SustainaWeekly

Energy efficiency investments still attractive for real estate companies

- **Sectors: Current market rates for equity and debt in the residential real estate space are prohibitively high for property investments in the Netherlands. However, the high cost of capital can still be recovered through investments in energy efficiency. We show that a refurbishment from an EPC label G to a B label generates a 10% IRR. Energy refurbishments could still drive demand for capital in debt markets.**

- **Economist: We set out Europe's energy sector investment under different climate scenarios. We then go on to use expectations of utility companies' capex plans over the coming years, and estimates for off balance sheet and government investment to assess which scenario we are currently tracking. Our analysis shows that we are close to investment levels under a delayed transition scenario, but well below what is required under a net zero scenario in terms of energy investment.**

- **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 week's SustainaWeekly, we start by looking at whether energy efficiency investments by residential real estate companies make sense, against the background of rising corporate bond yields and falling equity prices. As a rule of thumb, if the internal rate of return is above the cost of capital, the return on the investment exceeds its costs and the investment becomes attractive from a financial point of view. We conclude that there is an avenue for property investors to realize sufficient returns next year, whilst also contributing to curbing emissions. We then go on to set out investment levels for the EU energy transition that are consistent with different climate scenarios and use various indicators to assess which scenario we are currently tracking. Our analysis shows that we are close to investment levels under a delayed transition scenario, but well below what is required under the net zero scenario in terms of energy investment.

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

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Energy efficiency measures for real estate investors still profitable in high cost of capital environment

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- **Current market rates for equity and debt in the residential real estate space are prohibitively high for property investments in the Netherlands**
- **However, the high cost of capital can still be recovered through investments in energy efficiency**
- **We show that a refurbishment from an EPC label G to a B label generates a 10% IRR**
- **This is derived from a 10.3% valuation uplift and only a 50% pass-through of energy cost savings to tenants**
- **Energy refurbishments could still drive demand for capital in debt markets**

Cost of capital has crawled up considerably discouraging general investment in real estate

The rising corporate bond yields and falling equity prices have put real estate investors into a difficult spot. We look at public markets to get a sense of how much they have risen. Last year the all-in yield on a EUR denominated 10y BBB+ rated unsecured residential real estate bond was quoted at 1.1%. Today it has risen to 4.7%. The implied cost of equity on bellwether residential real estate issuer **Vonovia** has risen from 4.7% to 8.6% during the same period. These are market rates, but their role as a guidance for cost of capital should not be trivialised as investors can achieve these level of returns when putting their money at work in public markets. The obvious problem is that real asset markets have not corrected as much. Hence, when we, for example, invest a hypothetical EUR 100 in Dutch residential real estate at 4.0% gross initial yield (based on latest NVM data), a reasonable 3% rent and value growth per annum, and an exit in 10 years we get the net present value (NPV) and internal rate of return (IRR) outcome as shown in the table below. IRR basically estimates the rate of return on an investment and is therefore used to assess the attractiveness of an investment opportunity. As a rule of thumb, if the IRR is above the cost of capital, the return on the investment exceeds its costs and the investment becomes attractive from a financial point of view.

Cost of Debt (after tax)	**3.9%**										
Cost of Equity	**8.6%**										
WACC	**6.3%**										
	CF0	**CF1**	**CF2**	**CF3**	**CF4**	**CF5**	**CF6**	**CF7**	**CF8**	**CF9**	**CF10**
Property purchase	-100										
Gross Rent grows at 3% p.a.		4	4.1	4.2	4.4	4.5	4.6	4.8	4.9	5.1	5.2
Sale of property at y10, value grows at 3% p.a.											134
Maintenance & Refurbishment cost, 20% of investment, per annum, 2% inflation		-1	-1.0	-1.0	-1.1	-1.1	-1.1	-1.1	-1.1	-1.2	-1.2
Annual net cashflow	**-100**	**3.0**	**3.1**	**3.2**	**3.3**	**3.4**	**3.5**	**3.7**	**3.8**	**3.9**	**138.4**
Discount factor	1.00	0.94	0.89	0.83	0.78	0.74	0.69	0.65	0.62	0.58	0.54
	-100	**2.8**	**2.7**	**2.7**	**2.6**	**2.5**	**2.5**	**2.4**	**2.3**	**2.3**	**75.4**
NPV = Σ(CF0 to CF10)	**-1.8**										
IRR	**6.0%**										

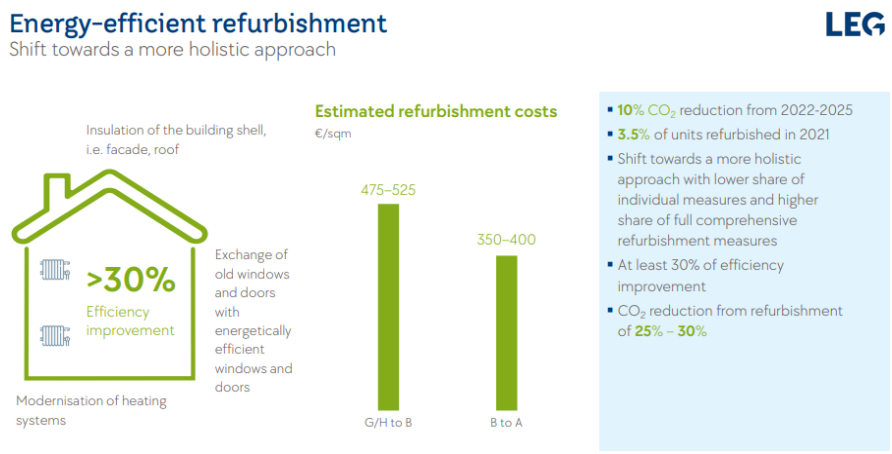
Source: NVM, Bloomberg, ABN AMRO Group Economics

Our discount rate is based in a 50/50 debt to equity capital structure where we take the aforementioned 4.7% cost of debt (3.9% after tax) and 8.6% cost of equity. Obviously as the 6% IRR sits below the 6.26% weighted cost of capital and the sum accrues to a negative net present value (NPV), it would make investors walk away from this transaction. We believe that this dislocation between market rates and real asset values is visible across various pockets in the real estate space, hence 2023 could mark a year with limited property transactions from big real estate investors. At least until real asset valuations will have come down or market rates start to decline. But when real asset values drop significantly, investors will probably prioritize debt reduction instead of new investments, thereby keeping the lid on new property deals. Let's hope markets have over-shot themselves.

Energy efficiency investments still attractive

There has been ample coverage in the press about property owners preferring energy efficient properties. This makes perfect sense as dwellers are happy to pay up for energy efficient properties to save on their energy bills. Energy prices need to remain at existing levels for at least 5 years in order to make up for the EUR 472 per sqm premium an EPC B-labelled property gets against a G-labelled property (see more on this below). That compares to a EUR 96 per sqm per annum saving in the cost of heating through natural gas. We derive our energy savings from a 30% reduction (or efficiency) when converting a G-labelled unit into a B-labelled unit, as recently flagged by German residential real estate company **LEG Immobilien**. We take the midpoint (i.e. EUR 500 per sqm) from LEG's estimate as investment in energy related refurbishment for going from a G labelled to a B labelled property.

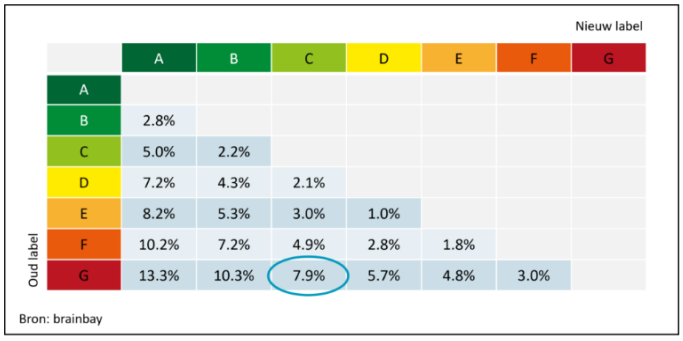
Going from G-label to B-label saves 30% according to LEG Immobilien



Source: LEG Immobilien Sep 2022 capital markets update

What the market is willing to pay more for label G vs label B is derived from a recent study by **NVM and Brainbay**, where we assume that the average energy label in the Netherlands is D and the average price for an apartment is EUR 4,719 per sqm as per latest NVM data. From this, we can derive values from G labelled properties (=EUR 4,450 psqm) and for B labelled properties (=EUR 4,922 psqm) based on the uplift percentages in the table on the next page. The total uplift from energy measures is therefore EUR 472 psqm.

Value uplift matrix when upgrading energy labels according to NVM/Brainbay



Afbeelding 2: %-stijging woningwaarde voor alle woningen in Nederland. Voor een woning met label C wordt gemiddeld 7,9% meer betaald dan voor een vergelijkbare woning met label G. Bron: brainbay

Source: NVM/Brainbay, footnote translates as follows: "Value increase throughout the Netherlands (ie not region specific),a C labelled unit fetches 7.9% more than a comparable G-labelled unit"

While one would assume that savings could be immediately re-charged into rents by the landlords by virtue of the tenant not being worse off than paying higher energy bills, we hear from Dutch residential property investor **Vesteda** that only half of the savings are typically recharged in rents to existing tenants. Only after an average 8 year tenancy change, the full energy savings are re-charged to the new tenant.

10% IRR achievable through energy efficiency investments

Given what we have discussed so far, we now have sufficient inputs to calculate the return on a hypothetical EUR 500 per sqm in energy efficiency investment and bumping up the energy label from G to B. The table below shows a net present value (NPV) on a 10y investment horizon, when applying a 50/50 debt & equity capital structure, as we did before.

Cost of Debt (after tax)	**3.9%**										
Cost of Equity	**8.6%**										
WACC	**6.3%**										
	CF0	**CF1**	**CF2**	**CF3**	**CF4**	**CF5**	**CF6**	**CF7**	**CF8**	**CF9**	**CF10**
Energy refurbishment invesment	-500										
Re-charge into rents		47.9	47.9	47.9	47.9	47.9	47.9	47.9	95.7	95.7	95.7
Uplift in valuation from energy refurbishment											472
Annual net cashflow	**-500**	**47.9**	**47.9**	**47.9**	**47.9**	**47.9**	**47.9**	**47.9**	**95.7**	**95.7**	**567.7**
Discount factor	1.00	0.94	0.89	0.83	0.78	0.74	0.69	0.65	0.62	0.58	0.54
	-500	**45.1**	**42.4**	**39.9**	**37.5**	**35.3**	**33.3**	**31.3**	**58.9**	**55.4**	**309.3**
NPV = Σ(CF0 to CF10)	**188.5**										
IRR	**11.1%**										

Source: LEG Immobilien, Bloomberg, NVM/Brainbay, ABN AMRO Group Economics

Clearly the 11% IRR sits much higher than what can be achieved under a regular property investment and makes up for the cost of capital, even if the entire investment were to be funded through equity. Hence, we still see an avenue for property investors to realize sufficient returns next year, whilst also contributing to curbing emissions, as lower energy intensity also translates into a 25-30% lower CO2 footprint of the building as shown in the LEG Immobilien example on the previous page. Actually, our calculations show that energy efficiency renovations can be carried out without the need for subsidies, as long energy prices will not come down to pre-Russia/Ukraine conflict levels (our calculations now assume they will remain high for the next 10 years). The key bottleneck is capacity, i.e. how much materials and labour is available to carry out energy renovation work. Still, judging by the long-term carbon reduction targets issued by Vonovia and LEG Immobilien, we already see a case for roughly EUR 2.0bn worth of investments in 2023 spread out over 4mn sqm of property area, assuming that the focus will be on poor energy labels. The Netherlands has a stock of 3.4mn rental properties (i.e. units not sqm), suggesting ample borrowing or even equity raising potential for energy efficiency measures in 2023.

Europe's energy sector investment: in line with net zero?

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- **We set out Europe's energy sector investment under different scenarios using the latest NGFS estimates**
- **Under a delayed transition scenario investment would reach EUR 186bn per annum by 2025; this would need to be EUR 276bn in a net zero scenario**
- **We use analyst consensus forecasts to assess the capex plans of European utilities companies**
- **Utilities are currently estimated to invest EUR 74bn in 2023, once adjusting for large maintenance investment, while that should grow to EUR 88bn by 2025**
- **Once we add off-balance sheet investments not recorded in the capex numbers, as well as government investment, we get to EUR 168bn for 2025**
- **Our analysis therefore shows that we are close to investment levels under a delayed transition scenario, but well below what is required under the net zero in terms of energy investment**

A successful energy transition will need large scale investments across the whole economy, but the investments in the energy sector are of course crucial. In this note we set out the energy sector investment levels for the EU that are consistent with two different scenarios: a delayed transition and an orderly net zero scenario. We then go on to use expectations of utility companies' capex plans over the coming years, to assess which scenario we are currently tracking.

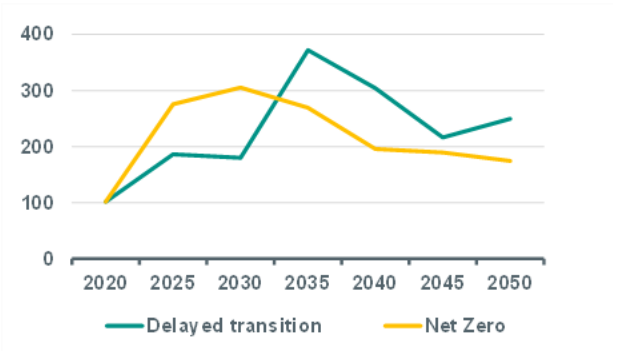
Transition scenarios

We used the latest NGFS scenarios to set out energy sector investment under different scenarios. The well-known orderly net zero scenario is one which limits global warming to 1.5°C, where global net zero CO2 emissions are reached around 2050. When looking at regional data, it is about the specific region's (in this case the EU's) contribution to that evolution. Climate policies are introduced early and become gradually more stringent, investments are ramped up quickly, while developments in technology and innovation are rapid.

Under a delayed transition, policies and investments are delayed and developments in technology are slower. This scenario limits global warming to 1.6°C, but the economic damage from transition risks is more significant. In addition, up until 2030, this scenario resembles status quo scenarios, which would leave the world on track for 2.6°C warming or even more, in the absence of a rapid, abrupt and disruptive change in transition tempo beyond 2030.

Investment energy sector for transition

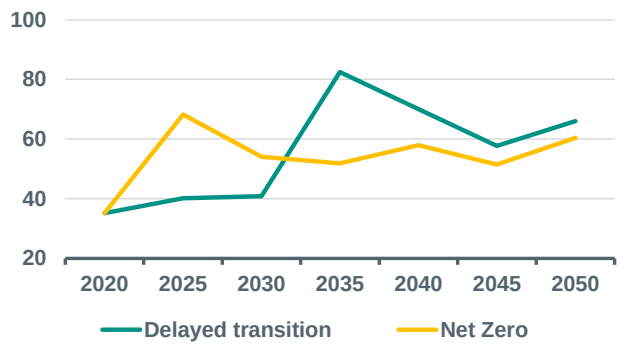
Per annum, EUR bn



Source: NGFS, ABN AMRO Group Economics

Investment in wind energy

Per annum, EUR bn



Source: NGFS, ABN AMRO Group Economics

Investment trends in the transition scenarios

The chart on the left above shows energy investment pathways for transition in the two scenarios. Under the net zero scenario, investment accelerates to EUR 276bn per annum in 2025 and peaks at levels of EUR 306bn in 2030, before easing to lower – though still high – levels of investment in the years there after. In the delayed transition, investment rises but much more moderately over the next few years. Then an extremely sharp jump in investment is necessary beyond 2030. To emphasise this point, annual investment would need to reach EUR 372bn in 2035, while remaining much higher than in the net zero scenario than the years thereafter. In actual fact, cumulative investment in the delayed transition scenario is higher than under the net zero scenario, in a classic case of a 'stitch in time saves nine'. More importantly, the levels of investment necessary beyond 2030 suggests that catch-up following inertia in the coming years might be difficult.

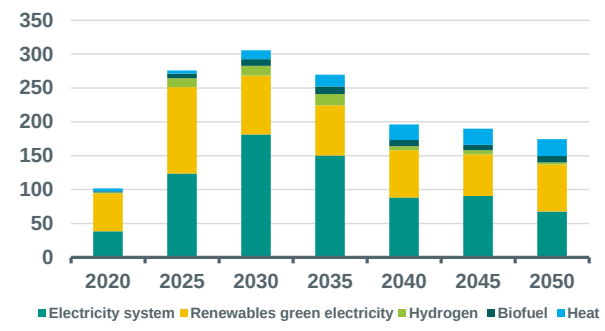
Decomposing energy sector transition investment

Transitioning towards net zero emissions requires major investment flows towards renewable energy for green electricity and electricity transmission, distribution and storage (see charts below for the breakdown in the two scenarios). The rest of the investment flows are for heat, hydrogen and biofuels.

Looking at the breakdown of renewable energy for green electricity, wind is by far the most significant investment area. Investment in wind energy remains relatively high through our the whole period (see chart on the previous page, on the right side) in both scenarios. In the delayed transition scenario, investment in wind stagnates to 2030, and then the pace doubles over the next five years.

Investment energy sector net zero

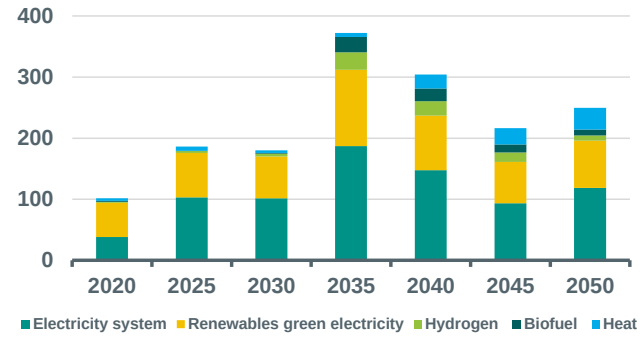
Per annum, EUR bn



Source: NGFS, ABN AMRO Group Economics

Investment energy sector delayed transition

Per annum, EUR bn



Source: NGFS, ABN AMRO Group Economics

Tracking progress versus scenarios

We now go on to use equity analyst expectations of utility companies' capex plans over the coming years, to assess which scenario we are currently tracking. We aggregate the numbers in order to have an estimate for the EU in total (see chart below on the left). Firstly, we look at the utility that compose 80% of the ICE BofAML Euro Utilities Index. We assume therefore that these also compose 80% of the total capex investments and extrapolate these figures to 100%. Investment last year by European utility companies was registered at around EUR 197bn. The consensus of analysts expect this to grow to EUR 235bn in 2022, and EUR 245bn in 2023 (see chart on the next page on the left).

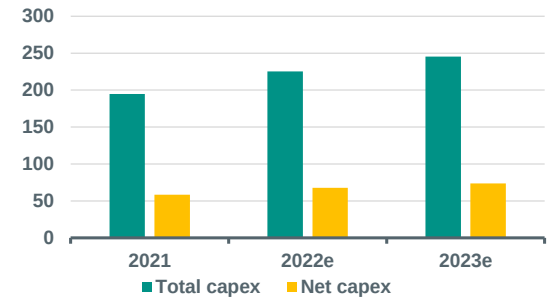
However, crucially, a very large proportion of these numbers consist of maintenance capex and therefore do not help to grow the investments in renewable energy in Europe. We therefore estimate the share that could be assumed to be growth capex by deducting the share of estimated depreciation & amortization from the current capex figures. This would get us around EUR 68bn of investments in 2022 and EUR 74bn in 2023.

This is significantly below the annual investment in a delayed transition scenario for 2025 (EUR 186bn) and also well below the amount in a net zero scenario (EUR 276bn). It is unclear how much of the investment needs estimated by the NGFS – if any – reflect maintenance or growth investment. However, we assume that investment needs for the transition should reflect

real growth of capacity. On this basis, current investment falls well short, though as explained below, there is reason to increase the estimates on the basis of items that are excluded.

Capex spending by utility companies

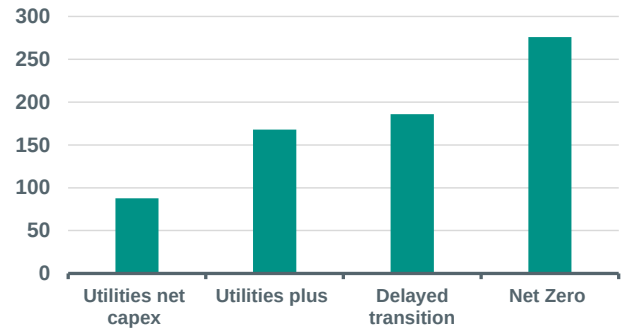
Analyst estimates, EUR bn



Source: Bloomberg, ABN AMRO Group Economics

Investment energy sector for transition in 2025

EUR bn



Source: NGFS, Bloomberg, ABN AMRO Group Economics

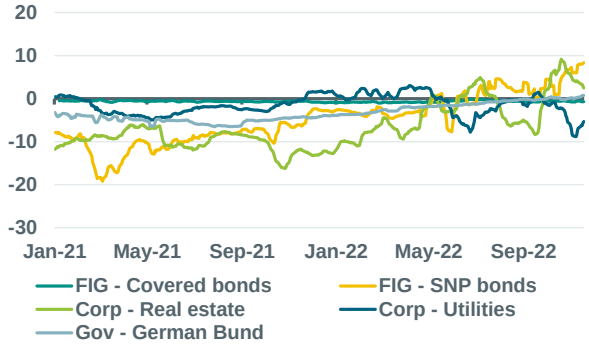
Still a way to go to a net zero scenario

Despite investment levels below to even a delayed transition, there are two important factors that call for a more optimistic take. First of all, capex from utilities does not consider project financing, which are typically off-balance sheet investments. Secondly, our calculation does not include direct government investments. For instance, the IEA estimates that while the bulk of investment in advanced economies will likely be private sector, 15% could come from governments in a net zero scenario by 2030. Applying that private-public proportion, as well as ongoing growth during 2024 and 2025, and an estimated EUR 55bn per year in investment coming from project finance, would leave investment close to a delayed transition scenario. Indeed, the 'Utilities plus' scenario (see graph above) estimates investment at around EUR 168bn in 2025. This obviously involves a lot of assumptions, but we think a balance judgement is that we are currently close to a delayed transition scenario in terms of energy investment, but well below what is required to be invested under a net zero scenario.

ESG in figures

ABN AMRO Secondary Greenium Indicator

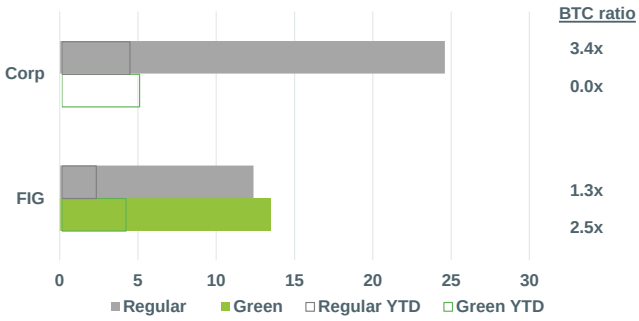
Delta (green I-spread – regular I-spread)



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

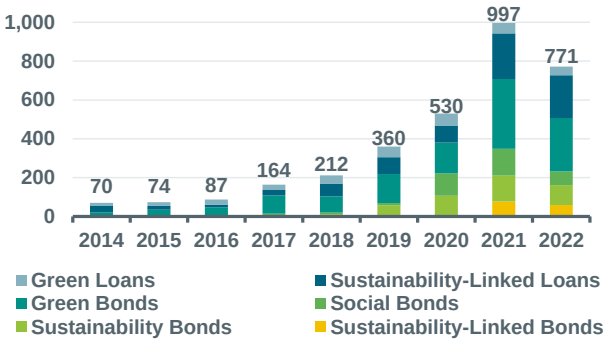
NIP in bps



Note: Data until 25-11-22. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics.

Sustainable debt market overview

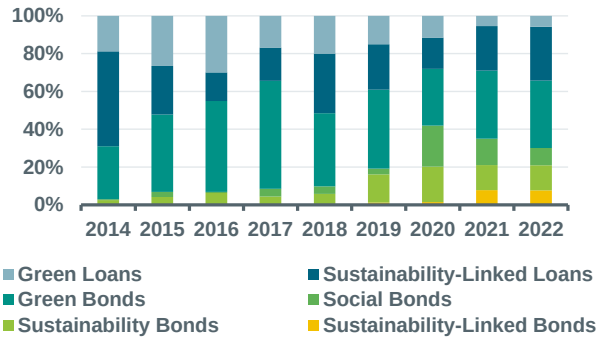
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

Breakdown of sustainable debt by type

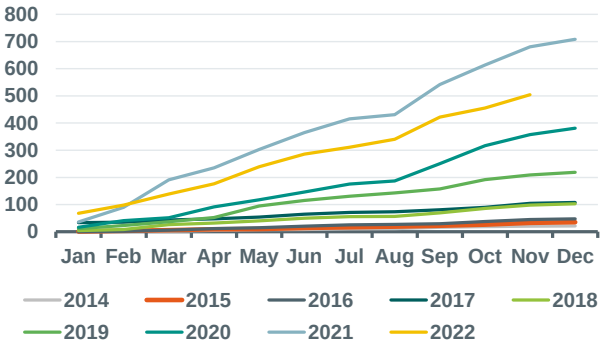
% of total



Source: Bloomberg, ABN AMRO Group Economics

YTD ESG bond issuance

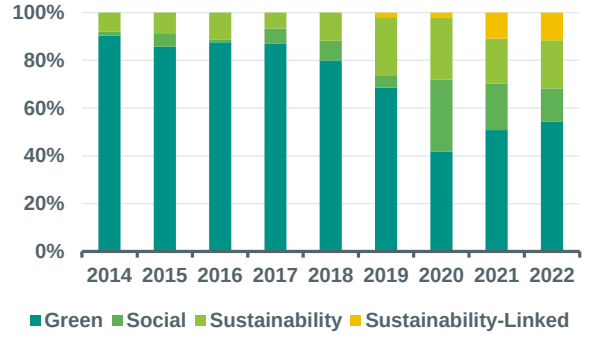
EUR bn (cumulative)



Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by type

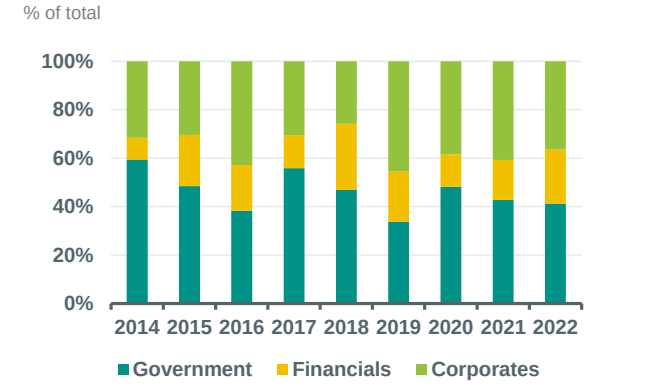
% of total



Source: Bloomberg, ABN AMRO Group Economics

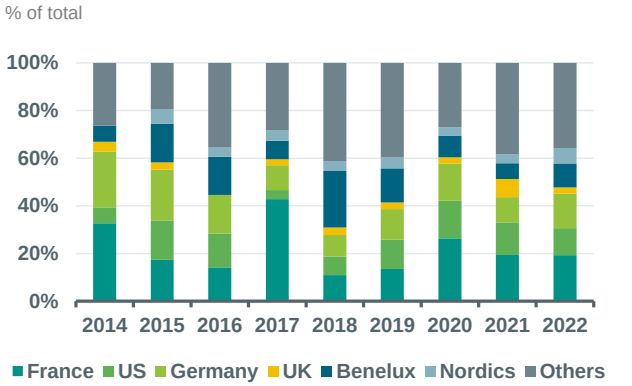
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

Breakdown of ESG bond issuance by sector



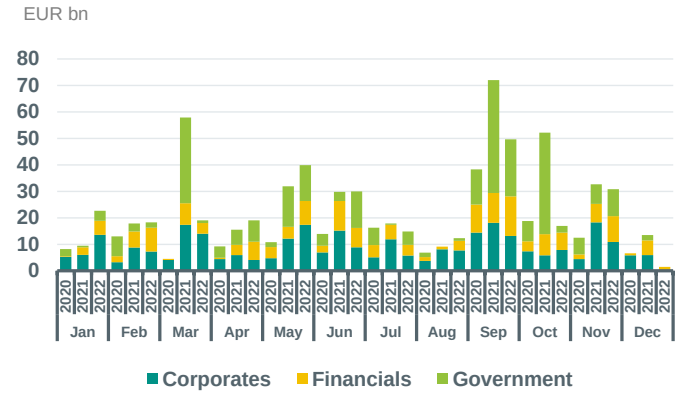
Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by country



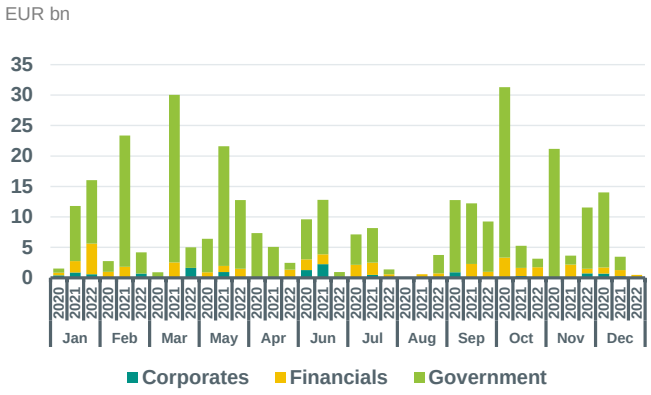
Source: Bloomberg, ABN AMRO Group Economics

Monthly Green Bonds issuance by sector



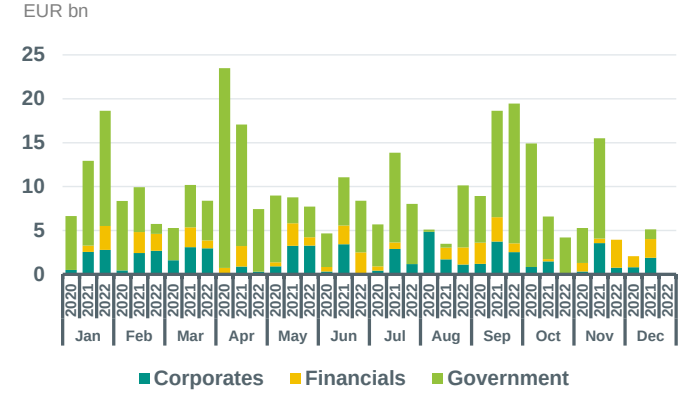
Source: Bloomberg, ABN AMRO Group Economics

Monthly Social Bonds issuance by sector



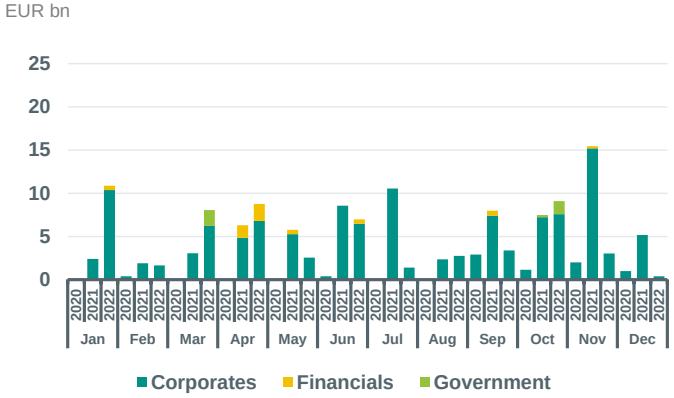
Source: Bloomberg, ABN AMRO Group Economics

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.

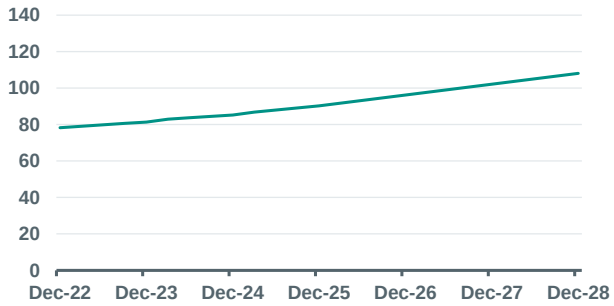
Carbon contract current prices (EU Allowance)

EUR/MT

Source: Bloomberg, ABN AMRO Group Economics

Carbon contract future prices (EU Allowance)

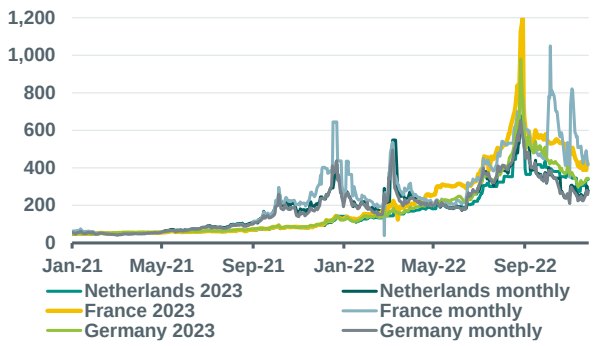
EUR/MT



Source: Bloomberg, ABN AMRO Group Economics

Electricity power prices (monthly & cal+1 contracts)

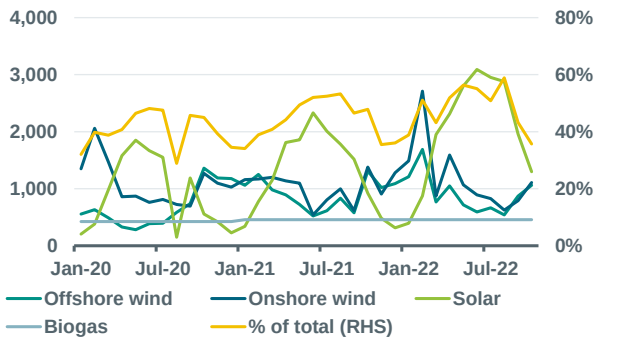
EUR/MWh



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

Electricity generation from renewable sources (NL)

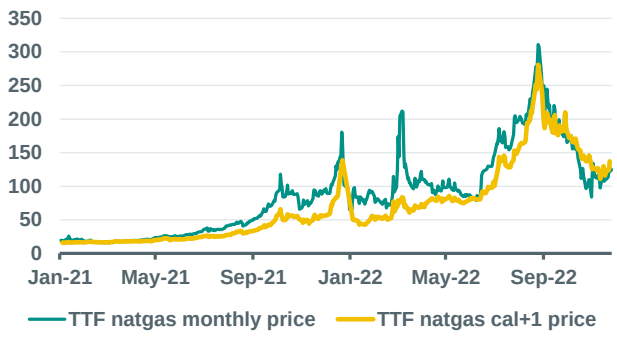
GW % of total



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

TTF Natgas prices

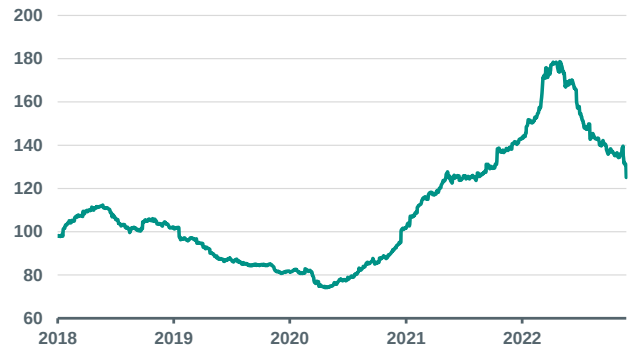
EUR/MWh



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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