

# SustainaWeekly

## Transition scenarios point to fossil fuel peak by 2030

- ▶ **Economist:** The IEA published the new version of its flagship World Energy Outlook 2023 in which it provides transition scenarios under several assumptions and climate targets. All of its transition scenarios indicate a peak for fossil fuels by 2030. Still, scaling up investments in all clean energy technologies is seen as the key to orderly transition rather than cutting spending on oil and gas. Solar PV is currently the rising star among renewables.
- ▶ **Strategist:** Issuance of euro benchmark ESG bonds in the financials space is set to break records this year. As the energy transition steps up pace, we expect supply of ESG bonds to rise again next year to a total of EUR 75bn (versus EUR 70bn in 2023). We expect supply of senior non-preferred bonds to rise to EUR 35bn, while the supply of green covered bonds is likely to remain stable.
- ▶ **Sector:** The EU is not on track to meet its target for the existing building stock to be renovated into 'nearly-zero-energy buildings' by 2050. The revised Energy Performance of Buildings Directive (EPBD) is one of a number of policy initiatives that aims to accelerate the process. Trialogue discussions on the final shape of the revision are ongoing. Differences on how to implement minimum energy performance standards have persisted.
- ▶ **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.

The IEA published the new version of its flagship World Energy Outlook 2023 in which it provides transition scenarios under several assumptions and climate targets. In this week's SustainaWeekly, we first assess the main takeaways from this publication. In our next note, we look at issuance trends of euro benchmark ESG bank bonds this year and the outlook for supply next year. In our final note, we focus on state of play of the revised Energy Performance of Buildings Directive (EPBD). Negotiations are ongoing on the final shape of the recast directive.

Enjoy the read and, as always, let us know if you have any feedback!

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## Takeaways from IEA's World Energy Outlook 2023

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- ▶ **All IEA transition scenarios indicate a peak for fossil fuels by 2030**
- ▶ **Solar PV is the rising star among renewables with a huge increase in manufacturing capacity and potential deployment to reach NZE capacity additions in 2030**
- ▶ **The pathway to a 1.5 °C limit on global warming is tough but still possible**
- ▶ **Diversification and innovation are the best strategies to manage supply chain dependencies for clean energy technologies and critical minerals**
- ▶ **Scaling up investments in all clean energy technologies is seen as the key to orderly transition rather than cutting spending on oil and gas**
- ▶ **Collaboration between countries is essential to achieve an efficient and smoother pathway to net zero emissions**

IEA published the new version of its flagship World Energy Outlook 2023 in which it provides transition scenarios under several assumptions and climate targets. IEA has three main transition scenarios, namely: the Stated Policies Scenario (STEPS), the Announced Pledges Scenario (APS), and the Net Zero Emissions by 2050 Scenario (NZE). We note that one of the major changes in scenario assumptions is the slower growth rate of China and its consequent impacts on energy markets has been incorporated in the STEPS. This translates into projections for a smaller Chinese economy (5% in 2030 and 15% by 2050) in comparison to last year projections. Also, the 2023 outlook envisioned a faster growth in electric cars sales and continued momentum in the deployment of renewables especially in solar PV, which reduces oil demand from road transport and coal and gas demand for power generation. In this note we highlight main takeaways from the IEA's publication.

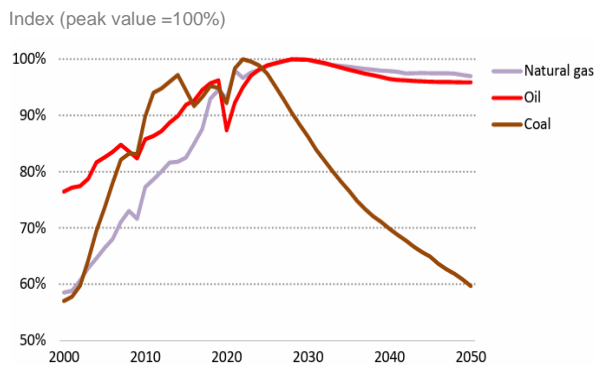
### Energy demand

Clean energy projects are the most dynamic factor in global energy investments even given the presence of obstacles related to higher financing costs, higher inflation, and supply chain bottlenecks. Moreover, the momentum in clean technology investments is sufficient to drive a peak in all fossil fuels by 2030, albeit with the rate of decline following the peak diverging widely across oil, gas, and coal.

In the STEPS scenario, the growth rate in energy demand to 2030 is around 0.7%, almost half of that of previous decade. The demand increase remains until 2050. This is not the case under APS scenario where total energy demand flattens, mainly because of efficiency improvements and electrification. In the NZE scenario, these advantages are even stronger and faster inducing a 1.2% yearly decrease in primary energy to 2030. The figure below shows the peak in all fossil fuel consumption in STEPS where demand reduction by China and advanced economies dominate the increase elsewhere. The projected decline in coal after the peak is due to the decline in the share of coal based power in the electricity mix, and changes in iron and steel production.

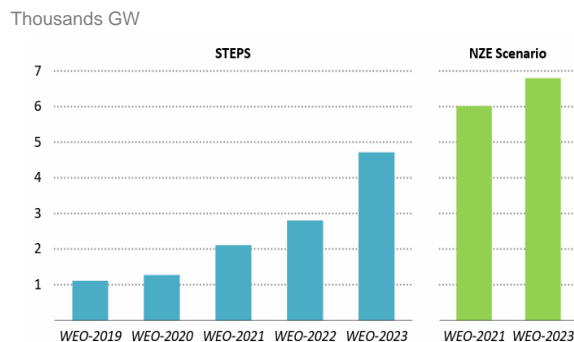
For oil, the rise of electric vehicles sales is dampening demand, and by 2030 road transport will not be a source for growth in demand. Moreover, demand decrease from road transport, power and building sectors will be more than enough to offset the demand increase from petrochemicals, aviation and shipping through to 2050 in STEPS.

### Fossil fuel consumption by fuel in STEPS 2000-2050



Source: IEA

### Solar PV and wind power capacity between 2022 and 2030 in five editions of World Energy Outlook



Source: IEA

For natural gas, capacity additions for power plants and space heating boilers already witnessed a peak, while demand reduction from these sectors, along with the shift to renewables and heat pumps driving a peak for natural gas by 2030. The IEA notes that the peaks in demand does not eliminate the need for new investments in oil and gas given the steepness of the decline from existing fields.

The IEA also emphasizes the impact of China's growth on energy markets:

*"If China's near-term growth were to slow by another percentage point, this would reduce 2030 coal demand by an amount almost equal to the volume currently consumed by the whole of Europe. Oil import volumes would decline by 5% and LNG imports by more than 20%, with major implications for global balances".*

### Fossil fuels supply

Scaling up investments in all clean energy technologies is the key to orderly transition and is more important than cutting spending on oil and gas, according to the IEA. However, the IEA also notes that investment in oil and gas today is still high, almost double the level required in the NZE Scenario in 2030.

The unprecedented investments in new LNG projects, starting in 2025, is set to bring the balance to markets and alleviate the concerns about natural gas supply. However, alongside gas contracted on a longer-term basis to end-users, the IEA estimates that more than one-third of the new gas will be looking to find buyers on the short-term market as mature markets are moving towards a strong structural decline, while emerging markets may not have the infrastructure to absorb much larger supply especially if demand from China slows further.

### The effect of increase in solar manufacturing capacity

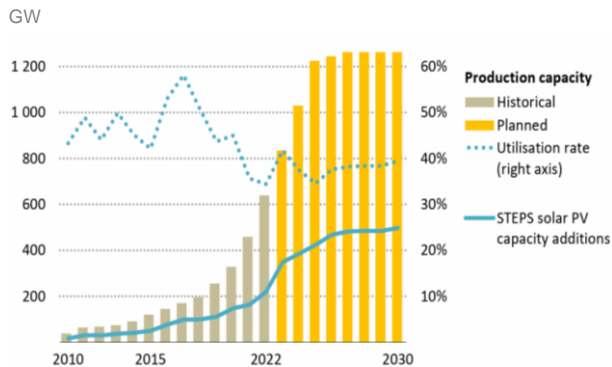
Solar PV has been the rising star in energy investments and is set to stimulate clean energy transitions around the world. China has been leading the increase in solar manufacturing capacity, with more than an 80% share. This trend is expected to persist and global solar capacity is set to reach 1200 GW in medium term.

Deployment is also expanding, in the STEPS it is expected to reach 500 GW in 2030, but planned manufacturing expansion means that the utilisation rate of solar manufacturing stays below 40%, which is lower than 70% for healthy industry. This represents an opportunity to boost the transition further with a potential extra capacity that can be deployed in 2030, which would be in line with the deployment levels in NZE for 2030.

To better align solar PV output with demand, scaling up storage is essential. Furthermore, the modernization and expansion of grids and networks, along with facilitating demand response and system flexibility would also be necessary. In some regions the integration of more solar PV could be facilitated by hydropower resources, for example in Africa, while natural gas could still play a major role to provide system flexibility, for example, in the Middle East.

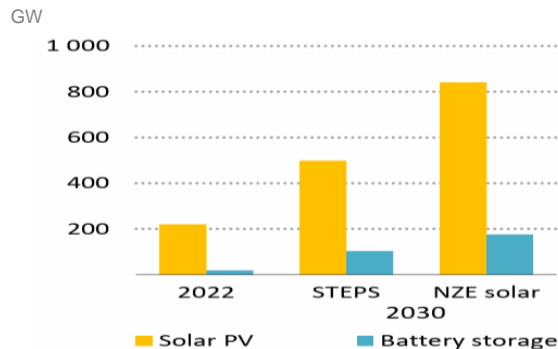
It is noted that China accounts for around half of wind and solar additions and well over half of global EV sales in 2022.

### Global solar manufacturing and capacity additions in the STEPS 2010-2030



Source: IEA

### Solar PV and battery capacity additions



Source: IEA

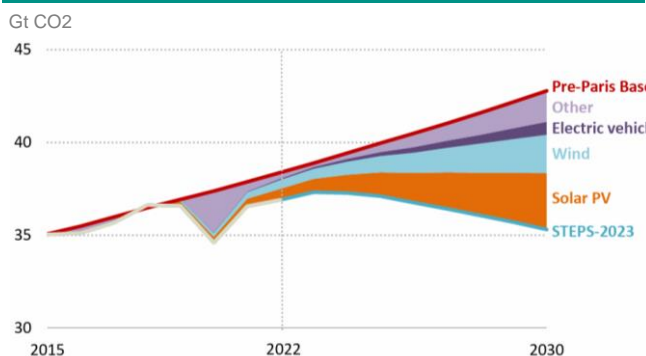
### Is the pathway to a 1.5 °C limit on global warming still feasible?

The answer is yes, but it looks very difficult. The IEA outlines several reasons for hope. First, many countries and businesses are increasingly committed to reach net zero emissions, while clean energy policies are being stepped up. For example, the response to the pandemic and energy crisis by many governments was targeted towards the stimulation of different clean technologies. Second, the fast acceleration of clean energy deployment. Third, the tools needed for going faster are readily available to help achieving the needed growth in renewables, efficiency improvements, and electrification envisaged in the NZE Scenario, which drives down demand for fossil fuels by more than 25% this decade. Finally, the world is finding innovative answers, with energy R&D spending exceeding USD 130 billion in 2022 and strong clean energy venture capital flows.

### Areas requiring urgent attention

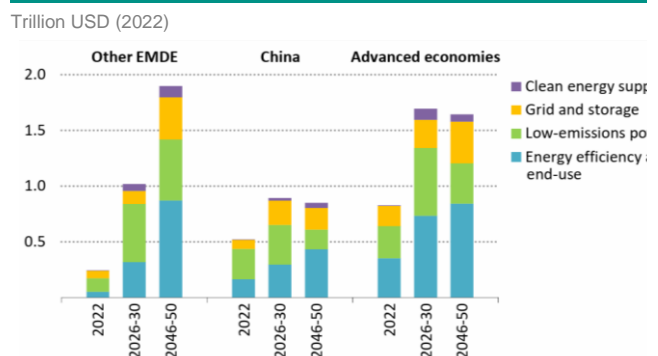
Even though in some aspects the transition is surpassing expectation, there are still some areas that require attention. One of which is the differences among countries, where scaling up clean energy investments in emerging and developing countries needs to increase to more than six times in order to achieve NZE scenario. However, this is hard to be achieved with existing economic, financial and indebtedness conditions for these countries.

### Global energy sector CO<sub>2</sub> emissions in STEPS 2015-2030



Source: IEA

### Average annual clean energy investment needs in NZE 2022-2050



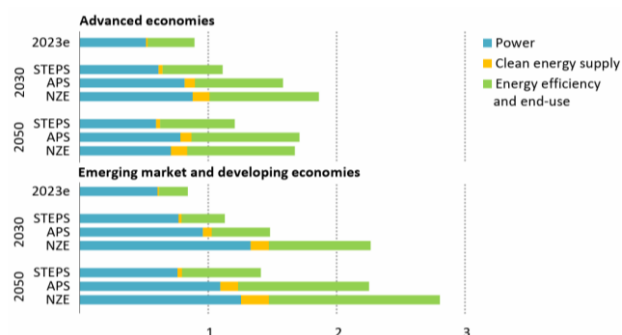
Source: IEA

Furthermore, there is a need for a balanced mix for investments between different transition needed (supporting) technologies, especially infrastructure. For example, larger, flexible and smarter electricity grids, alternative clean fuels, and carbon capture technologies are much needed to accommodate the rapid growth in renewables and electrification. Moreover, it is very important to make transitions resilient, inclusive, and affordable. The dependence of clean technologies on critical minerals requires more investments in mining, processing and refining of these minerals in order to avoid the risks associated to the supply of these materials. In addition, more attention is needed for the resilience of supply chains which are geographically concentrated in few number of countries to avoid disruptions whether from geopolitical tensions, extreme

weather or a simple industrial accident. Finally, more effort should be put to help low income households meet the upfront cost for clean technologies so that they are able to enjoy the benefits of these technologies.

### Investments in clean energy by scenario, 2030 and 2050

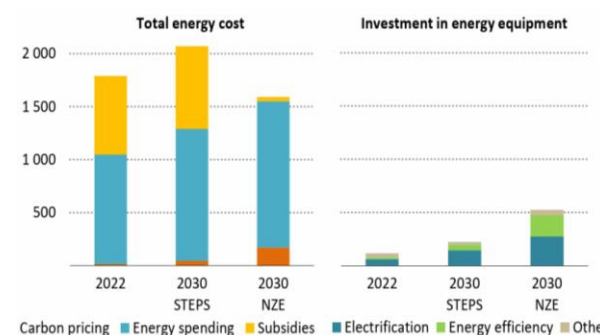
Horizontal axis: Trillion USD (2022)



Source: IEA

### Economy wide cost of household energy in emerging and developing economies

Billion USD (2022)



Source: IEA

Above all, collaboration between countries is essential to achieve an efficient and smoother pathway to net zero emissions. Countries need to find ways to make this a common, unified effort, which will help expanding financial funds to countries in need, and guarantees a cost-effective clean energy supply with effective safety nets to face any emerging disruptions.

## A record year for green bank debt

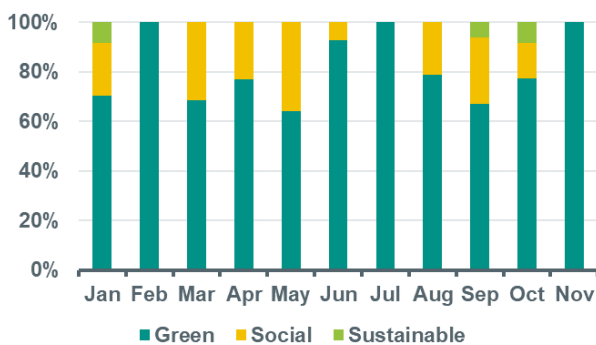
Marta Ferro Teixeira – ESG & Financials Strategist | [marta.ferro.teixeira@nl.abnamro.com](mailto:marta.ferro.teixeira@nl.abnamro.com)

- ▶ **Issuance of euro benchmark ESG bonds in the financials space is set to break records this year**
- ▶ **Use of proceeds bonds tend to be the preferred ESG instruments both for investors and issuers**
- ▶ **Senior non-preferred bonds are the preferred rank of debt to issue ESG-labelled bonds**
- ▶ **As the energy transition steps up pace, we expect supply of ESG bonds to rise again next year to a total of EUR 75bn (versus EUR 70bn in 2023)**
- ▶ **We expect supply of senior non-preferred bonds to rise to EUR 35bn, , while the supply of green covered bonds is likely to remain stable**

Issuance of euro benchmark ESG bank bonds in 2023 is set to be the highest on record. Now standing at around EUR 70bn, this number is already higher than the total amount issued in 2022 (EUR 66bn). Furthermore, the preferred ESG label remains the green use of proceeds one. From a total of 97 bonds issued, 74 were green-labelled, 20 had a social label, 3 were sustainable, and one was considered a novelty given its *sustainability-linked loan funding* framework (see [here](#)). This preference for green bonds corroborates with the results of our [ESG investor survey](#), conducted in July this year. That coupled with a more advanced legislative environment for standards in green bonds make them the instrument of choice for both issuers and investors.

### Share of green, social and sustainable bonds in 2023

Share of green, social and sustainable over total ESG-labelled bonds (%)

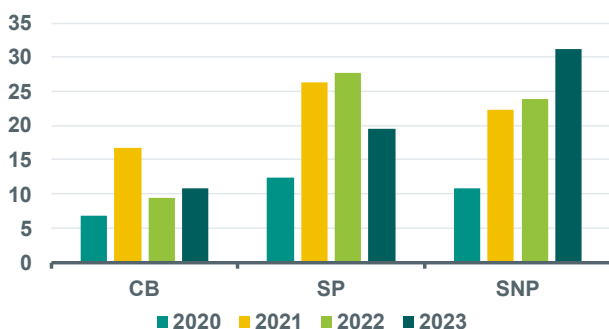


Source: Bloomberg, AMRO Group Economics.

Furthermore, banks tend to prefer issuing senior non-preferred ESG bonds. For instance, a total of EUR 28bn of ESG-labelled senior non-preferred bonds were issued this year, which represents a share of close to 30% of total issuance. On the other hand, only 10% of total supply of covered bonds was ESG-labelled (EUR 18.5bn). And, in the senior preferred market, 19% of total issuance was ESG labelled (EUR 17.15bn).

### Issuance of covered, SP and SNP between 2020 and 2023

Share of ESG-labelled bonds over total issuance, per rank of debt (%)



Source: Bloomberg, AMRO Group Economics.

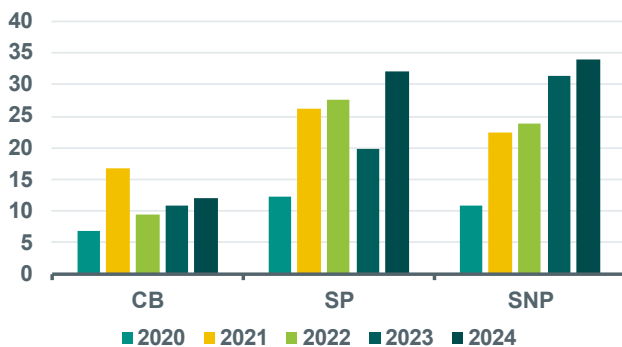
The decreasing share of green covered bonds since 2021 regards the massive supply of covered bonds that banks have issued between 2022 and 2023. The rise of interest rates coupled with the volatility and the uncertainty lived in financial markets drove both issuers and investors to search for the safe-haven nature of covered bonds. However, as the pricing advantage of green covered bonds over standard covered bonds is only marginal, there were not sufficient reasons (from a funding cost point of view) for banks to prefer issuing a green covered bond over a non-green one. In terms of the use of proceeds, both covered and senior non-preferred bonds can finance several projects, from renewable energy projects to the mortgage of a house with an energy performance label ranking within the top 15% of the housing stock of a specific country. Nevertheless, there is a clear pricing advantage for an issuer to print a green senior non-preferred bond over a standard one, and that might explain the increasing issuance of green senior non-preferred bonds over the last years.

Considering the above, we expect issuance of green senior non-preferred bonds to increase in 2024 to an all-time high of EUR 35bn. As the energy transition becomes more and more urgent, banks are likely to increase lending to finance companies' investments related to the energy transition. Therefore, banks will be able to issue more ESG-labelled bonds to finance these loans. Furthermore, as interest rates are expected to gradually decrease in the second half of 2024, it will become more attractive for companies to borrow and finance projects in order to accelerate the green transition.

With regards to green covered bonds, we expect supply to increase modestly to EUR 20bn. As mortgage lending growth is likely to remain modest, despite some pick-up in the second half of the year, green covered bond issuance will most likely be similar to that of this year.

#### Expected issuance of ESG bonds in 2024

Percentage of green bonds over total (%)



Source: Bloomberg, ABN AMRO Group Economics.

## State of play of the EPBD

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- ▶ **The EU is not on track to meet its target for the existing building stock to be renovated into ‘nearly-zero-energy buildings’ to achieve carbon neutrality by 2050**
- ▶ **The revised and recast Energy Performance of Buildings Directive (EPBD) is one of a number of policy initiatives that aims to accelerate the process**
- ▶ **While the Commission set out its proposal for the EPBD at the end of 2021, discussions with Parliament and the Council on the final shape of the revision are ongoing**
- ▶ **Differences on how to implement minimum energy performance standards have persisted, especially for existing residential buildings, though it is hoped that agreement will be reached this month**

### Introduction

Buildings in the EU account for 40% of the energy consumed and 36% of energy-related greenhouse gas emissions. The transition of the buildings sector is therefore crucial to Europe meeting its emission-reduction goals. The two pillars of this transition are increased energy efficiency on the one hand, and reduced dependence on fossil fuels on the other. However, efficiency is crucial and policymakers see the need for the existing building stock to be renovated into ‘nearly-zero-energy buildings’ to achieve carbon neutrality by 2050 at the latest. The EU is not on track to meet this objective. Renovation is required on a large scale, given that 75% of the building stock is inefficient, 85-95% of existing buildings will still be standing in 2050 and the annual renovation rate stands at just 1%. As the Commission notes ‘at the current pace, the decarbonisation of the building sector would require centuries’.

To accelerate the transition, policymakers have set out a number of complimentary initiatives, including the Renovation Wave for Europe Strategy, a new ETS covering buildings, the Energy Efficiency Directive and a revision of the Energy Performance of Buildings Directive (EPBD). In this note, we focus on how the EPBD revision is shaping up, given it is still in the midst of the negotiation process between the Commission, parliament and the member states.

### Main features of the EPBD revision

The European Commission’s proposed reform of the EPBD is part of the ‘Fit for 55’ package, which aims to set the EU firmly on the path towards net zero GHG emissions by 2050. It aims to accelerate building renovation rates, reduce GHG emissions and energy consumption, and promote the uptake of renewable energy in buildings. To support these goals, a number of key changes are proposed, which are set out below.

**Zero Emissions Building** - A new definition of Zero Emissions Building (ZEB) would be introduced as the standard for all new buildings from 2027 and for all renovated buildings from 2030. ZEB is defined as a building with a very high energy performance. For residential buildings, total annual primary energy use should be less than 60-75 (kWh/m<sup>2</sup>), with the exact point in the range depending on the region. The residual energy use should be covered fully by renewable sources that are generated on-site or are locally produced.

**Energy Labels** - To ensure comparability across the EU, energy performance certificates (EPC) shall be based on a harmonised scale of energy performance classes by the end of 2025 at the latest. These energy performance classes will be rescaled (A-G). Buildings in Class A need to meet the ZEB standard described above, while buildings in Class G shall correspond to the worst 15% worst-performing buildings in the national building stock at the time of the introduction of the scale. The remaining classes (B-F) have an even bandwidth distribution of energy performance indicators among the energy performance classes. This should lead to some harmonisation of the current disparate system of EPCs in Europe (see table on the next page), though there will remain significant national differences.

### Europe's disparate energy labels

Energy use, kWh/m<sup>2</sup> per annum; BE = Flanders

Measure	NL	DE	FR	BE
	Primary fossil	Final Energy	Primary energy	Primary energy
A+++	less than zero			
A++	<0			
A+	<50			
A	<75	<30		0
B	<105	<50	<50	<100
C	<160	<75	<90	<200
D	<190	<100	<150	<300
E	<250	<130	<230	<400
F	<290	<160	<330	<500
G	<335	<200	<450	>500
H	>380	<250	>450	
H		>250		
Worst 10%	418	275	495	550

Source: Various national sources, ABN AMRO Group Economics

**Minimum Energy Performance** - New EU-level minimum energy performance standards (MEP's) should be introduced, with the aim of triggering an increase in renovation rates for the worst performing buildings and hence those with the highest potential for decarbonisation. For public and non-residential buildings, those in Class G would need to reach at least Class F by 2027 and Class E by 2030. For non-public residential buildings, those in Class G would need renovations to reach at least Class F by 2030 and Class E by 2033. Member states would be free to establish minimum energy performance standards for the renovation of all other existing buildings. Member states are allowed to exclude several categories of buildings from the minimum standards, such as monuments. New private buildings must be ZEB by 2030 and new public buildings already by 2027.

**Renovation Plans** - National building renovation plans would be submitted by the EU governments every five years with targets for 2030, 2040 and 2050. These plans should be a 'fully operational planning tool', with a stronger focus on financing and making sure that skilled workers are available. The first drafts of these would be due by 30 June 2024. The Commission would critically assess these plans. The measures proposed in the EPBD should support the Renovation Wave for Europe strategy, which aims to double renovation rates in the next ten years.

**Financial support** - Member states are expected to support the above policies by providing appropriate financial support, in particular for vulnerable households. Full use should be made of EU funding to help finance renovations. For instance, through the 'Renovate' flagship component of the Recovery and Resilience Facility (RRF) and the ETS Social Climate Fund from 2025. Mobilising financial institutions should also play a central role. Mechanisms should be put in place to incentivise mortgage lenders to increase the energy performance of the portfolio of buildings covered by their mortgages as to encourage potential clients to renovate their property.

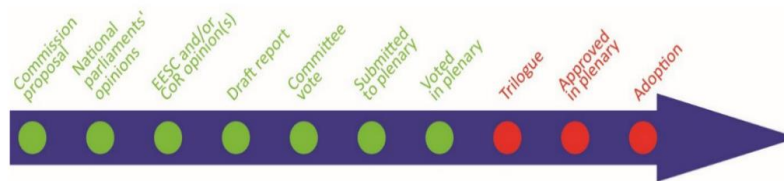
**Improving information** - Numbers tell the tale. Better information on the current state of the building stock is a precondition for its improvement. Member states should set up national databases for EPCs of buildings and transfer this data to the Building Stock Observatory. All public buildings would be obliged to be issued with an EPC as well as private buildings where the rental contract is being renewed. Currently, all new buildings, those requiring major renovations, sold or rented to new tenants require an EPC. The validity of the lower D-G classes of EPCs is reduced to only five years (instead of 10 years) to make sure they contain up-to-date information.

### The State of Play

The European Commission's legislative proposal to recast the EPBD was set out in December 2021. In March of this year, the European Parliament adopted its position for interinstitutional negotiations, which are currently ongoing. There are differences between the Parliament and Council and the Commission proposal described above. Parliament would have liked to see more ambitious targets. New buildings should be ZEB by 2028 (rather than 2030 in the Commission proposal). Residential buildings would need to achieve at least Class E by 2030 and Class D by 2033 (rather than F and E, respectively, in the Commission proposal).

Meanwhile, the Council's initial negotiating position appeared to be less ambitious compared to the proposal of the Commission. The new building requirements were the same as those of the Commission, but public buildings would need to be ZEB by 2028 (rather than 2027). Existing residential buildings would have needed to achieve Class D by 2033. Non-residential buildings would have needed to meet maximum energy performance thresholds determined according to the 15-25% worst performing buildings. They would need to fall below the 15% by 2030 and below the 25% by 2034 of this threshold. This would have implied a slower transition compared to the Commission. The Council also favoured an A+ Class, in addition to the ZEB A Class, for buildings that also contributed on-site renewable energy to the grid.

#### Recast EPBD - process so far



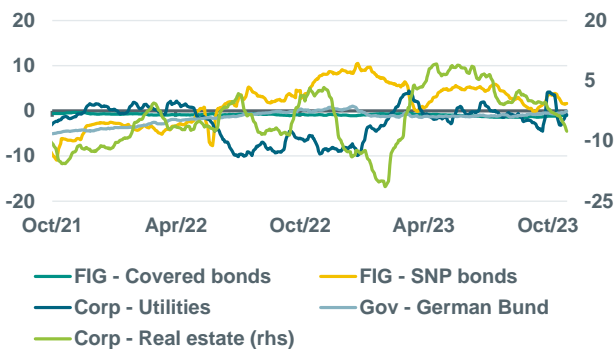
Source: European Parliamentary Research Service

As the negotiations have progressed, it appears that the differences on minimum energy performance standards persist. For residential buildings, the Council appears to be shifting to targets based on the decrease of the average primary energy use of the whole residential building stock over the period from 2025 to 2050, instead of targeting performance only of particular segments. Member States would establish minimum energy performance standards for residential buildings based on a national trajectory for the renovation of the building stock and would hence identify the number of buildings or floor area to be renovated annually. Still member states would ensure these trajectories would be consistent with Class D by 2033. Despite these persistent differences in this and other areas, it is hoped that compromises will be found, which will allow for a final agreement later this month.

## ESG in figures

### ABN AMRO Secondary Greenium Indicator

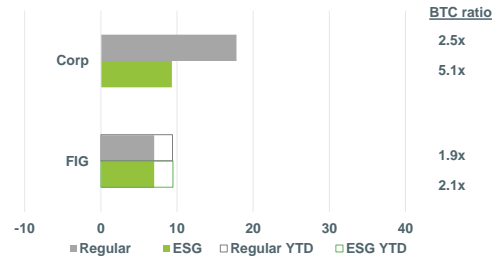
Delta (green I-spread – regular I-spread)



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

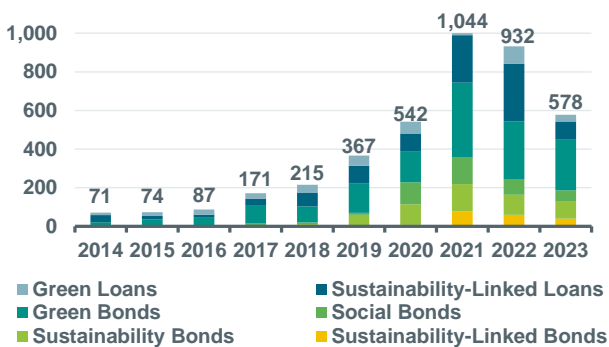
NIP in bps



Note: Data until 11-10-23. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics

### Sustainable debt market overview

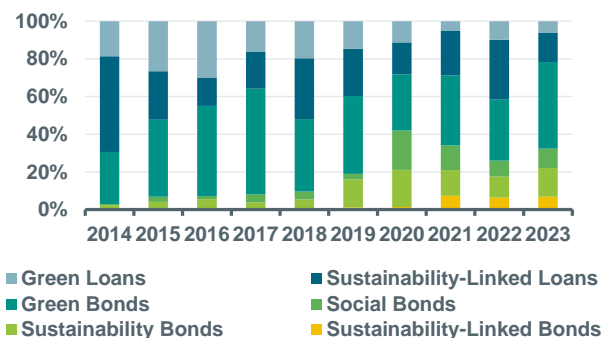
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

### Breakdown of sustainable debt by type

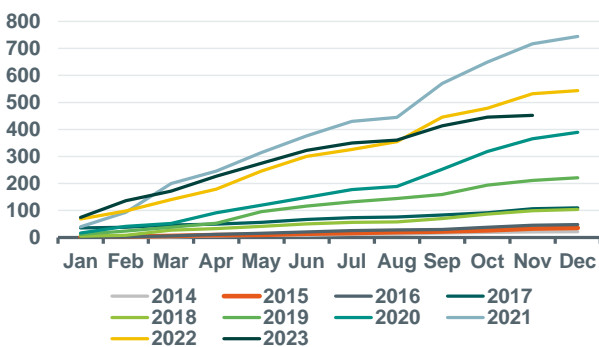
% of total



Source: Bloomberg, ABN AMRO Group Economics

### YTD ESG bond issuance

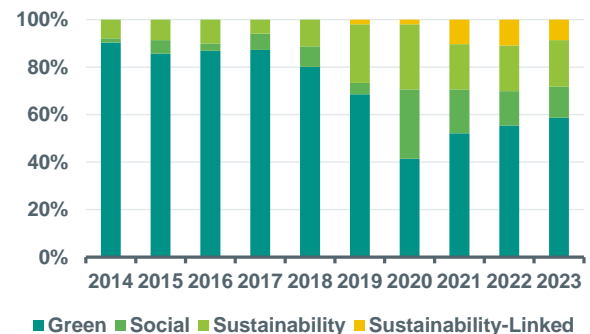
EUR bn (cumulative)



Source: Bloomberg, ABN AMRO Group Economics

### Breakdown of ESG bond issuance by type

% of total

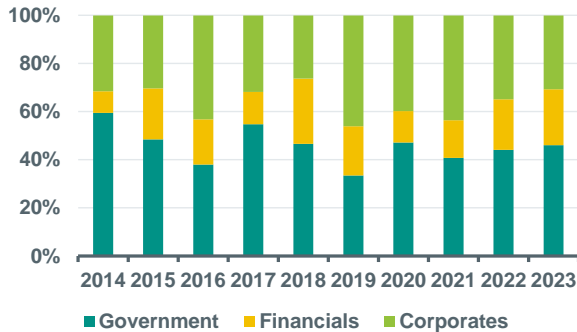


Source: Bloomberg, ABN AMRO Group Economics

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

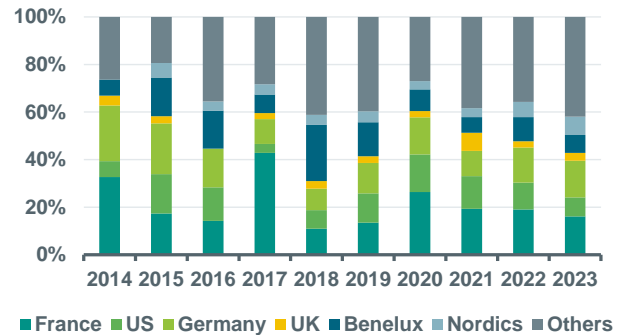
% of total



Source: Bloomberg, ABN AMRO Group Economics

### Breakdown of ESG bond issuance by country

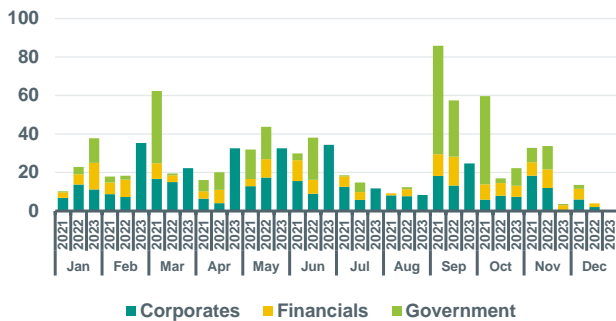
% of total



Source: Bloomberg, ABN AMRO Group Economics

### Monthly Green Bonds issuance by sector

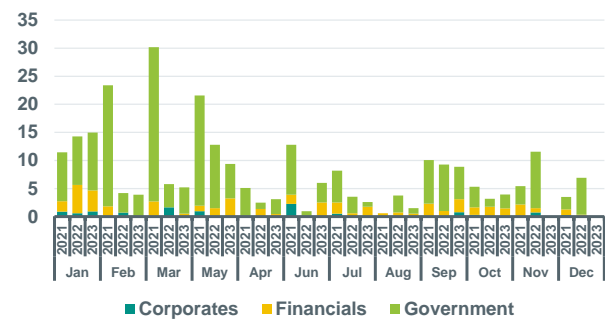
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

### Monthly Social Bonds issuance by sector

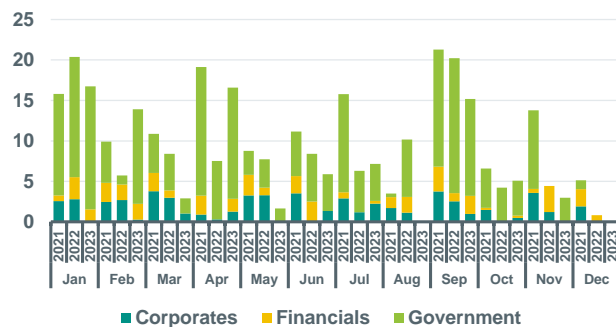
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

### Monthly Sustainability Bonds issuance by sector

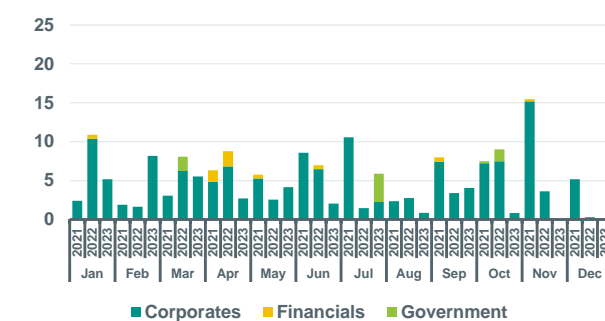
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

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

EUR bn



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

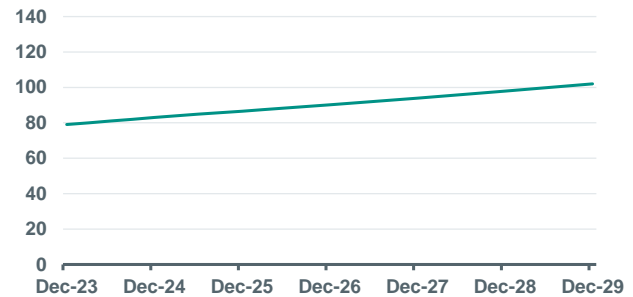


Source: Bloomberg, ABN AMRO Group Economics

**Carbon contract futures curve (EU Allowance)**

EUR/MT

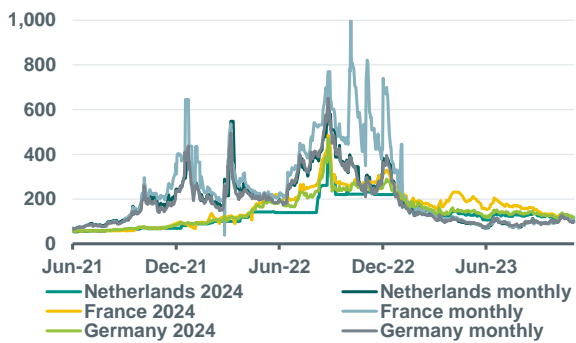
S



Source: Bloomberg, ABN AMRO Group Economics

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

EUR/MWh

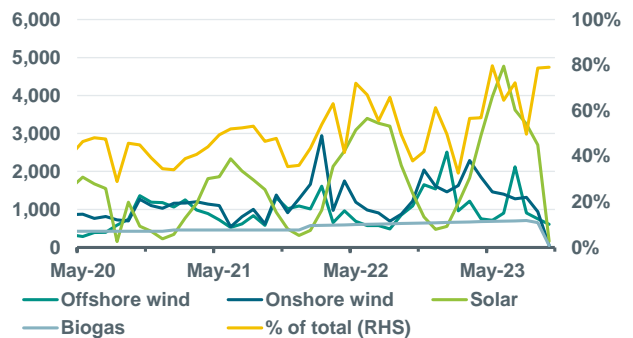


Source: Bloomberg, ABN AMRO Group Economics. Note: 2024 contracts refer to cal+1

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

GW

% of total



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

**TTF Natgas prices**

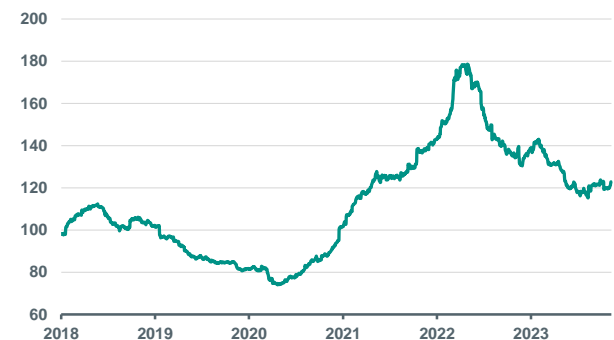
EUR/MWh



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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