

SustainaWeekly

What the transition means for electricity prices

- ▶ **Economics Theme:** Average electricity prices in the EU will continue to fall as renewable energy capacity increases. Oversupply combined with a lack of flexibility occasionally leads to negative prices. In the long run, the number of hours with negative prices will decrease so the average price will not drop to zero.
- ▶ **Strategy Theme:** We reviewed and analysed various ESG sovereign score methodologies to assess how they can complement traditional analysis. ESG scores tend to have a very high correlation with traditional credit ratings because they overweight the 'G' pillar. A ranking of countries based on metrics from the 'E' pillar leads to significant differences in rankings.
- ▶ **ESG Bonds:** The Dutch state will reopen its inaugural green Dutch State Loan 2040 on 14 June. The Green Bond Framework has been updated and is now aligned with the new EU Taxonomy. The green DSL 2040 is the first EU sovereign green bond linked exclusively to expenditures that map to the economic activities currently covered by the EU Taxonomy.
- ▶ **Policy & Regulation:** ECON reached an agreement on the amendments to the European Green Bond Standard regulation. We highlight a few of the key changes, such as the proposal to expand the regulation to the wider green bond market, as well as the permission to now include nuclear and/or gas under the EU GBS label.
- ▶ **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 assessing how electricity prices will be impacted by the transition. We go on to review ESG sovereign score methodologies and argue that particular attention should be paid to the 'E' pillar. Meanwhile, we look into the Dutch government's Green Bond Framework, which has been updated and is the first to be aligned with the new EU Taxonomy. Finally, we analyse the amendments to European Green Bond Standard regulation. Enjoy the read and, as always, let us know if you have any feedback!

Nick Kounis, Head Financial Markets and Sustainability Research | nick.kounis@nl.abnamro.com

Composition of electricity prices will be changed by the energy transition

Hans van Cleef - Senior Energy Economist | hans.van.cleef@nl.abnamro.com

- ▶ **Average electricity prices in the EU will continue to fall as renewable energy capacity increases**
- ▶ **Oversupply combined with a lack of flexibility occasionally leads to negative prices**
- ▶ **In the long run, the number of hours with negative prices will decrease...**
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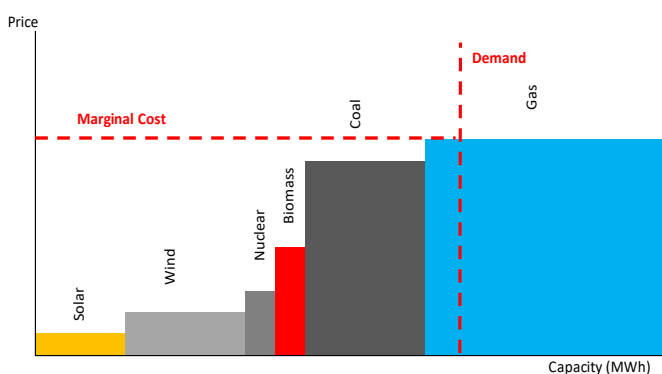
In 2022, it is expected that about 30% of the electricity in the Netherlands will be generated by solar and wind energy. Only five years ago, that share was about 10%. In the Dutch Climate Agreement, it was agreed that the share of sustainable energy must grow to 75% by 2030. The general expectation is that electricity prices will continue to fall as the share of renewable energy in the electricity mix increases. We already regularly see negative electricity prices at times of an oversupply of solar and wind. After all, solar and wind energy have lower marginal costs than traditional energy sources. The share of solar and wind energy will continue to increase significantly in the coming years. Nevertheless, we expect that the number of hours with negative prices will actually decrease and consequently the average electricity price will not drop to zero euros per MWh.

How are electricity prices set?

To understand the outlook for electricity prices, we first explain how the price of electricity is formed. As with the formation of any market price, the balance between supply and demand is crucial. In the case of electricity, both demand and supply can show large fluctuations from one moment of the day to the next. The demand for electricity follows a daily pattern, but in turn it differs during the week compared to the demand for electricity at the weekend. Until recently, supply always followed demand trends. Because power stations can be controlled, production is adjusted to demand. As the share of renewable energy increases, the supply is however increasingly determined by the weather.

The cost of generating electricity is used to determine what proportion of the supply capacity is needed to meet demand. Every hour of the day, an energy supplier calculates what it costs to produce one unit (Megawatt-hour or MWh) of electricity: the marginal cost price. This applies to all types of electricity, from coal-fired power stations to wind farms. This price includes all costs: fuel such as coal and gas, CO₂ emission rights, and all other variable costs to make production possible.

Example: Merit order for electricity production



Source: ABN AMRO Group Economics

If you put the costs of generating electricity in order, you get the merit order (see chart above). This supply curve can vary per hour of the day. One single producer will be needed to supply that amount of electricity to balance the total demand. The cost price of this one producer is the price-setting plant in the merit order for that hour. The producer and power plant owner determines the electricity price at that given time. It is often said that solar and wind power get priority in the merit order. This is not correct. However, solar and wind power do have the lowest marginal costs, currently followed by nuclear, coal and gas power plants.

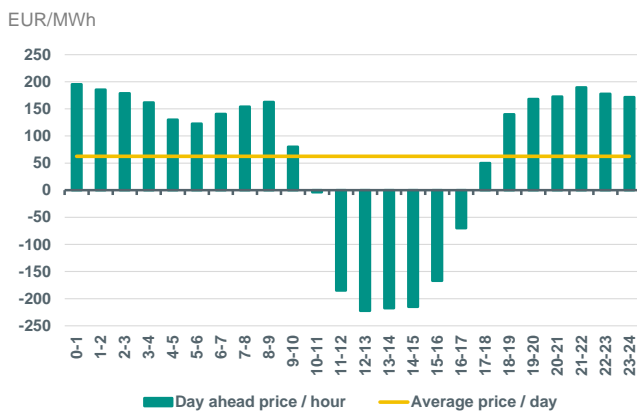
Until recently, gas-fired power stations in the Netherlands had considerably lower marginal costs than coal-fired power stations. This was partly due to the low gas prices, but also because coal-fired power stations emit more CO₂ and therefore have to buy more CO₂ emissions rights. This changed as a result of high gas prices due to the war between Russia and the Ukraine and the tight gas supplies. Since this year there is a maximum capacity utilisation rate of 35% on an annual basis that applies for Dutch coal-fired power plants. Therefore they are hardly used at the moment. As a result, the price for electricity has increased because gas-fired power stations now have to run harder to meet the demand for electricity.

The cost price, or merit order, can vary from country to country. This depends on the generation capacity available in a country. The Netherlands has many gas-fired power stations while France generates a lot of electricity using nuclear power stations. Germany has a mix of mainly coal plants and renewable energy. As a result of increasing interconnectivity between European countries, the electricity mix per country is becoming less relevant. As a result electricity prices of these countries are increasingly converging. For example, the price of electricity is rising across Europe due to the tightness in the gas markets, while some countries are much more dependent on gas than others.

What causes negative prices?

On Saturday 23 April, electricity prices reached - until now – the lowest level ever of EUR -222.36/MWh. This negative price was the result of a low demand and a large supply of solar and wind energy (100% of the electricity demand at that time). The fact that prices can become negative for a certain period of time is a result of the following dynamics: a lack of flexibility and the fact that costs are compensated by subsidies.

Day-ahead prices Netherlands on 23 April 2022



Source: ENTSO-E, ABN AMRO. X-axis = hour of the day

There is almost no flexibility in the electricity market. This is the case for both the demand and the supply side. There is apparently little controllable demand for electricity that can benefit from low prices: demand response. This could include consumption in industry, for example, but also storage capacity that can take advantage of low purchase prices. A well-known example is a freezing company that sets the temperature extra low when prices are low and reduces demand when prices are high by freezing the products slightly less deep. These types of price fluctuations should eventually lead to a sound business case for power storage if it becomes more common and affordable. But so far, this is only possible to a limited extent.

As mentioned above, flexibility on the supply side is also limited. Conventional power plants will normally scale down production when prices are (too) low. But there may be technical or contractual reasons for not shutting down the plant completely. This may be because a substantial upscaling is expected in the following hours (and upscaling simply costs time), or because there are agreements concerning the supply of heat from the same power station. In the Netherlands, it is also apparently worthwhile for solar and wind parks to continue producing at negative prices, for example, because there is a guaranteed price thanks to a subsidy (Stimulerende Duurzame Energieproductie = SDE). In theory, production can therefore continue until a negative price is reached, which is almost completely compensated by the subsidy to be received. However,

no subsidy is paid out after six hours of negative prices. At that moment, a wind or solar producer will no longer want to supply electricity at a negative price.

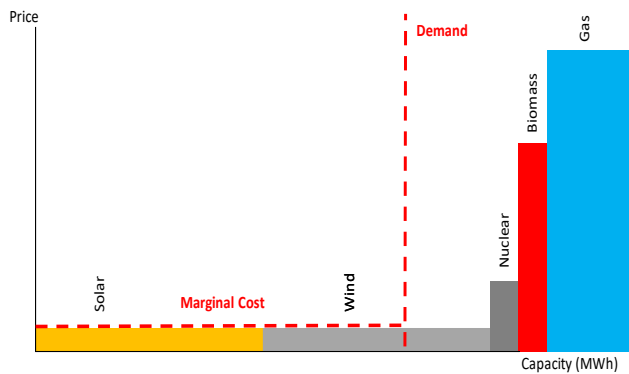
Our outlook for energy prices

In the coming years the percentage of sustainable energy will increase significantly. The weather dependency will therefore increase considerably. At the same time, some conventional power plants (both coal and gas fired) will be closed down or put in mothballs. On top of that, given the recent discussions about biomass, it remains to be seen how long biomass will be used to generate electricity. Finally, the Dutch government is currently investigating the possibility of building new nuclear power plants. Regardless of the outcome, this potential additional capacity will only come into force after 2030

As a result of these developments, the merit order will change. The example below is for illustration purposes only, rather than a forecast of what is likely. In addition, in these examples the marginal costs of solar and wind energy have been equated. This does not need to be the case in practice either. After all, whether it is windy or sunny is separate point. The weather conditions prevailing at the time will determine the marginal costs per producer.

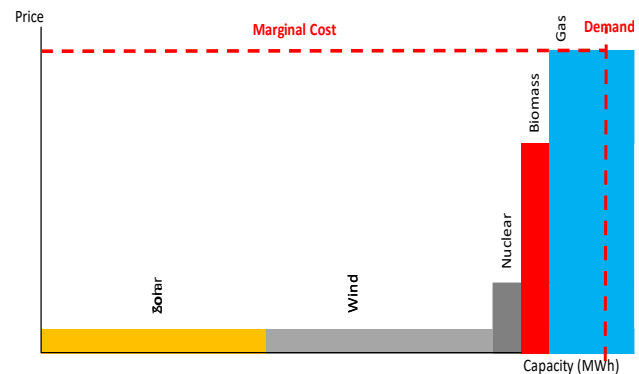
Because the capacity of renewable energy will increase substantially after 2030, the marginal costs will be lower than today (example 1). This will also push down the average electricity price. However, there will not always be sufficient supply to meet demand. Either because demand is higher at certain times or because the supply of renewable energy is lower. In that case, conventional power plants will have to step in to meet demand. These will produce less frequently than currently is the case. In addition, they are also dependent on the price of raw materials and CO2 emission rights. Therefore, the marginal unit costs of these conventional power plants will rise sharply (example 2). As a result of this combination, it is likely that price volatility will increase.

Example 1 - merit order towards 2030 with low cost...



Source: ABN AMRO

Example 2 – ... and with high marginal cost



Source: ABN AMRO

Electricity price will be negative less often

In the coming years, not only will the supply of renewable energy rise sharply, the demand for electricity will also increase due to the transition. As a result, the oversupply will not necessarily increase at the same pace as the supply is growing. Certainly, that is given the fact that conventional production capacity will also disappear. This latter partly ensures that electricity prices will rise sharply when there is a shortage of sustainable electricity generation, but it also reduces the likelihood that conventional capacity cannot be scaled down when there is an oversupply. In short, the probability of temporarily higher prices increases, but at the same time the probability of negative prices decreases.

Furthermore, interconnection capacity between countries and regions will be increased so that any oversupply or shortage in one bidding zone can be resolved by importing or exporting from/to another bidding zone. And, as indicated earlier, we expect that the market reaction will not only come from the energy producers. Consumers, too, will react to price movements and increase demand when prices are low, or reduce demand when prices are high. Storage capacity can play an important

role in this, but active energy management by consumers/end users is also an option. As a result, the demand curve will also create some sort of a merit-order, driven by electrification and sector coupling.

Finally, and perhaps the most important reason that we will see less frequent negative prices in the future is that the subsidy programmes for the construction of renewable energy (such as the SDE in the Netherlands) will be slowly phased out. More projects will be built without subsidies. These projects run *merchant risk*, or market risk, just like any conventional energy producer does. And although solar and wind energy have low marginal costs, building such a project is not without any risk. Besides the building costs, there are also costs for managing the imbalance risks (being able to switch off and on when necessary), maintenance and a bit of margin. Since these costs will no longer be covered by subsidies, the cost price of this energy can no longer be negative, but will have a minimum - and thus positive - price level. This will vary per project and/or per producer. The average bid price will at least have to cover the operational costs. The fixed costs will also be partly recovered at times of high electricity prices, which will be accompanied by higher profit margins. What happens if the electricity price were to fall below marginal costs? Then the bid of the energy producers will not be accepted and production will be halted. This would also be the case when it is a producer of solar and/or wind energy.

A better way of integrating ESG scores into sovereign debt analysis

Sonia Renoult – Rates Strategist | sonia.renoult@nl.abnamro.com

- ▶ **We reviewed and analysed various ESG score methodologies to assess how they can complement traditional sovereign analysis**
- ▶ **ESG scores tend to have a very high correlation with traditional credit ratings because they overweight the ‘G’ pillar**
- ▶ **A ranking of countries based on metrics from the ‘E’ pillar leads to significant differences in country rankings**
- ▶ **We therefore recommend to use ESG scores by not simply looking only at the overall score but rather on a pillar and a country level approach to gain the most relevant sustainability insights for sovereign bond investment**

This piece is a summary of a more extensive note to be published soon under our ESG Strategist series.

More and more investors are adopting ESG considerations in their investment decisions. Sovereign ESG scores are thus becoming part of the structural foundations of the investment industry, and so are ESG providers¹. These providers offer a growing set of ESG-related data, country scores, and rankings, with some also offering additional ESG products that focus on particular climate issues. The underlying data for sovereign ESG scores comes largely from publicly available multilateral sources, such as the World Bank, IMF and large NGO's.

So far, credit ratings agencies (CRAs) do not fully incorporate sovereign issuers' ESG risks factors (this is more the case on the corporate side) and that is where ESG data providers play a key role in the sovereign ESG field. Since sovereign ESG investors rely extensively on those ESG providers for data and the identification of investment opportunities It is then important to understand how ESG scores are structured, what underlying data are used, and most importantly, which ESG related risks factors are most relevant in the investment analysis of a country's creditworthiness in the future.

As such, we reviewed and analysed ESG scoring methodologies of six well-recognised providers². Since not all data are publicly available, we constructed a proxy ESG index to act as a benchmark for the ESG providers scores based on similar metrics used in their score calculations. For the environmental pillar, we used the EPI index, which is an indicator on environmental performance, health and ecosystem vitality of a country. For the social pillar, we used the SPI index as a benchmark as it includes multiple indicators from ESG data providers. The SPI index regroups 12 indicators distributed through three different metrics: Basic Human Needs; Foundations of wellbeing; and Opportunity. For the governance pillar, we used the Worldwide Governance Indicators (WGI) from the World Bank, which is the most commonly used index to measure the G pillar by ESG ratings entities.

ESG scores – an insightful complement to traditional debt analysis...

After reviewing the ESG score methodologies, we noticed a gap between Emerging and Developed markets in terms of ESG performance. Not surprisingly, developed countries are most committed to sustainability and show stronger ESG performance relative to emerging economies. As such, we focus our analysis within the same (high)income group.

... but still some work in progress

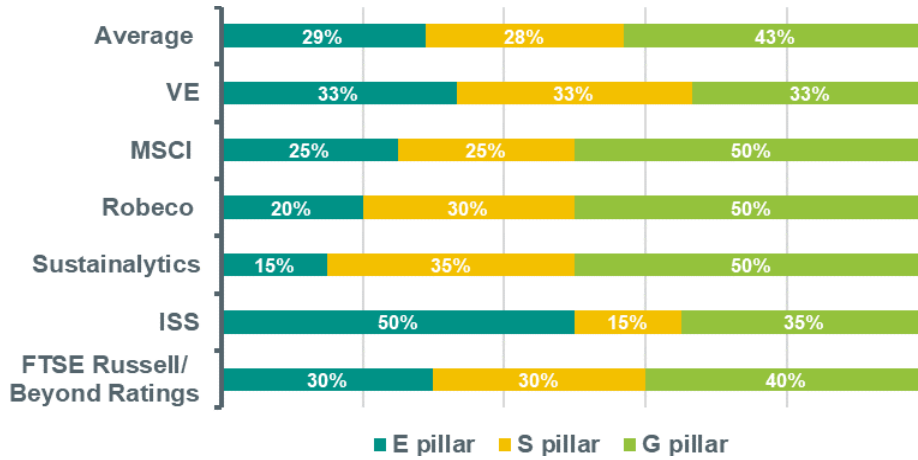
From our analysis, we also observed a few drawbacks in some approaches that we thought were important to highlight. First, most of the leading sovereign ESG providers are found to overweight the G pillar while underweight the E pillar (see figure below). Most of the ESG scores weigh the G pillar between 40% and 50%, while only 15% and 30% for the E pillar.

¹ Here ESG providers refer both to ESG ratings and ESG data providers

² The ESG providers include: FTSE Russell/Beyond, MSCI, Robeco, VE, RepRisk, ISS, and Sustainalytics).

ESG data providers weights allocation

ESG pillars weights



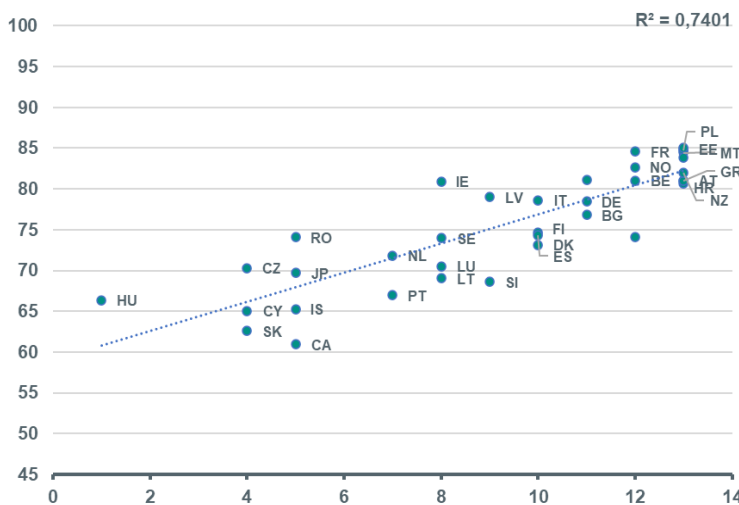
Source: FTSE Russell, Robeco, Sustainalytics, ISS, VE's methodology, World Bank, ABN AMRO Group Economics (2021)

The reason given for this overweighing is the fact that historically, governance factors represented the most material risks to a country's creditworthiness. Hence, a majority of ESG providers overweighted sustainability factors according to their past and current financial relevance on a country's debt and market performance³. In our view, it brings little added-value to attribute a 50% weight in a country's ESG since governance metrics are already well reflected in a country credit ratings from CRA's. In addition, whether those ESG ratings sufficiently reflects the sustainability performance of a country, particularly on the environmental side, we believe is questionable.

This drawback also leads to a high correlation between a country's ESG scores and it's credit ratings. In the figure below, we plotted country credit ratings against ESG scores⁴ (with 13 = AAA rating) and it appears that generally well-rated countries tend to have the highest ESG ratings. This positive relationship has also been highlighted by other papers such as the World Bank report, "Demystifying sovereign ESG"[\(see here\)](#)

ESG scores vs Credit ratings

ESG scores (y axis) plotted against credit ratings (x axis)



Source: World Bank (WGI index), EPI index, SPI index, ABN AMRO Group Economics (data from 2019). Note: x-axis = credit ratings and y-axis = country ESG score. ESG score weighing: G 50%; S 25%, E 25%

³ usually measured in terms of the country's CDS spread

⁴ It is worth noting that the ESG scores used in the scatter plot are our self-constructed index that benchmarks the different ESG approaches we analysed previously (to be discussed in more details in our full upcoming note).

This income bias is partly explained by the fact that ESG risks are less likely to materialize in countries where the government has more resources available to prevent and combat those exposures. However, not all countries are equivalently exposed to climate change risks for instance, and certain, less wealthy countries, are more or even already aligned with carbon neutrality for instance (more to come on this point in the following publication).

Additionally, one of the main benefits in integrating ESG into investment analysis is to develop a more precise long-term view and identify any opportunities and/or risks on the horizon within the sovereign space. Climate change is one this major risk that will affect significantly sovereigns in the future. Therefore, we judge that mainly concentrating on the governance aspect is not the best approach, especially when looking at developed economies, given that increasing ESG risks factors for those countries over time are less related to governance than environment. In the picture below⁵, the Principle for Responsible Investment (PRI)⁶ has surveyed 1,100 practitioners globally regarding ESG factors in their sovereign analysis. From this survey, investors expect ESG issues to be a key driver for sovereign bonds over time and particularly on the environmental side. Despite the governance pillar remaining the most relevant for global investors, the E pillar is expected to gain further importance for sovereign bond prices in the near future.

Breakdown of ESG issues on sovereign debt prices by country

% of respondents who expects ESG issues to affect sovereign bond prices..



Source: PRI (report published in 2019), ABN AMRO Group Economics.

This survey supports our first idea that we should not only shift our attention to more environmental risks factors, but also develop a more forward-looking approach which is another drawback we wanted to highlight from the ESG ratings methodologies. Indeed, some of the ESG ratings rely exclusively on past data while most ESG issues would require a more forward-looking approach to be identified at an early stage. For instance, the integration of more sophisticated *physical risk data*⁷ would be a step forward here. Therefore, while we think that current sovereign ESG methodologies already provide insightful information, as well as a larger set of data that can be used and customized⁸ for further analysis, we think they also

⁵ This picture only shows one part of the PRI survey, more details on other countries can be found here: <https://www.unpri.org/fixed-income/a-practical-guide-to-esg-integration-in-sovereign-debt/4781.article>

⁶ PRI is an international group developed by institutional investors to reflect on ESG investment practices

⁷ Physical risk data is based on forward-looking data capturing countries' exposure to climate hazards

⁸ Depending on the ESG providers

need to evolve in line with growing demand for better attribution to sustainability outcomes and clarification concerning the environmental pillar.

How can investors make the best use of sovereign ESG ratings in their investment analysis?

Part of our analysis was to also look at the ESG pillars individually and identify the most relevant metrics that best complement a sovereign bond portfolios analysis. As stated previously, the environmental side is where we judge the most added value is for wealthier countries (this point will be further developed in the coming ESG strategist publication).

Climate change score – different leaders and laggards on this environmental metric than in the overall ESG rankings

One particular environmental metric that showed interesting results is the climate change score⁹. This climate change score measures the progress made by a country to combat climate change¹⁰ which makes it a relevant indicator to look at since climate change could significantly increase the risk to sovereign bonds portfolios. A risk highlighted by the OECD in a recent report ([see here](#))¹¹.

Looking at the table below, it is interesting to note that many Eastern European countries exhibit strong climate change¹² performance despite their relatively low ESG scores. But also because those countries showed improvement in energy efficiency stemming from economic restructuring as well as targeted measures (EPI report). For instance, we see that Romania ranks third among both the high income group, and the global ranking. This is mainly due to Romania ranking 1st or among the top performers in several metrics such as GHG intensity and CO2 growth rate as well as showing a relatively low NO2 emissions as 38% of the country's energy mix is composed of renewables¹³. Meanwhile, a well rated country (on both credit and ESG rating) like Canada ranks 25th and even 37th when looking at the whole EPI ranking. Canada indeed exhibits some of the worst performance in GHG emissions per capita due to high levels of consumption.

Climate change score – different leaders and laggards when focusing on environmental performance

Country	S&P rating	Climate change	ESG scores	Country	S&P rating	Climate change	ESG scores
Denmark	AAA	95	85	Belgium	AA	70	77
United Kingdom	AA	90	81	Croatia	BBB-	70	65
Romania	BBB-	85	63	Bulgaria	BBB	70	61
France	AA	82	78	Japan	A+	70	79
Switzerland	AAA	82	85	Italy	BBB	68	70
Norway	AAA	79	85	Latvia	A	68	69
Luxembourg	AAA	78	84	Ireland	AA-	67	79
Sweden	AAA	77	84	Greece	BB-	67	66
Finland	AA+	77	85	Lithuania	A	66	71
Czech Republic	AA-	76	73	Netherlands	AAA	66	82
Slovenia	AA-	75	74	Canada	AAA	66	81
Slovakia	A+	72	69	Poland	A-	65	67
Germany	AAA	72	81	Portugal	BBB	63	74
United States	AA+	71	74	Cyprus	BBB-	63	70
Austria	AA+	71	81	Malta	A-	63	72
Hungary	BBB	71	65	New Zealand	AA+	62	83
Spain	A	71	74	Iceland	A	61	81
Australia	AAA	70	81	Estonia	AA-	59	75

Source: S&P, EPI index, ABN AMRO Group Economics (data from 2019). Climate change score data includes the period between 2008-2017.

⁹ which is one of the components of the EPI index that served as the benchmark for the “E” pillar measure

¹⁰ The climate score is composed of 8 indicators: adjusted emission growth rates for four GHG (CO2, CH4, F-gases, N2O) and one climate pollutant (black carbon); growth rate in CO2 emissions from land cover; GHG intensity growth rate; and GHG emissions per capita.

¹¹ Their literature review on sovereign funds indicates that climate risk is indeed likely under-priced by financial markets at the moment, which then offers investment opportunities as well as risks in the coming future

¹² in part due to the prominence of nuclear energy and hydropower

¹³ including a large hydro sector and increasing investment in wind power.

The main point to take from this is that yes, richer and more politically stable countries have more resources to counteract potential climate events and invest in the energy transition, but some less wealthy countries also show relatively strong environmental performance with a greener energy mix as well as lower GHG emissions per capita. As such, those countries could offer interesting opportunities as they show potential for ESG rating upgrades in the near future with ESG ratings providers adjusting their allocation weights to reflect more the environmental risks in the ESG score as well as showing relatively stronger environmental performance.

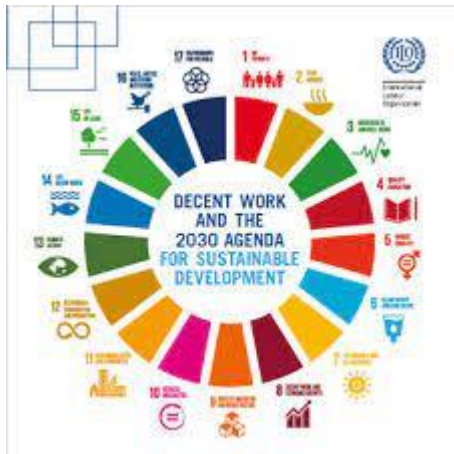
Therefore, we recommend to integrate an ESG approach for sovereign debt analysis, but in order to better reflect the environmental aspect, a deeper look at the ESG risk factors are currently necessary, as well as a country analysis to identify any inflection points in the rating, while taking into account the reality and the dynamic of the country itself.

Dutch government first to be fully compliant with the EU Taxonomy

Jolien van den Ende, CFA – Senior Rates Strategist | jolien.van.den.ende@nl.abnamro.com

- ▶ **The Dutch state will reopen its inaugural green Dutch State Loan 2040 on 14 June**
- ▶ **The Green Bond Framework has been updated and is now aligned with the new EU Taxonomy**
- ▶ **The green DSL 2040 is the first EU sovereign green bond linked exclusively to expenditures that map to the economic activities currently covered by the EU Taxonomy Climate Delegated Act**

The Dutch state will reopen its inaugural green Dutch State Loan 2040 on the 14th of June, which was launched in 2019. The Green Bond Framework has been updated and is aligned with the new EU Taxonomy. As a result, the green DSL 2040 is the first EU sovereign green bond linked exclusively to expenditures that map to the economic activities currently covered by the EU Taxonomy Climate Delegated Act. In addition, Sustainalytics provided a second party opinion (SPO) on the updated framework not only confirming full alignment with the EU Taxonomy, but also concluding that it is credible and impactful. Below we will set out the Dutch vision on global climate action, the Dutch climate policy, and the Green Bond Framework of the Netherlands in more detail.



Vision on global climate action of the State of the Netherlands

The Dutch state is fully committed to the United Nations (UN) 2030 agenda for Sustainable Development and the Paris Agreement. Consequently, the Netherlands aims to ambitiously contribute to fight against global warming. To do so, there is a new Ministry for Climate and Energy in place, which has the task to oversee policy and an EUR 35bn Climate and Transition Fund. Over a period of 10 years, this fund will be used to change the Dutch required energy infrastructure, establish a green industrial policy and make the transport and built environment more sustainable. Besides this, additional investments will be made in innovation and research on climate-neutral technologies.

Dutch Policy to fight climate change

The Netherlands focusses on two pillars to fight climate change and to align with UN 2030 agenda and the Paris Agreement. The first pillar of the policy is climate change mitigation, which is included in the Dutch national Climate Act and the Coalition Agreement. The second pillar will focus on climate change adaptation, as the Netherlands is vulnerable to climate change due to its geographical location. Therefore, the Netherlands would like to ensure a climate-proof and water-resilient country by 2050. Climate change adaptation policy is included in the National Adaptation Strategy (NAS) and the Delta Programme, which has its legal basis in the Delta Act.

To mitigate climate change, which is the focus of the first pillar, the Netherlands has set out a robust framework for the implementation of the Paris Agreement in the Climate Act. The government is required to make a Climate Plan setting out measures to ensure that the targets, which are stipulated in the act are achieved. Moreover, the targets specified in the Climate Act were raised further in the coalition agreement, whereby the cumulative CO₂ reduction per sector by 2030 has been estimated. The sectors that are expected to reduce emissions the most are Infrastructure, Innovation and customised approach, Built environment and Electricity. In addition, the total capacity for offshore wind energy in 2030 will be doubled (compared to current levels) to around 21 gigawatt as part of these efforts. To do so, the Netherlands will develop three additional offshore windfarms.

The second pillar focuses on climate change adaptation. Furthermore, the NAS describes the main climate risks the Netherlands are facing and sets a course for addressing these risks. Hereby, it ensures that food risk management, freshwater supply and spatial planning will be climate-proof. In addition, the national Flood Protection Programme, as part of the Notional Delta Programme, sets out the measures that are required to ensure primary food defence systems meet the statutory safety standards. Additional investments in the Delta fund are needed to catch up on the maintenance backlog and accelerate the implementation of the National Delta Programme – hence also the intention of the Dutch State to direct investments towards this area. If these measures are not taken damage could rise to an amount between EUR 77.5bn to

EUR 173.6bn by 2050. The State of the Netherlands together with the UN and other countries, will establish the Netherlands-based Global Centre on Adaptation. Moreover, the Netherlands will provide financial resources to assist developing countries with respect to both mitigation and adaptation through the Dutch Fund for Climate and Development.

Dutch Green Bond Framework fully aligned with EU Taxonomy

The Dutch Green Bond Framework is aligned with the ICMA Green Bond Principles (2021). In addition, following the inaugural green bonds issuance, the eligible expenditures of the State of the Netherlands under this updated Framework seek to also align with the sector criteria of the Climate Bonds Initiative (CBI) Climate Bonds Standard. New to this issuance, however, is that the Dutch State has also achieved full alignment to the EU Taxonomy, not only its technical screening criteria, but also the Do No Significant Harm (DNSH) and the minimum social safeguards. We will elaborate on the Green Bond Framework, whereby we will touch upon the (1) Use of Proceeds (2) Process for Expenditure Evaluation and Selection (3) Management of Proceeds (4) Reporting (5) External review.

(1) Proceeds are used to (re)finance expenditures which are part of the Government Budget






The State of the Netherlands uses the proceeds of their green bonds to solely finance or refinance expenditures, which are part of the Central Government Budget. The expenditures are limited to the Budget expenditures in the budget year preceding the issuance, the budget year of issuance and the two budget years thereafter. In addition, proceeds of green Dutch State Loans contribute to the EU Environmental Objectives of Climate Change Mitigation and Climate Change Adaptation, as set in the EU Taxonomy.

Eligible green expenditures include direct investment expenditures, subsidies, fiscal measures and selected operational expenditures. They may also include expenditures towards agencies and institutions, which are also able to issue green bonds themselves. These expenditures will only be included if there is no risk of “double-counting”. Moreover, budget expenditures that receive dedicated funding are excluded from the Eligible Green Expenditures. For example, expenditures which are financed with the EU Recovery and Resilience Facility, as well as subsidies for renewable energy production will be excluded.

Below we will describe the eligible green expenditures, which are also linked to the UN Sustainable Development Goals, the ICMA Green Bond Principles categories and economic activities set under the EU Taxonomy. In addition, a list of eligible green expenditures in combination with budget articles are included for easy reference.

Eligible green expenditures are covered by key four Green Bond Principles categories, namely Renewable Energy, Energy Efficiency, Clean Transportation and Climate Change Adaptation & Sustainable Water Management. In addition, they are linked to the UN Sustainable Development Goals 6 Clean Water and Sanitation, 7 Affordable and Clean Energy, 9 Industry, Innovation and Infrastructure, 11 Sustainable Cities and Communities, 13 Climate Action. Moreover, these are linked to specific budget articles as shown in the table in the next page. The four categories are also linked to economic activities as set out in the EU Taxonomy.

Indeed, the first category, which is renewable energy, is linked to generating electricity via solar photovoltaic technology, wind power, as well as transmission and distribution networks for renewable and low-carbon gases. The second category, energy efficiency, is linked to the renovation of existing buildings of the EU Taxonomy. Furthermore, the third category, clean transportation, is linked to the infrastructure for rail transport, personal mobility as well as enabling low-carbon road transport and public transport. The last category, climate change adaptation & Sustainable Water Management is linked for example to expenditures that ensure flood risk management, freshwater supply and spatial planning is climate-proof and water-resilient. All expenditures need to comply with the criteria set under both the CBI Climate Bond Standard as well as the EU Taxonomy.

Green Bond Principles category & SDG Mapping	Definition of Eligible green expenditures and main budget articles	EU Taxonomy Economic Activity
<p>Renewable Energy</p> 	<p>Expenditures to support the development of renewable energy generation capacity, limited to solar energy and onshore and offshore wind energy as well as the transport of renewable and other low-carbon gases.</p> <p>Economic Affairs and Climate Policy, Article 4</p> <ul style="list-style-type: none"> - Stimulation of Sustainable Energy Production - Studies “Wind op Zee” - Hydrogen Backbone <p>EU Environmental Objective: Climate Change Mitigation</p>	<p>4.1 Electricity generation using solar photovoltaic technology</p> <p>4.3 Electricity generation from wind power</p> <p>4.14 Transmission and distribution networks for renewable and low-carbon gases</p>
<p>Energy Efficiency</p>  	<p>Expenditures for the improvement of energy efficiency in the built environment.</p> <p>Interior and Kingdom Relations, Article 3</p> <ul style="list-style-type: none"> - Abolition of Landlord’s tax <p>EU Environmental Objective: Climate Change Mitigation</p>	<p>7.2 Renovation of existing buildings</p>
<p>Clean Transportation</p>  	<p>Expenditures for the development, maintenance and management of fully electrified railway infrastructure (including rail, light rail, tram and metro), excluding dedicated freight railway infrastructure.</p> <p>Mobility Fund, Articles 13, 14 and 17</p> <ul style="list-style-type: none"> - Maintenance and management of railway infrastructure, development of railway infrastructure for passenger rail - Regional Infrastructure and accessibility Projects - Mega Projects Traffic and Transportation <p>EU Environmental Objective: Climate Change Mitigation</p>	<p>6.14 Infrastructure for rail transport</p> <p>6.13 Infrastructure for personal mobility, cycle logistics</p> <p>6.15 Infrastructure enabling low-carbon road transport and public transport</p>

Climate Change Adaptation & Sustainable Water Management



Expenditures under the Dutch Delta Programme to ensure food risk management, freshwater supply and spatial planning will be climate-proof and water-resilient.

Deltafund, Articles 1, 2, 3, 4, 5 and 7

- Article 1: Flood risk management investments
- Article 2: Freshwater supply investments
- Article 3: Management, maintenance and replacement
- Article 4: Experimentation
- Article 5: Network-related costs and other expenditures
- Article 7: Water quality investments

5.1. Construction, extension and operation of water collection, treatment and supply systems

Source: DSTA, ABN AMRO Group Economics

(2) Process for Expenditure Evaluation and Selection

The State of the Netherlands has set up an inter-departmental Green Bond Working Group for the purpose of evaluation and selection of Eligible Green expenditures. The Dutch State Treasury Agency (DSTA) coordinates this process and prepares an initial list of potential Eligible Green Expenditures. This is done by identifying expenditures in the Central Government Budget, which contribute to the EU Environmental Objectives of Climate Change Mitigation and Climate Change Adaptation and also meet the criteria and definition of Eligible Green Expenditures as set in the Framework. This in turn will be evaluated by the Green Bond Working Group.

Green Bond Working Group

The Ministry of Finance has established an inter-departmental Green Bond Working Group, comprising of representatives from the:

- Dutch State Treasury Agency (Chair)
- Ministry of Finance
- Ministry of Economic Affairs and Climate
- Ministry of Infrastructure and Water Management
- Ministry of Interior and Kingdom Relations

The Green Bond Working Group is responsible for:

- The implementation and maintenance of the Green Bond Framework
- Evaluation and selection of Eligible Green Expenditures
- Allocation and management of Green Bond Proceeds
- Green Bond investor reporting

Source: DSTA, ABN AMRO Group Economics

Do No Significant Harm (DNSH) and minimum Social Safeguards as stipulated by the EU Taxonomy Climate Delegated Act are addressed in the applicable (environmental & social) laws and regulations in which these activities take place in combination with the terms and conditions as set by the Dutch government. For more information see [appendix 2 of the Green Bond Framework](#).

(3) Management of Proceeds

The DSTA will manage the proceeds of the Green Bond and will monitor the expenditure level of Eligible Green Expenditures via the National Financial Annual Report (Financieel Jaarverslag van het Rijk). Moreover, the DSTA will decide upon the allocation of the net proceeds based on the realized expenditure levels towards Eligible Green Expenditures, whereby the DSTA intends to fully allocate the proceeds within a timeframe of maximum two years after issuance. The Green Bond Working Group will review the allocation of the proceeds on an annual basis.

(4) Reporting

The Netherlands is committed to provide investors with transparent reporting on the allocation of proceeds towards Eligible Green Expenditures as well as on the results and positive environmental impact of those expenditures. Moreover, both the allocation as well as impact reporting will be available on the website of the DSTA.

Allocation of proceeds reporting will take place within three months following the publication of the National Financial Annual Report of the year of issuance. The allocation report includes:

- An overview of the allocation of the issued Green Bond to the main categories of Eligible Green Expenditures;
- A breakdown of allocated proceeds per main category of Eligible Green Expenditures on a Central Government Budget Article level;
- A breakdown of the allocated proceeds per budget year;
- A breakdown of allocated proceeds per type of expenditures (direct investment expenditures, subsidies, fiscal measures (tax credits) and operational expenditures);
- The amount of unallocated proceeds

Impact reporting takes place the year after the issuance. In this report the DSTA addresses the positive environmental impact of Eligible Green Expenditures. The impact report includes:

- Where feasible and available, specific results (e.g. total number of projects) and environmental impact indicators (e.g. avoided CO2 emissions) related to the Eligible Green Expenditures to which green bonds proceeds have been allocated;
- Climate change related impact indicators for the Netherlands, for example: - Percentage of renewable energy production (2020: 11.5%); - Total greenhouse gas emissions (2020: 138 billion kilograms CO2).

If feasible the DSTA will also include adverse environmental and social impacts related to the Eligible Green Expenditures.

(5) External review

Sustainalytics provided a Second Party Opinion on the Framework and concluded that the Framework is both credible and impactful and that it aligns with the ICMA Green Bond Principles (2021). In addition, it also assessed whether it is aligned with the EU Taxonomy and it is of the opinion that the Framework's four use of proceeds categories, which are in turn map to eight EU economic activities, align with the applicable Technical Screening Criteria (TSC) and DNSH criteria. It has also concludes that the Dutch State fulfils the minimum social safeguards of the EU Taxonomy.



Moreover, there are also expenditures that cannot be mapped to any of the Economic Activities. The reason for this is that TSC does not yet exist or that they cannot directly mapped to NACE activities. The former is the case for (i) studies related to wind power, (ii) food risk management (iii) monitoring and management of water levels and (iv) improvement of water quality and anticipation on higher water levels. Sustainalytics is of the opinion that this doesn't mean that these expenditures do not contribute to climate

change mitigation and still have a positive environmental impact. Once these relevant criteria are disclosed these expenditures may also fall within the future scope of the EU Taxonomy according to Sustainalytics.



On top of this, as previously mentioned, the Framework is aligned with the EU Taxonomy's Minimum Safeguards according to Sustainalytics. Next to this, the State of the Netherlands has obtained a pre-issuance certification in line with the recognised international standards of the CBI. Moreover, a post-issuance verification report on alignment will be provided by and independent external party until full allocation of the proceeds of the issuance or re-opening of a Green Bond.



Finally, the DSTA will request the Independent Central Government Audit Service to provide an independent verification for the allocation of the

proceeds to Eligible Green Expenditures, in the year after the issuance. These reports will be made available on the website of the DSTA.

EU GBS aims to bring wider regulation to the green bond market

Larissa de Barros Fritz – ESG & Corporates Strategist | larissa.de.barros.fritz@nl.abnamro.com

- ▶ **The Economic and Monetary Affairs Committee (ECON) has finally reached an agreement on the amendments to the European Green Bond Standard (EU GBS) regulation, as initially proposed by the European Commission**
- ▶ **We have highlighted below a few of the key changes, such as the proposal to expand the regulation to the wider green bond market, as well as the permission to now include nuclear and/or gas under the EU GBS label**
- ▶ **The amendments will now be discussed within the European Council, with the final version expected towards the end of the summer**
- ▶ **Nevertheless, besides a final regulation, approved external verifiers are also required to be in place so that the EU GBS bond market can officially start to develop. This might take several months**

The regulation for the European Green Bond Standard (EU GBS) reached a new milestone last week, as MEPs in the Economic and Monetary Affairs Committee (ECON) approved their negotiation position for the upcoming regulation (see [here](#)). ECON was referred as the responsible committee within the European Parliament to review and produce an opinion on the proposed EU GBS by the European Commission (July 2021). Within ECON, MEP Paul Tang (S&D, NL) was appointed as rapporteur.

The new text prepared by Paul Tang introduces several key changes to the previous version proposed by the Commission, and was approved by the Parliament with 44 votes in favour, 12 against and 3 abstentions. We have highlighted the most important changes below.

Key proposed changes by the EU Parliament

1. Additional transparency requirements for all ESG bonds

One of the main changes proposed in the new text is with regards to a wider regulation of ESG bonds, which should be applicable independent of whether these carry the “EU GBS” label. Hence, this would imply that any ESG bond issued within the EU would have to comply with minimum sustainability disclosure standards. This includes, for example, the publication of a statement on due diligence policies with respect to principal adverse impacts of investment decisions on sustainability factors, taking due account of their size and the nature and scale of their activities. They should also be subject to the same standard of external verification as that applying to European green bonds. Certainly, this would only be applicable to bonds issued after the new regulation would come into place (that is, not applicable to existing ESG bonds).

The idea is to bring the ESG bond market closer to upcoming regulations such as the Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD), by, for example, requiring all green bond issuers (irrespective if aligned with EU GBS or not) to disclose the EU Taxonomy alignment of the assets/investments financed through the newly issued bond. The goal is to ultimately allow easier comparison amongst these bonds and the EU GBS-aligned ones.

What is more, the new text also proposes to go “beyond” upcoming regulatory requirements. For example, it proposes to ensure (within every transaction) that the issuer complies with the minimum social safeguards as set out in the Taxonomy regulation.

2. Tighter supervision

The new text also proposes a “full legal recourse to the issuer” in case it fails to comply with its green commitments under the EU GBS. The amendments also allow authorities to ban EU GBS issuers from the ESG bond market if they fail to comply with their obligations. The idea is to ensure that they face enough “consequences” if they are involved in greenwashing. That is relatively new to the existing ESG market, as consequences are nowadays almost exclusively focused on reputation damages only and investor scrutiny. A proper legal recourse also serves to protect investors. Nowadays, if an ESG bond issuer is involved in greenwashing and/or ESG scandals, the ESG bond loses its initial value and

the investor is the one incurring the loss – not *per se* the issuer. The new text therefore aims to correct this issue and transfer the burden also to issuers.

3. Mandatory transition plans

Another requirement is that all companies issuing EU GBS bonds should have transition plans in place. These are also mandatory for those issuing Sustainability-Linked Bonds (SLBs). Hence, upcoming issuers of SLBs will need to not only have certain targets in place (which might not be related to emissions at all), but also disclose how they aim to decarbonize (and hence transition) in the near future. The transition plan needs to adhere to a 1.5 degree global warming scenario (as specified in the Paris Agreement) and it needs to ultimately result in climate neutrality by 2050.

The transition plans requirement aims to minimize green washing, ensuring that brown companies would not issue green bonds by looking exclusively at a certain pool of green assets. This ensures therefore a more “global” and concise view of the environmental profile of the issuer, as well as their intentions to decarbonize their entire asset base.

4. No green bonds from grey or tax havens

The new text on the EU GBS also proposes to prohibit issuers from countries that are on the EU’s grey or blacklist of tax havens from issuing EU GBS bonds. This includes issuers from countries such as Russia, Turkey, Fiji and Panama – from which some bond issuers have in the past issued EUR green bonds (such as Arçelik A.Ş., the Turkish producer and after-sales support servicer for consumer durables and electronics).

5. Increased transparency on gas and nuclear financing

While the final text from the Parliament no longer aims to restrict EU GBS issuers from financing nuclear and gas – as long as they comply with the EU Taxonomy criteria – the new text includes a proposal to increase transparency in these areas. It requires issuers that intend to finance nuclear and/or gas (that is, transitional activities as set out in the Taxonomy Regulation) via the use of proceeds of EU GBS bond to “prominently” announce this on the front page of the EU green bond factsheet. Furthermore, these issuers now also need to disclose separately the proportion of proceeds allocated to these activities. There is no requirement, though (as previously proposed) to introduce a separate label for EU GBS bonds that finance these ‘transitional activities’ (such as, transition bonds).

6. Full EU Taxonomy alignment

While the European Council discusses a certain flexibility with regards to EU Taxonomy alignment of EU GBS bonds, the Parliament makes it clear that for them, only fully EU Taxonomy aligned bonds can be aligned with the EU GBS. According to Paul Tang, this is the only way for the EU GBS “to become the gold standard in the international green bond market”.

7. A voluntary label

Contrary to previous proposals within the Parliament, the final version does not require the EU GBS to be mandatory within a certain number of years. Hence, the use of the EU GBS label remains completely voluntary. The idea is that the new label becomes a “golden standard” or “best in class” and therefore offers a distinction amongst green bond issuers. For that, the EU GBS label would need to retain its voluntary label, as initially proposed by the Commission.

8. Government exposure

The Parliament has also proposed an amendment to the existing Taxonomy regulation in order to include exposures towards green government debt in the calculations of the Green Asset Ratio (GAR), both in the nominator and denominator. Those exposures are currently excluded from the GAR calculation of financial institutions.

9. Full grandfathering

While the Commission has previously proposed a grandfathering period of five years (that is, in the event of a change in the criteria of the EU Taxonomy after bond issuance, issuers could make use of pre-existing criteria for only five more years), that is excluded in the new proposal. The Parliament has therefore added a sentence that specifies that allocated bond proceeds shall not be required to be re-allocated if the EU Taxonomy changes.

Will the EU GBS in fact become the “golden standard”?

The proposed amendments by the Parliament are in general, very much welcomed by the market. For example, it does make sense that, once gas and nuclear are (officially) included within the EU Taxonomy, that issuers that aim to be fully aligned with the Delegated Acts can also make use of it for the purpose of issuing green bonds. Hence, the discussion should be around whether or not gas/nuclear should be included under the umbrella of the EU Taxonomy in the first place, not whether it should be under a EU GBS-aligned bond. There needs to be a concise approach within the EU on what is defined as “sustainable” and there should not be distinctions between corporate reporting (that make use of the EU Taxonomy) and green bond issuance.

Also the retention of the voluntary label is appreciated. As not all issuers can potentially align with the EU Taxonomy (at least on a preliminary phase, for various reasons), making the EU GBS label mandatory would ultimately result in a unenviable reduction of green bond issuance – which is undesirable.

Furthermore, the requirements that SLBs should now be required to disclose relatively ambitious transition plans could have positive but also negative impacts in the market. On the positive side, it will ensure that SLBs are in fact, transition instruments. It will ensure that new SLBs do not exclusively look at a “portion” of the issuer’s emissions (such as, only scope 1 and 2 emissions, as it is commonly nowadays), but also the entire emission universe. This obliges issuers that want to tap the ESG bond market to make sure they are in fact, following a decarbonization path. On the other hand, however, it could result in two undesirable outcomes: first of all, it can “spook” EU issuers from using this label, ultimately resulting in a divergence between the EU and the non-EU SLB market. Second of all, some SLBs have been issued not specifically looking at carbon emissions, but rather on other (non-green) KPIs (which can be nevertheless equally important for the business model of the issuer). This is the case, for example, of the pharmaceutical company Sanofi, which recently issued a SLB linked to increasing the access to essential medicines in low- and lower-middle-income countries. Hence, if SLB issuers now need to also ensure that there is a clear (Paris Agreement-aligned) transition path in place even when they do not use carbon emissions as a KPI, it might well be that we will no longer see many social-related SLBs out there, but rather only GHG-emission focused ones.

The Association for Financial Markets in Europe (AFME) has also recently published a positive note on the final text (see [here](#)), but has however advised against the extension of requirements to ESG instruments that do not carry the EU GBS label. We however acknowledge that this potential new requirement will indeed bring more harmonization to the ESG market, something that the International Capital Markets Association (ICMA) has extensively attempted to do. Comparison between ESG bonds will also become easier for investors if issuers need to use the same disclosure templates. Furthermore, the disclosure of how much of the (re)financed assets align with the EU Taxonomy will in any case already be included within upcoming reporting, once the SFDR and the CSRD are fully in place. Once the mapping has already taken place on a corporate level, the inclusion of such information also in green bond documentation does make sense to us. We note that there is no requirement for the new green bond to be fully EU Taxonomy aligned, it only requires the issuer to be transparent about to what extent the use of proceeds of this new bond will be directed to EU Taxonomy aligned activities. We do however agree that additional disclosure requirements might have a negative side effect on issuance volumes - at least in the short-term.

Next steps

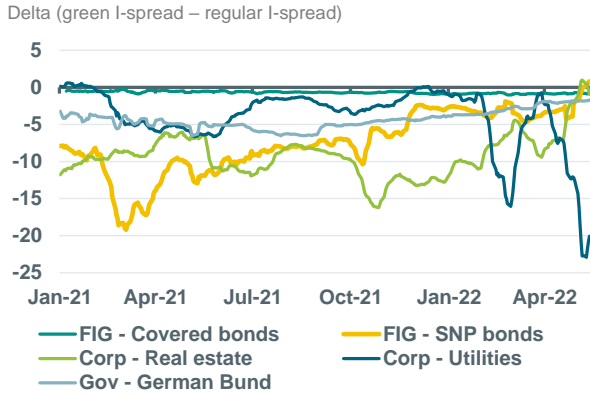
The amendments as approved by the Parliament last week will face a final hurdle on a plenary session on the 6th of June. However, it seems unlikely that the subject will be put to a new vote.

Hence, following the approval by the Parliament, negotiations will now kick-off with the European Council (Member States) and the Commission. We have previously highlighted some of the outstanding points of discussions also within the Council (see [here](#)), as well as an estimated timeline for the EU GBS to come into force. As discussions within the Parliament have advanced fairly on time, and given that discussions with the Council will also kick-off as early as in a few weeks, we would still expect the final version to be in place around the end of the summer this year. Nevertheless, we note that, besides

having a EU GBS regulation in force, this EU green bond market can only start to fully develop once there are accredited external verifiers in place who can ensure that issuers have fully complied with all requirements. ESMA has been designated as the party to review and supervise those verifiers. The Parliament is now proposing that ESMA should have a draft criteria for the screening of potential approved verifiers within 12 months after the date of entry into force of the EU GBS regulation. This is in line with previous ESMA recommendations (see [here](#)). Hence, even if the regulation is in place towards the end of this summer, it might take additional time (several months and potentially years) for verifiers to be officially able to review and approve bonds to carry the EU GBS label.

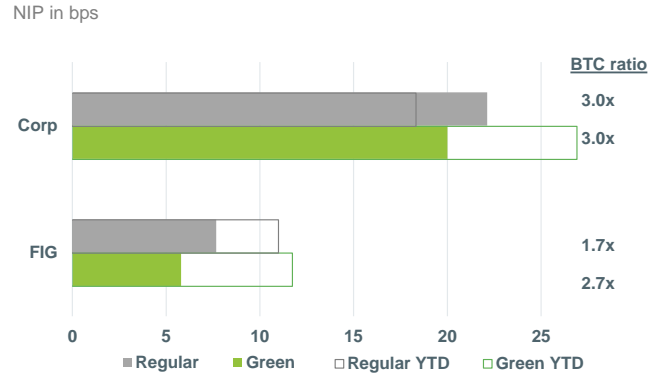
ESG in figures

ABN AMRO Secondary Greenium Indicator



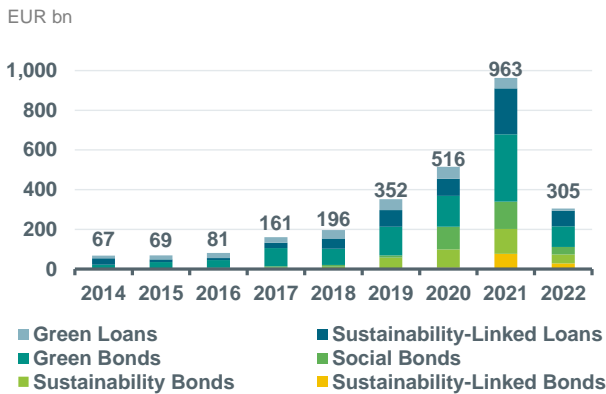
Note: Secondary Greenium indicator for Corp and FIG considers at least five pairs of bonds from the same issuer and same maturity year (except for Corp real estate, where only 3 pairs were identified). German Bund takes into account the 2030s and 2031s green and regular bonds. Delta refers to the 5-day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

ABN AMRO Weekly Primary Greenium Indicator



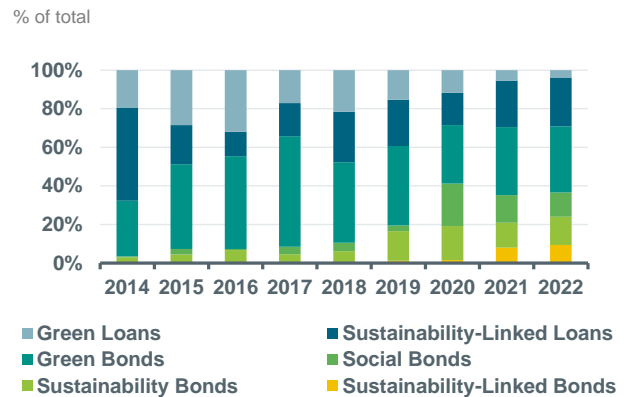
Note: Data until 19-5-22. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics.

Sustainable debt market overview



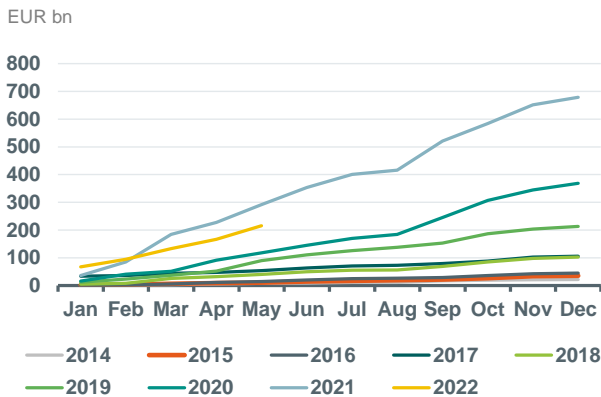
Source: Bloomberg, ABN AMRO Group Economics

Breakdown of sustainable debt by type



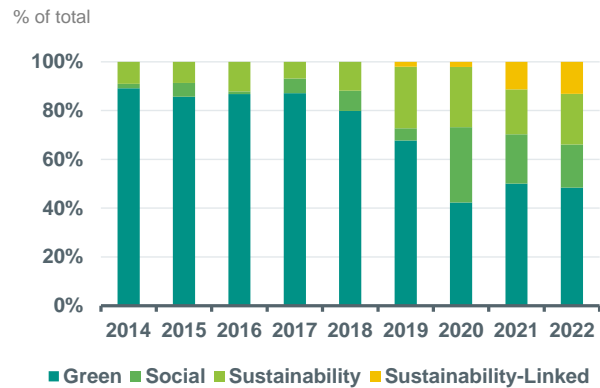
Source: Bloomberg, ABN AMRO Group Economics

YTD ESG bond issuance



Source: Bloomberg, ABN AMRO Group Economics

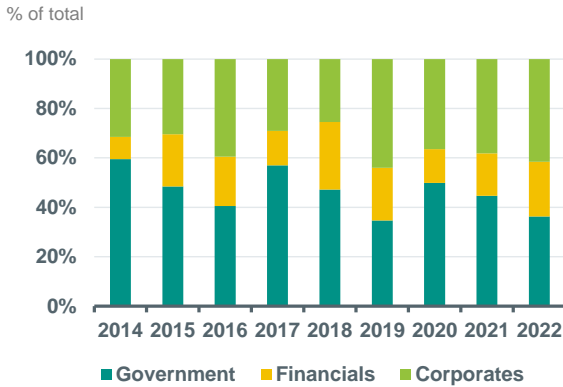
Breakdown of ESG bond issuance by type



Source: Bloomberg, ABN AMRO Group Economics

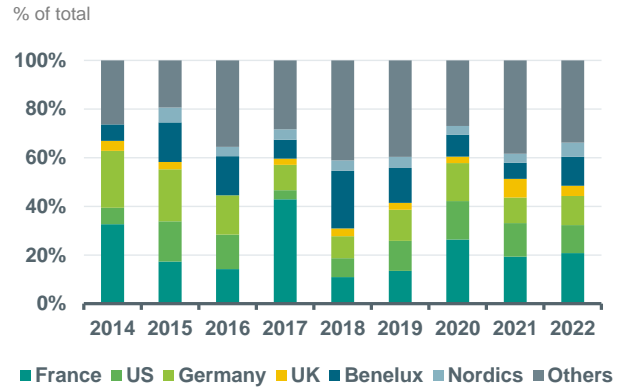
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

Breakdown of ESG bond issuance by sector



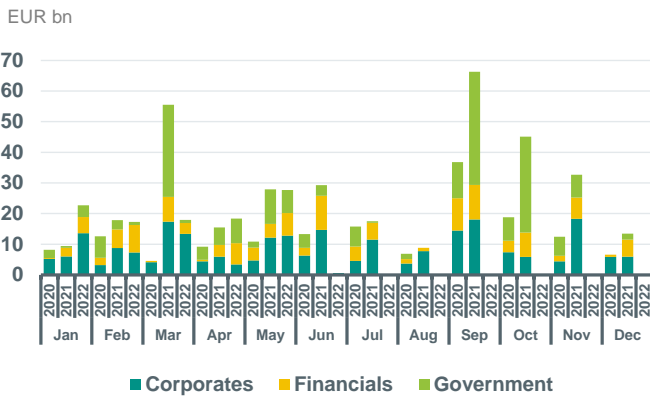
Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by country



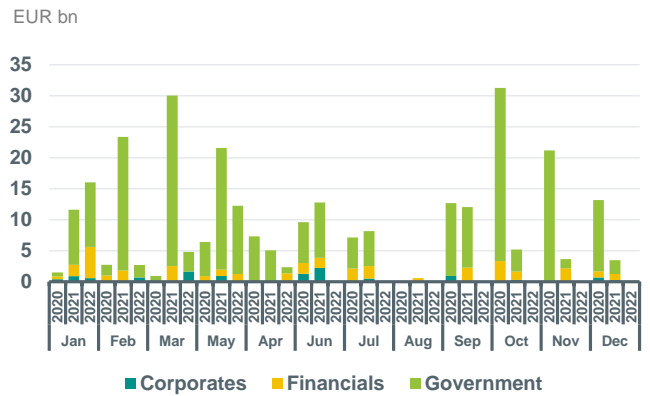
Source: Bloomberg, ABN AMRO Group Economics

Monthly Green Bonds issuance by sector



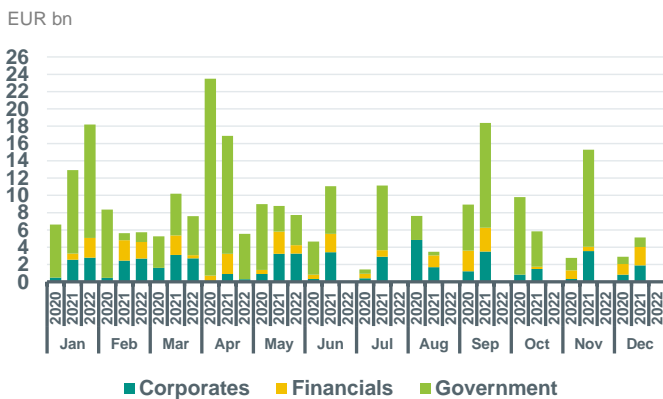
Source: Bloomberg, ABN AMRO Group Economics

Monthly Social Bonds issuance by sector



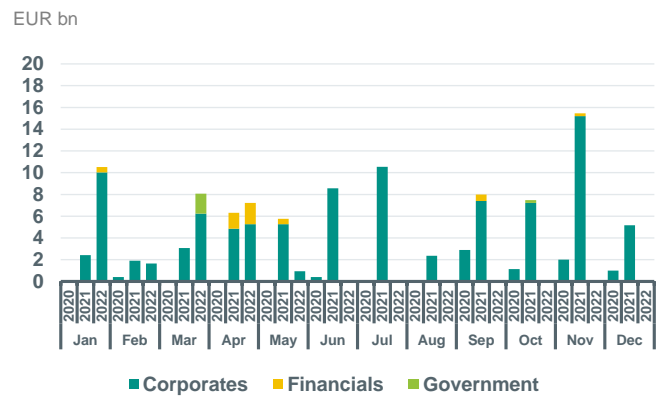
Source: Bloomberg, ABN AMRO Group Economics

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

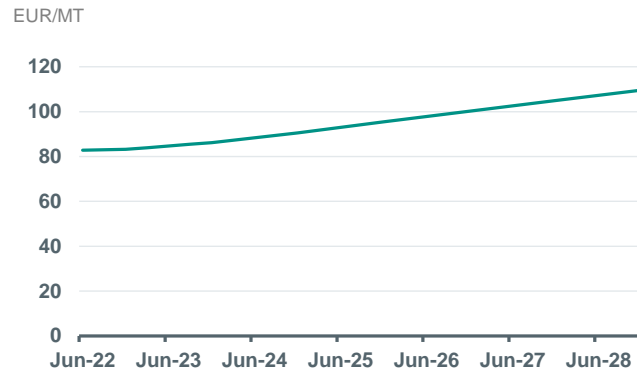
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

Carbon contract current prices (EU Allowance)



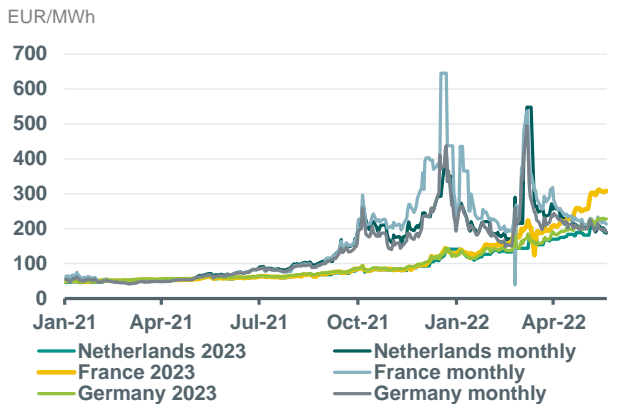
Source: Bloomberg, ABN AMRO Group Economics

Carbon contract future prices (EU Allowance)



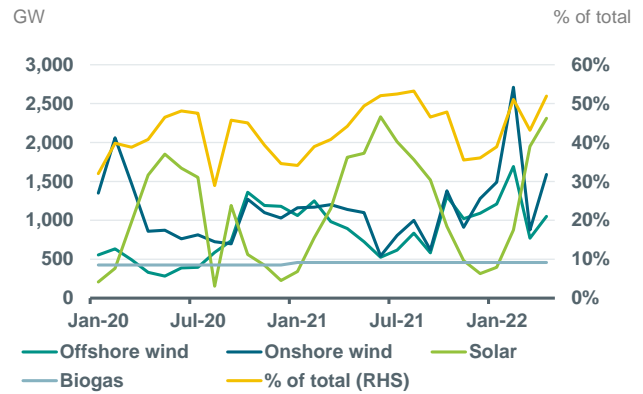
Source: Bloomberg, ABN AMRO Group Economics

Electricity power prices (monthly & cal+1 contracts)



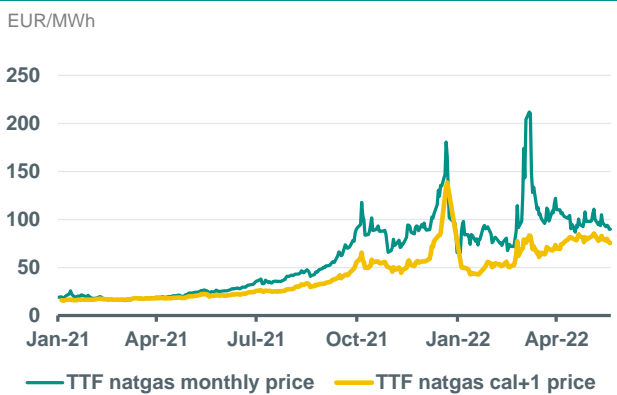
Source: Bloomberg, ABN AMRO Group Economics. Note: 2023 contracts refer to cal+1

Electricity generation from renewable sources (NL)



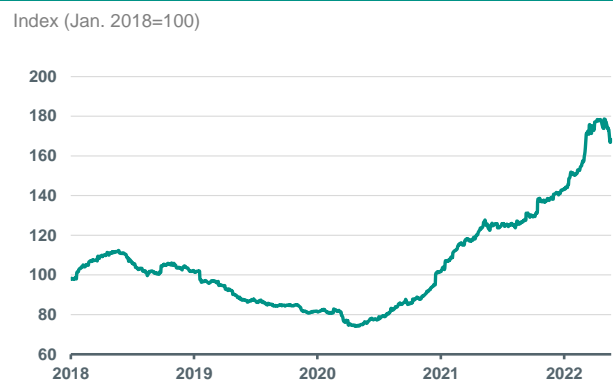
Source: Energieopwek (Klimaat-akkoord), ABN AMRO Group Economics

TTF Natgas prices



Source: Bloomberg, ABN AMRO Group Economics

Transition Commodities Price Index



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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ABN AMRO Bank
Gustav Mahlerlaan 10 (visiting address)
P.O. Box 283
1000 EA Amsterdam
The Netherlands

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