SustainaWeekly

Emission pathways for shipping

- **Economics Theme: We look at emission pathways for shipping. The IMO strategy currently targets a reduction of 50% by 2050 and 100% within the century, but it has signalled it is working on a more ambitious strategy. According to IRENA a 1.5 degree scenario should see an 80% reduction by 2050. This is broadly in line with the IEA's scenario.**

- **Strategy Theme: We assess whether longer maturity green bonds trade with lower term premiums than equivalent regular bonds for the utility and real estate sectors. Utility green bonds do indeed seem to trade at flatter curves, although the evidence is not overwhelming. In the real estate space, green curves are actually steeper.**

- **Policy & Regulation: The World Bank's latest report on carbon pricing provides an update of trends around the world. The scope and level of carbon pricing is still well behind what is needed. Less than a quarter of global emissions are covered by carbon pricing, while only 4% of emissions are subject to a price high enough for a 1.5 degree pathway.**

- **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 focusing on emission pathways for the international shipping sector. The International Maritime Organization (IMO) – which sets the industry standard – has set out a 50% emission reduction target by 2050. However, it recognises that more is necessary and it will announce a more ambitious plan next year. The International Renewable Energy Agency (IRENA) has an 80% reduction for shipping in its 1.5 degree pathway. We go on to assess whether longer maturity green bonds trade with lower term premiums than equivalent regular bonds, but we find limited evidence of this. Finally, we review the World Bank's latest report on carbon pricing trends around the world. The clear take away is that the scope and level of carbon pricing is still well behind what is needed. Enjoy the read and, as always, let us know if you have any feedback!

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Pathways for international shipping

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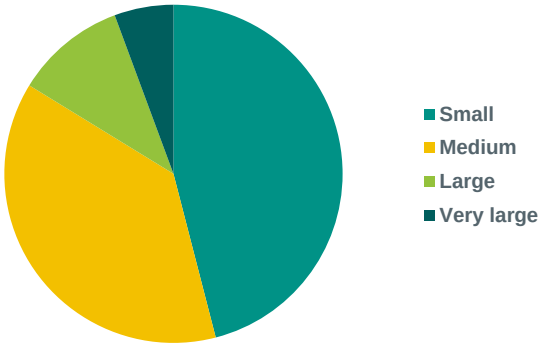
- **Shipping is responsible for 3% of the global greenhouse gas emissions**
- **Bulk, container carriers and chemical tankers are responsible for 85% of the net GHG emissions associated with the shipping sector**
- **In 2018 the CO2 emissions for international shipping were 740 million tonnes**
- **IMO strategy aims at a reduction of 50% by 2050 and 100% within the century**
- **According to IRENA a 1.5 degree scenario should see an 80% reduction to 144 Mt CO2 in 2050**
- **In 2023 IMO will come with a revised strategy**

Introduction

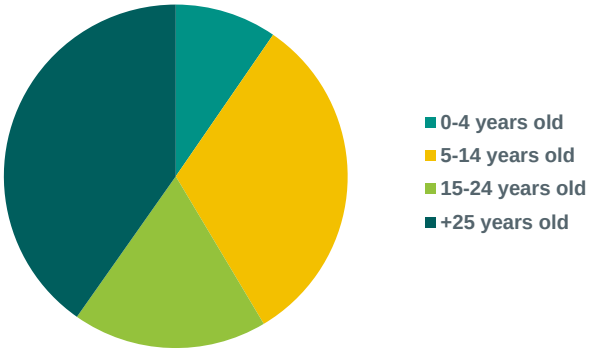
Shipping carries the vast majority of international trade with its share ranging between 80-90%, i.e. bulk and container carriers, as well as oil and chemical tankers (27% of global fleet, Equasis 2020). But shipping is only responsible for 3% of the global greenhouse gas emissions.

Ship type



Source: World fleet Equasis 2020

Ship age



Source: World fleet Equasis 2020

In 2018 **greenhouse gas emissions** of total shipping (international, domestic and fishing) were 1,076 million tonnes (Mt). This is including carbon dioxide, methane and nitrous oxide expressed in CO2 equivalent. The share of shipping emissions in global man-made emissions was 2.89% in 2018 (IMO Fourth Greenhouse Gas Study). Bulk and container carriers as well as chemical tankers are responsible for 85% of the net GHG emissions associated with the shipping sector (IRENA, 2019a A Pathway to Decarbonise the Shipping Sector by 2050 (irena.org)).

Shipping's carbon footprint

Mt CO2 emissions, %

	Man-made emissions CO2						
	Global	Total shipping	% of global	International shipping		% of global	
				Voyage based	Vessel based	Voyage based	Vessel based
2008				776			
2012	34,793	962	2.8	701	848	2.0	2.4
2013	34,959	957	2.7	684	837	2.0	2.4
2014	35,335	964	2.7	681	846	1.9	2.4
2015	35,239	991	2.8	700	859	2.0	2.4
2016	35,380	1,026	2.9	727	894	2.1	2.5
2017	35,810	1,064	3.0	746	929	2.1	2.6
2018	36,573	1,056	2.9	740	919	2.0	2.5

Source: IMO Fourth International Greenhouse Gas Study

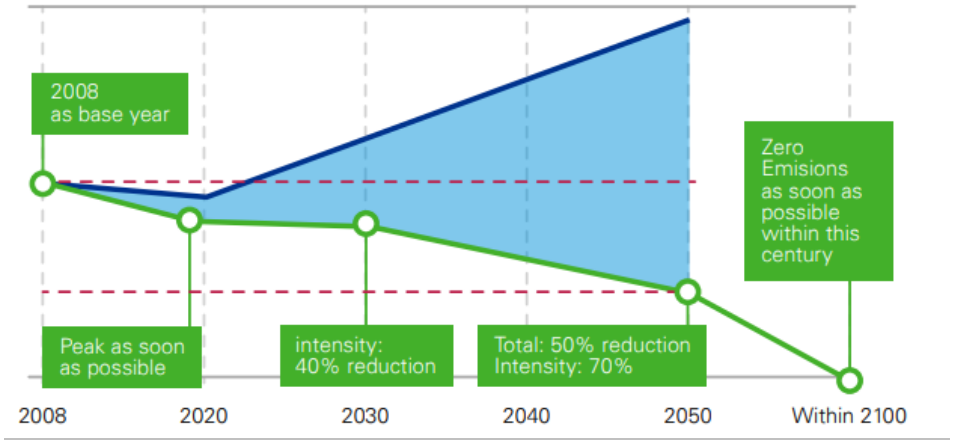
On a new voyage-based allocation approach **CO2 emissions** for international shipping were 740 million tonnes (Mt) in 2018 (approximately 2% of global CO2 emissions). Using the previous vessel-based allocation of international study this amount was 919 million tonnes in 2018 for international shipping.

IMO current strategy to reduce emissions in international shipping (click here)

The International Maritime Organization (IMO) is the UN specialized agency with responsibility 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 and to reduce the carbon intensity of emissions by 40% by 2030 and 70% by 2050 compared to 2008 levels.

Pathways Business as Usual (BAU= blue line) and IMO GHG strategy (green line)

GHG emissions



Source: DNV-GL 2019

IMO current strategy

Mt

	GHG CO2 equivalent Mt						
	Total shipping	International shipping		IMO GHG reduction target		Approx IMO CO2 reduction target	
	Approx	Voyage based	Vessel based	Voyage based	Vessel based	Voyage based	Vessel based
2008	1,109	794	940	794	940	776	923
2012	977	713	862	713	862	701	848
2013	971	695	851	695	851	684	837
2014	968	693	850	693	850	681	846
2015	995	712	874	712	874	700	859
2016	1,034	740	910	740	910	727	894
2017	1,062	760	946	760	946	746	929
2018	1,076	755	937	755	937	740	919
2030							
2050	555			397	470	388	462
2100	-			-	-	-	-

Source: IMO Fourth Greenhouse Gas Study, red numbers are calculations based on IMO data

At the Marine Environment Protection Committee meeting (MEPC 76) in June 2021, the IMO adopted new requirements for Energy Efficiency Existing Ships (EEXI), Carbon Intensity Indicator (CII) and 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 follow the decarbonization strategy that was adopted by IMO in 2018.

EEDI phase, implementation periods

Note: Time period refers to 1 January of the starting year to 31 December of the end year.
EEDI reduction in reference to the baseline year, 2013.

Source: Based on IRCLASS (2013a)

IMO to revise its decarbonization strategy for international shipping in 2023

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 within reach of 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 CO2 emissions by 2050. The discussions will continue at the 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. For the 1.5-degree pathway, steeper reduction targets need to be set and the IMO has recognized this.

It is likely that IMO will address and could even change how emissions are measured. Current IMO regulations only address tank-to-propeller CO2 emissions from fossil fuels (DNV Maritime Forecast 2050 2021). Other GHGs with significant emissions from shipping include methane (CH4) and nitrous oxide (N2O). The other way of measuring CO2 is on a well-to-tank perspective, depending on the primary energy source, the fuel processing and the supply chain. The IMO is working on guidelines to determine CO2 and GHG emission factors for all types of fuels (DNV Maritime Forecast 2050 2021). The IMO is also currently considering market-based measures, including a carbon levy and/or cap-and-trade system, to reduce GHG emissions from international shipping. The carbon levy would be applied to bunker fuels, starting at USD 100/tCO2equivalent from 2025 with upward ratchets on a five-year review cycle. The cap-and-trade system would be combined with a fuel GHG limit, the latter of which would act as a command-and-control measure. Potential carbon revenues are deemed significant, with estimates of the total by 2050 being between USD 1 trillion and USD 3.7 trillion, or USD 40-60 billion annually according to the World Bank. In 2023 it is expected that the IMO will move to lifecycle GHG/CO2 emissions factors and revise the initial IMO GHG strategy including the ambitions and assessment of further measures so that its strategy comes into line with reaching the 1.5 degree pathway.

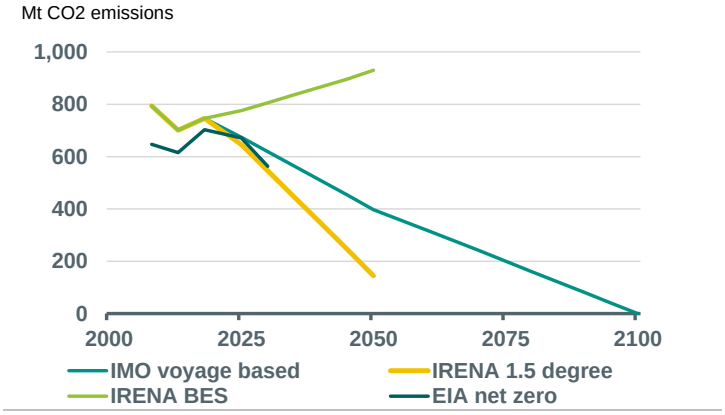
IRENA pathways (click here)

The International Renewable Energy Agency or IRENA has already defined different pathways including the 1.5 degree scenario. In this scenario the shipping sector embarks on a deep decarbonisation path in the years leading up to 2050. The utilisation of renewable fuels and the adoption of EE measures characterise the future of the maritime sector. While energy intensity levels improve significantly, the use of green H_2-based fuels outweigh the use of fossil fuels. The IRENA 1.5 degree scenario explores a pathway for shipping with a 70% share of renewable fuels to be achieved by 2050 resulting in 144 Mt of CO2 in 2050, an emission reduction of 80% compared to 2018 levels. This is achieved by indirect electrification by (i) employing powerfuels; ii) employment of advanced biofuels; iii) improvement of vessels' EE performance; and iv) reduction of sectoral demand due to systemic changes in global trade dynamics.

IRENA also has a business-as-usual scenario which is called BES. In this scenario the socio-economic and technological development are primarily based on harnessing fossil fuels. Future energy demand and supply in the shipping sector follow the historical trend. Heavy fuel oil (HFO), Very Low Sulphur Fuel Oil (VLSFO) and marine gas oil (MGO) continue as the dominant fuels by 2050. EE measures are not embraced.

The graph below shows the different pathways of the IMO, IRENA and the net zero pathway of IEA (click here). It shows the new IMO voyage based calculation method, the two IRENA pathways and IEA net zero. Albeit with a different starting point the net zero IEA pathway seems to resemble the IRENA 1.5 degree scenario. For the IMO to align the scenario with the 1.5 degree scenario, aggressive steps to reduce emissions are necessary. In our next Sustainaweekly we will zoom in on the decarbonization options for international shipping.

IMO strategy versus IRENA and IEA



Source: IMO, IRENA, IEA

Limited evidence of lower term premium on green bonds

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- **We have shown many times that green bond spreads tend to trade inside of those of regular bonds**
- **But do longer maturity green bonds also trade with lower term premiums than the equivalent regular bonds?**
- **We look at the utility and real estate sectors, where green bond issuance has been large enough to provide sufficient bonds for comparison purpose**
- **Utility green bonds do indeed seem to trade with flatter curves in the majority of cases we reviewed, although evidence is not overwhelming**
- **In the real estate space we had less observations, but results actually show a steeper proposition offered by green bonds**

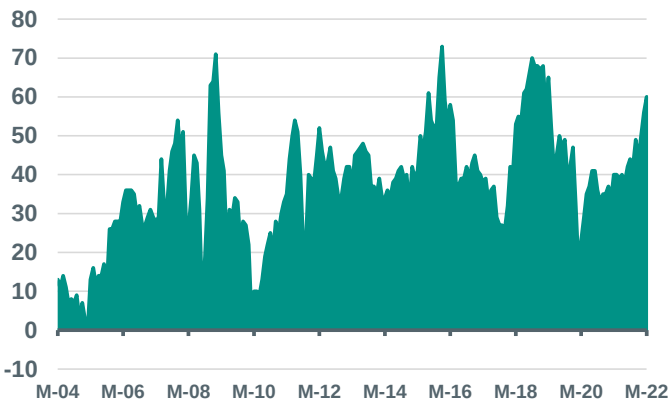
Bond market actors remain fascinated about the lower spread being offered by green bonds vis-à-vis their non-green equivalents. We have shown in the past that EUR IG corporate credit bond investors are willing to accept a lower spread on green bonds by scanning through the universe and comparing the green bond spread against the same maturity non-green bond, the difference being called the greenium. On a weekly basis we demonstrate how the greenium is evolving on a pre-defined set of corporate issuers, as shown below.

Greenium in utilities and real estate over a 1y horizon

Source: Bloomberg, ABN AMRO Group Economics

Corporate bond spreads also have maturity or a term premium, i.e. as an investor you receive a higher credit spread on a longer maturity bond vis-à-vis the shorter maturity equivalent. This premium differs over time, depending on risk appetite and the chart below, showing the premium between EUR IG corporate bonds maturing in 1-3 years and 5-10 years, shows that this premium has been rising swiftly lately as general market conditions have become sour, with broad index spreads reaching post pandemic highs at 82bp above swap a week ago (and have retraced a bit since).

Term premia in corporate credit rising quickly



Source: ICE BofAML, Bloomberg, ABN AMRO Group Economics

Is there a lower term premium in green bonds?

Does a longer dated green bond also trade at a lower maturity premium in comparison to its non-green equivalent? With many issuers having issued a variety of maturities in green bonds over the past few years, the secondary corporate bond market seems decently populated to make such an analysis. We are however limited to do this for the utility and the real estate space, given that nearly 80% of green bond issuance was issued by issuers in these sectors. First, we found 14 issuers in the utility space where there was decent batch of green and non-green bonds at the same issuer. By looking at the same issuer there is no room for other factors besides maturity, in explaining the difference. Based on the latest spread levels we calculate how much the difference in spread is between the shortest and longest available green & non-green bonds today. Although we are interested in the inclination, we also make sure that the chosen maturities between our green and non-green selections sit close to each other to avoid discussions about difference in curve shape across various maturities.

Issuer	Green pair				Non-green pair				Conclusion	Issuer ESG risk score
	maturities chosen	Maturity extension in years	Steepness in bp	Steepness in bp per year	maturities chosen	Maturity extension in years	Steepness in bp	Steepness in bp per year		
ACEA	2025 to 2030	4.8	60	12.5	2024 to 2029	5	74	14.8	green flatter	19.3
A2A	2029 to 2033	4.3	29	6.7	2028 to 2032	4.6	12	2.6	green steeper	21.1
EDF	2026 to 2033	7.1	73	10.3	2025 to 2033	7.2	77	10.7	green flatter	20.3
EDP	2025 to 2027	1.5	31	20.7	2026 to 2027	1.8	16	8.9	green steeper	19.4
Enel	2024 to 2026	2	24	12.0	2024 to 2026	1.9	38	20.0	green flatter	23.7
Engie	2026 to 2032	5.8	39	6.7	2027 to 2033	6.5	30	4.6	green steeper	28.8
E.On	2025 to 2032	7	41	5.9	2026 to 2033	7.1	55	7.7	green flatter	18.4
ESB	2030 to 2034	4.1	3	0.7	2029 to 2033	4.7	4	0.9	green flatter	27.7
Hera	2027 to 2029	1.9	29	15.3	2028 to 2030	1.9	25	13.2	green steeper	18.8
Iberdrola	2024 to 2030	6	23	3.8	2023 to 2029	6.2	30	4.8	green flatter	20.3
Iren	2025 to 2031	5.3	81	15.3	2024 to 2030	5.7	79	13.9	green steeper	29.6
SSE	2025 to 2027	2	18	9.0	2025 to 2027	2.1	24	11.4	green flatter	22.7
Stedin	2026 to 2029	2.7	23	8.5	2025 to 2028	2.6	18	6.9	green steeper	18.2
Terna	2023 to 2029	6	61	10.2	2024 to 2030	6.2	76	12.3	green flatter	10.5

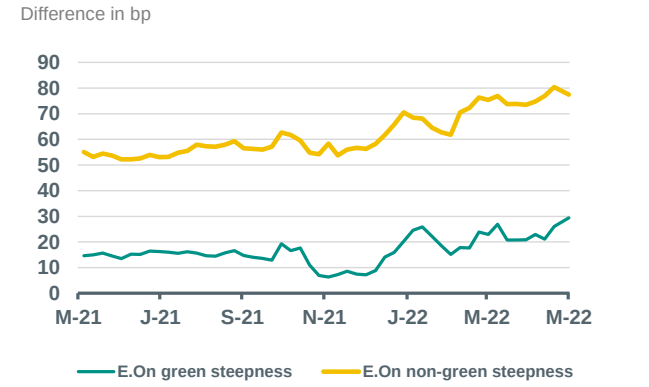
Source: Bloomberg, Sustainalytics, ABN AMRO Group Economics

Some evidence for lower term premium in the utility space…

The table on the previous page highlights that in the majority of the cases, 8 out of 14, we indeed see the green bonds trading at a lower maturity premium than the regular bonds. But the evidence is not strong enough for us be conclusive about a lower term premium. Perhaps investors would be less inclined to accept a lower term premium, or even a steeper premium, in the green bond space in case an issuer had a weak overall sustainability standing. Hence, we also included the latest Sustainalytics ESG risks scores in the final column. Unfortunately, there is also no clear relationship to be found here. For example, EDP has the same ESG risk score as ACEA but only in the case of ACEA the term premium is lower in the green bond space.

Nevertheless, when we do see a lower term premium in the green bond space, these seems to persistence as shown in the charts below. Over the past year the E.On green bond term premium has remained lower than the non-green term premium. In the case of Terna the longer dated green bond was issued a year ago so perhaps it took some runway (roughly 11 weeks) before settling at a lower term premium, but afterwards the term premium in the Terna green bonds has remained consistently lower.

E.On – lower green bond term premium is persistent



Source: Bloomberg, ABN AMRO Group Economics

Terna – lower green bond term premium is persistent

Source: Bloomberg, ABN AMRO Group Economics

...but total risk-off in real estate makes a lower green term premium a pipedream for now

In the real estate space we found even less convincing evidence of a lower term premium. Only in the case of Covivio did we find a lower term premium. Although this lack of a lower term premium in the green real estate bond space could be due to the small sample of issuers where we found a relevant green and non-green bond pair to work with. However, we also note that the actual greenium (i.e. a lower spread) in the green bond space has also become elusive due to the significant underperformance of the sector in the broad credit space, which apparently has all investors (regular and ESG driven) running for the exit.

Issuer	Green pair				Non-green pair				Conclusion
	maturities chosen	Maturity extension in years	Steepness in bp	Steepness in bp per year	maturities chosen	Maturity extension in years	Steepness in bp	Steepness in bp per year	
Digital Realty	2025 to 2032	6.5	84	12.9	2025 to 2032	6.5	71	10.9	green steeper
Prologis	2028 to 2034	6	26	4.3	2029 to 2033	6.1	26	4.3	no difference
URW	2024 to 2025	1.1	18	16.4	2025 to 2026	1.4	22	15.7	green steeper
Covivio	2026 to 2031	5.3	60	11.3	2024 to 2030	6.3	95	15.1	green flatter
Icade	2027 to 2030	2.3	45	19.6	2026 to 2029	3.4	19	5.6	green steeper

Source: Bloomberg, ABN AMRO Group Economics

Carbon pricing still well behind what is needed

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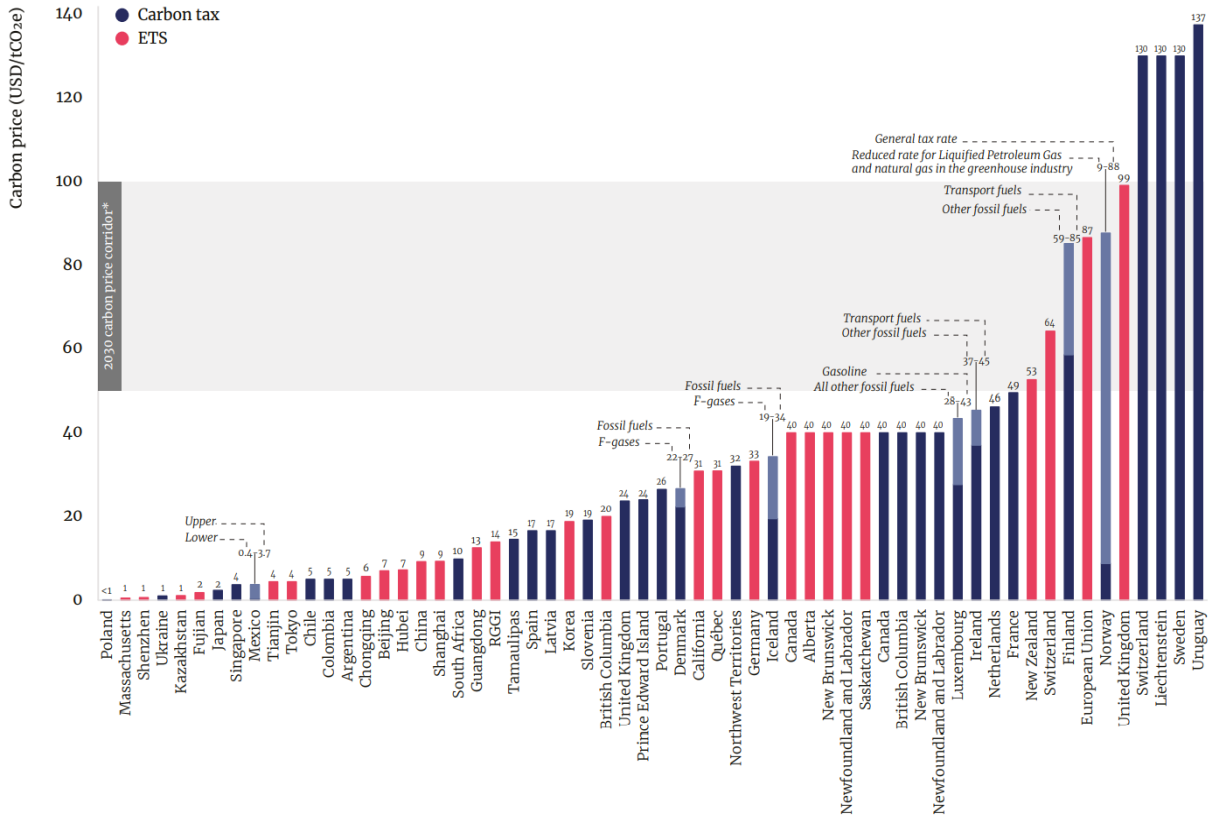
- **The World Bank's latest report on carbon pricing provides an update of trends around the world**
- **Carbon prices have risen, while new rules have been developed for carbon credits**
- **However, the scope and level of carbon pricing is still well behind what is needed**
- **Less than a quarter of global emissions are covered by carbon pricing and this has not changed much this year**
- **In addition, only 4% of emissions are subject to price high enough for what it is deemed necessary by 2030 for emissions to be on track for a 1.5 degree pathway**

An effective carbon pricing instrument (CPI) is seen by most economists as a crucial policy mechanism to reduce emissions significantly quickly to limit global warming to 1.5 degrees. A carbon price at a sufficiently high level provides an economic incentive to switch to lower carbon activities and to invest in the technologies that are necessary to achieve that in the future. In addition, the revenues raised can also be used to facilitate the energy transition. CPIs can take the form of a tax or an emissions trading system (ETS). Recently, the World Bank provided an update on the state of play and trends in carbon prices around the world (see here). In this short note, we assess the key conclusions.

Carbon prices across different jurisdictions



Source: World Bank State and Trends of Carbon Pricing, 2022; prices are as of 1 April 2022

Carbon revenues rising sharply but still modest

The report notes that carbon prices have risen sharply across jurisdictions to record levels, leading to a sharp rise in revenues. Global carbon pricing revenue collected in 2021 was around USD 84 billion, representing an increase of over USD 31 billion compared to 2020. For instance, the IEA estimates that to reach net zero emissions by 2050, annual clean energy investment worldwide will need to more than triple by 2030 to around USD 4 trillion. Obviously, carbon revenues are

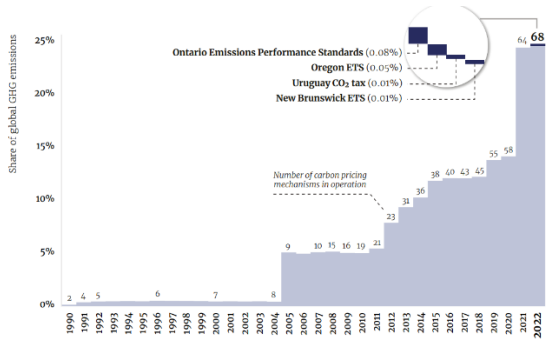
never likely to be the only (or even the main) source of financing for these investments, but it does put the numbers into context. The rise in carbon revenues was driven by the ETS in the EU (which is responsible for 41% of all global revenue), New Zealand, California, UK and Germany. The World Bank notes that China's ETS is the largest in terms of the emissions covered but did not generate revenues because at this stage, emissions allowances under the scheme are allocated for free.

Minuscule amount of emissions covered by 'appropriate price'

Despite the carbon price rises described above, the World Bank estimates that less than 4% of global emissions in 2022 are covered by a direct carbon price at or above the estimated range required by 2030 (see also chart above). This reflects two factors. First, carbon pricing instruments currently cover only about a quarter of global emissions and have not changed much this year, as only four new mechanisms have been launched (see chart on the left below). Second, many of the existing schemes have a price that is lower than what is necessary in 2030, to keep emissions on track to limit global warming to 1.5 degrees.

Global emissions subject to carbon price

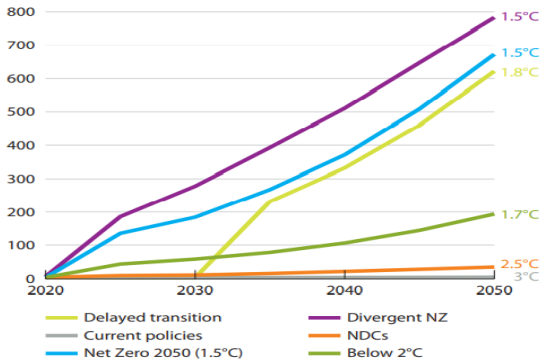
Share of global emissions/number of instruments



Source: World Bank State and Trends of Carbon Pricing, 2022

Carbon price development in different scenarios

USD/tCO2e



Source: NGFS

Necessary price range might be higher

Of course the 'appropriate' carbon price from this perspective is subject to some uncertainty, but if anything might be above the range used by the World Bank. The range used by the institution is USD 50-100/tCO2e. This is an estimate from the High-Level Commission on Carbon Prices, however the World Bank references itself a survey of economists, which found a median price of USD 100/tCO2e would be appropriate. Indeed, the NGFS Net Zero scenario has a price closer to USD 200/tCO2e by 2030. It is worth noting that although an appropriate carbon price on all emissions is a necessary condition for the transition, it is by far not a sufficient one. It is one of many factors, including sufficient investment, technological innovation and (global) policy co-ordination. In addition, very significant financial support will be necessary for those countries and households who simply do not have the money.

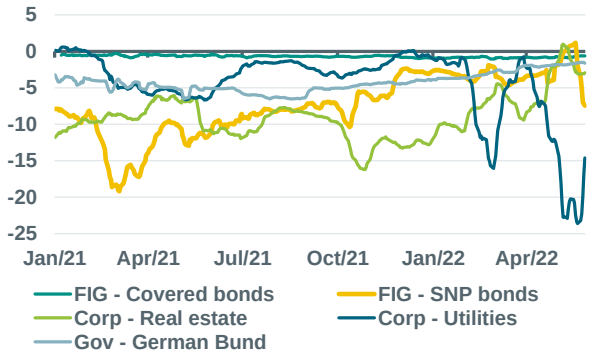
Steps to creating a global architecture

Moves have been made towards cross-border approaches towards carbon pricing as well as a global carbon market price for carbon credits. Starting with the former, the World Bank points at steps towards carbon border adjustment mechanisms, with the aim of preventing carbon leakage. The European Commission's proposal is a good example of this (see our note here). In addition, there are initiatives towards minimum carbon pricing arrangements. For instance, the IMF and WTO have called for a minimum price on carbon or price floor. This could work either globally or among large emitting countries for instance. Meanwhile, the World Bank reports that the growth of carbon credit markets (where credits can be bought by companies/countries to help meet emission reduction obligations) has accelerated further over the past year, with issuances, transactions, and prices all rising sharply. It judges that new carbon market rules set at COP26 in Glasgow have inspired more certainty and that this may help international compliance markets develop further in coming years. We look further into carbon credit markets in an upcoming publication.

ESG in figures

ABN AMRO Secondary Greenium Indicator

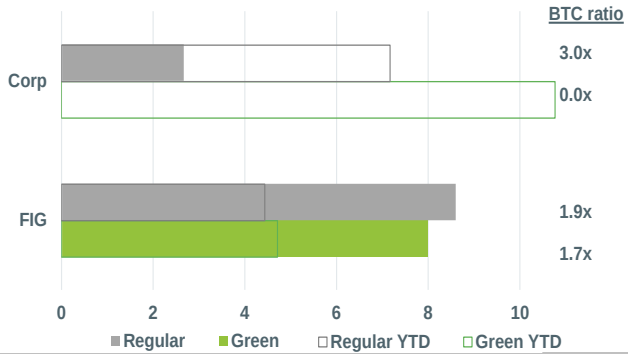
Delta (green I-spread – regular I-spread)



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

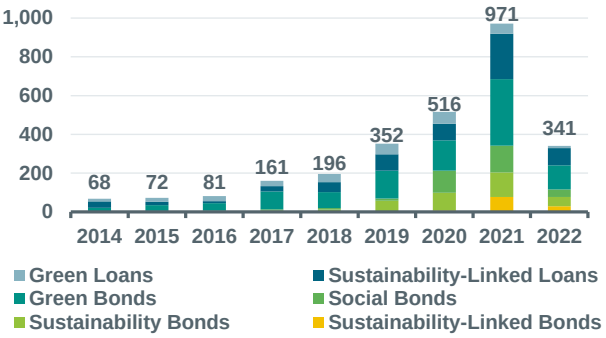
NIP in bps



Note: Data until 01-06-22. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics.

Sustainable debt market overview

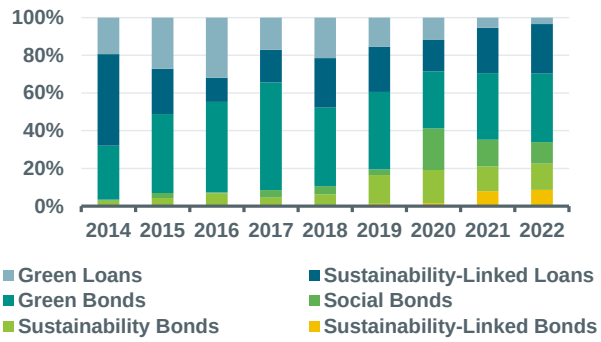
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

Breakdown of sustainable debt by type

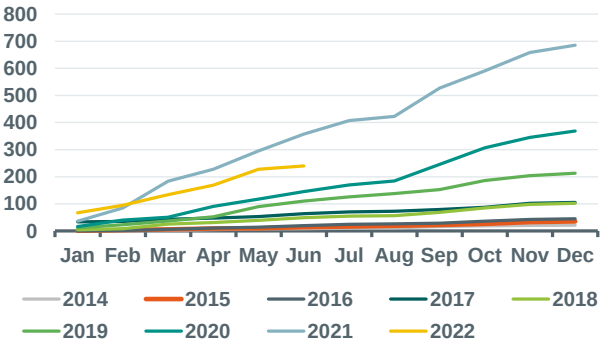
% of total



Source: Bloomberg, ABN AMRO Group Economics

YTD ESG bond issuance

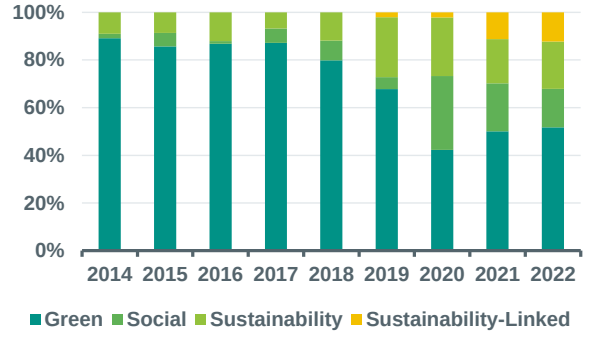
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by type

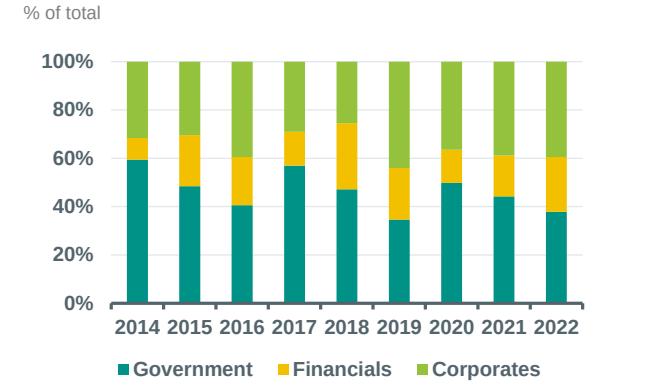
% of total



Source: Bloomberg, ABN AMRO Group Economics

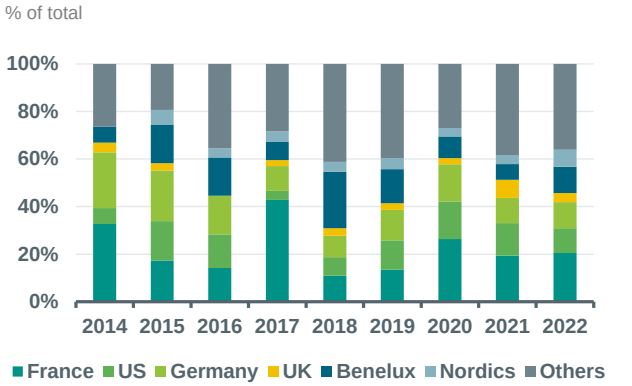
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

Breakdown of ESG bond issuance by sector



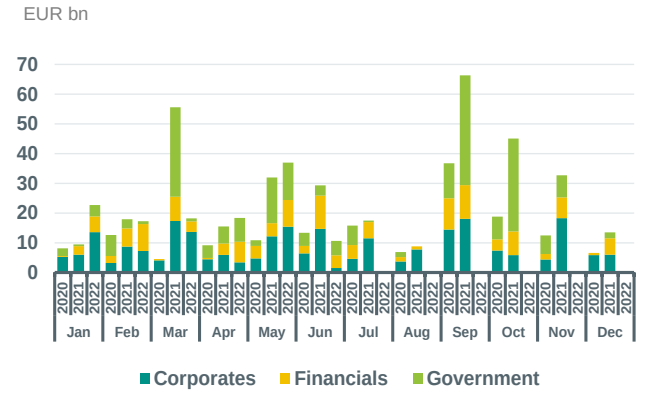
Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by country



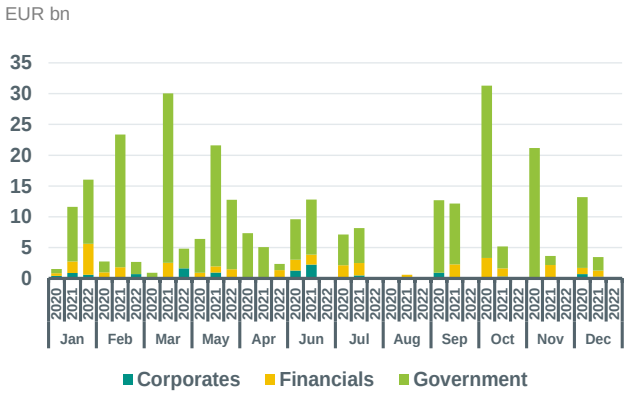
Source: Bloomberg, ABN AMRO Group Economics

Monthly Green Bonds issuance by sector



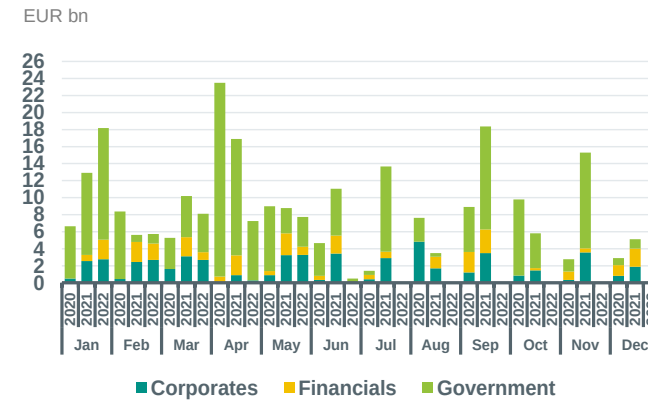
Source: Bloomberg, ABN AMRO Group Economics

Monthly Social Bonds issuance by sector



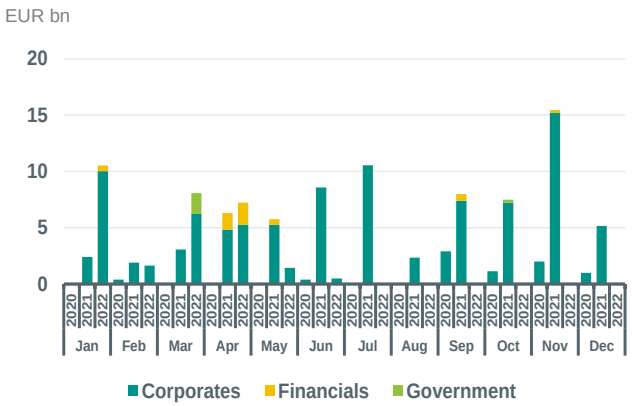
Source: Bloomberg, ABN AMRO Group Economics

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.

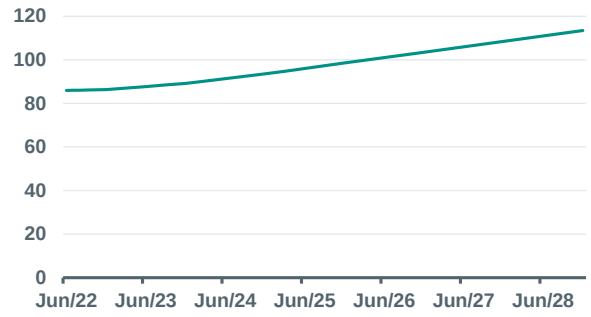
Carbon contract current prices (EU Allowance)

EUR/MT

Source: Bloomberg, ABN AMRO Group Economics

Carbon contract future prices (EU Allowance)

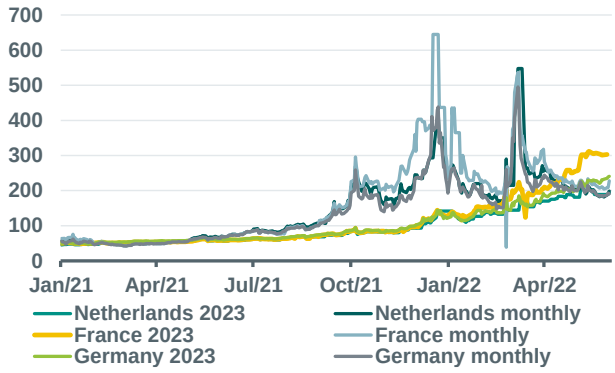
EUR/MT



Source: Bloomberg, ABN AMRO Group Economics

Electricity power prices (monthly & cal+1 contracts)

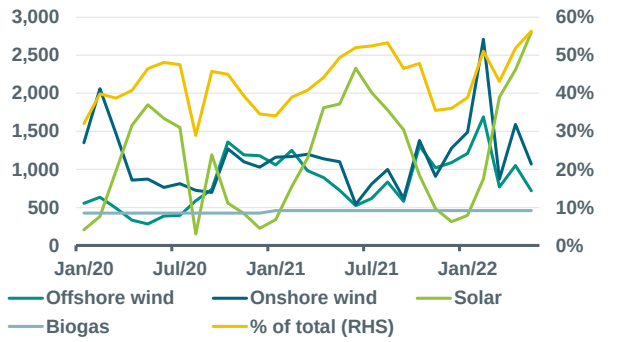
EUR/MWh



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

Electricity generation from renewable sources (NL)

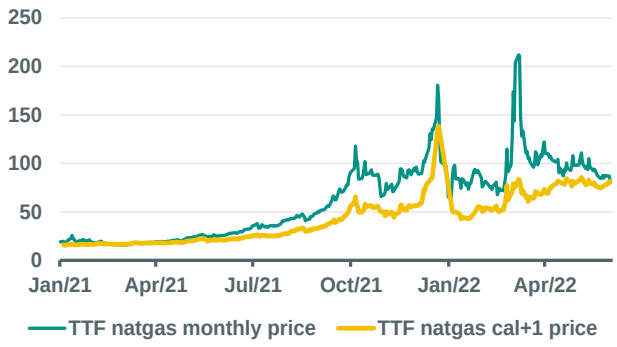
GW % of total



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

TTF Natgas prices

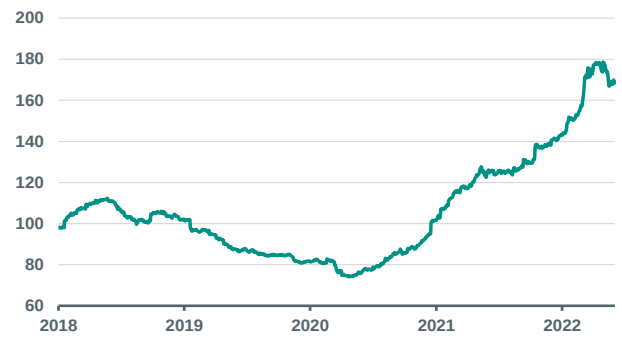
EUR/MWh



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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