

# SustainaWeekly

## Wind turbine costs threaten speed of transition

- ▶ **Strategy Theme:** Costs related to the manufacturing of wind turbines have been following an upward trend for a while now, fuelled by higher metal prices and freight costs. This not only negatively impacts the margins of European manufacturers but also jeopardizes the pace in which wind capacity in Europe (and the world) grows.
- ▶ **Economics Theme:** The drive to decarbonize the economy affects all sectors including shipping, but for the shipping industry it will be an enormous challenge. The International Maritime Organization (IMO) and the European Commission have set ambitions. The IMO aims to agree on a revised strategy with more ambitious targets in spring 2023.
- ▶ **ESG Bonds:** Tennet issued last week the largest EUR corporate green bond ever. Berlin Hyp completed its ESG credentials by issuing an inaugural social bond, with proceeds being used to finance affordable houses that are also within the energetically best 70% of the national residential building stock. La Banque Postale SFH came out with a debut green covered bond and announced it is currently working to update its existing Framework in order to align with the EU Taxonomy.
- ▶ **ESG in figures:** In a regular section of our weekly, we present a chart book on some of the key indicators for ESG financing and the energy transition.

In this edition of the SustainaWeekly, we start by looking into the challenges of decarbonizing the shipping sector. Several organizations such as the International Maritime Organization (IMO) and the European Commission have set ambitions to reduce emissions, but the path to decarbonize shipping is likely to be a long one. We go on to examine the costs for the manufacturing of wind turbines, which have recently reached all-time highs. In China, however, these costs seem to be following a downward trend. Higher manufacturing costs impact the profitability of wind turbine manufacturers and also delay the growth of installed capacity for wind energy. Finally, we look at the new ESG bond issuance from Financial and Corporate issuers seen last week. Enjoy the read and, as always, let us know if you have any feedback!

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## Decarbonization ambitions for shipping

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- ▶ **The drive to decarbonize the economy affects all sectors including shipping...**
- ▶ **...but for the shipping industry it will be an enormous challenge**
- ▶ **The International Maritime Organization (IMO) and the European Commission have set ambitions**
- ▶ **The IMO aims to agree on a revised strategy with more ambitious targets in spring 2023**

### Introduction

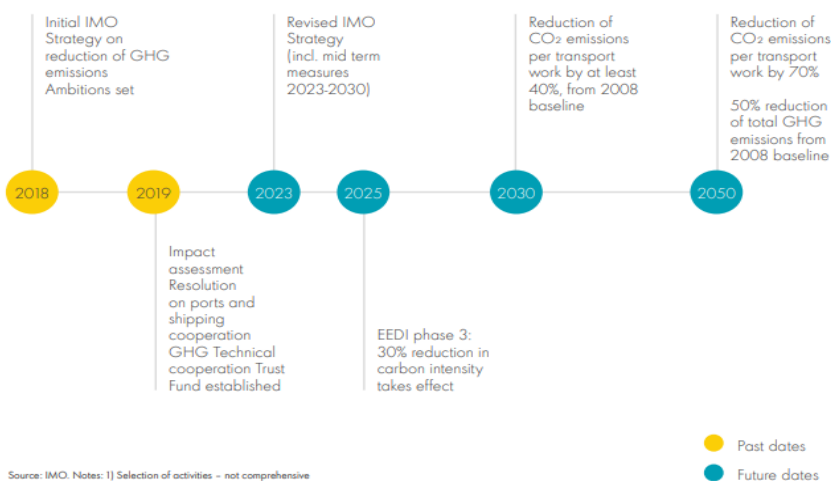
Shipping is a capital-intensive industry characterized by large, long-life assets (vessels and bunkering infrastructure 20-30 years), thin margins and a high-dependence on a global supply of energy-dense fuels. Ship owners are cautiously watching developments on the regulation front (more on this below) regarding the direction of decarbonisation. They would like to avoid that they invest in a vessel with new technology and having the risk that this new technology is subsequently punished by a shift in regulation. So, it takes time to decide to change the shipping portfolio by investing in new vessels. The proportion of fuel costs in the operating costs of ships can range from around 35% of the freight rate of a small tanker to around 53% for container/bulk vessels. Moreover, the price differential between conventional marine fuels of fossil origin and renewable low-carbon fuels remains high. Furthermore, there are no commercially viable zero-emissions technologies especially for deep shipping that accounts for 85% of emissions. For short routes and smaller vessels, a battery may be an option.

The shipping industry has to play a role in achieving a net zero pathway, which would limit warming to 1.5 degrees. However, due to the factors discussed above, the path to decarbonize shipping is likely to be a long one. The shipping industry is tied to several regulations and ambitions of a number of organizations such as the ambition of the International Maritime Organization (IMO), and the Poseidon principles and the European Commission's Fit for 55. We set out the ambitions of these organizations.

### UN International Maritime Organization

The International Maritime Organization (IMO) is the UN specialized agency responsible for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships. In 2018 the IMO set decarbonization targets and the IMO is aligned with the UN's sustainable development goals. The IMO has the ambition to reduce the shipping industry's greenhouse gas emissions by at least 50% by 2050 (to around 470 Mt CO<sub>2</sub> equivalent) and to reduce the carbon intensity of emissions by 40% by 2030 and 70% by 2050 compared to 2008 levels (from round 940 Mt CO<sub>2</sub> equivalent). For the timeline see the graph below. For the 1.5-degree pathway, steeper reduction targets need to be set and the IMO has recognized this.

#### IMO Timetable to reduce GHG emissions



Source: IMO

At the Marine Environment Protection Committee meeting (MEPC 76) in June 2021, the IMO adopted new requirements for Energy Efficiency of Existing Ships (EEXI), a Carbon Intensity Indicator (CII) and an Enhanced Ship Energy Efficiency Management Plan (SEEMP) Part III effective from 1 January 2023. The EEXI requirement is a technical measure for existing ships similar to the EEDI requirements for newbuilds that have been in force since 2013, whereas the new CII requirement is an operational measure that will get stricter and stricter each year from 2023 to 2030 to ensure international shipping follows the decarbonization strategy that was adopted by IMO in 2018.

At the IMO Marine Environment Protection Committee meeting (MEPC 77) from 22 to 26 November 2021, held in the wake of the COP26 event in Glasgow, the IMO commenced the review of the initial IMO Strategy on GHG emissions reduction for ships. There was general consensus that, to stay consistent with the 1.5 degrees Celsius goal of the UN Paris Agreement, international shipping needs to accelerate the decarbonization and target zero GHG emissions or at least net-zero CO<sub>2</sub> emission by 2050. The discussions will continue at IMO with the aim to agree on a revised strategy at the MEPC 80 meeting in 2023. More research and the Technological Readiness Level (TRL) of new technologies, innovative design solutions and alternative fuels need to be sufficiently advanced to be adopted for new ship designs and retrofit for existing vessels as soon as possible prior to 2030.

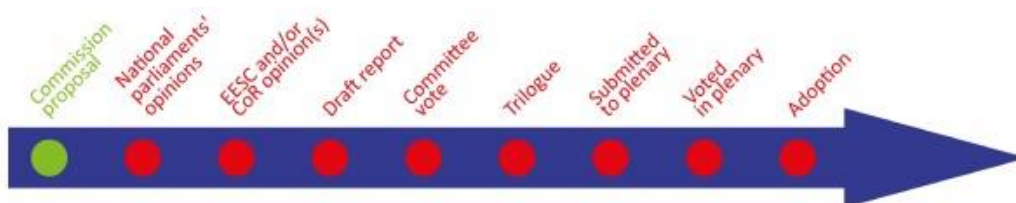
### Poseidon Principles

The Poseidon Principles provide a global framework for integrating climate considerations into lending decisions to promote international shipping decarbonization. The Poseidon Principles are the world's first sector-specific, self-governing climate alignment agreement amongst financial institutions. Signatories to the Poseidon Principles are committed to improving the role of maritime finance in tackling shipping's climate impacts. They believe not only that this step will improve financial institutions' decision-making at a strategic level but also shape a better future for the maritime industry and society. ABN AMRO is among the signatories of the Principles. The Principles establish a global framework for assessing and disclosing the climate alignment of ship finance portfolios. They are consistent with the policies and ambitions of the IMO, including its ambition for greenhouse gas emissions to peak as soon as possible and to reduce shipping's total annual GHG emissions by at least 50% by 2050.

### Fit for 55

On 14 July 2021 the European Commission adopted the 'fit for 55 package'. It adapted the existing EU climate and energy legislation to the new EU objective of a minimum 55% reduction in greenhouse gas emissions by 2030, in accordance with the new European Climate Law. But this is a proposal that still needs to be approved and adopted by individual countries (see the graph below), which will take time.

#### EU Fit for 55 process



Source: European Commission Research Centre

Maritime shipping carries close to 80% of global trade and accounts for 2-3% of global greenhouse gas (GHG) emissions annually. To achieve climate neutrality, a 90% reduction in transport emissions is needed by 2050. The lower emissions reductions in transport relative to other sectors like for example power generation is in recognition of the fact that emissions in some transport modes, in particular aviation and maritime, are more difficult to abate. All transport modes, including maritime transport, will have to contribute to the reduction efforts. Achieving significant reductions in CO<sub>2</sub> emissions of international maritime transport requires using both less energy (increasing energy efficiency) and cleaner types of energy

(using renewable and low-carbon fuels). Depending on the policy scenario, renewable and low carbon fuels should represent between 6-9% of the international maritime transport fuel mix in 2030 and between 86-88% by 2050. The Dutch government supports the proposal to make the shipping sector more sustainable.

#### *EU ETS*

As of 2023 shipping will become subject to the EU Emission Trading Scheme (EU ETS). All intra EU emissions will be included, but only 50% of the emissions for voyages when arriving in or departing from the EU. There will also be a phase-in period starting with 20% coverage in 2023 and increasing to 100% in 2026. Non-compliance is fined and may eventually lead to a ban from EU waters.

#### *FuelEU Maritime Regulation*

The FuelEU Maritime Regulation is a new regulation coming into effect in 2025, imposing life cycle GHG footprint requirements on the energy used on board of ships. It will apply to the same ships that are covered by the EU MRV regulation and will, in addition to CO<sub>2</sub>, cover methane and nitrous oxide, all in a well-to-wake perspective. The GHG intensity of the energy used will be required to improve by 2% in 2025 relative to 2020, ramping up to 75% by 2050.

## Higher wind turbine costs continue to weigh on manufacturers' margins

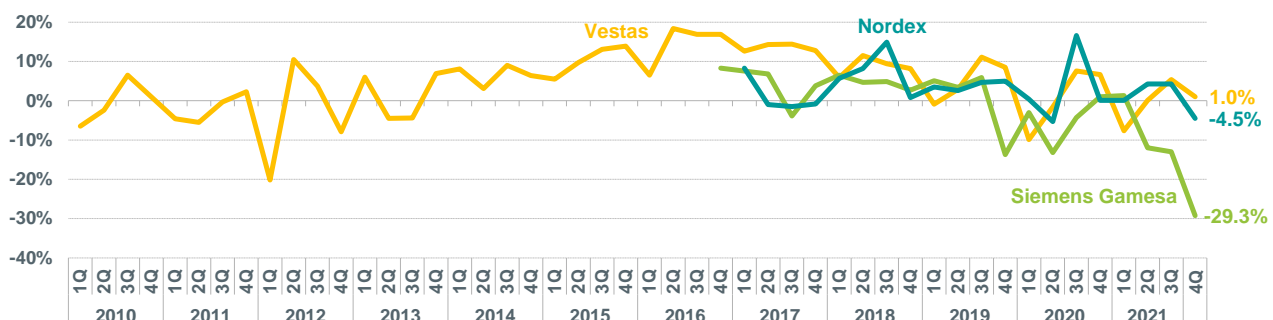
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- ▶ Wind turbine costs have been following an upward trend for a while now, fuelled by not only higher metal prices but also high freight costs, which have yet not come down to pre-pandemic levels
- ▶ Furthermore, it seems that wind turbine costs are especially high for European players, while in China they have actually been on the decline since 2H2020
- ▶ This has resulted in a margin squeeze for European manufacturers of these products
- ▶ More than that, higher production costs for wind turbines also jeopardize the pace in which wind capacity in Europe (and the world) grows

While plans to increase the number of wind turbines are now more than ever on the agenda for the next years (and decades), soaring costs to produce such turbines might weigh on the profitability of (and thus, incentive for) these investments. A rise in the prices of commodities required for the development of wind turbines, as well as rising freight costs and supply chain disruptions, have made it quite hard for wind turbine manufacturers to hold on to their margins. As shown in the graph below, large European wind turbine producers have been posting low (and even negative) turbine margins for the last quarters. Vestas, the world's biggest wind turbine manufacturer, also came out with 1Q22 results last Monday, posting an all-time low turbine margin of negative 20.4%. The company has also warned that margins for the year will be likely lower than expected, as cost inflation and disrupted supply chains (exacerbated by lockdowns in China) will continue to weigh on its profitability.

### Higher costs weight on the profitability of European wind turbine manufacturers

Turbine EBIT margins



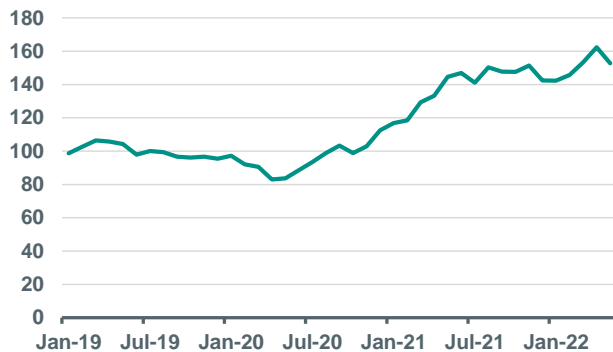
Source: Bloomberg, Company's filings, ABN AMRO Group Economics

The manufacturing of wind turbines is mostly comprised by steel, which accounts for around 85% of the total commodity cost. Other materials include copper (4%), aluminium (4%) and lead (4%). Based on this, we have developed an index that tracks the estimated production cost (excluding freight) for the manufacturing of wind turbines. As shown in the graph below (left hand side), these have recently reached all-time highs. This is mainly driven by high steel costs, which rose after the Covid-19 pandemic to levels not yet seen since the 2008 financial crisis, but also copper and aluminium, whose prices have gone up since the outbreak of the war.

Freight costs are also an important cost factor for manufacturers. And while global shipping costs have gone down from their peak in 3Q 2020 (see chart below on the right hand side), they remain relatively high. Shipping costs can rise due to a number of factors, including surging demand, backlogs at ports, lack of ships, and a shortage of dockworkers and truckers, which was amplified by Covid-19. Hence, further lockdowns in China (which reduces export volumes) might also reverse this downward trend in the upcoming months. Logistics bottlenecks also contribute to aggravate this situation. Delivery lead time for turbine contracts signed in the first half of 2021 has reached all-times highs, to 12 months vs an average of 9.4 in 2020. And while this has gone slightly down relative to 2H21, to 10.7 months, we expect supply chain disruptions and bottlenecks (forecasted to even worsen in the near-term, see more [here](#)) to continue to be an issue for wind turbine manufacturers.

**Wind turbine manufacturing costs reach all-time highs**

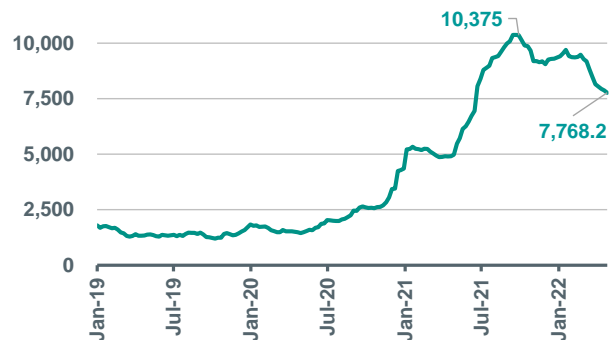
Index (January 2019=100)



Source: Refinitiv, ABN AMRO Group Economics. Note: excludes freight costs

**...While freight costs have gone slightly down**

USD / 40 foot box



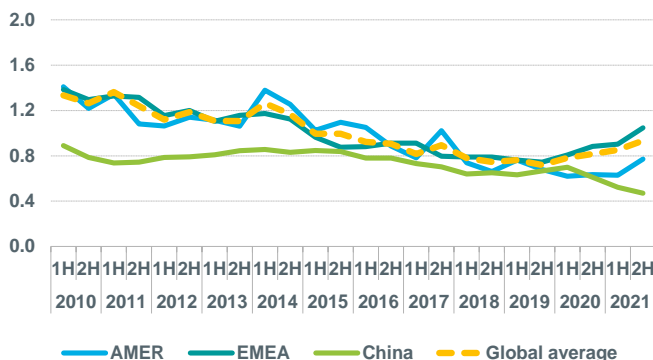
Source: Bloomberg, ABN AMRO Group Economics

We have also taken a look at whether this situation might differ geographically. That is, are European wind turbine manufacturers worst off than US or Chinese peers? For that, we have used BNEF's data on turbine prices, given in USDm/MWh. As depicted in the graph below (left hand side), turbine manufacturing costs in China have actually been following a downward trend since early 2020. Hence, it is mostly Europe and the US that are driving the global average up. The main reason for the divergence between Chinese and European/US prices is twofold: a price war among manufacturers and lower steel costs in the country. Regarding the former, the Chinese government has ended subsidies towards projects after a lapse in feed-in premiums at the end of 2020, resulting in growing domestic competition amongst manufacturers and, consequently, lower prices. On top of that, thanks to the strong local supply chain and intervention from the government on commodity markets, wind turbine makers in China were able to mitigate the impact from not only rising commodity prices but also transportation costs. Nevertheless, China's greatest wind turbine company, Xinjiang Goldwind Science and Technology Co., has already disclosed in early April that costs might have already reached all-time lows.

European manufacturers also face higher prices compared to both US and Chinese peers as the costs they incur for raw material (and in special, for steel) are relatively higher. This is mostly due to the EU safeguard measures on imported steel (especially from China and Russia), which keeps production costs high in the EU and is therefore one of the causes of the unlevel playing field.

**Higher manufacturing costs...**

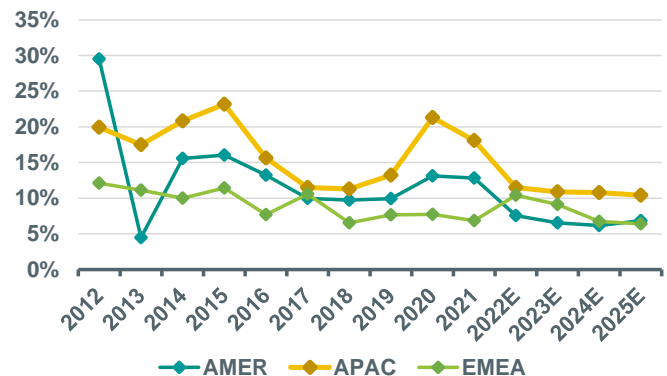
USD mln/ MWh



Source: BNEF, ABN AMRO Group Economics. Note: AMER=Americas, and EMEA=Europe, Middle East and Africa.

**...Might drive down the future growth in wind capacity**

YoY growth, cum. capacity



Source: BNEF, ABN AMRO Group Economics. Note: AMER=Americas, and EMEA=Europe, Middle East and Africa.

We expect higher manufacturing costs for wind turbines to not only weigh on the manufacturers' margins, but also to potentially serve as headwind to increase wind turbine capacity in the future. Total wind turbine installations growth are

forecasted to dip slightly across all regions in the next few years (see top chart on the right hand side), fuelled by not only higher costs but also partly by the end of subsidies for wind power project developments in the US and China. While under all carbon reduction scenarios wind capacity needs to increase, higher production costs might hinder that process.

## Tennet issues the largest EUR corporate green bond ever

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- ▶ **The German bank Berlin Hyp completes ESG credentials by issuing a social bond last week**
- ▶ **Proceeds of the newly issued bond will be directed towards affordable houses that are also within the energetically best 70% of the national residential building stock**
- ▶ **The day after, La Banque Postale SFH came out with a debut green covered bond**
- ▶ **The issuer also announced that it is currently working to update its existing Framework in order to align with the EU Taxonomy**
- ▶ **On the corporate side, TenneT dominated the market this week, issuing the largest EUR corporate green bond ever**

### Berlin Hyp completes ESG credentials with first social covered bond

Berlin Hyp (BHH) has completed its ESG credentials in the capital markets last week. It has established a Social Bond Framework (*ABN AMRO joint structuring advisor*) alongside its existing Green Bond Framework, while the bank was also the first Financial issuer to issue a Sustainability-Linked bond. In 2015, BHH already issued the first Green Pfandbrief, while it currently has six euro benchmark covered bonds in green format included in the iBoxx index. These bonds will now be joined by a 10y euro social covered bond (rated Aaa by Moody's), which will have a benchmark size.

The Social Bond Framework (SBF, see [here](#)) will focus on affordable housing in Germany and the Netherlands, reflecting BHH's drive to fight rising inequalities in society stemming from scarce supply of social housing (see the investor presentation [here](#)). Indeed, BHH estimates a shortfall of 900K of social homes in Germany and the Netherlands until 2025. The scarcity has led to rising rents for lower income households in both countries. By increasing the supply of social housing, inequalities should be reduced. Overall, the SBF aligns with the ICMA's Social Bond Principles (2021) as well as with the UN SDG goals no. 1 (no poverty), no. 10 (reduced inequalities), and no. 11 (sustainable cities and communities).

The proceeds of the bonds will be used to (re)finance multi-family buildings provided by German non-profit municipal housing companies and housing co-operatives as well as private housing companies that are publicly committed to social responsibilities. Meanwhile, the underlying housing needs to pass the Housing Benefit Act Test. In the Netherlands, the housing needs to be provided by Social Housing Organisations and private housing companies that are publicly committed to social responsibilities as well. Furthermore, the rental prices should not exceed the threshold as defined in the Dutch Housing Act (which is EUR 752,33 in 2021). Overall, the use of proceeds targets affordable housing, which includes, but is not limited to, social housing. Besides, BHH has also set a threshold related to energy-use of eligible buildings, as only properties belonging to the best 70% in terms of final energy demand of the national residential building stock will be eligible. The issuer guarantees that eligible properties will not be part of the green finance portfolio in order to avoid any double counting.

Currently, BHH has EUR 7.1bn of residential mortgages on its balance sheet, of which EUR 2.1bn qualify as social housing. Of these, EUR 1.8bn have been included in the cover pool. The majority of which (EUR 1.4bn) stems from lending to private housing associations, EUR 0.5bn from loans to non-profit housing organisations, and EUR 90mn from loans to cooperative housing associations. The country split reveals that 92% of buildings are located in Germany and 8% in the Netherlands.

ISS ESG has provided the second party opinion ([here](#)), confirming that the social bonds align with BHH's sustainability strategy, while the framework is in line with the Social Bond Principles. Finally, it has a positive view on the sustainability quality of the social assets.

BHH has a 7.1 ESG Risk rating by Sustainalytics, implying a negligible risk. It has a B- ('Prime') rating by ISS ESG and an AAA rating by MSCI.



### La Banque Postale SFH is currently working to update its existing Framework

On Thursday last week, La Banque Postale SFH issued a debut 8y green covered bond. The issuer printed EUR 750mn on the back of an EUR 3.5bn orderbook which translates into a 4.7x bid-to-cover ratio. As a result, LBPSFH was able to issue 2bps through their existing curve.

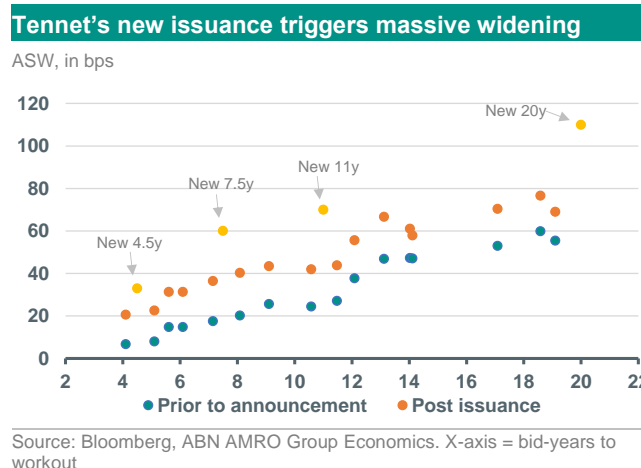
The large French bancassurer, which is wholly owned by the La Poste Groupe, has already issued green and social senior non-preferred bonds in 2019 and 2021. Its green, social and sustainability bond framework, which stems from 2019 (see [here](#)), is, according to the issuer, currently under review and an updated version is expected in the second half of this year. The updated framework will be more aligned with the EU Taxonomy. Indeed, concerning green buildings, the issuer expects to add an eligibility criteria for new buildings - that is, buildings built as of 2021 (the distinction between “new” and “existing” buildings is unique to the Taxonomy, and it requires new buildings to have an energy efficiency performance that is 10% below the threshold stipulated for Nearly-Zero Energy Buildings, or NZEB, as per national legislation). In France, the NZEB is defined under the French Energy Efficient Standard RE2020. La Banque Postale SFH expects to only be able to meet this criteria by 2024 (see more details in the investor presentation [here](#)). For existing buildings, the criteria set under its current framework already aligns with the one of the EU Taxonomy (which stipulates that buildings must belong to the top 15% most energy efficient buildings within a certain country/region). It is expected however that with the updated Framework, the issuer will include as well compliance with the Do No Significant Harm criteria of the EU Taxonomy.

The proceeds of the debut green covered bond will be used to (re) finance eligible green loans in the low-carbon buildings category, which, as previously mentioned, must belong to the top 15% most energy efficient buildings. Currently, the bank has identified EUR 802mn of mortgage loans related to low-carbon buildings. The overall cover pool includes EUR 24.3bn of mortgage loans (89% residential, 9% buy-to-let, 2% second homes), which have a WA indexed LTV of 59%.

Furthermore, the bank scores very well in terms of ESG ratings, as it has a negligible 9.1 ESG Risk Rating by Sustainalytics, while it has a B- rating at ISS ESG. The bank is also among the first to have a low-carbon trajectory that has been validated by the Science Based Targets initiative.

### TenneT issues largest EUR corporate green bond ever

TenneT, the Dutch TSO, took the opportunity to issue on what was likely the only open-window of last week and priced a massive EUR 3.85bn 4-tranche green bond, making this the largest EUR corporate deal of the year and the largest EUR corporate green bond ever (*ABN AMRO acted as bookrunner*). TenneT clearly went for size instead of pricing, having paid double-digit NIPs across all of its tranches. The deal included 4.5y, 7.5y, 11y and 20y tranches, with the latter representing an extension curve and TenneT's first 20y issuance since October last year. The tranches were priced as following: ms+33bps (4.5y), ms+60bps (7.5y), ms+70bps (11y) and ms+110bps (20y), representing a squeezing from IPT levels of 27bps, 15bps, 20bps and 20bps, respectively. Demand was skewed towards the shorter end of the curve, as yield outlook and inflation still makes investors reluctant to add duration. The issuance triggered some widening on TenneT's secondary curve, with spreads widening from 14bps at the low-end of the curve, to 20bps for its existing green 2035s.



Given the widening of TenneT's curve, which was immediate following the announcement of the new deal, it is fairly hard to estimate new issuance premium (NIP), despite the very well-defined curve. However, taking as basis ASW spreads around announcement time, we would place NIPs as following: 18bps (4.5y), 35bps (7.5y) and 30bps (11y). The extension curve of the new 20yr makes it hard to assess NIPs, but estimated to be around the high 30s. Given the large size of the deal (split as following: EUR 1.25bn (4.5y), EUR 1bn (7.5y), EUR 750m (11y) and EUR 850m (20y)), it can be argued that some of this NIP was also paid due to size, which means that TenneT would likely have been able to secure roughly 5bps less if it went for a smaller size.

As previously mentioned, demand was clearly focused on the shorter-end of the curve. Books for the 4.5y peaked at EUR 3.7bn around guidance, while this was EUR 2.3bn for the 7.5yr tranche, EUR 1.9bn for the 11yr and EUR 1.8bn for the 20yr. This allowed TenneT to print a larger amount at the shorter-end of the curve, with relatively smaller amounts at the long-end. This clearly indicates investors are still more focused on shorter durations. The 20yr deal was printed at EUR 100m more than the 11yr as the mid-swap curve is inverted around the 20yr area, which made it especially attractive for the issuer to print more on the longer-end of the curve.

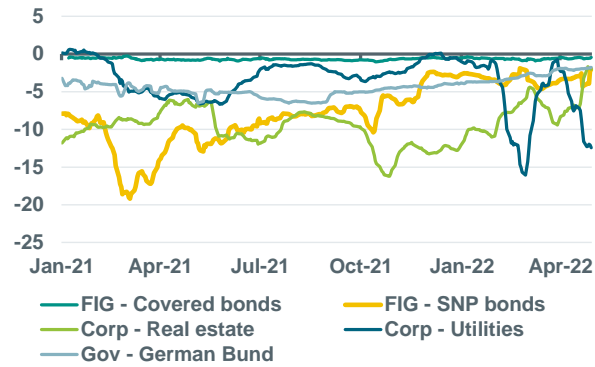
The proceeds of the new green bond will be used towards (i) green electricity networks, (ii) the construction/installation and operation of equipment and infrastructure where the main objective is an increase of the transmission of renewable electricity generation, and (iii) the construction and operation of interconnectors between transmission systems, where one of these systems is compliant with the EU Taxonomy. On the first point, TenneT has defined green electricity networks as a transmission infrastructure or equipment that is in an electricity system that not only transports at least 50% of renewable electricity, but also complies with one of the following: (a) is the interconnected European system; (b) >67% of the newly enabled generation capacity in the system is below the generation threshold value of 100 gCO<sub>2</sub>e/kWh measured on a life cycle basis; and (c) the average system grid emissions factor (total annual emissions from the power generation connected to the system / total annual net electricity production) is below the threshold value of 100 gCO<sub>2</sub>e/kWh measured on a life cycle basis.

As of 28th February, TenneT was placed 5th out of 58 companies rated by ISS ESG in the Gas and Electricity Network Operators sector. It also has an ESG rating of 15.6 (low risk) by Sustainalytics. Standard & Poor's has awarded TenneT the classification 'strong', with a score of 84 out of 100.

## ESG in figures

### ABN AMRO Secondary Greenium Indicator

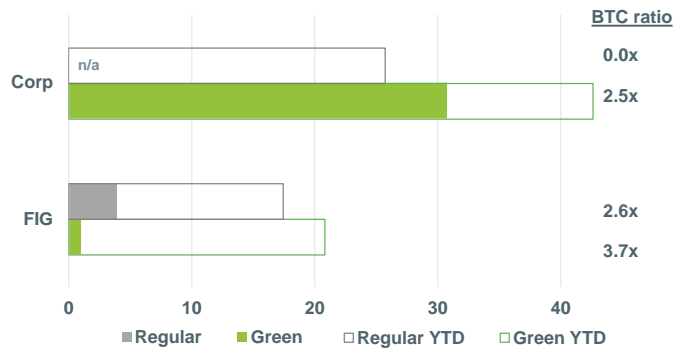
Delta (green I-spread – regular I-spread)



Note: Secondary Greenium indicator for Corp and FIG considers at least five pairs of bonds from the same issuer and same maturity year (except for Corp real estate, where only 3 pairs were identified). German Bund takes into account the 2030s and 2031s green and regular bonds. Delta refers to the 5-day moving average between green and regular I-spread. Source: Bloomberg, ABN AMRO Group Economics

### ABN AMRO Weekly Primary Greenium Indicator

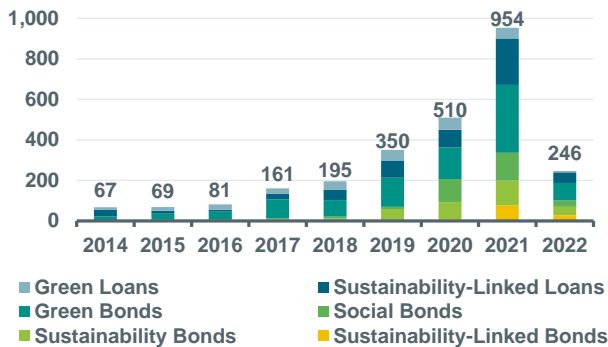
NIP in bps



Note: Data until 5-5-22. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics.

### Sustainable debt market overview

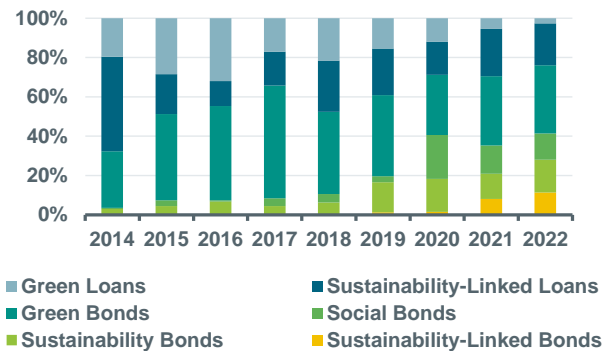
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

### Breakdown of sustainable debt by type

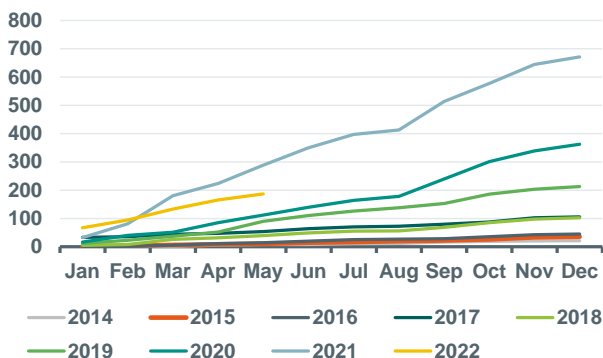
% of total



Source: Bloomberg, ABN AMRO Group Economics

### YTD ESG bond issuance

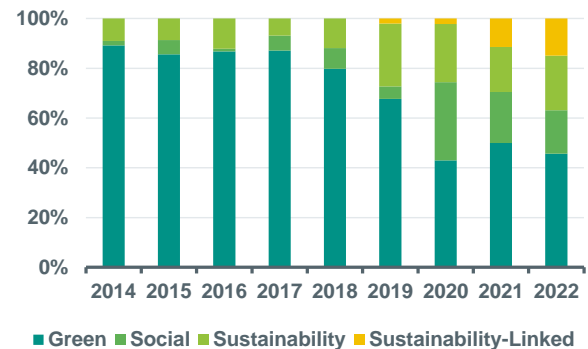
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

### Breakdown of ESG bond issuance by type

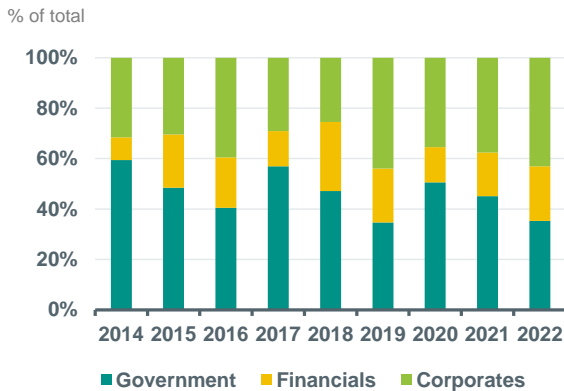
% of total



Source: Bloomberg, ABN AMRO Group Economics

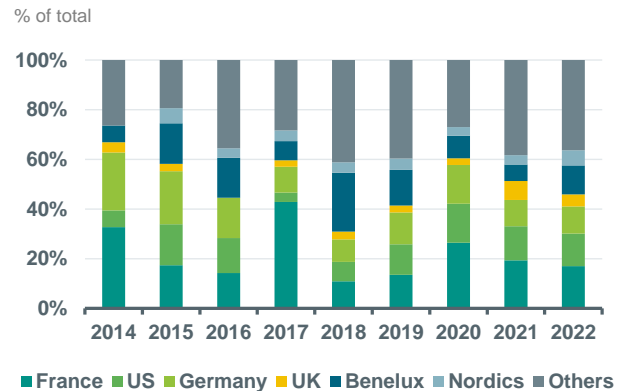
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

### Breakdown of ESG bond issuance by sector



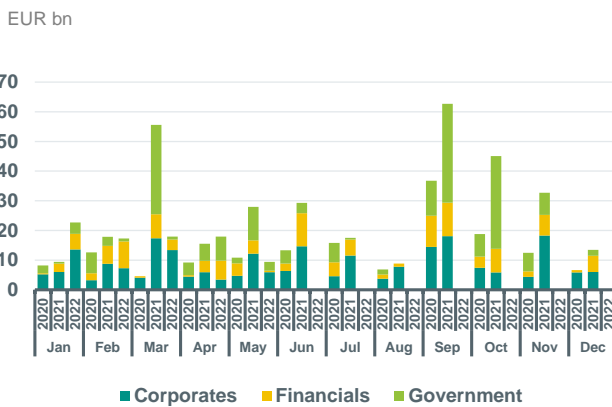
Source: Bloomberg, ABN AMRO Group Economics

### Breakdown of ESG bond issuance by country



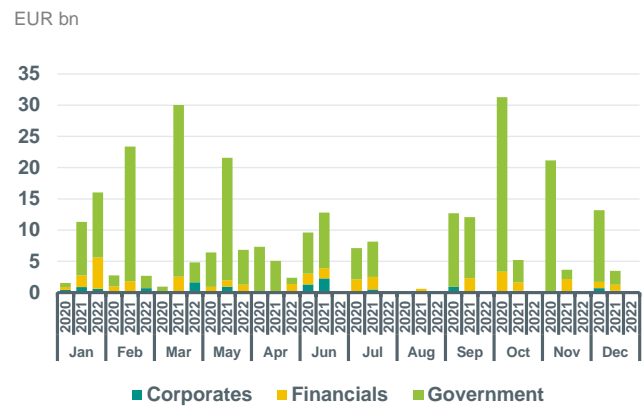
Source: Bloomberg, ABN AMRO Group Economics

### Monthly Green Bonds issuance by sector



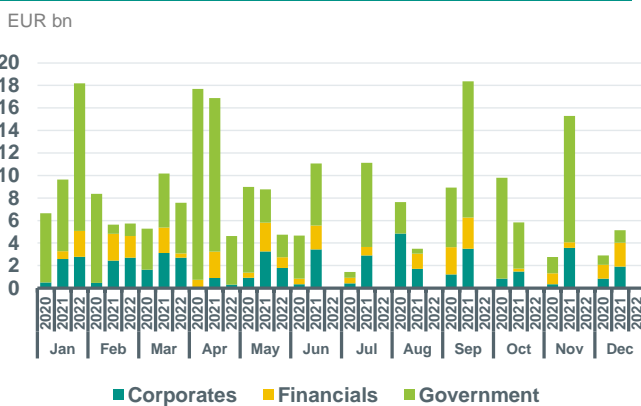
Source: Bloomberg, ABN AMRO Group Economics

### Monthly Social Bonds issuance by sector



Source: Bloomberg, ABN AMRO Group Economics

### Monthly Sustainability Bonds issuance by sector



Source: Bloomberg, ABN AMRO Group Economics

### Monthly Sust.-Linked Bonds issuance by sector



Source: Bloomberg, ABN AMRO Group Economics

Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

**Carbon contract current prices (EU Allowance)**

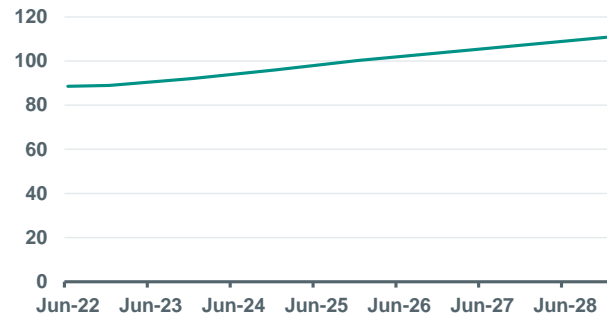
EUR/MT



Source: Bloomberg, ABN AMRO Group Economics

**Carbon contract future prices (EU Allowance)**

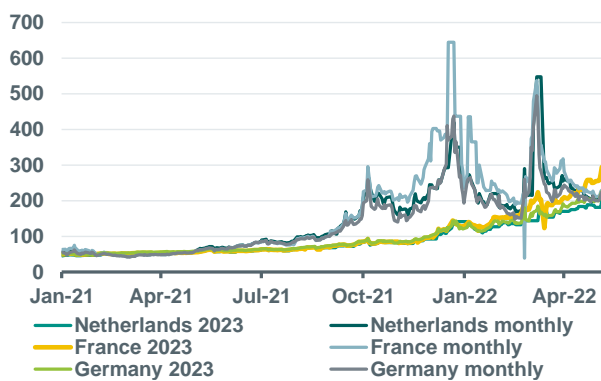
EUR/MT



Source: Bloomberg, ABN AMRO Group Economics

**Electricity power prices (monthly & cal+1 contracts)**

EUR/MWh

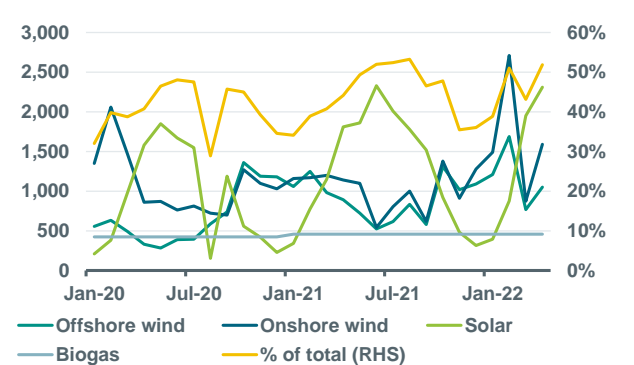


Source: Bloomberg, ABN AMRO Group Economics. Note: 2023 contracts refer to cal+1

**Electricity generation from renewable sources (NL)**

GW

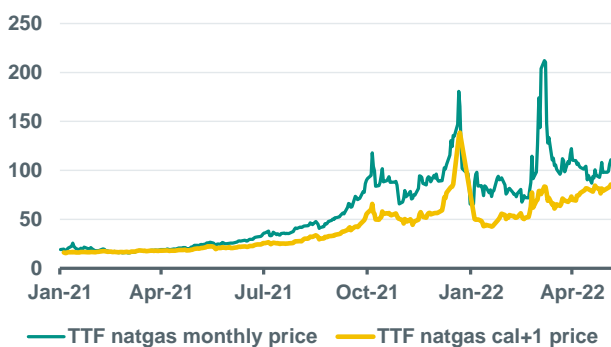
% of total



Source: Energieopwek (Klimaat-akkoord), ABN AMRO Group Economics

**TTF Natgas prices**

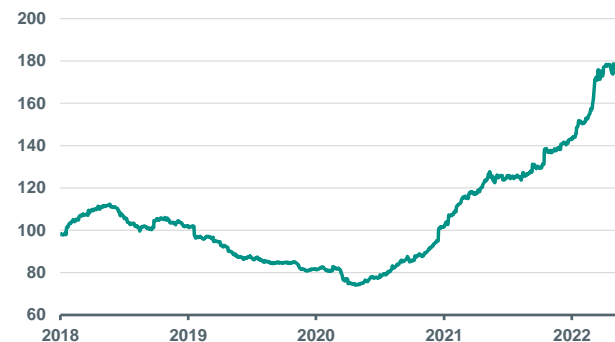
EUR/MWh



Source: Bloomberg, ABN AMRO Group Economics

**Transition Commodities Price Index**

Index (Jan. 2018=100)



Note: Average price trend of 'transition' commodities, such as: corn, sugar, aluminium, copper, nickel, zinc, cobalt, lead, lithium, manganese, gallium, indium, tellurium, steel, steel scrap, chromium, vanadium, molybdenum, silver and titanium. Source: Refinitiv, ABN AMRO Group Economics

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