow depreciation after that). Since Germany saw some of the highest acquisition activity in monetary terms but only 0.9 GW of capacity changed hands, we can infer that most of these acquisitions were for operational (or late construction) projects. Indeed, (shares of) a number large operational offshore wind farms changed hands, including Merkur (396 MW) and Borkum Riffgrund 2 (450 MW). In contrast, acquisitions of UK wind farms are more likely on average to have happened at an earlier stage of development.

2.5 CORPORATE RENEWABLE PPAs

The corporate sourcing of renewable electricity via Power Purchase Agreements (PPAs) has been growing steadily since 2015. Corporates have a variety of different motives to source power from renewables, but the possibility to lower and fix electricity costs is a major part of the rationale for these deals. A recent survey of 1,200 companies across six countries showed that, of those sourcing renewables, 92% of them are doing so to reduce energy costs[5].

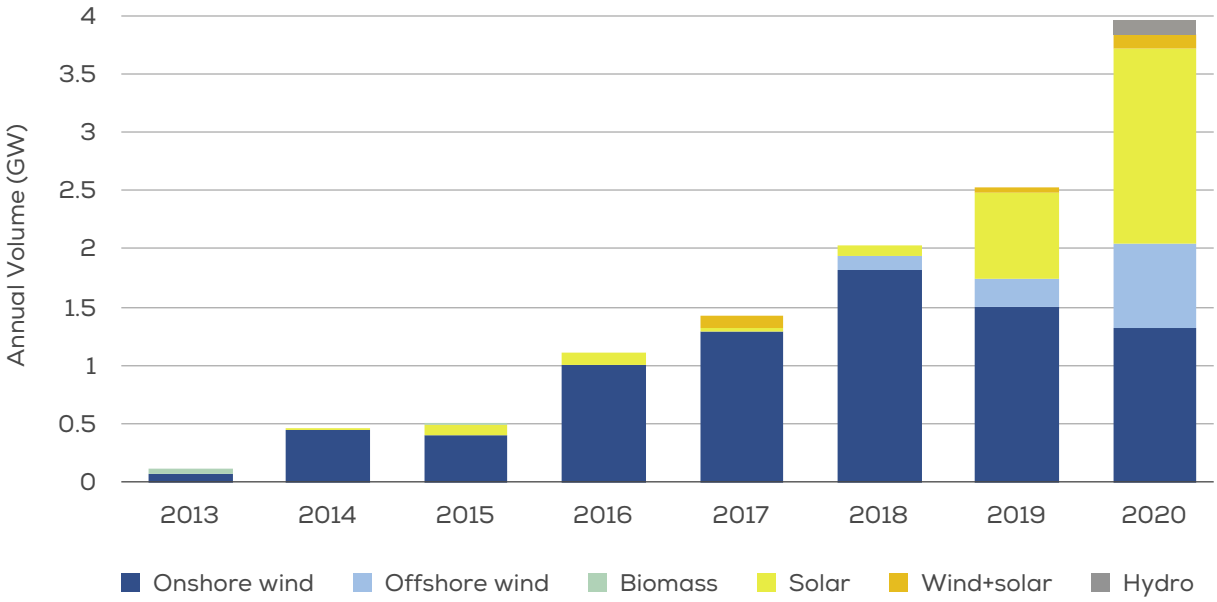
Despite the challenging conditions, 2020 was another record for contracted volumes of renewable electricity via corporate PPAs in Europe, with almost 4 GW in wind, solar and other renewable projects. It was also a record for the number of deals finalised in a year with 51 in total, including 24 signed for wind energy (of which 6 were for offshore wind) and 24 for solar.

Until 2018, wind accounted for 90% of the contracted capacity in Europe but the last couple of years has seen a rapid expansion in solar PPAs which has really helped drive the market growth. In 2020, wind accounted for just over half of the contracted capacity, and cumulatively, wind makes up 74% of the contracted capacity in Europe.

Wind energy is very well placed to accommodate corporates' needs for renewable electricity due to its modular scale, cost-competitiveness and low risk profile.

5. BayWa r.e. Energy Report 2019, published in partnership with the RE-Source Platform. Available here: https://www.baywa-re.de/en/energy-report-2019/

FIGURE 21
Renewable energy corporate sourcing through PPAs (GW)

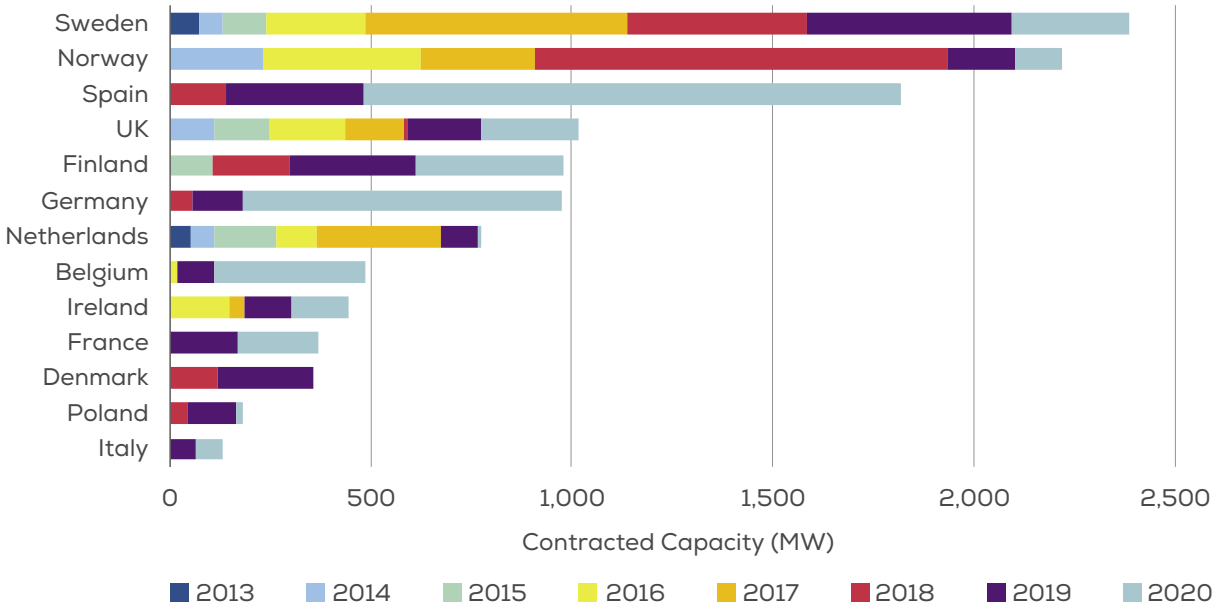


Source: WindEurope

Corporate renewable PPAs also come with certain benefits for generators. Price visibility over a long period of time and a guaranteed off-taker are important to lower the cost of debt financing. Lenders would typically need downside protection (a floor) in project revenues to ensure debt repayment obligations are met. As such, they tend to prefer lower revenues over a long period of time – matching the loan term – rather than higher but uncertain revenues.

Recent years have seen the development of offshore wind PPAs from the first in 2018 for a proportion of the capacity of Kriegers Flak in the Netherlands, to at least nine offshore wind farms signing corporate PPAs to date in the Netherlands, Belgium, Germany and the UK. Offshore developers look to corporate PPAs for revenue stability, allowing them to free up risk capital (if financing projects on their balance sheet) or to finance a higher proportion of the costs with cheap debt. Over 700 MW of offshore capacity was contracted in 2020, almost 20% of the total.

FIGURE 22
Renewable energy corporate PPAs by country (MW)

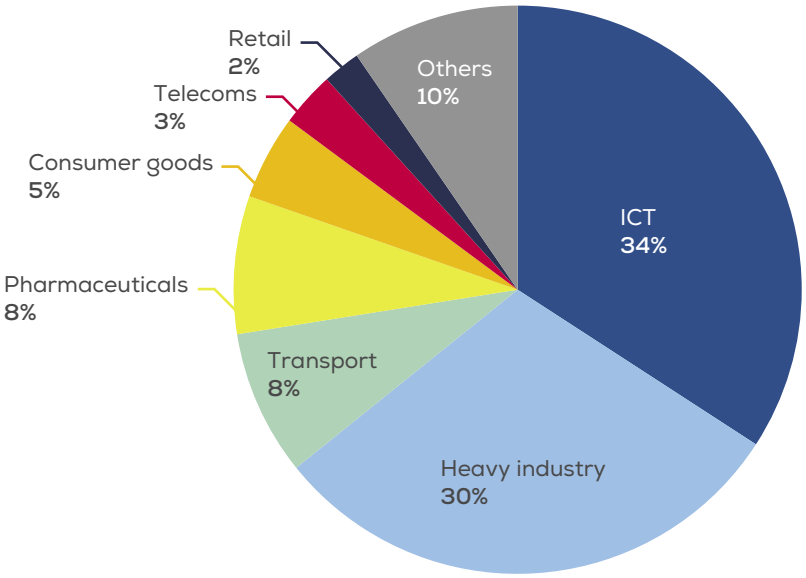


Source: WindEurope

Typically, the Nordic region, followed by the UK and the Netherlands, were the biggest markets for these deals. However in 2020, Spain, Germany and Belgium signed significant volumes of PPAs. Spain in particular contracted more than 1.3 GW with over 1 GW of solar PPAs.

PPAs are being signed by more companies, across more sectors and more countries and will play an increasingly important role in meeting corporate demand for renewable electricity as well as supporting the finance and build-out of renewable energy in Europe.

FIGURE 23
Cumulative renewable energy corporate PPAs by sector in Europe (MW)



Source: WindEurope

Demand for renewable electricity comes from a wide variety of industrial sectors and recent years have seen a diversification in off-takers signing PPAs. Heavy industry and ICT have contracted the majority of corporate renewable PPAs in Europe.

In 2020 Amazon announced seven new PPAs totalling 850 MW for wind and solar across six countries (France, Germany, Ireland, Italy, Sweden, and the UK). This means they have now contracted more PPA capacity in Europe than any other corporate.

The chemicals industry has started to fully engage the renewables sector and are looking for renewable projects to partner with. Decarbonising energy intensive industries is key to decarbonising the European economy and it is great to see the progress being made. In 2020, just under 500 MW of renewable energy was contracted by chemicals companies alone, a major achievement considering the first chemicals PPA was only signed in 2019.

A number of other sectors saw significant volumes of contracted PPA capacity in 2020. The pharmaceuticals sector, including Bayer and Novartis, signed over 900 MW and the telecommunications sector, including Orange, Telefonica, and Vodafone, contracted over 340 MW of renewable power capacity.

Photo: Natascha Kaukorat / Shutterstock

3. WIND ENERGY FINANCE POLICY

3.1 FIT FOR 55

In December 2019 European Commission President Ursula von der Leyen unveiled the European Green Deal, the headline political project of the new European Commission (2019-2024). It aims to respond to EU citizens' demands for politicians to act on the global climate crisis through concrete measures (i.e. legislation and funding), backing Europe's ambition to become the first carbon-neutral continent by 2050.

The increased reduction target of at least 55% of GHG emissions will trigger an upward revision of the EU's 2030 renewable energy target from 32% today to 38%-40% according to the European Commission's Impact Assessment.

This will require an increase of approximately 90 GW of wind energy capacity on top of what Member States have already pledged in their 2030 National Energy & Climate Plans. In order to deliver the higher target, the EU should aim to install 27 GW per year between 2021 and 2030.

But the EU built just 10.5 GW of new wind energy capacity in 2020 and WindEurope expects the installation pace to only increase to 15 GW per year in the period 2021-2025 [6].

The issue is not financing, providing we have the right auction model and corporate PPAs can play a role (see Revenue Stabilisation below), there should be plenty of capital available to finance the required build out of wind energy. However, current policies will not deliver these numbers And permitting issues must be resolved to get us back on track.

The 'Fit for 55' package, the legislation to update the EU's Climate and Energy policy from the previous target of 40% to the new 55% GHG emissions reduction target, needs to address legislative bottlenecks to the cost-effective delivery of the EU's Climate & Energy targets.

Climate neutrality by 2050 is not a pipe dream - it is possible if we get things right, as presented in the following chapters.

6. For more information, see WindEurope's Market Outlook: https://windeurope.org/intelligence-platform/product/wind-energy-in-europe-in-2020-trends-and-statistics/

3.2 REVENUE STABILITY

Wind farms require high upfront investment, but they have very low running costs. This makes financing a very significant share of their overall cost. For a wind farm whose revenues are created by selling power on the market without any form of revenue stabilisation, i.e. a merchant project, these costs could be as high as 60% of the total lifetime costs[7].

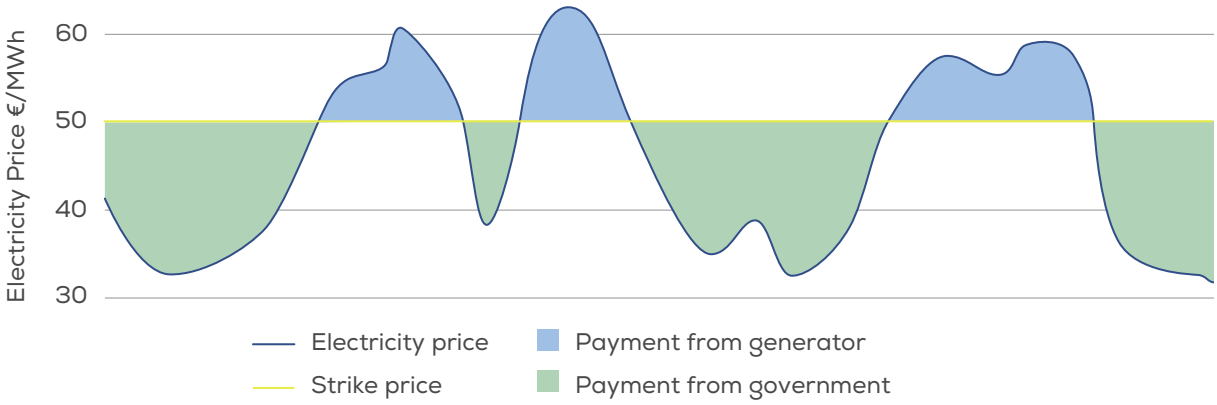
Thus it is essential to minimise finance costs to ensure the viability of projects Having a predictable income from stable revenues is the most important factor to minimise financing costs for wind farms.

TWO-SIDED CONTRACTS-FOR-DIFFERENCE (CFDs)

Governments award 2-sided CfDs in competitive auctions. They offer wind farms a fixed strike price (the lowest price resulting from the auction) for the electricity they produce. When the electricity price is higher than the strike price, the wind farm pays the Government the difference. When the electricity price is lower than the strike price, the Government pays the difference to the wind farm.

In the example below, the wind farm developer, or wind farm in a special purpose vehicle (SPV) structure, has support from a 2-sided CfD with strike price of €50 per MWh. For every MWh produced by the wind farm, the developer will receive €50 regardless of the market price of electricity.

FIGURE 24
Revenue stabilisation from two-sided CfD



Source: WindEurope

In this way, governments accept the market electricity price-risk and this allows developers/SPVs to accurately predict future revenues (wind forecasting is very accurate over large periods of time). Over the lifetime of a wind farm, a government can break even or potentially make a profit – especially as the cost of wind continues to fall and developers bid into the auction at lower strike prices. This means that the 2-sided CfD is not a subsidy, it is a revenue stabilisation mechanism which can support renewables.

In addition, a wind farm benefiting from a 2-sided CfD will still have to bid into the spot electricity market. As they bid at costs close to zero (reflecting their marginal production cost), they will bring down the final cost of energy (the merit order effect), benefiting all energy consumers.

7. WACC 10%, CAPEX €2.5m, lifetime 25 years, Capacity Factor 50%

Because wind farms that are supported by a 2-sided CfD can predict their future revenues very accurately, banks can be confident that they will be able to fulfil their loan repayment obligations over the period of support. They are therefore willing to lend more debt to the project, even up to 80% of the upfront cost, to build a wind farm. This is important because debt is a cheaper way of financing projects than equity, so generally speaking, the higher the proportion in debt financing for a project, the lower the weighted average cost of capital (WACC), and the cheaper the wind energy project is to build.

Where there is exposure to (fluctuating and market-driven) market prices for electricity, bank lending can be limited to 25% of the total amount needed to build a wind farm. The rest of the capital will need to be financed by equity, a much more expensive way to raise money as the expected returns are higher. This makes a huge difference to the costs of financing wind energy projects.

An offshore wind farm supported by a 2-sided CfD has a typical electricity cost of €50-€60/MWh. In contrast, a fully merchant offshore wind farm (without such support) might have an electricity cost as high as €90/MWh over the lifetime of the project[8].

Under the CfD (assuming 15-year support and an operational lifetime of 25 years), financing costs are likely to be about a third of the overall lifetime project costs.

CORPORATE PPAs

Corporate renewable PPAs can also provide revenue stabilisation if an off-taker agrees a fixed price for the electricity in a long-term contract (or at least if the agreement has some element of price certainty for the developer). In the same way as above, the revenue stability provided by the price certainty can reduce financing costs, either by facilitating higher proportions of debt financing, or if financed on the balance sheet, by reducing the amount of risk capital required to be held in reserve, allowing the developer to finance more renewable projects.

As discussed in section 2, corporate renewable PPAs are taking off in Europe with the market increasing by 50% in 2020 alone. This is driven by increased demand for renewable electricity from corporates and developers increasingly looking to secure their revenues in the absence of enough government revenue stability mechanisms.

For Europe to meet its decarbonisation objectives, wind energy and other renewables will play a major role. PPAs will be crucial in facilitating the build-out of renewables and allowing the corporate and industrial sector to play their part in the energy transition. But they cannot deliver the required volumes needed to meet our climate goals alone.

8. Based on estimates of the German offshore wind market carried out by Green Giraffe

3.3 PERMITTING

The EU is not installing enough onshore wind energy to meet its current target of a 40% reduction in GHG emissions, let alone the revised target. According to the National Energy and Climate Plans, to meet the 2030 40% GHG emissions target the EU would need to be installing 12.8 GW of onshore wind capacity per year between 2021 and 2030. For the revised target of 55% reductions, this increases to over 22 GW per year. But in 2020, only 8 GW were installed and only 12.5 GW of new onshore capacity was financed.

The problem for onshore project developments is not technology, finance or costs. It is permitting. Europe is simply not permitting enough new wind farms to meet its renewable energy targets. Raising the EU 2030 renewable energy target will make no difference if we do not address the permitting bottlenecks.

It is too difficult to get permits for new and repowered wind farms in Europe today because:

- **Rules are complex.** There are more and more spatial planning constraints e.g. minimum distance to housing, tip/hub height restrictions, exclusion zones around radar installations or in Natura 2000 sites.
- **Procedures are slow.** There are too many administrative authorities involved at a national, regional and municipal level. Most EU countries still don't have a single contact point (i.e. one-stop-shop) to expedite the permitting process and legal challenges can add months of delays.
- **Permitting authorities are not adequately staffed.** Authorities at all levels lack sufficient digital and/or human resources to process the growing number of permitting applications.

Permitting issues delay project development and add to development costs and risks, deterring potential developers from bidding into auctions. As a result not enough projects are being built - in Germany, for example, six out of the seven onshore wind auctions held in 2020 were undersubscribed. Only 2.7 GW out of the 3.9 GW on offer were awarded. This has been an ongoing pattern since 2018, when new Government rules required bidding projects to have construction permits in place. Less competition in auctions also leads to higher awarded prices.

The Commission should support the implementation of simpler and faster permitting rules and procedures in the Renewable Energy Directive, setting out benchmarks for good practices on permitting. This would support National Governments in identifying and addressing specific challenges in their approach to permitting and would support them in the delivery of the 2030 National Energy & Climate Plans.

3.4 RECOVERY AND RESILIENCE PLANS

To help recover the economic consequences of COVID the European Commission, Parliament and EU leaders have agreed a funding package, NextGenerationEU[9]. Together with the next period budget (2021-2027), the EU has put forward €1.8tn, the largest ever stimulus package, to rebuild greener, more digital and more resilient than before.

As part of NextGenerationEU, the EU has agreed to allocate €673bn to the Union's recovery and resilience facility, the funding being distributed to Member States according to their Recovery & Resilience Plans (RRPs). The funding will be in the form of grants and loans where grants are being allocated and loans (up to 6.7% of national income) are available to Member States upon request (draft RRPs have to be submitted to the Commission by 30 April 2021).

37% of the funding in each RRP must be allocated to projects that help in the fight against climate change.

WindEurope has made specific recommendations[10] about which type of projects Governments should prioritise.

9. https://ec.europa.eu/info/strategy/eu-budget/long-term-eu-budget/2021-2027/whats-new_en
10. https://windeurope.org/intelligence-platform/product/infographic-making-the-most-of-the-eu-s-recovery-and-resilience-facility/#infographics

HOW CAN YOU ENSURE THAT YOUR COUNTRY MAKES THE MOST OF THE EU'S RECOVERY & RESILIENCE FACILITY?

TALK TO YOUR GOVERNMENT

MAKE CONCRETE PROPOSALS

EXAMPLES OF PROJECTS THAT CAN BENEFIT FROM RECOVERY & RESILIENCE GRANTS, LOANS AND GUARANTEES

- T&D grid infrastructure
- Increased staffing of permitting authorities
- Renewable hydrogen infrastructure
- EV charging infrastructure, storage, batteries
- Scaling up floating offshore wind
- R&D in wind energy, including recycling
- Ports and road infrastructure
- Renewable energy manufacturing capacity
- Spatial planning, feasibility studies when necessary
- Loan & guarantee facilities to support:
  - local banks' lending
  - national export credit agencies
  - counterparty risk to those signing PPAs

3.5 NATIONAL AND INTERNATIONAL DEVELOPMENT BANKS

National development banks (NDBs) can play an important role in wind energy financing. They are well positioned to manage transformational change and reorient cashflows to investments which are in line with the goals of the Paris Agreement.

NDBs can support investments in renewable energy, not just through direct funding but also by crowding in private financing. They often have long-term relationships with the local private sector and understand local barriers, risks and opportunities. Furthermore, with a wealth of experience in long-term investments and the ability to secure finance with longer maturities and at cheaper rates than private investors, they can provide lower-cost, longer-term financing for investments and co-investment.

According to a report by the Overseas Development Institute (ODI)[11], NDBs now have a dual role of public financiers and mobilisers, and facilitators of private finance for investments, but that they are not yet realising their full potential in driving support for the energy transition.

THE EUROPEAN INVESTMENT BANK (EIB)

The EIB provided €24.2bn in 2020 to fight climate change globally and will support €1 trillion of investment in climate action and sustainability between 2021 and 2030, increasing its share of financing in this area to 50% in 2025 and from then on.

The EIB will support the implementation of the European Sustainable Investment plan, contributing to InvestEU through the InvestEU Guarantee, the Just Transition Fund and through grants, loans and advisory services.

Analysis of the European Fund for Strategic Investments (EFSI) which ran from 2015-2019 showed that EIB investments in wind energy leverage four times the amount of private investment. EIB support is particularly impactful for projects with less mature technologies and higher financing risks, such as floating offshore wind, by derisking financing and attracting private investment.

THE EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (EBRD)

The EBRD was founded in 1991 in the wake of the dissolution of the Soviet Union with the aim of supporting the private sector in former Eastern Bloc countries by providing project finance to banks, industries and businesses. Its remit has since been expanded from supporting market economies in the former Eastern Bloc to more than 30 countries from central Europe to central Asia.

The EBRD was the first multilateral development bank to have an environmental mandate in its charter and has supported the wind industry with €1.6bn in investment support for wind energy projects - €1.5bn in the form of debt and guarantees and a further €125m in the form of direct equity investments.

It continues to play an important role in the wind energy sector and for renewables in general, from providing support for the development of offshore wind in Greece to working on auction design in Serbia and grid development in Croatia.

11. https://www.odi.org/sites/odi.org.uk/files/resource-documents/200124_ndbs_web.pdf

3.6 SUSTAINABLE FINANCE

As part of the Green Deal described in section 3.3 above, the European Commission has put forward the European Sustainable Investment Plan which aims to unlock €1tn of sustainable investments over the next decade. A sustainable finance framework is key to managing Europe's decarbonisation goals by reorienting capital flows towards sustainable investment, mainstreaming sustainability into risk management practices and fostering transparency and long-termism.

The European Commission has developed an action plan on sustainable finance with key steps such as establishing a clear and detailed EU classification system (taxonomy) for sustainable activities, establishing EU labels for green financial products and strengthening transparency of companies' environment, social and governance (ESG) policies.

EU CLASSIFICATION FOR SUSTAINABLE ACTIVITIES – THE TAXONOMY

Demand for green or sustainable investments has been increasing in recent years, but there is currently no common definition of what constitutes sustainable activities or investments.

The objective of the Taxonomy is to provide clarity and transparency on environmental sustainability to investors, financial institutions and companies to enable informed decision-making and foster investments in environmentally sustainable activities.

The Taxonomy will not only apply to green sectors but will also set thresholds to enable the transition of polluting sectors. Where possible, these thresholds will be built on existing market practices and will take into account the latest policy and technological developments and innovations. For an economic activity to be on the list of sustainable activities it must comply with four conditions:

1. **Substantially contributes to one of the 6 environmental objectives:**

- Climate change mitigation;
- Climate change adaptation;
- Sustainable use and protection of water and marine resources;
- Transition to a circular economy, waste prevention and recycling;
- Pollution prevention and control; and
- Protection of healthy ecosystems.

2. **Does no significant harm to any of the objectives in 1.**

3. **Complies with minimum social safeguards.**

4. **Complies with quantitative or qualitative Technical Screening Criteria.**

Technical screening criteria allow precise and granular determination of which activities in a given economic sector would qualify as sustainable.

The Taxonomy Regulation was formally approved by the European Parliament in June 2020. The Commission must now define technical screening criteria for each environmental objective and this is set to be a challenging task. It must firstly ensure that the Taxonomy meets its original objective as the worldwide gold standard for sustainable investments on one side, whilst also bringing on board Member States which believe that more efficient fossil fuels and other low carbon technologies should be considered sustainable if they contribute to the transition to a carbon neutral economy.

GLOSSARY

- **Asset finance:** includes all infrastructure investments in onshore and offshore wind farms, including refinancing transactions.
- **New asset finance:** includes all infrastructure investments in the construction of new onshore and offshore wind farms, excluding refinancing transactions.
- **Final Investment Decision (FID):** the final decision to go ahead with the project once the permitting and financial arrangements are in place.
- **Capital markets:** refers to activities that gather funds from the issuance of shares and bonds.
- **Venture capital and private equity (VC/PE):** refers to the provision of long-term equity financing to emerging companies as a direct investment.
- **Mergers and acquisitions:** includes company merges and acquisitions as well as the acquisition of interest in onshore and offshore wind projects.
- **Corporate finance / on-balance sheet financing:** includes all investments in wind power generating and transmission assets financed either through the equity of project owners or through debt raised at corporate level.
- **Project finance / off-balance sheet financing:** includes all investments in wind power generating and transmission assets where the project debt and equity used to finance the project are paid back from the cash flow generated by the project (as opposed to the balance sheet of project owners). To this end, projects are a spin-off as a separate entity.
- **Non-recourse debt:** debt raised in project finance transactions.
- **Syndicated loan:** a loan provided and structured by a group of lenders.
- **Green bond:** corporate bond, the proceedings of which are used to finance a portfolio of renewable energy projects. Unless specified, the use of money is often unallocated.
- **South East Europe (SEE):** geographical region of Europe including Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo, North Macedonia, Romania, Serbia and Slovenia.
- **Project bond:** includes bonds issued at project level, the proceedings of which are used to finance a specific project.
- **Initial Public Offering (IPO):** the very first sale of stock issued by a company.
- **Corporate renewable power purchase agreement (PPA):** a long-term bilateral agreement for the purchase of power from a specific renewable energy project, where the power off-taker is a corporate as opposed to a power producer.
- **Weighted Average Cost of Capital (WACC):** the WACC is calculated as the weighted average of the cost of debt (the interest rate charged by lenders), the cost of equity (compensation required by shareholders for bearing risk of ownership) and the cost of any other category of capital (preferred stock, long-term debt etc.). It represents the cost to a business of raising capital and is a measure used to assess whether to invest in a new project.

WindEurope is the voice of the wind industry, actively promoting wind power in Europe and worldwide. It has over 400 members with headquarters in more than 35 countries, including the leading wind turbine manufacturers, component suppliers, research institutes, national wind energy associations, developers, contractors, electricity providers, financial institutions, insurance companies and consultants. This combined strength makes WindEurope Europe's largest and most powerful wind energy network.

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