The Green Bond

Your insight into sustainable finance

07 September 2023

In this issue

Feeling the heat

Letter to the reader

The transition is back in full force

Dear reader,

Investment in the transition – whether renewable energy or EVs – has never seen higher numbers, and it appears to be gaining momentum. This considered, the asset pool for labelled financing will continue to grow, which means more issuance and nearing of tipping points where the phasing out of old assets will accelerate, driven by better and cheaper production and infrastructure for the new solutions.

However, higher rates and collateral demand on future contracts on presold electricity (based on volatility) have raised some concerns and created a little less playroom. Sustainability-linked financing is continuing to face headwind despite the underlying growth in the investments and the continued strength of Green Bonds. Still, we believe this is a natural reflection of the structure of any sustainability-linked debt product, where medium term targets are set as a base for the funding. The work behind the target setting and the mobilization of the issuing organization is only likely to happen every 3 to 5 years, not on a constant basis. Hence, issuances will come in the tranches along the updates of the medium to long term strategies.

In this issue, we have introduced a new chapter to The Green Bond – an update on regulations. G7, NGFS, IIF, OECD, EU, China, and other actors are taking ownership of framing the universe and setting the rules. This means that NGO and industry initiatives will be taking over the role of gathering intelligence and providing guidance to regulators. For this reason, we see it as essential to share the intelligence we gain from our interactions with various industry bodies and regulators – and provide a structured and sequenced insight into the regulatory roadmap and its expected impact.

Additionally, we are taking another look at a few major themes – Biodiversity, Carbon Removals, and Water. For all these themes, we at SEB have dedicated workstreams to understand the impact on - and role of - Finance. Where we find clarity is in water solutions and carbon removal investments. Here the path forward is becoming apparent. However, for biodiversity – despite the recent Stora Enso transaction with a nice inclusion of this theme – we still search for our role, which needs to be more than "just" risk reduction.

For this reason, we have invited an external contribution on biodiversity. We have the privilege of presenting insights from Emine Isciel at Storebrand Asset Management, an institution recognized as a pioneer and a strong trend setter for Sustainable Finance. I agree with Emine in her findings and can just conclude – we need to do more!

In the meantime, my colleagues share more of the bank's reflections and positioning on the other two themes.

Enjoy your reading,

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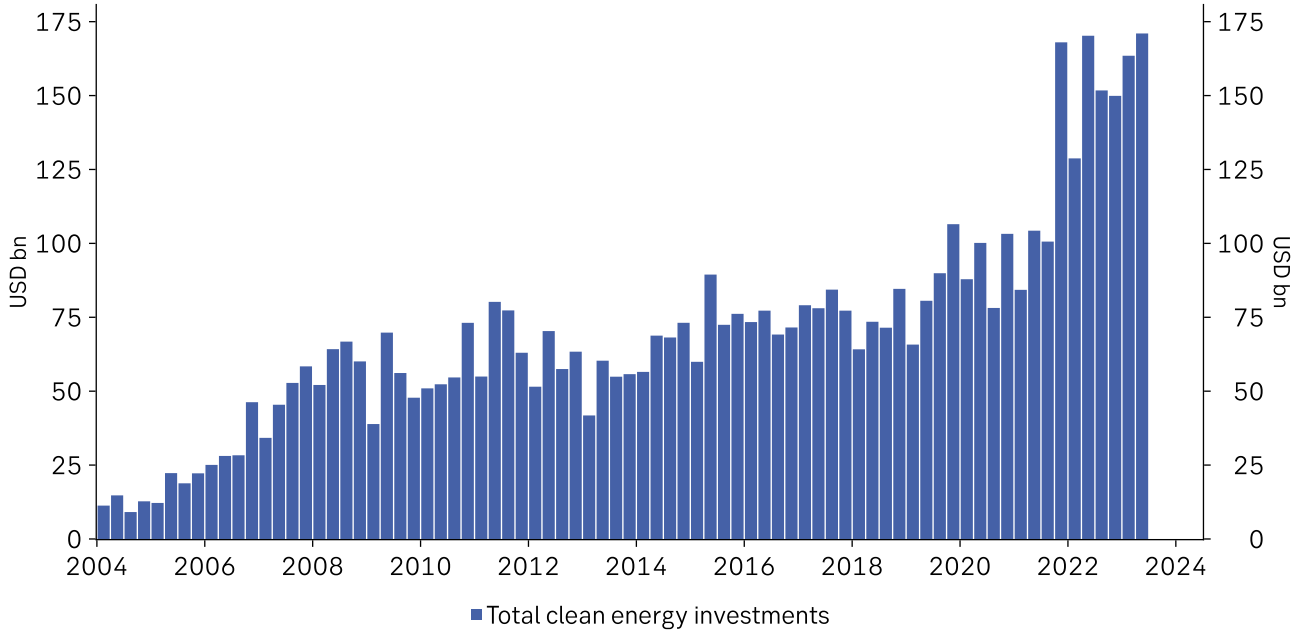
Transition update

Still gaining momentum

Global clean energy investment remained strong in H1, 2023 with solar energy taking a clear lead over wind power and China remaining way ahead. The impact of policy changes in Europe and the US will kick in over the coming years. Renewable energy is still the cheapest option, but offshore wind is struggling with higher cost levels. Studies suggest climate risks are underestimated.

Figure 1 Global clean energy investments



Source: Bloomberg New Energy Finance

Renewable investment hits a new high

Global renewable energy investments increased by 5% from Q1 to USD 171bn (Figure 1). Renewable energy investments in H1 2023 totaled USD 334.5bn, the highest level for any 6-month period.

Although the acceleration in capex that started in 2022 is intact, we are still far from the level that is needed over the next decade to align with goal of decarbonization by 2050. Both the BNEF and IEA net zero scenarios suggest clean energy investment must increase to around USD 2tn annually in the current decade and we are only investing one third of that. However, we think there are good reasons to expect that the coming years will see another doubling in renewable energy investment as policy initiatives in Europe and the US start to have an effect.

From a regional perspective, there was evidence of a sharp acceleration in Q2 in Europe (EMEA) with investments in clean energy surpassing USD 40bn and finally matching the levels we last saw in 2010(!), before austerity cut the first European transition wave short. On the other hand, the Americas (AMER) have yet to see meaningful acceleration.

APAC, dominated by China, continues to lead with quarterly renewable energy investments stabilizing around USD 100bn per quarter for more than a year now – more than the combined investment in the other two major regions. The increase in European investment in 2023 is driven mainly by decentralized solar energy investment, so it is not (yet) a reflection of policy changes in the wake of the energy crisis but rather a bottom-up reaction to the crisis.

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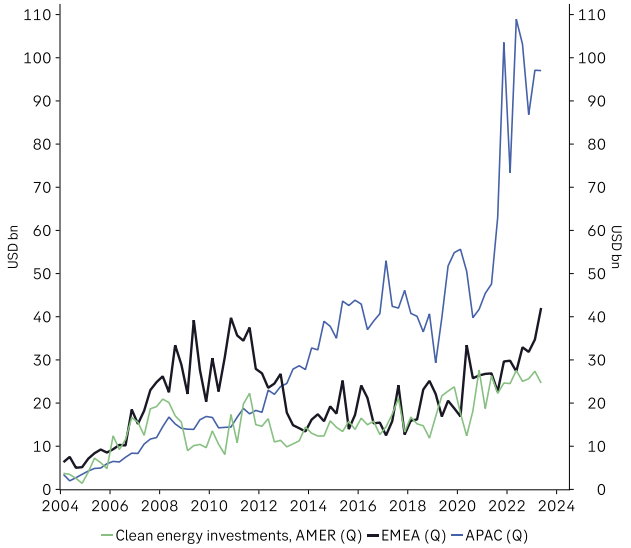
Figure 2 Clean energy investments across regions



Source: Bloomberg New Energy Finance 22 August 2023

The IEA has revised their forecast for European renewable capacity additions for 2023 and 2024 38% higher compared with expectations before the war in Ukraine, and rapid distributed solar PV growth is the main reason: residential and commercial solar PV systems account for 74% of the increase.

European utility-scale investment growth for 2023 and 2024 has also been revised up, but to a much lesser extent due to permitting challenges, auction undersubscription and long development timelines. We expect to see more government-backed large-scale projects in the coming years, but the reliance on funding at the national rather than the EU-level may limit the upside.

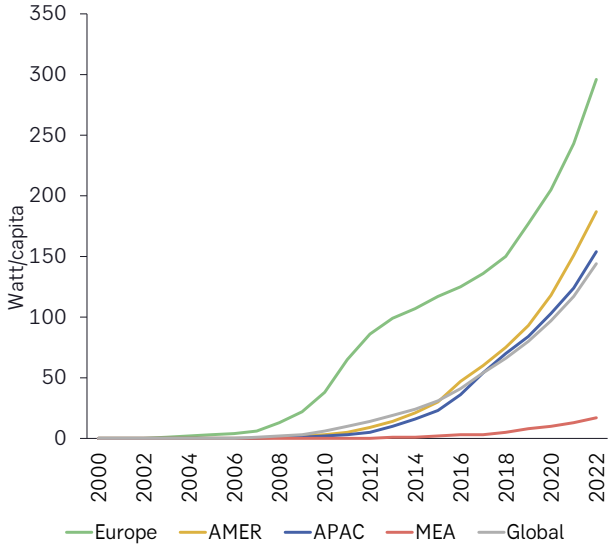
In the US, there is mounting evidence that the Inflation Reduction Act (IRA) may end up being even more powerful than initially estimated. A new study from the Brookings Institution (Bistline, Mehrotra and Wolfram) finds that the "initial estimates of the fiscal costs may be understated in several areas due to greater deployment of IRA-supported technologies such as clean electricity and electric vehicles". They indicate that the total cost of tax credits could be 3-4 times higher than the CBO had estimated. US investment in large and small-scale solar jumped 75% in H1 2023, likely driven by initial Inflation Reduction Act initiatives.

A closer look at solar power diffusion

According to Solarpowereurope, global solar PV installed capacity has reached 1177 GW after rising more than 20% annually in the last three years. That is a 10-fold increase in just one decade. The APAC region has 59% of the global solar power generation capacity. China alone stands out as a major contributor with more than 400 GW. Europe remains the second largest player in the solar power market, but APAC including China is adding to the lead.

In 2022, Europe's solar capacity grew by 22%, but this was not enough to narrow China's lead.

Figure 3 Solar power Watt/capita



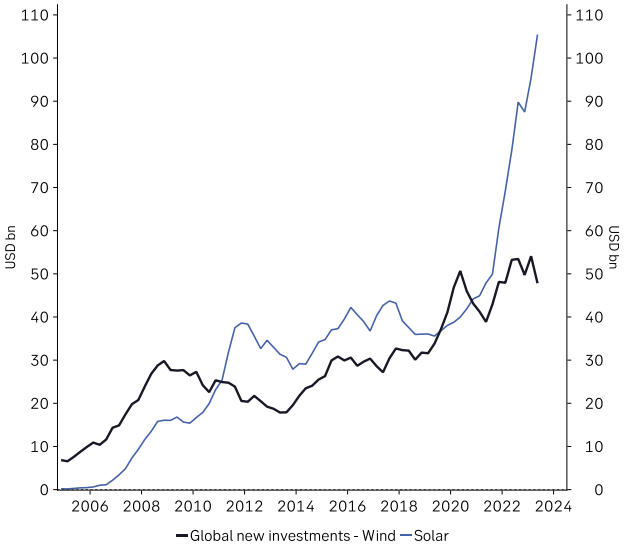
Source: Solarpowereurope

The story looks different when looking at solar power per-capita. As seen in Figure 3, APAC is only on par with the global average in terms of watt per-capita. Europe is topping the chart with 296 W/capita and has a quite significant lead, which essentially is the legacy from the head start Europe enjoyed before 2010.

Solar takes off, wind left behind

Solar is the key driver of the increase in renewable energy supply, while wind has lost steam (Figure 4). Global investments in solar has doubled since 2021 largely driven by China and an increase in utility scale solar projects in that region, while investment in wind has been largely flat and even appears to have come down a bit in 2023.

Figure 4 Clean energy investments: solar, wind

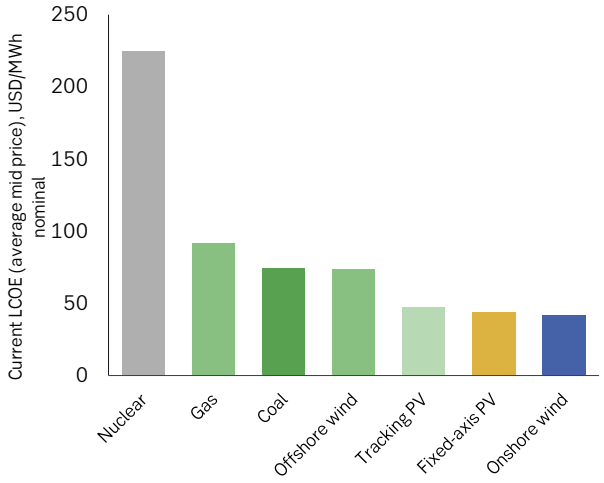


Source: Bloomberg New Energy Finance 22 August 2023

Why is wind power struggling to keep up? There are several reasons. One problem is the cost development.

According to Bloomberg's updated levelized cost of energy (LCOE) data for H1 2023, renewable energy remains the cheapest option (Figure 5). The LCOE for PV and onshore wind is around USD 40-50/MWh while coal and gas are at USD 75-90/MWh, roughly the same level as offshore wind at USD 74/MWh, which thus does not have a cost advantage. However, while the LCOE for onshore wind and tracking PV has declined sharply, that trend has slowed over the past few years.

Figure 5 LCOE H1 2023



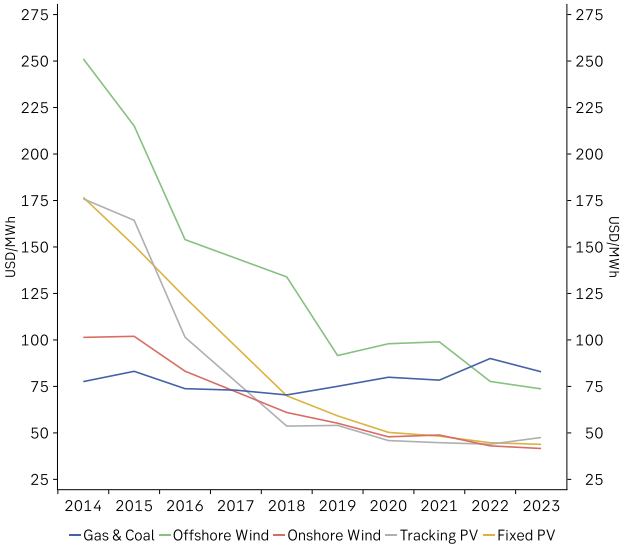
Source: Bloomberg New Energy Finance

As evident in Figure 6, this is a problem for all the renewable energy sources. Prices have stopped falling after 2020 because rising input costs, at least for a while, have dominated the continuing technological progress. For wind, there is also some technological problems.

The development in recent years has gone in the direction of larger, more resource-intensive turbines, rather than moving towards ever smaller units like in solar. This in turn means that wind is more exposed to both rising input costs and rising installation costs than solar and is also less likely to be lifted by small-scale investment. And when you build large-scale projects, they are likely to be more difficult to get construction permits for.

The most pressing problem for developers is the lack of a cost adjustment in the deals that have been auctioned earlier. It's not just the cost of the energy installations that is the problem, the fastest rate hike cycle on record has also pushed interest rates higher, increasing the funding costs of projects where the agreed selling price for electricity has been locked in from the start with no possibility of adjusting when costs change.

Figure 6 LCOE over time



Source: Bloomberg New Energy Finance

This has been problematic for some wind project developers, the most recent example is Danish developer Ørsted, which saw substantial impact on the share price due to the write-down of up to DKK 16bn on two US-based projects. It also appears to be a problem for the entire supply chain in wind, as wind turbine producers clearly have been unable to either hedge costs or raise prices enough to secure positive margins.

Looking ahead, this means that the price of wind power has to be a bit higher than previously thought in order to bring out the supply that is needed. However, governments have recently been exclusively focused on extracting the highest price when they auction off the production rights to new installations. As a result, there are now too few bidders at the wind energy auctions, and those that win may face a 'winner's curse'.

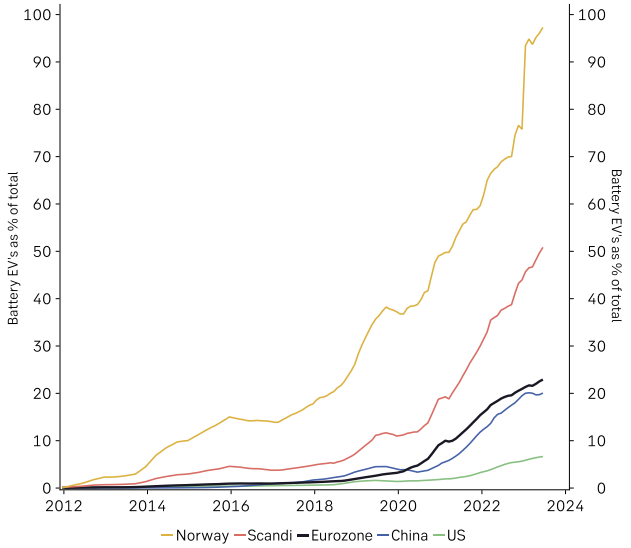
Transition for energy users

Q2 data for EV sales shows a continuation pattern from Q1. In the Nordics, over half of the cars sold are now battery driven, with Norway leading the way with more than 90% of all cars sold being electric (Figure 7).

However, these trends are not replicated in other parts of the world, at least not yet. In the Eurozone and China, the EV share of total car sales appears to be levelling off around 20%, while the US remains a serious laggard with the EV share of total cars being sold still below 10%.

The fact that these shares are levelling off, despite rapid price declines, suggest that we may not yet have seen the true tipping point for zero-emission vehicles. A key obstacle for a rapid acceleration in the EV market share is likely to be the lacking infrastructure like charging stations.

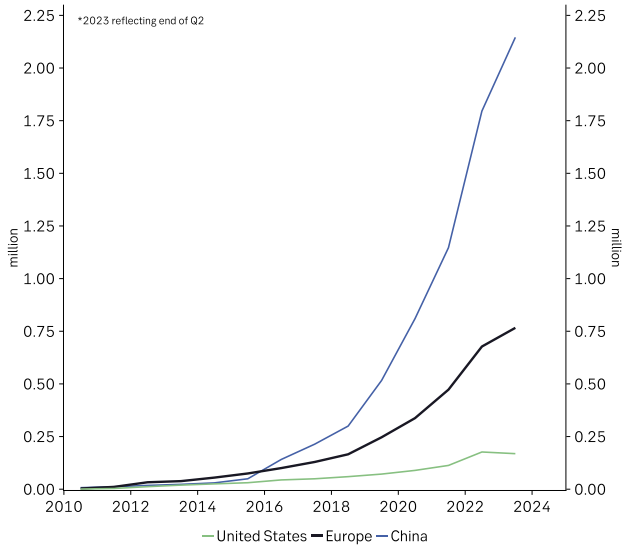
Figure 7 EVs sold as share of total



Source: Bloomberg New Energy Finance

Data from Bloomberg suggests that the development in public charging connectors has stalled in the US after showing signs of picking up in late 2021 (Figure 8). In China, the number has soared above 2 million in H1 2023, currently on track for doubling last year's total number. Europe continues higher surpassing 700.000. The lack of charging capacity is likely to be a serious obstacle to the take-up of EVs outside China. This highlights the need for investment in the broader infrastructure to facilitate major changes in our energy system.

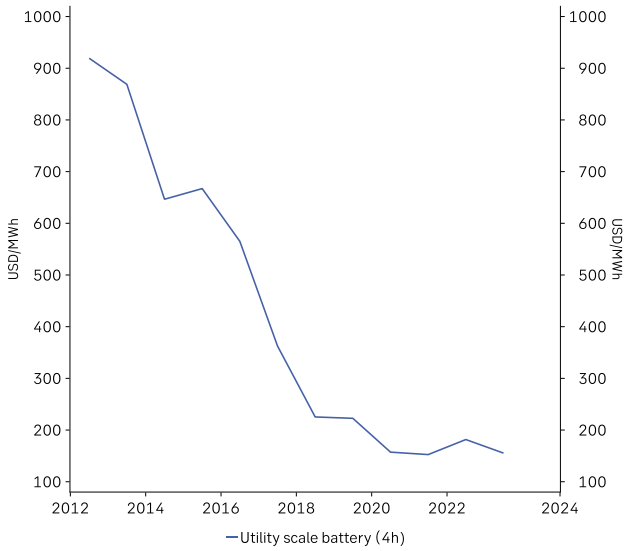
Figure 8 Global public charging connectors



Source: Bloomberg New Energy Finance

However, the main problem for the EV diffusion remains the cost, performance, and resource intensity of the batteries they use. A recent study from the Royal Society of Chemistry estimated the development in battery cell cost using two engineering-based, bottom-up material and process cost models and, at current raw material prices, a decline from above 100 to around USD 70 kWh in 2030 was likely. The simulation of analysts' price expectations for critical materials reveals that this decline might "significantly flatten or, in the most pessimistic case, vanish completely if commodity prices increase". There are already indications that the cost decline has levelled off, also from utility-scale batteries (Figure 9).

Figure 9 LCOE for utility scale battery



Source: Bloomberg New Energy Finance

At the same time, technological progress is pulling the other way. Toyota has recently announced that they are developing more advanced solid-state batteries with lower weight, longer driving range and reduced charging times and will take them to market within 2-3 years. This kind of improvement could ease concerns about the sustainability of the current EV technology, but it will take time.

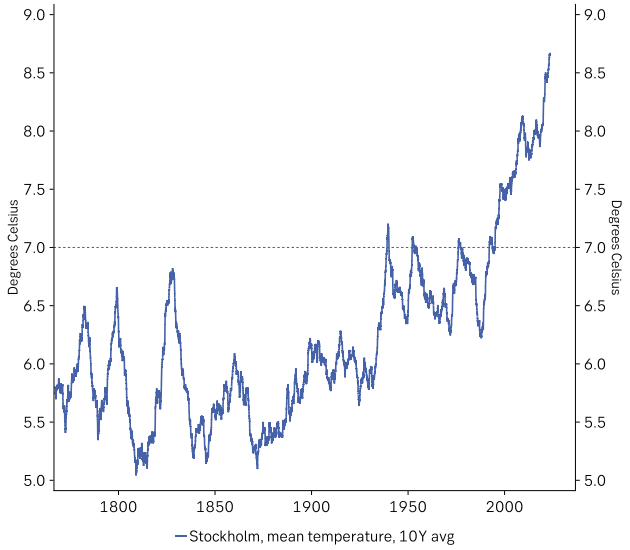
Are we underestimating climate risks?

The June- August season for 2023 was the on hottest on record globally, and we are now starting to see mounting evidence of the costs. This should not come as a surprise, given the long build-up for the increase in temperatures, and one should never focus too much on records for shorter time periods as temperatures vary a lot from year to year.

However, even measured over longer periods, it looks like the temperature increase is accelerating. In Stockholm, where daily temperature measurements are available for a period of more than 250 years, the 10-year average temperature has increased by more than 0.5 degrees in just the three years since 2019 (Figure 10). This clearly indicates a risk that the global temperature increase may end up being faster than hoped.

There is also mounting evidence that the economic cost of global warming is gaining pace, initially mainly in the shape of costly and disruptive incidents of extreme weather.

Figure 10 Mean temperature for Stockholm over time

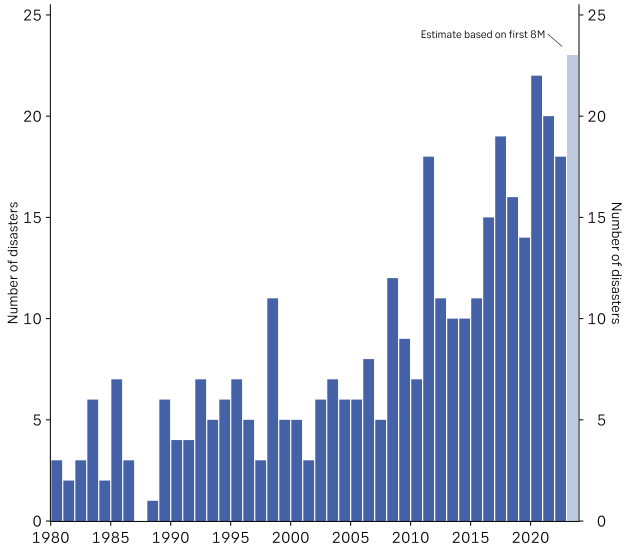


Source: Macrobond, SEB

Figure 11 shows the number of extreme weather and climate disaster events (storms, flooding, wildfires, droughts) per year in the US. This was hovering around 5 until around 2010 but has since shot higher and is on track to hit a new record of 23 in 2023. The annual cost of these disasters, measured as a five-year average, has now reached USD 124bn. That's in the US alone, and there is general consensus that the problems will be much worse in developing economies than in rich economies.

And this is just the tip of the iceberg in the shape of the direct costs. There are likely to be other indirect and more persistent costs associated with crop failures, water shortages and population displacement.

Figure 11 US weather and climate disaster events



Source: https://www.ncei.noaa.gov/access/billions/, SEB

This has raised serious questions about current estimates of the economic cost of global warming. A study from the Institute and Faculty of Actuaries at the ULC concluded that economic models of climate change may have substantially underestimated the costs of continued warming.

The study shows that by 2100, global GDP could be 37% lower than it would be without the impacts of warming, when taking the effects of climate change on economic growth into account. Without accounting for lasting damages - excluded from most estimates - GDP would be around 6% lower, meaning the impacts on growth may increase the economic costs of climate change by a factor of six. One of the co-authors Dr Chris Brierley (UCL Geography) said: "Climate change makes detrimental events like the recent heatwave in North America and the floods in Europe much more likely. If we stop assuming that economies recover from such events within months, the costs of warming look much higher than usually stated."

According to the think-tank, Carbon Tracker, refereed economics papers have concluded that 6°C of global warming will reduce future global GDP by less than 10%, compared to what GDP would have been in the complete absence of climate change. In contrast, scientists have claimed, in refereed science papers, that 5°C of global warming implies damages that are "beyond catastrophic, including existential threats," while even 1°C of warming—which we have already passed—could trigger dangerous climate tipping points.

The problem according to Carbon tracker is that investment consultants to pension funds have relied upon the peer-reviewed economic research to provide advice to pension funds on the damages to pensions that will be caused by global warming. Following the advice of investment consultants, pension funds have informed their members that global warming of 2-4.3°C will have only a minimal impact upon their portfolios. The economics papers informing the models used by investment consultants are at odds with the scientific literature on the impact of these levels of warming.

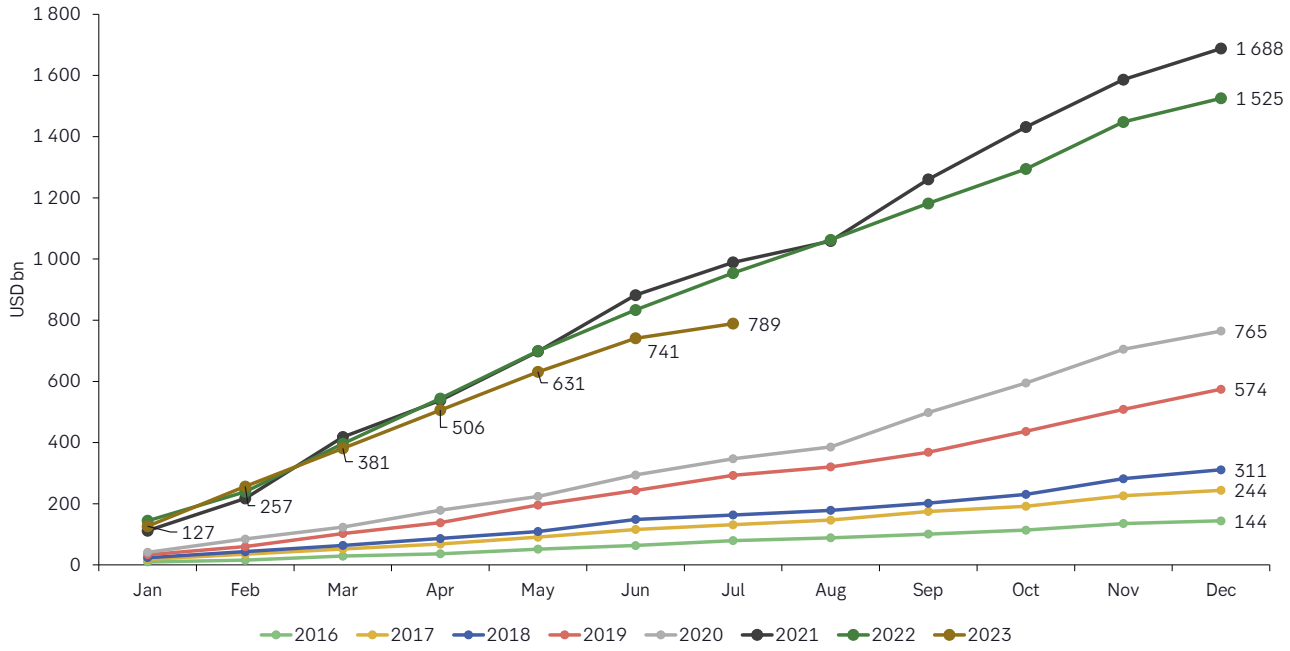
If these criticisms are valid, and we think they are, then there are several important conclusions. Firstly, if the economic costs are higher, then the social cost of carbon emissions is way higher than we currently believe, suggesting that emissions will become far more costly. Second, the economic cost for companies and countries exposed to climate risks are likely to be higher than currently anticipated, suggesting that expected market returns may be too high and company risk premiums too low in most long-term portfolios. Third, the reduction in the expected market return could be reduced or even reversed by a more rapid transition to a clean energy system, even if a rapid transition is more expensive.

Sustainable Finance Market Update

Waiting for growth

Labelled bonds still see growth in an overall decline in the sustainable debt transactions. Resilience in use-of-proceeds shows in increasing premiums. SLBs struggle with meeting KPIs and credible impact reporting. Sustainable equity investors move towards new role for ESG.

Figure 12 Cumulative sustainable debt transactions



Source: Bloomberg New Energy Finance 31 July 2023

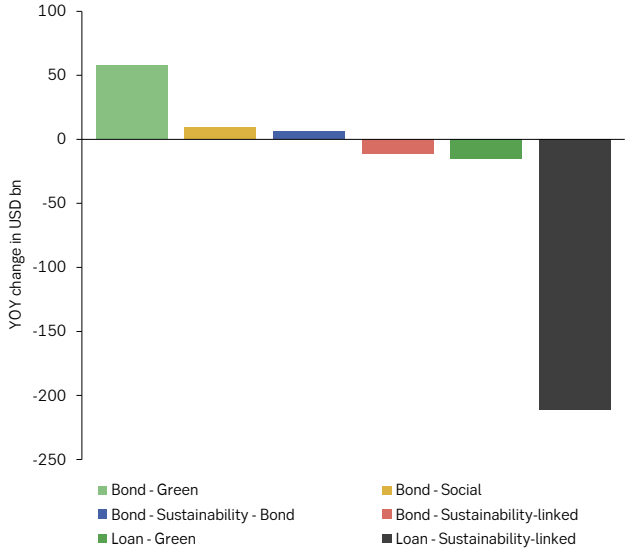
Bonds recover but decline in sustainable banking financing continues

Green bonds continued to grow in the first seven months of 2023 on a Y/Y basis and reached a total of USD 408bn of new issuances until July. Social and sustainability bonds grew by USD 9bn and USD 6bn compared to January to July 2022, reaching cumulative issuance of USD 86bn and US 109bn, respectively.

Gains in use of proceeds bonds, however, were not enough to offset losses in other sustainable borrowing products. Overall, the sustainable finance market has declined by 21% Y/Y in 2023.

Loans are the main reason for this decline. The volume of new sustainability-linked loans has dropped by almost 70% to USD 98bn compared with the first seven months of 2022. Until July, cumulative transactions of sustainability-linked bonds and green loans have dropped by 28% and 19% Y/Y, respectively.

Figure 13 Y/Y sustainable debt by product type, Jan-Jul



Source: Bloomberg New Energy Finance 31 July 2023

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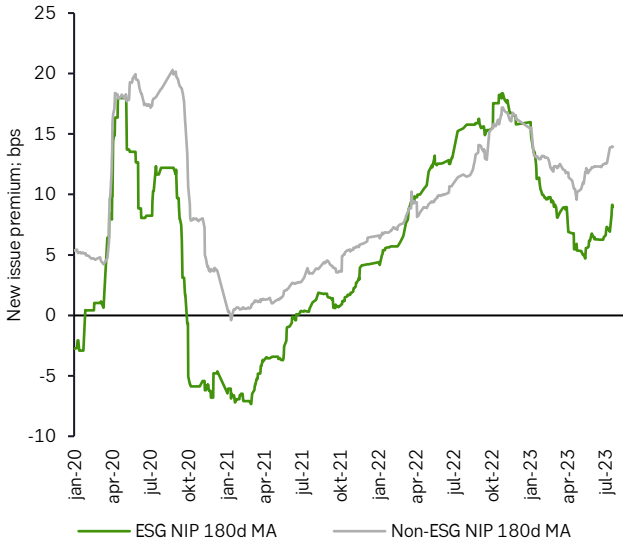
The recovery of the sustainable bond market can also be seen in increased premiums for new labelled bond issuances compared to non-labelled bond issuances.

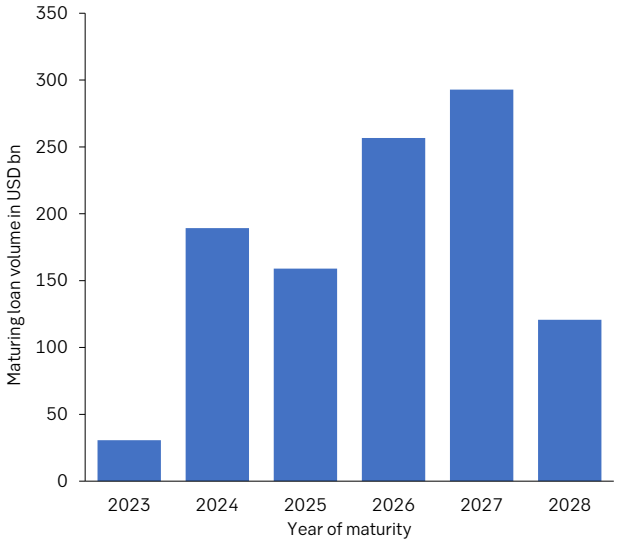
Figure 14 New issuance premium of labelled vs. non-labelled EUR bonds



Source: SEB 11 August 2023

Data also suggests that the decline in sustainability-linked bank lending is temporary. In 2021, many corporates took advantage of lower interest rates and longer than usual tenures leading to the bulk of outstanding sustainability-linked loans maturing after 2025. Cyclical need for refinancing may drive new records for sustainability-linked loans in the second half of this decade. Growth until then will come primarily from new lenders who broaden the basis for performance-based lending.

Figure 15 Maturing syndicated corporate green and sustainability-linked loans

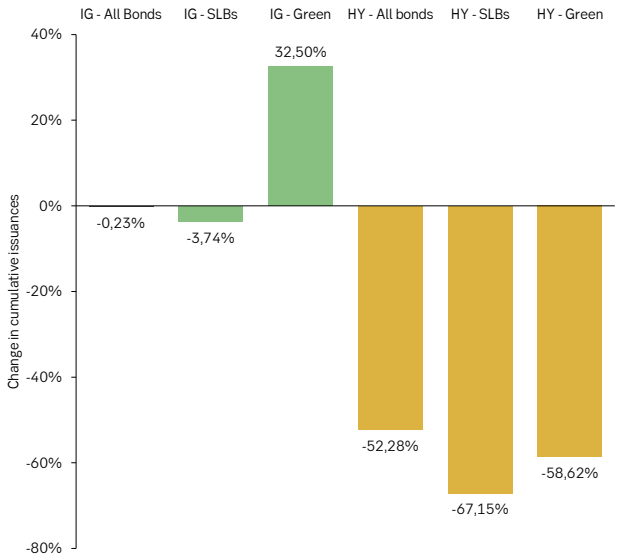


Source: Bloomberg 1 September 2023

Sustainability-linked bond market in focus

The market for sustainability-linked bonds (SLBs) has turned from an engine of growth to one of the laggards in the sustainable finance market. Changes in cumulative issuances from 2021 – when the SLB market peaked – to 2023 reveal that SLBs have declined more than entire investment grade and high-yield bond markets.

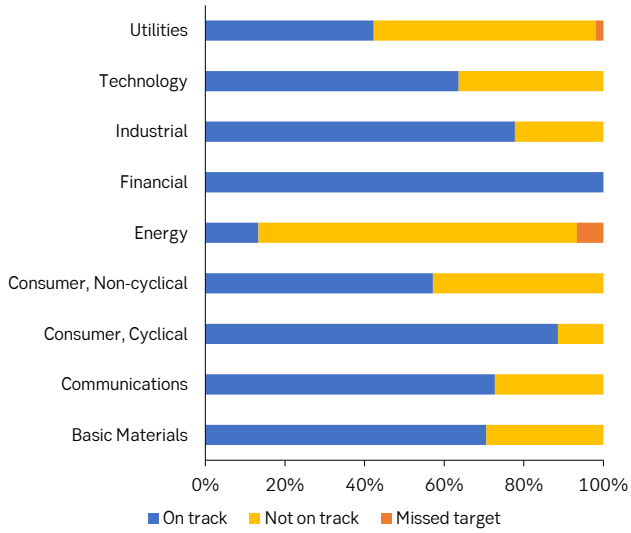
Figure 16 Investment grade and high yield bond market Jan-Aug 2021 vs 2023



Source: Bloomberg 28 August 2023

As the SLB market matures, it is now possible to answer the question of whether issuers will achieve their sustainability targets. We estimate that around a third of KPIs of European bonds are not on track to meet their targets.

Figure 17 KPI progress of European sustainability-linked bonds



Source: Issuer materials & SEB analysis by Fam Lundgren and Tobias Pettersen 18 August 2023. Based on 191 SLBs comprising 316 KPIs

Some sectors fare worse than others, with changing market conditions and macroeconomic factors increasing the

difficulty for issuers to meet their targets. In the energy and utility sectors two issuers have failed to reach their targets and 80% and 56% of KPIs respectively are not on track. This suggests that many issuers in these sectors have increased their reliance on fossil fuels rather than doubling down on renewable energy to address the need for energy security brought by Russia's war against Ukraine.

Given the share of KPIs not on track, how material are the consequences of not meeting a target? We find that the average step-up of European EUR denominated SLBs is 35 basis points with a median of 25 basis points. Fixed coupons of these bonds range from zero to over 800 basis points with an average of 3 percent.

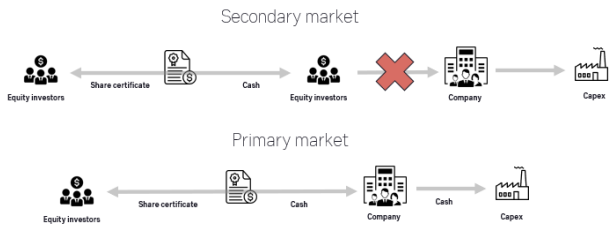
Overall, credibility and transparency remain a challenge in the SLB market. In many cases, SLB frameworks do not specify an annual trajectory towards the sustainability-performance targets. Lack of standardization in reporting and obscure data sources further impedes tracking progress. This could be avoided by adhering to market guidelines like ICMAs Impact Reporting Guidelines and SLB Principles Voluntary Process Guidelines.

Equities: ESG both more and less important

When trying to make sense of the developments in the market for sustainable equity investment products, it is important to note that sustainable investment in equities is fundamentally different from its bond and loan counterparts.

The key difference is that when you are extending credit, you are funding a company in an exercise that will be repeated over time. If a company issues a green bond, it establishes a direct link between your credit and actual spending on the ground, and the cost of the loan will have a direct bearing on spending decisions. Furthermore, since loans will be repaid as they mature, there will be opportunities to fund the company again – or not, if they do not live up to the trust you placed in them.

Figure 18 Primary and secondary market investment



Source: SEB

In (secondary market) equities, you are not funding the company, but buying a share in its current and future profits. (Figure 18) Your capital will not be transferred to the company, but to another investor in the equity market. This is a zero-sum game, and as a rule, the profits you are buying a share of will not be directly influenced by the price you pay. If there is a demand for any product above the marginal cost of production, it will most likely be produced and sold regardless of how stock markets value the profits. If a profitable company can't get a loan, then they must adjust spending. If its stock price goes down, then it has no direct effect. It is different for companies that rely on the equity market as a source of new capital, but most companies are not dependent on new equity capital and most investment funds are not focused on the primary market.

As a result, the case for sustainable equity investment to influence the allocation of capital is relatively weak. Value-based investors may still prefer not to profit from activities that they find damaging or morally wrong, and thematic investors are likely to find interesting opportunities in sectors where the growth outlook is materially affected by the clean energy transition.

The indications that we may be underestimating the economic risks associated with global warming described in the 'Transition Update' section of this report suggest there is also a strong case for focusing even more on the exposure of individual companies to these risks when valuing individual stocks, whether they are related to the cost of emissions, which could become more expensive as the true social cost of global warming and thus CO2 emissions becomes clear, or a whole range of other risks like the access to and cost of water supply, the risk of flooding or hurricanes, threats to biodiversity… the list is long.

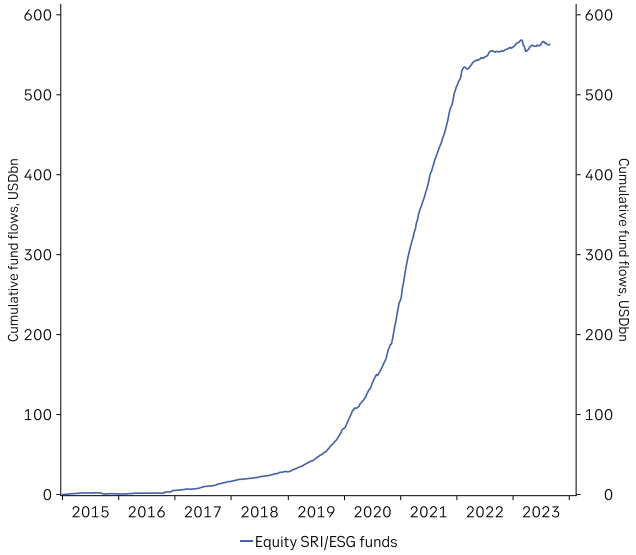
These considerations allow us to draw some tentative conclusions about where the market is headed.

Time to retire ESG as portfolio objective

The first generation of sustainable equity investment products focused on aggregate ESG scores or other broad measures of social responsibility. Investors (and the savers providing with funds) were increasingly aware of the climate crisis and were looking for a simple way to reflect those concerns in new investment products. At the time, in the second half of the 2010s, the availability of hard data showing how companies were responding to these risks was highly limited. Most companies did not report their own emissions or commit to plans to reduce them and figuring out their scope 3 emissions was virtually impossible.

To overcome this information asymmetry, summary measures like ESG scores were at first adopted as proxies. The shortcomings were always obvious: ESG scores turned a highly differentiated range of 'sustainability measures' into a single score with equal weights across sectors, and there were huge variations in scores between suppliers. It was not optimal, but it was better than not trying.

Figure 19 SRI/ESG fund flows: equities

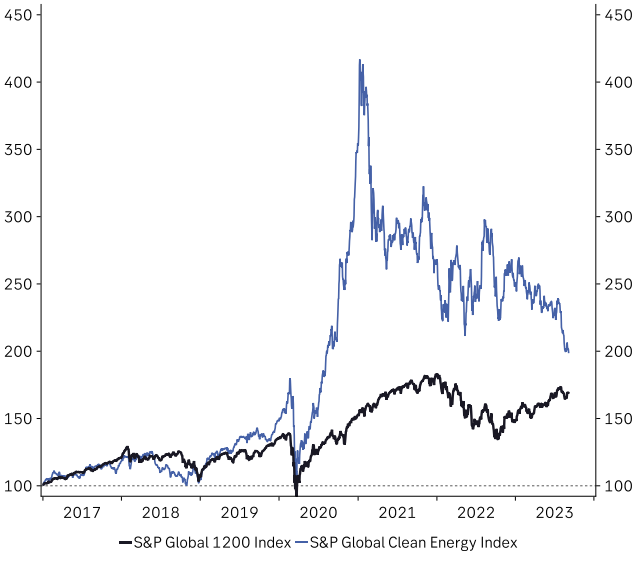


Source: EPFR, SEB

However, the lack of transparency and consistency in ESG investment become clearer over time. In 2023, this was highlighted by studies showing that companies with high ESG scores have higher emissions than companies with low scores. After an initial surge, ESG portfolios have also had lower returns than unconstrained portfolios: the notion that 'green' means higher return has not held up (Figure 20).

The most important change in the past few years, however, is probably that companies now provide much more comprehensive data for assessing both transition ambitions and other material risk exposures. This means investors can be more precise in defining their sustainability objectives (e.g. identifying companies that reduce emissions faster than peers in impact funds, based on the assumption that emissions will become more costly) and implementing them.

Figure 20 S&P Global 1200 and Clean Energy Index



Source: Bloomberg, SEB

Combined with the political backlash against ESG investment in the US, this probably explains why inflows to ESG/SRI equity funds have come to a halt over the past 18 months (Figure 19). The analysis above also explains why we are not seeing the same levelling off in ESG/SRI bond funds: they are not susceptible to the same problem with returns and have a stronger case for actually making a difference.

This is not because investors no longer want to support the transition or reduce climate risks, but because they now have superior tools to achieve the same thing.

We expect this to result in a more clear-cut distinction between sustainability strategies. Value-based investors may still want to reduce exposure to current emissions or other types of 'damaging behaviour', impact-focused investors have a more direct way to identify companies that reduce future emissions faster, investors focusing on other key issues like water or biodiversity will be able to isolate exposures to companies that provide solutions for these.

ESG increasingly important at company level

Meanwhile, return-focused investors will continue using ESG, just not as a portfolio objective, but as an increasingly important input to the valuation of individual companies.

ESG analysis evolved as part of the attempt to measure the risks that individual companies were exposed to. This is why many stock market fundamentalists are puzzled by the ESG controversy: any fundamental assessment of a company's intrinsic value would have to include all risks it is exposed to, including ESG risks. The problem only arises when you place ESG above all the other risks in the portfolio selection process and fail to adjust for the huge differences between companies when it comes to which ESG factors that have material impact in different companies.

If our claim that the economic costs of global warming have been underestimated is correct, then we would expect ESG to become MORE important in the bottom-up analysis of individual companies at the same time as it becomes LESS important as a portfolio objective. As an example, understanding which breweries that have a plan to cope with future water shortages will be important to assessing their relative value, but it could be much less important for e.g. capital goods companies.

This means ESG analysis will return to its original purpose of giving a better understanding of companies' exposure to different types of risk and retreat from the role of providing a one-stop buy or sell recommendation. And we suspect that this will be welcomed by most professional equity investors – both those who focus on returns and those who focus on making a difference for the planet.

Sustainable Finance Regulation Update

Start of the new EU Sustainable Finance Platform

This new regular section of the Green Bond report covers changes in sustainable finance regulations. It is led by SEB's Karl-Oskar Olming, one of six rapporteurs in the EU Sustainable Finance Platform. This edition summarises the new mandate of the EU Sustainable Finance Platform, and reviews recent changes and clarification regarding the EU Taxonomy, SFDR, transition finance, ESG ratings and ESRS

Second EU Sustainable Finance Platform starts work

In March the second Platform on Sustainable Finance started its work. The Platform is an advisory body that provides the EU Commission, DG FISMA with technical advice in relation to the Sustainable Finance Action Plan with a significant focus on the EU Taxonomy. The new platform has the following three focus areas:

1. **Advising on the usability of the EU taxonomy and wider sustainable finance framework.** The priorities have shifted in the Commission from regulatory development to implementation. This means more focus on usability and improvements of regulatory frameworks.
2. **Advising on the technical screening criteria for the EU taxonomy.** This includes both revising existing criteria and developing criteria for new activities that have not been part of the first batch of activities covering all six environmental objectives. The Platform will also create a stakeholder request mechanism to be able to receive proposals for new activities to be included in the Taxonomy.
3. **Monitoring capital flows into sustainable investments** This is an entirely new activity and shows that the Sustainable Finance Action Plan is starting to reach maturity to start take stock of trends regarding capital flows towards sustainable investments.

The Platform brings together sustainability experts across many stakeholder groups: finance and business, civil society, academia and think tanks, experts in personal capacity, as well as public and international institutions. In total, the Platform has 28 members selected from a public call for applications, 7 members from EU agencies and bodies and 14 observers.

It has been a busy start for the platform having to provide feedback to the Commission on three important legislative proposals, the Taxo4, the ESRS and the SFDR RTS. This is also a sign of the Commissions agenda of launching all legislative proposals before the European summer holidays in order to get them though the legislative machinery before the end of the year. Next year are elections to the European Parliament and the last year of the current Commission. That means lower legislative activity from the Commission. What has not been achieved in terms of legislation by the end of this year will probably have to wait for the new Commission.

EU June package

Released in the beginning of summer, the "June Package" is made up of the European Commission's latest initiatives in sustainable finance. The "Taxo 4", i.e. the taxonomy delegated acts with activities for the final four environmental objectives (sustainable use and protection of water and marine resources; transition to a circular economy; pollution prevention and control; and protection and restoration of biodiversity and ecosystems) as well as additions to the climate activities, was the most highly anticipated file.

The new set of activities significantly expands the scope of the taxonomy, meaning that many companies will have a higher share of eligible activities. Reporting for corporates becomes mandatory from 2024 (FY 2023) on eligibility and 2025 (FY 20204) for alignment, with financial institutions following with one year's delay.

In addition to some usability-related taxonomy changes, the June Package included a notice clarifying aspects of the taxonomy "minimum safeguards" requirement that had been the subject of some debate. In addition to the

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requirement of processes that ensure respect for the OECD Guidelines for Multinational Enterprises as well as the UN Guiding Principles on Business and Human Rights, it is now clear that those processes shall also consider the principal adverse impact indicators from the SFDR that relate to social and employee matters; respect for human rights, anti-corruption and anti-bribery matters; as well as the manufacture or selling of controversial weapons.

Another significant clarification was the confirmation that taxonomy-aligned activities can automatically be considered sustainable investments under the SFDR, providing helpful clarity to investors.

The proposal for a regulation on ESG ratings activities aims to strengthen the integrity of ESG ratings. Ratings providers will now have to apply for authorization from ESMA and integrate certain governance practices such as separating their ESG ratings activities from credit rating activities. It is equally proposed that providers of ratings come under an obligation of increased transparency regarding their methodology and data sources. Companies should thus be better placed to understand why they are rated the way they are. Methodologies must furthermore be "rigorous, systematic, objective, continuous and subject to validation". If adopted by Council and Parliament, ESMA will develop standards outlining the details of the obligations.

Finally, the package included a recommendation from the Commission on how to view companies in transition and transition finance. More on this topic will follow in the next green bond.

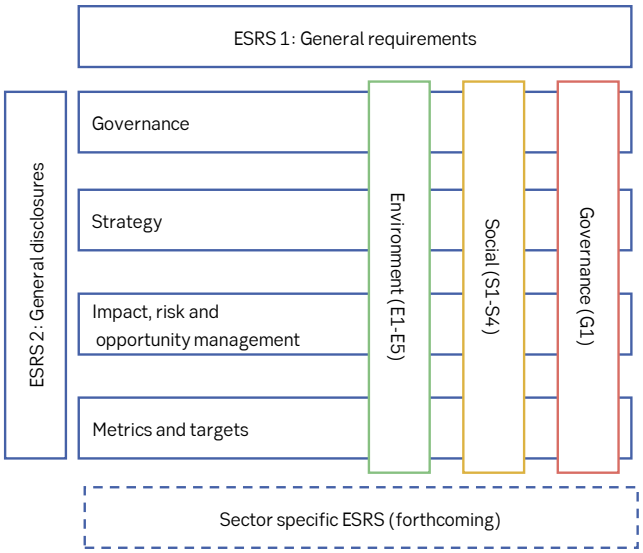
ESRS reporting standards agreed

Before the summer break, the European Commission also adopted the European Sustainability Reporting Standards (ESRS) for use by all companies subject to the Corporate Sustainability Reporting Directive (CSRD). Compared to its predecessor, the Non-Financial Reporting Directive, the CSRD has a considerably larger scope. Phased introduction of ESRS will start in 2024 (reporting in 2025) with large companies that already fell under NFRD, followed by reporting by other large companies, SMEs and non-EU parent companies:

FY 2024 **Large public interest entities** (>500 employees)
FY2025 **Other large companies** (Companies that exceed two of the follow criteria: 250 employees, net revenue of EUR 40m or total assets of EUR 20m)
FY2026 **Listed SME's** (option to opt out for two years, except micro-undertakings)
FY2028 **Non-EU parent companies**

The ESRS consists of two-cross cutting general requirements and disclosures standards which are mandatory for all entities. Furthermore, the Commission also released ten topic-specific disclosure requirements for environment, social and governance.

Figure 21 ESRS standards as of 31 July 2023



Source: SEB, based on European Commission

Which topic and future entity specific disclosure is required is determined by a materiality assessment. This includes an assessment of double-materiality – i.e. an entity's impact on planet and society and financial materiality on the entity. Importantly, the materiality assessment and reporting boundary includes a company's entire value chain. To determine if a topic standard or apart of a topic standard is applicable or not, the final ESRS introduces a "checklist" of so-called sustainability matters.

Compared to earlier drafts, reporting on climate change and own workforce are no longer mandatory. However, when companies conclude that climate change is not material, they will have to provide a detailed explanation of their conclusion. The final version of the ESRS offers an opt out option of disclosing the expected financial impacts related to risk from environmental issues for the first year of reporting. Biodiversity transition plans are considered as voluntary in the final ESRS.

Overall, the ESRS will achieve a new level of comparability between entities when it comes to their sustainability risk management and performance. This will affect the external assessment and pricing of companies and their securities.

Nature Action 100: Investors ramp up the engagement on nature loss

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Urgent action on biodiversity risk needed

Around the world, biodiversity and ecosystem services are vanishing at an unprecedented rate and scale, with impending catastrophic implications. The air we breathe, the water we drink, and the food we eat all rely on healthy natural ecosystems. Not only is this an environmental disaster, but it can also lead to financial ruin: $44 trillion of economic value is moderately or highly dependent on nature and its related services. Between $235 billion and $577 billion of global crop outputs are at risk annually from pollinator loss alone, which is an operational risk for companies that source agricultural commodities.

Despite evident rising risks posed by biodiversity loss, most companies are failing to address the issue rapidly enough. Many businesses lack a thorough understanding of their impacts and dependencies on ecosystems, especially in their supply chains, and how to manage both risks and opportunities.

The challenge of protecting wildlife and nature has fallen behind many other sustainability issues for investors and governments alike. Part of the explanation likely lies in the complexity of the issues, and the systemic nature of the problem. The causes and impacts of nature loss occur at both the micro and macro levels, with many parties contributing to it and experiencing it, but few having oversight over the scale of the problem or even awareness that we are collectively experiencing it. As investment institutions, our impact on society and on nature is mainly indirect, through our influence on the direction taken by investee companies. But that indirect influence is magnified when investment institutions align to wield our influence together.

However, over the past two years, investor activity and interest in biodiversity have grown significantly, as has awareness of the systemic aspects of the challenges in nature loss. Addressing biodiversity loss is fast becoming a priority for financial institutions and investors, accelerating the need to establish effective collective frameworks for managing nature-related risks and opportunities.

Research has shown that through collaborative action institutional investors can increase the weight of their demands on ESG issues in the eyes of corporate management. Taking part in collective engagement gives both larger and smaller shareholders a powerful voice for communicating and a forum for influencing change. We have demonstrated several times that the reach and influence we can have when we join forces, is quite powerful. On climate, we have collaborative platforms such as Climate Action 100+ where 700 investors work towards the 170 focus companies that are key to driving the global net zero emissions transition. But until recently, there had not been any platform for investors to collaboratively engage on nature.

Nature Action 100 – New investor initiative on biodiversity

At the 15th Conference of the Parties to the United Nations Convention on Biological Diversity (COP15), a group of institutional investors, including Storebrand Asset Management announced the formation of Nature Action 100, an initiative to engage with companies which we consider to be systemically important for halting biodiversity loss by 2030, a critical threshold which scientists say is necessary to avoid more catastrophic climate change.

Figure 22 COP15 in Montreal

Source: Storebrand

Investors participating in the initiative will focus on companies in key sectors that, through analysis, we have pinpointed as being systemically important in reversing nature and biodiversity loss. These sectors are major drivers of nature loss due to their large impacts on habitat loss, overexploitation of resources, and soil, water, and solid waste pollution. The key sectors include biotechnology and pharmaceuticals; chemicals, such as agricultural chemicals; household and personal goods; consumer goods retail, including e-commerce and specialty retailers and distributors; food, ranging from meat and dairy producers to processed foods; food and beverage retail; forestry and packaging, including forest management and pulp and paper products; and metals and mining.

2030 deadline for corporate action on biodiversity and nature loss

Nature Action 100 aims to support and complement ongoing important efforts such as the Task Force on Nature-related Disclosures (TNFD) and Science-Based Targets for Nature (SBTN) which will create globally consistent and scalable methodology that investors can use to inform its actions on how to manage risks and opportunities related to nature loss. Nature Action 100, on the other hand, will leverage these new capabilities to support investors in taking on the challenge of driving urgent corporate action and reduce risks from nature loss.

Above all, time is of the essence: 2030 is the deadline. Only by acting powerfully together can we succeed in preserving nature for ourselves and future generations. It's precisely these sorts of systemic challenges that we in the Nordics have historically been great at solving, by pulling together to protect shared value. This is a moment where we are critically needed, so let's rise to challenge - together.

Corporates need to take actions on carbon removals to reach net-zero targets

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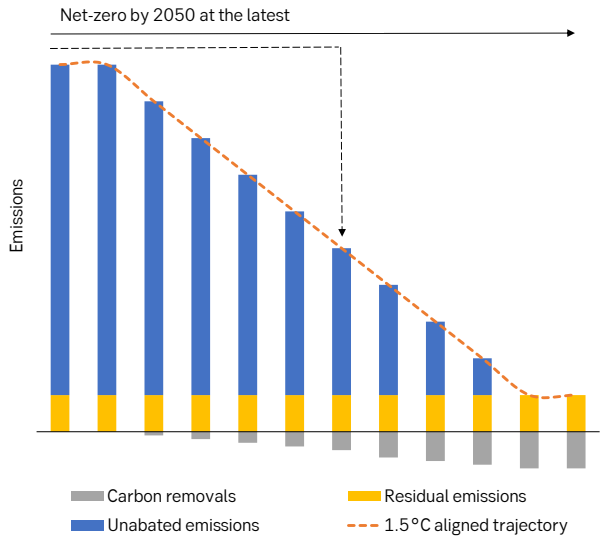
Carbon removals inevitable to reach net-zero

Experts agree that reducing emissions alone is no longer enough to meet climate targets. The IPCC determined that "the deployment of Carbon Dioxide Removal (CDR) to counterbalance hard-to-abate residual emissions is unavoidable if net zero emissions are to be achieved"[1].

Figure 23 Carbon removals to reach net-zero targets



Source: SEB, based on Science Based Targets Initiative

CDR includes activities to remove CO_2 from the atmosphere and store it durably in natural reservoirs, or in products. Existing and potential CDR measures include natural solutions like afforestation and soil sequestration as well as the technology solutions like bioenergy carbon capture and storage (BECCS).

According to an UN expert group[2], a company has achieved net-zero if it has neutralized any residual emissions with high-quality removals. Companies can neutralize 5-10% of their emissions with removals to comply with the Science-based targets initiative (SBTi) net-zero standard[3].

Key issues when acting on carbon removals

There are several key issues that corporates need to consider when assessing if, and how carbon removals can help them in reaching net-zero:

1. **Removals in addition to emission reductions.** To comply with SBTI, removals to neutralize residual emissions should be used on-top – and not instead – of science-based short and long-term reduction targets.
2. **Removals are the new climate leadership frontier.** Setting a net-zero target needs to be followed up with a plan how to neutralize residual emissions. Else, investors and others market stakeholders may question the credibility of such a target.
3. **Quality matters**. Buyers of carbon removals need to evaluate the different carbon removal solutions based on quality criteria including longevity of carbon removal, risk of reversal, energy and land use competition or availability of established verification and validation standards[4].
4. **Regulatory requirements**. The EU is developing a certification scheme for carbon removal which will set quality requirements[5]. Additionally, the new ESRS requires companies to disclose how they intend to neutralize residual emissions of a net-zero target.

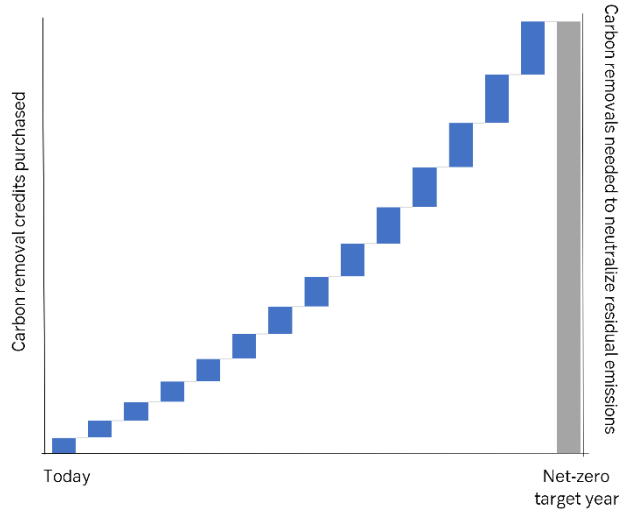
[1] IPCC 2023 - Assessment Report 6. WGIII. Summary for Policymakers
[2] UN High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities
[3] The Corporate Net-Zero Standard - Science Based Targets
[4] SEB assessment based on IPCC Assessment Report 6. WGIII.
[5] EU Carbon Removal Certification

5. **Supplier market**. There are now more than two thousand companies that have set or that have committed to set net-zero emission targets according to SBTi. If most mayor companies set net-zero targets, demand for removals to neutralize residual emissions could reach 5.4Gt CO_{2e} by 2050[6]. In 2022, only fifty-seven million tonnes of nature-based and 0.17 million tonnes of technology-based CDRs were issued[7].
6. **Price risk**. Supply of carbon removals – particularly technology-based removals with higher permanence and lower risk of reversal are likely to remain in short supply in the near future. Even nature-based removals are likely to see rising prices as the amount of land that can be forested is limited.

Building a CDR portfolio using financial instruments to meet net-zero targets

To achieve their net-zero targets, corporates should start to gradually build up a portfolio of CDRs already today. This would allow them to manage price risks, while also sending a demand signal to project developers which spurs investments into future supply, which in turn helps to lower prices and ease supply constraints.

Figure 24 Illustrative gradual build-up of a CDR portfolio



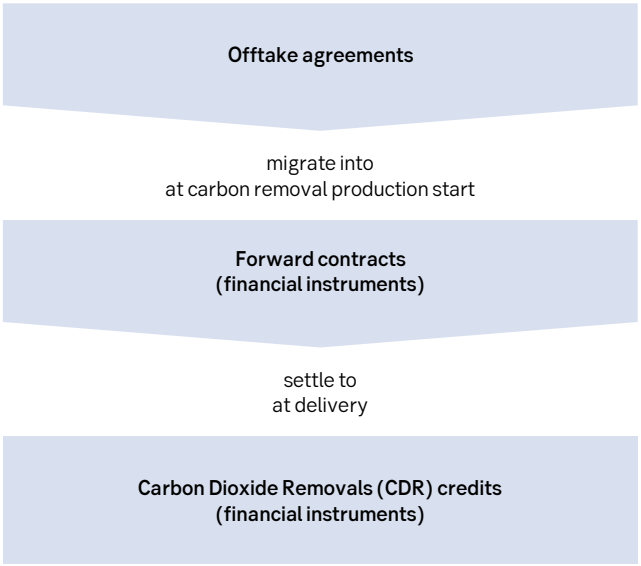
Source: SEB, based on Oxford Principles for Net Zero aligned offsetting

A portfolio-based approach to CDR would also let corporates choose removal solutions based on their own preferences, and to adapt to changing market standards and regulators' demands. Eventually, all residual emissions should be neutralized with long-lived carbon removals.

However, a transparent, efficient, and liquid market for CDRs needs to emerge for buyers to build a portfolio of removal credits, for suppliers to attract investment on for both sides to hedge their risks.

For this to happen, CDRs would need to be structured as financial instruments. First, CDR sellers and buyers agree on an offtake agreement. CDR sellers can use the promise of future cashflows through offtake agreements to attract project financing. Second, offtake agreements migrate into forward contracts when the production of carbon removals has started. Third, once the production of CDRs has been certified by an independent authority, the forward contracts would settle into a CDR credits. These credits could then either be retired against buyers' net-zero targets or sold on the secondary market.

Figure 25 Outline of a market for CDR credits



Source: SEB

CDRs as financial instruments would generate price transparency and steer prices towards fair value of assets. It would also provide liquidity for investors, enable the sale of CDRs in the primary market, and increase the credibility of visibility of CDRs as a tradable product. It would also allow early movers to participate in decarbonization efforts, by securing supply today and maintaining a flexible approach towards their future need of removals. This would enable corporations to gradually build a portfolio of CDRs through forward contracts, scale up purchases as costs decline and match purchases and retirements of CDRs to comply with net zero commitments.

Banks role in building the CDR market

Banks play a key role in supporting both buyers and suppliers of CDRs. On the supply side, banks can provide project financing, brokering services for CDRs and help raise capital for infrastructure investments from investors. On the buy side, banks can offer advisory on how corporates can manage CDR-related price and quality risks.

[6] Bloomberg NEF: Long-term carbon offset outlook 2023

[7] According to Bloomberg and cdr.fyi

Investment opportunities in Bluetech – one solution to the water challenges

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Every year, the Stockholm International Water Institute arranges the "World Water Week" – a non-profit conference dedicated to water-related challenges and solutions. This year, the Water Week took place between August 20 and August 24. SEB participated in the event and took the opportunity to gather some of the leading global experts on water in a roundtable discussion on innovation and financing solutions in an increasingly water scarce world. The roundtable is part of the accelerated SEB effort to guide our clients in identifying risks and investment opportunities we see within water, especially in relation to climate change.

In this article, we look at some of the existing challenges and opportunities that have been at the center of our discussions with experts and clients and where we see the most potential for the near future. We take an especially close look at Bluetech – technologies used to mitigate water issues, and the investment opportunities that exist in this area.

What water-related challenges are we facing?

Firstly, it is climate change affecting the water cycles, which manifests in changing rain patterns, droughts and floodings and creates a need to re-evaluate regional usage capabilities and infrastructure. Another challenge is the ongoing urbanization and centralization, which leads to a concentration of water demand and thereby logistic challenges as well as extortion of reserves. Add to that an ageing infrastructure with low performance and bad monitoring capabilities, which is another challenge in and of itself.

This means severe risks but also creates a lot of investment potential.

Everyone, from households, to corporates, and not least financial institutions, need to ask themselves: do we understand these challenges, and do we have an infrastructure in place to manage them? Issues such as leaking pipes and inaccurate metering result in an estimated 30% of all drinking water not reaching the end consumer. And this problem is present everywhere, in the global North and South alike. In Europe, the average loss constitutes 25%, mostly due to outdated infrastructure. Since the treatment of drinking water costs energy and chemicals, this is literally money down the drain. For a corporate company operating in a sector dependent on access to water- including agriculture, beverages, semiconductors and technology hardware- water scarcity poses real credit and business risks. As an investor, being able to navigate right in this landscape can make the difference between a portfolio with stranded assets or superior performance.

Why don't we see more investments happening in this area? Part of the explanation lies in the lack of value placed on water, as well as the topic's "unattractiveness" when it comes to the political agenda, where it needs to compete with other infrastructure such as energy, schools, and hospitals.

Water is a constantly changing landscape, and the current governance structures are unable to keep up with it. Nevertheless, we expect to see a change in disclosure implementation around water consumption in the near future. This can manifest in taxation around water use in corporate context and higher tariffs on private use.

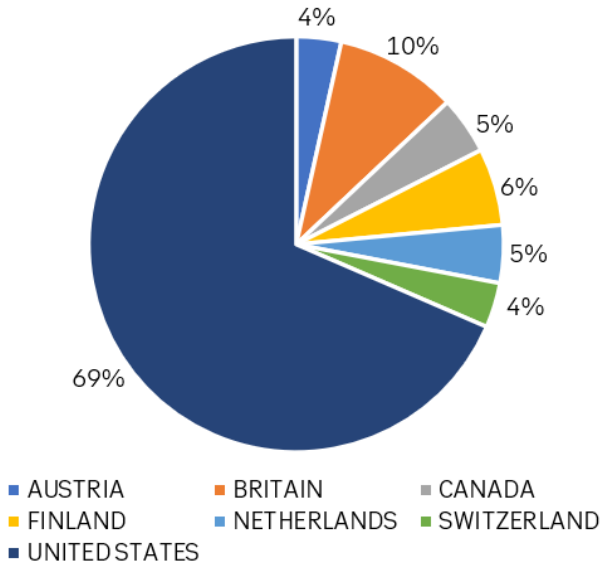
How can investors get exposure to the water theme today?

For investors, it can be difficult to get exposure to water, as climate change has long been the main focal point on the sustainability agenda. There are some investment opportunities in the form of project financing, a few blue bonds, and water funds (or ETFs) out there. But a closer look at listed equities shows there are not too many companies that we expect to profit from the increasing focus on the issue. While water utilities are amongst the most common companies to include in water equity portfolios, they are the ones that need to pay for a large part of the needed water investments.

In our eyes, Bluetech is the most interesting sub-theme within water investments. Like Greentech, we define Bluetech as an umbrella term for technologies used to mitigate water issues, such as water shortages and pollution. We argue that there is an investment case for Bluetech companies and expect them to provide investors with attractive returns over the coming years.

For this reason, we constructed an equity basket consisting of 21 North American and Western European Bluetech companies. The companies are chosen through a rigorous quantitative screening process, leveraging sustainability data from several data providers.

Figure 26 Geographic distribution of the companies



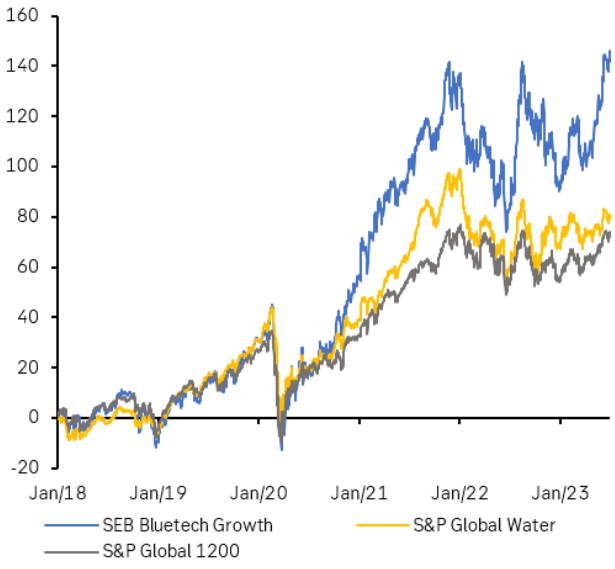
Source: SEB

They are then weighted based on their total contribution to the water theme: the company with the highest share of revenues from Bluetech is assigned the highest possible weight.

While past performance is never a guarantee for future returns, we conducted back tests to provide investors with insights regarding the possible performance of Bluetech investments. The basket – if issued on January 1, 2018 – would have provided a total return of 145.9% until June 30, 2023. With that, it would have significantly outperformed the S&P Global Water index (+80.8%), as well as the S&P Global 1200 (+74.2%). Even more interestingly, the increase in total return was not correlated with a substantial change in valuation over the period. The basket's valuation (using the aggregated P/E ratio) was volatile but has not increased significantly between 2018 and 2023.

Excess returns (compared to S%&P Global Water) were mainly generated after 2020. An attribution analysis showed that around 50% of the excess return can be attributed to security selection. The remainder is explained by allocation effects as the basket (1) does not invest in Asia, and (2) has a different industry weighting compared to a water index. Point (2) stems mainly from the portfolio completely excluding 'traditional water utilities'. To summarize, water might not yet be the easiest sustainability theme to get exposure to as an equity investor, but investing in Bluetech can provide interesting opportunities as well as a cleaner exposure to companies providing solutions for water challenges.

Figure 27 Total return (%) from Jan 2018 to Jun 2023



Source: SEB

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"The Green Bond" is SEB's research publication that strives to bring you the latest insight into the world of sustainable finance – one theme at a time. Even though the publication covers all kinds of products and developments in the sustainable finance market, we decided to keep its historic name – "The Green Bond" – as tribute to our role as a pioneer in the Green Bond market.

You may be wondering why a Scandinavian bank chose a picture of bamboo for the cover. There is a reason for that too! Bamboo is one of the fastest growing plants on the planet, which makes it an efficient mechanism of carbon sequestration. Moreover, once grown, bamboo can not only be used for food, but also used as an ecological alternative to many building materials and even fabrics. Its great environmental potential makes bamboo a perfect illustration of our work and aspirations.

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Cut-off date for calculations was 31 July 2023, unless otherwise stated.

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