

ESG Outlook 2025: catalysts for change

ESG Analysis Team

January 2025

EXECUTIVE SUMMARY

The 2025 ESG landscape underscores the need for strategic adaptation to regional regulatory shifts, advancing environmental priorities, and addressing emerging social challenges.

ESG REGULATIONS BY REGIONS:

2025 is set to be a year of contradictions in ESG Regulation. The **EU plans to simplify its ESG rules with new legislation**, while the **US will roll back federal ESG regulations under the new Trump presidency**, even as some states tighten further their own rules. The new European Commission will likely be highly active on ESG regulation in 2025, proposing reforms to the Sustainable Finance Disclosure Regulation, presenting an **omnibus regulation for corporate disclosures**. The **UK** is set to press ahead with **implementation** of its **Sustainable Disclosure Requirements**, with more funds expected to adopt sustainability labels throughout 2025. The UK government will also introduce new legislation on ESG rating agencies and a revised stewardship code. In the US, **federal ESG regulation will roll back** due to the **new Trump presidency**, leading to a fragmented policy landscape. However, economic drivers like energy security and competition with China will keep decarbonization efforts moving forward. Meanwhile, **Asia** is advancing with **new corporates sustainability regulations**.

ENVIRONMENT: Climate remains focal point in 2025, Nature gains momentum

- **Climate: Meeting soaring energy demand amid rising climate physical risks**
Energy demand is set to soar led by rising population, economic/technology developments. Nuclear energy emerges now as a potential solution to meet this demand, while renewable energy highlights the need for efficient **energy storage** to solve intermittency issues. **Carbon capture, utilization and storage (CCUS) technologies** will be pivotal in decarbonization strategies, presenting significant investment opportunity. The **decarbonization of the transport system** will impact major industries such as: a) **Shipping**, which may face a **global carbon price on emissions**; b) **Aviation**, due to the new **Sustainable Aviation Fuel (SAF)** requirement and c) **Automotive**, where European car makers are now dealing with the **new CO2 standards and targets**, risking fines and competitiveness against Chinese companies. The **EU's Carbon Border Adjustment Mechanism (CBAM)** introduces tariffs on imported goods based on their carbon intensity, promoting fair competition and incentivising decarbonisation among global exporters. Similar mechanisms are being considered in other regions, increasing pressure on carbon-intensive industries. **Climate physical risks**, such as flooding and heatwaves, are expected to rise after surpassing the 1.5°C global warming threshold. Climate adaptation solutions will be crucial in addressing these extreme weather conditions. Significant investments are needed in **Emerging Markets** to support their **climate transition** and meet **climate goals**, averaging 4.3\$ trillion annually by 2050.
- **Nature: Biodiversity and Circularity on the rise**
Biodiversity challenges are emerging across sectors, despite losing some momentum compared to the previous year due to integration difficulties and the postponement of the EU Deforestation Law to the end of 2025. **Plastic pollution and package waste** are set to gain attention with the UN Global Plastics Treaty under negotiation and new EU **circular economy targets**. Although **PFAS EU legislation** is under discussion with potential bans and increased media coverage/potential lawsuits, the market doesn't perceive it as critical for 2025. **Critical Raw Materials** are key enablers of the energy transition, prompting increased extraction and recycling activities, especially given their concentration in China. Biodiversity losses, climate change, along with geopolitical concerns, are putting at risk the security and sustainability of agriculture and food, endangering countries' growth and employment.

SOCIAL: still underweighted despite workforce challenges linked to the energy transition

Although social issues are not perceived as prominent for 2025, few themes will emerge. The transition towards a green economy will transform the global labor market, with demand for green talent outpacing supply. On the other hand, significant **job cuts** and **workforce downsizing** are expected in sectors like automotive due to competition with Chinese companies and shifts in EV subsidies. The rise of AI also poses **data privacy risks**, necessitating **enhanced cybersecurity measures**.

SUSTAINABLE INVESTMENTS: growing interest in ESG-labeled bonds and improved sector coverage via EU Taxonomy

ESG-labeled bonds are expected to increase by 10% in 2025 (source: Credit Agricole Research), balanced by a reduced interest in **US. Sustainability-linked Bonds** will remain crucial to achieve 2030 climate targets. Thanks to the expansion of eligible activities under the EU Taxonomy, the use-of-proceeds of **green bonds** could target new environmental objectives and cover additional sectors. Many impact investors prioritize SDG 8 (which focuses on decent work and economic growth). Additionally, the US securitized market is anticipated to see an increase in social bonds, with an estimated \$70bn addressing social issues.

FULL NOTE

ESG REGULATION DRIVERS BY REGION

In Europe, economic, political and strategic headwinds are likely to have a significant impact on EU Sustainability regulation in 2025, with uncertainty on actual implementation and their economic impact on the European industrial environment. In UK, the UK's Sustainability Disclosure Requirements (SDR) naming and marketing rules came into force in December 2024, with a deadline to comply by April 2025. Adoption of its 4 sustainability fund labels – focus, impact, improvers and mixed goals – has been slow to start, but more funds are expected to start using the labels over the course of 2025. The rules however leave most details to be determined by asset managers, and the enforcement by the FCA will be key. The UK government is also expected to introduce draft legislation on ESG rating agencies sometime this year, as well as a revised UK stewardship code. Finally, the UK green taxonomy consultation is still ongoing, where the UK seems unenthusiastic, while there is an increased focus on supporting and financing companies transitioning towards a net-zero pathway. In contrast, the US will still lack a unified ESG framework, relying on a patchwork of federal and state laws, leading to a fragmented policy environment. Trump 2.0 will likely mean a setback for sustainable regulations and investing, although we remain convinced that underlying trends like decarbonization will continue advancing due to economic drivers, such as energy security, competition with China and AI-related energy demands. Meanwhile, Asia is making significant strides with new regulations aimed at enhancing corporate sustainability practices.

EU: Balancing decarbonization and competitiveness

The EU is at a critical juncture, striving to balance its ambitious decarbonization goals with the need to maintain industrial competitiveness. This balance is predominantly driven by stringent regulatory measures and the EU's ambitious decarbonization targets compared to other regions. We believe that uncertainty surrounding their economic impact reflects a period of heightened regulatory volatility.

Key regulations such as CSRD (Corporate Sustainability Reporting Directive), and EUDR (EU Deforestation Regulation) are reshaping corporate responsibilities and increasing compliance costs in the shorter term.

- **EUDR** enforcement has been delayed to December 2025 due to infrastructure readiness, and stricter implementation is expected in 2026, compelling companies to invest significantly to meet these standards.
- On **CSRD**, while initially perceived as revolutionary, its implementation - slated for 2025, faces potential delays, with Germany and other EU member states yet to transpose the directive into national legislation. This delay allows companies domiciled in these countries to opt out of voluntary compliance, raising questions about its near-term impact. During 2024, investors had anticipated greater clarity on regulatory changes by March/April 2025, particularly around CSRD and the **EU Taxonomy's** new environmental goals. However, with Europe's competitiveness and geopolitical instability taking center stage, we believe that revisions or postponements appear increasingly likely. Draghi's report critiques the EU's extensive regulatory framework, including CSRD, CSDDD, and the **EU Taxonomy**, for its complexity and costs, positioning these as competitive disadvantages. Calls for an "Omnibus" regulation to streamline reporting requirements signal potential regulatory consolidation. While we welcome this streamlining effort, the persistence of regulatory volatility is not conducive for corporations. Draghi's acknowledgment of CSRD's potential harm to competitiveness sets a precedent for companies to challenge the cost implications of such regulations. This environment, coupled with the delayed implementation of the EU Deforestation Law (see above), underscores the likelihood of further regulatory postponements or cancellations.
- The impacts of last year's **ESMA¹ fund guidelines** will continue to be felt in 2025. Released on 14 May 2024, ESMA guidelines foresee different stringer criteria and threshold for fund having any ESG-related word in their name. These guidelines also apply exclusion criteria for different terms used in the fund names, such as 'impact' where exclusions under the Paris-aligned Benchmarks (PAB) would apply, and 'transition' where exclusions under the Climate Transition Benchmarks (CTB) would apply. Bloomberg analyzed ~1,600 Article 8 funds and found that almost 75% of them are invested in companies potentially exposed to the fossil fuel exclusion criteria. This means many funds may need to remove environmental terms from their name or divest from certain holdings to satisfy ESMA's guidelines. Morningstar found that out of the 4,300 EU funds may fall under the scope of the new guidelines, 1,600 are exposed to at least one stock that potentially breaches the exclusion rules, potentially forcing them to rebrand or divest. The most affected stocks for potential divestment if investors attempt to keep these terms in their fund names are Total Energies, Tencent Holdings, Ecolab, and Shell.
- Regarding the ongoing **SFDR review**, the EU Platform on Sustainable Finance (EU PSF) has recently published its recommendations related to sustainable fund categorizations, suggesting three fund categories: "Sustainable", "Transition", and "ESG collection". Funds that do not fit into the three categories would be unclassified. While the Platform has official standing, the Commission is not obliged to follow its proposals. The AMF's reform proposals include replacing Article 8/9 with four categories: environmental solutions, social solutions, climate transition, and non-financial filter. They suggest these categories to be based on minimum objective criteria with no room for interpretation, such as the EU Taxonomy or exclusions. A 'social' category is likely to be difficult to define, as the failed Social Taxonomy found. Overall, all agencies are calling for some sort of transition category.

¹ The European Securities and Markets Authority

However, the Commission seems to be trying to cover digital as well as energy transition, while the AMF input was more focused specifically on climate transition.

UK: SDR naming rules is now in force while Green Taxonomy has yet to reach an agreement. Transition finance momentum.

- **SDR:** In December 2024, the UK introduced new Sustainability Disclosure Requirements (SDR) for asset managers, aiming to enhance transparency and accountability in sustainable investing. These rules, which apply to UK-domiciled products available to retail investors, mandate that funds meet specific sustainability criteria to use related terms in their names and marketing. Asset managers have until April 2025 to comply. The foresees labels for funds are: Sustainability Focus (at least 70% in sustainable assets), Sustainability Impact (at least 70% investments targeting measurable positive outcomes), Sustainability Improvers (at least 70% of assets with the potential to environmentally/ socially improve over time) and Sustainability mixed goals (at least 70% in accordance with a combination of the sustainability objectives for the other labels). Despite the initial slow adoption, with only 30 funds applying for these labels by the December deadline, the Financial Conduct Authority (FCA) expects more funds to follow suit throughout 2025. The FCA's enforcement of these principles-based rules will be crucial in shaping future market practices.
- **UK Green Taxonomy:** the UK government launched a consultation on developing a green taxonomy to “*define which economic activities support climate, environmental, or wider sustainability objectives*”. This initiative aims to boost sustainable investment and curb greenwashing, with nuclear energy proposed as a green activity. Feedback from the consultation, open until February 2025, will guide the taxonomy's development.
- **ESG Rating Regulation:** the UK is also moving towards regulating ESG rating providers. Under the proposed rules, ESG rating providers will be required to be authorized by the UK FCA and comply with their upcoming regulatory regime for the industry. This includes UK rating agencies and overseas firms providing ratings to UK users. This proposed framework, currently open for feedback, is expected to be finalized within the year.
- **Stewardship Code:** The UK Financial Reporting Council (FRC) is set to revise the Stewardship Code in early 2025, focusing on reducing reporting burdens and aligning with the SDR's emphasis on stewardship. A key topic is how the FRC led Stewardship Code relates to the UK SDR, which now has a high focus on stewardship as one of the main channels for sustainable investing impact. The challenge is that reporting and assessing stewardship is very difficult, which is not expected to change as most stewardship is private.
- **Financing companies towards a net-zero pathway:** The UK Transition Plan Taskforce (TPT) released comprehensive resources to help companies align with the ISSB climate standard. These resources include sector-specific transition plan guidance for several sectors, aiming at supporting companies in their transition to net-zero, with the government expected to consult on making transition plans mandatory soon.

US: Trump 2.0 will likely mean a setback for sustainable regulation (and investing) in the US

- **Clean Tech and Energy policy:** Trump incoming administration is poised to reshape clean tech and energy policy, with potential changes to the Inflation Reduction Act (IRA) and revisions to the Jobs Act. These changes could create volatility, particularly affecting stocks in the renewable energy and utilities sectors. The evolving regulatory landscape will require companies to stay informed and adapt their strategies to meet new requirements. The IRA's focus on incentivizing clean energy investments could drive substantial growth in renewable energy projects if maintained or expanded. Solar, onshore wind and storage sectors are likely to be more resilient to changes, while offshore wind projects and EV charging infrastructure could be potentially more at risk of changes to incentives. Regulatory clarity and stability will be crucial.
- **Regulatory adjustments to ESG Targets.** Companies are adjusting their ESG targets to align with practical realities, reflecting a better understanding of what is feasible. Markets are expected to react strongly to fiscal and trade policies, making 2025 a year of heightened sensitivity for ESG investments. The lack of a unified ESG framework in the US means that companies must navigate a complex regulatory environment, balancing federal, state, and local requirements. This fragmented landscape poses challenges but also opportunities for companies to demonstrate leadership in ESG practices. States as California and New York are pushing forward with ambitious climate goals.
- **Paris Agreement:** The US announced it will exit the Paris Climate Treaty again following Trump's election. This withdrawal may cause a domino effect globally, particularly in the Global South that requested developed countries to lead decarbonization efforts. Moreover, US departure may also slow down the global climate agenda, hampering the momentum on emissions reductions.

Asia: Significant progress on reporting rules and sustainable finance frameworks.

- **Sustainability Disclosure Regulations.** Regulators in Asia are enhancing transparency and accountability in corporate sustainability practices through new guidelines. For example, Japan's FSA, China's CSRC, Korea's FSC have all introduced mandatory ESG disclosure requirements for listed companies. These measures will improve the quality and comparability of ESG data, helping assess corporate sustainability performance and encouraging better practices across the region.
- **Policy makers and regulators continued to support the sustainable finance ecosystem with additional guidance, witnessed by the Asia-led transition finance taxonomies and 2025 would be a key year on how the financial institutions and corporates utilize these Asia-specific guidelines.** Meanwhile, we highlighted that the Asian economies and corporates have to raise efforts to prepare for cross-border regulations coming from the EU, such as CBAM, deforestation and batteries. Driven by decarbonization goals and energy security concerns, we have witnessed continuing energy transition efforts made by different Asian economies at different pace with different focuses. In particular, we flag Japan's rising role in transition, India's bottleneck to achieve its renewable ambition and China's continuing commitment to green technology. Besides a commonly agreed focus on renewables, nuclear energy witnessed a new investment momentum, especially driven by domestic energy security concerns. Asia is expected to play a large role building the world's new capacity additions.

2025 ESG THEMATIC OUTLOOK

Major 2025 topics include: increasing need for energy storage and management of rising energy demands, particularly from AI and data centers; decarbonization of transport, including challenges in the EU auto sector, transformative impacts of AI, implications of the Carbon Border Adjustment Mechanism, rising physical risks and the need for robust cybersecurity and data privacy measures.

ENVIRONMENTAL

Climate

- **Energy demand, supply, and storage.** Energy demand, supply, and storage are critical questions for 2025. Over the past year, Europe has seen numerous regulatory initiatives at both EU and national levels to support green investments, including changes to approval processes and permitting. 2025 is the year for implementing these policies to achieve renewable penetration targets, requiring significant investment from Europe.
 - **Energy demand:** For 2025 and beyond, we anticipate a significant rise in energy demand, mainly driven by the rising population, economic development especially in growing economies, technological advancements (e.g., AI). Europe is implementing numerous regulatory initiatives at both EU and national levels to support the rollout of green investments and electrification, to meet the rising energy demand and in line with the EU Green Deal targets. This includes changes to approval processes and permitting, with the impact of these policies expected to become evident in 2025. These initiatives aim to streamline the deployment of renewable energy projects, enhance grid stability and ensure a reliable supply of clean energy. Further, the **increasing energy demand from AI and data centres**, projected to triple by 2030, is a critical issue with governments providing support through policies and incentives to promote the adoption of green technologies in data centres.
 - **Energy supply:** Nuclear energy stands out as an investment case that addresses key considerations in the energy transition: meeting extraordinary power demand growth, ensuring green power for major corporate customers, maintaining system reliability (grids and renewables intermittency), enhancing energy security, and managing rising power costs for consumers and industry. We expect opportunities in adopting nuclear energy, especially small modular reactors (SMRs), which offers a carbon-free solution to meet this demand. LNG (Liquefied Natural Gas) production will pick up following Trump decision to remove the bloc of export permits imposed by the previous administration, which could make the US the world's largest LNG exporter. The increased production is likely to drive gas prices down, providing cheap low-carbon energy in the upcoming years. Integration with renewable energy sources, such as solar and wind, is also being explored to enhance sustainability. Regarding networks, electricity grids present significant growth opportunities to investors, with an estimation of €600bn in grid capex committed by European transmission and distribution operators. About 60% of the announced capex plans focus on transmission and distribution projects in Germany and in France, where the network operators have collaborated on long-term plans to assess investment needs until 2040-2045.
 - **Energy storage:** The deployment of renewable energy has highlighted the intermittency problem, making energy storage solutions increasingly important. Risks include limited battery production in Europe that necessitates imports from South Korea and other Asian countries to meet demand. Opportunities are arising from decreasing cost of batteries and significant intraday price swings are driving interest in energy storage. Technologies such as lithium-ion batteries, flow batteries, and emerging solutions like solid-state batteries are gaining traction.
- **CCUS (Carbon Capture, Utilization, and Storage) technologies:** CCUS technology is gaining attention as a key component of decarbonization strategies. There are significant opportunities in those investments, with applications in capturing CO2 emissions from industrial processes and utilizing captured CO2 in products like concrete and fuels, and storing CO2 in geological formations. The expansion of project pipeline, and the significant investments in CCUS infrastructure and research to improve efficiency and reduce costs will be key catalysts. We expect these technologies to gain more attention and visibility following the breach of the 1.5°C target. CCUS could help companies to reduce the concentration of CO2 in the atmosphere, lowering global warming effect and allowing the economy to restore its path towards the 1.5°C. However, the full impact of CCUS won't be felt immediately as the technology is still developing and further investments are needed.
- **Decarbonization of transport system:**
 - **International Shipping:** 2025 will be pivotal for these sectors with the anticipated establishment of a global carbon price on shipping emissions by the UN. The International Maritime Organization (IMO) is set to adopt a global GHG tax and ship fuel GHG standard in 2025, with the exact format and rates still up for negotiation during key meetings in April and October 2025. This will be a major factor for the viability of alternative fuels that are not currently cost-competitive, such as green ammonia and green methanol. Concurrently, EU emissions regulations will take effect, expanding EU ETS coverage from 40% to 70% of shipping emissions, and reaching 100% by 2026. The launch of declining GHG intensity standards for fuels under the FuelEU regulation will benefit LNG and biofuels. Additionally, FuelEU presents a commercial opportunity for companies already using alternative fuels.

- **Sustainable Aviation Fuel (SAF):** SAF is widely regarded as the most technologically straightforward pathway to decarbonise the aviation sector. Unlike hydrogen and electric propulsion, SAF is a drop-in fuel, meaning it can be blended with regular jet fuel and does not require any technological adaptation of existing aircraft and engines. Most engines are currently approved to operate on 50% SAF blend, but it is widely understood that new generation engines can run on 100% blend without much complication. The current use of SAF remains small at c.0.2% of global aviation fuel consumption in 2023 according to IATA, but industry is expecting penetration to step-up to c.50-65% by 2050. Regulatory wise, 2025 marks the first-year airlines are required to use a certain amount of SAF, and producers must supply that amount to airports. This should elevate SAF demand, acting as a key catalyst for the industry. By 2030, the SAF mandate will require the consumption of ESAF (kerosene produced through green hydrogen). The EU mandates a 2% SAF blend in 2025, increasing to 6% in 2030 and 34% in 2040. The UK has a unique SAF compliance approach, mandating a 2% SAF blend in 2025, increasing to 10% in 2030 and 22% in 2040.

Decarbonization increases airline costs by c.2% p.a. According to UBS, the full cost to prevent carbon emissions is equivalent to an additional c.60-80% on top of the current average airline cost base in 2050, equivalent to c.2% per year, though this would likely be weighted to cost increases in the 2030s and 2040s. Roughly c.30% of an airline's cost base is fuel, and various methods for preventing carbon emissions at least triple this cost.
- **Auto sector:** The International Energy Agency (IEA) has released a report on the sustainability of the EV battery supply chain. It highlights that, from a life cycle perspective, the emissions of a medium-sized battery electric car are half those of an equivalent internal combustion engine (ICE) car. Recycling will be critical in the next decade to reduce the demand for critical minerals, especially after 2035. Despite this, the auto sector faces growing challenges in decarbonizing, such as pressure from affordable Chinese EVs, a lack of coordinated European government subsidies and regulations, and recent labor management issues, including allegations of forced labor in China and job security concerns across Europe. These factors are delaying the sector's decarbonization pace. However, new EU cars, like those from Stellantis, are entering the market at competitive prices, offering some optimism for the sector's future.

New CO2 standards for cars, vans and trucks in 2025 mandate a 15% average intensity reduction compared to 2021 levels for cars and vans, and 2019 levels for heavy lorries. There is concern about the scale of non-compliance, which has led to political tension and implications for other sectors. The European Commission insists on implementing these rules, while EU member states are under pressure to spare the auto industry from fines. Future regulatory uncertainty looms, with debates over the 2035 CO2 ban and pushback against the emissions trading system for road transport and heating (EU ETS 2). Additionally, EU member states are required to roll out public charging infrastructure, ensuring the availability of public chargers every 60 km on main EU roads.
- **Carbon Border Adjustment Mechanism (CBAM):** The **CBAM** aims to level the playing field by imposing carbon tariffs on imports, ensuring that EU companies are not disadvantaged by stringent domestic climate policies. As of today, CBAM is applicable from Jan 2026 to cement, steel, aluminium, fertilisers, hydrogen and power. However, **its upcoming implementation in 2026 is highly debated, with doubts about its effectiveness and timeline. Financial materiality will start in 2026, but significant economic impact won't be felt until 2029. Concerns are high among steel and cement analysts due to competitive disadvantages, especially against Chinese companies with better funding access. The reduction of free allocations in Europe will increase costs and reduce competitiveness, potentially leading to further debate on CBAM's feasibility.** Despite the lack of market consensus, its lower ranking suggests that internal expectations align with the market view that it may not be implemented on time or be as impactful as ESG advocates hope. This explains the current sentiment. Additionally, many investors believe it will be delayed or canceled, leading to uncertainty about its future.

When discussing with steel and M&M analysts, there is significant concern since CBAM is crucial for decarbonizing these sectors. However, its limited application to certain sectors reduces its overall importance. The delay in EU deforestation policies signals widespread uncertainty, with stakeholders lobbying for last-minute changes due to the complex times we are in. CBAM might also alter reporting thresholds, with the current €100 tax expected to rise as allowances phase out, impacting many European industrial actors. This issue is underappreciated, with cement and steel analysts particularly worried about the competitive disadvantage for EU producers compared to Chinese state-owned companies with easier access to government funding.

CBAM is also central to the competitiveness debate. Europe has agreed to reduce free allocations to cement, steel, and fertilizer players by 10%, increasing their costs and reducing competitiveness. If these industries suffer, CBAM might be halted. It will be challenging for Turkish, Indian, and Chinese companies, which will need to pay the CBAM tariff at EU borders. In 2025, there could be more debate about its feasibility, understanding its impact on sector imports, earnings, and price competitiveness.
- **Climate physical risks:** The summer of 2024 set a global record for heat, with severe climate impacts like heatwaves in India, floods in Europe, and hurricanes in North America. These extreme-weather events will significantly damage the macroeconomy.

Climate change and population growth are exacerbating flood and heatwave risks. According to brokers, river flood losses could rise sixfold, costing EUR 50 billion annually by 2100, while coastal flood losses might increase 100-fold to EUR 250 billion per year, affecting 2.2 million people. Coastal areas are particularly vulnerable due to sea-level rise, which poses a significant threat. Heatwave deaths could surge from 3,000 to 90,000 annually, with tens of millions of people facing this threat each year with just 2°C of global warming. Productivity in G20 countries may drop by 1.9% between 2022 and 2030. Water could be a vector through which extreme weather conditions will occur such as drought, floods, hurricanes, rising sea levels.

Increasing frequency and severity of extreme weather could lead to higher insurance premiums or uninsurable properties, affecting the broader real estate market and economy. Companies are increasingly investing in resilience to extreme-weather events, often using green bonds. By 2023, 18% of utilities' green-bond proceeds were allocated to adaptation projects.

Flood models are being used to identify where to build critical infrastructure for both firms and governments. Strategies to mitigate flood risks include the construction of flood defences, improved urban planning and the restoration of natural floodplains. Investments in adaptation, such as strengthening dyke systems and reducing building damage, offer significant returns, with benefits outweighing costs by 2-5 times. Adaptation is more effective locally compared to mitigation. In the private sector, adaptation planning is in its early stages, but rising physical climate risks, higher insurance costs, and growing disclosure requirements will drive more investment in this area.

Key sectors benefiting from adaptation investments include construction, water recycling and agrochemicals.

- **AI Applications and energy implications:** The exponential rise in connection requests received by power distribution operators, driven largely by the expansion of Data Centers, indicates a significant increase in future energy demand. Brokers estimate that the Data Center pipeline in Europe is approximately 170 GW, which is about one-third of the region's power consumption. While only a portion of this capacity may be realized, brokers anticipate a potential 10-15% increase in Europe's power demand over the next 10-15 years.

According to MSCI, Corporate AI investment is expected to double by 2025, but there is growing pressure to deliver returns and meet demands for transparency and responsibility. The success of AI hinges on access to high-quality, sufficient training data.

This surge in energy demand is also prompting a **resurgence in nuclear power**, which offers a high energy density and continuous operation, **making it well-suited to meet the steady base load required by AI data centers**. Additionally, the strain on traditional power grids necessitates significant upgrades and innovations to handle the increased load. **Investments in modernizing power grids and integrating renewable energy sources are crucial to support the growing energy needs of AI applications.**

Legal and privacy risks are significant, as access to large datasets can pose challenges if proper consent is not obtained. New AI-specific legislation, such as the EU AI Act and California's disclosure requirements, will impact data access and usage. According to MSCI data, the availability of high-quality data for AI models is decreasing, with a 25% reduction between 2023 and 2024 as website owners block web crawlers.

- **Digitalization and energy transition in Emerging markets (EMs):** Developing countries are increasingly receiving funding for sustainable infrastructure projects. Following the COP29 in Azerbaijan, the parties agreed on delivering \$300Bn annually by 2035 to developing countries. However, challenges such as weak governance, lack of data and limited access to green financing slow progress. Despite these challenges, emerging markets offer high-growth potential but require careful risk assessment. The key themes for 2025 are digital transformation (Mobile technology, blockchain, and renewable energy innovations) and energy transition with significant investment needed for EMs to meet climate goals, with an average of \$4.3 trillion per year required until 2050.

Nature

- **Biodiversity and Deforestation Law:** Biodiversity challenges and innovations are emerging across key sectors. Companies are progressively integrating biodiversity considerations into their operations, driven by regulatory requirements and stakeholder expectations. Advances in data collection and analysis will enable more precise monitoring of biodiversity impacts. Collaboration with NGOs and information providers will enhance the availability of geo-localized data, supporting efforts to protect and restore ecosystems. While remaining a popular topic among investors, market sentiment seemed slightly more bearish than last year. Consensus highlights how challenging the investment topic is due to regulatory complexities and the difficulty to arrive at a solid framework. Significant interest was also weakened by the EU deforestation law (see below) and its postponement to end of 2025, which keeps limited immediate financial implications from the topic. Overall, we expect biodiversity to remain driven by a risk approach rather than investment opportunity also for next year.

N.B. The regulation on deforestation will require companies to show compliance by investing in traceability services and more disclosure. For example, it will require companies importing/trading cocoa, coffee, soy, palm oil, cattle, natural rubber, wood, and some of their derivatives to prove they have not contributed to deforestation from 2020 onwards. The regulation aims to prevent the import of products linked to deforestation, promoting sustainable supply chains and protecting forests. Companies will have to trace their supply chains back to the plot level and a due diligence statement is required based on the countries risk category standard or high risk of deforestation where the goods are derived from. However, full traceability data back to the plot is challenging, with only 9% of companies reporting to CDP Forests declare that more than 90% of timber used in products is deforestation-free. Companies that are prepared or at risk will be identified by investors, due to rising risks such as compliance costs and potential supply chain disruption. As previously mentioned, at the end of last year, the EU postponed the deadline for EUDR compliance by a year to 30 December 2025 for large companies and 30 June 2026 for micro and small enterprises.
- **Plastic pollution and Circularity:**
 - 1) The **UN Global Plastics Treaty**, held in December 2024, aimed to establish a legally binding agreement on plastic production. However, the Intergovernmental Negotiating Committee 5 (INC-5) failed to finalize this agreement, with a second session expected in early 2025. Key disagreements centered on restricting virgin plastic production, influenced by intense petrochemical lobbying. Opportunities may arise from shifting from plastic to paper, though demand remains

uncertain. The focus is on product redesign, chemical phase-outs, and recycling. Addressing the full life cycle of plastic is essential for reducing pollution and promoting a circular economy.

- 2) The **EU Packaging and Packaging Waste Regulation**, which obtained final approval on December 2024 after two years of negotiations, applies directly and uniformly in member states. It sets ambitious targets on recycling, collection, deposit return schemes, and reuse, among many others. The regulation aims to reduce packaging waste per capita by 5% by 2030, 10% by 2035, and 15% by 2040, compared to 2018 levels. By 2029, 90% of single-use plastic and metal beverage containers should be collected separately through mandatory deposit return schemes. The regulation also aims to recycle 65% of all packaging waste by 2025 and requires packaging to be designed for recycling by 2030. Additionally, there are mandatory post-consumer recycled content thresholds for plastic packaging by 2030. For re-use and re-fill, the regulation targets 40% of transport packaging to be reusable by 2030 and 10% of beverages to be sold in reusable packaging by the same year.

Further, the EU is expected to introduce a new Circular Economy Act and developments in eco-design rules and sustainable textiles legislation. E-waste is gaining attention, more plastic litigation is expected, and disclosures on plastic use and waste should increase, partly via CSRD.

- **PFAS:** The EU is expected to ramp up PFAS legislation in 2025, focusing on consumer uses like cosmetics and food contact materials sector bans. The Packaging and Packaging Waste Regulation (PPWR) includes a ban on PFAS in food-contact packaging. Despite gaining attention through lawsuits (e.g., 3M fine) and increasing media coverage (among which, with mentions in outlets like the New York Times and Le Figaro and a recent Netflix series, which we advise to watch: “Dark Water”), it is not yet considered urgent by investors. The EU’s plan to ban 10,000 PFAS molecules is hindered by the lack of a standard regulatory definition, which is essential before any ban can be implemented. Proving cause and effect is also challenging. Consequently, some investors do not foresee this topic gaining significant financial materiality in the near term. We believe public perception might act as a catalyst, and we expect interest to grow significantly, although difficulties remain, such as the scientific link to health issues is less clear and unfolds over a longer period compared to something like tobacco, which has more straightforward impact on people’s health. Therefore, it’s notable that PFAS ranks so low despite its growing financial materiality.

However, going forward, many investors will advance in evaluating PFAS-related investment risks. Producers and industries dependent on PFAS face significant risks of obsolescence due to regulatory restrictions, legal challenges, negative consumer perception, and the potential success of alternatives. Companies may need to quickly pivot to alternative technologies or risk financial losses and reduced market share. Key investment risks include:

- **Regulatory Risks:** These stem from (1) the US EPA designation of two PFAS substances as 'hazardous' under CERCLA; (2) the US Safe Drinking Water Act; (3) EU ECHA’s proposal to phase out PFAS in the EU unless they are for an 'essential use'.
- **Litigation Risks:** Defendants in PFAS cases, including e.g. 3M, Tycho (NC), BASF and DuPont, have already agreed to pay \$14US\$bn+, with '000s more cases pending.
- **Human Health Risks:** Evidence of the adverse human health impacts of PFAS exposure is growing in volume and confidence. Researchers observe links to liver damage, the development of unborn children and testicular cancer risk, among others.

Further, potential catalysts or headwinds are:

- **Litigation Risk Inflection Point (March 2025):** The US District Court for South Carolina has selected 25 bellwether trial cases for the aqueous firefighting foam multi-district personal injury litigation. If these cases proceed past summary judgment and result in verdicts or settlements, we may see a surge in personal injury case filings across the US.
- **Trump’s actions on the EPA:** Trump has historically focused on removing environmental regulations and enforcing cuts at the EPA, which may put new PFAS rules at risk of reversal. Interestingly, however, it was the Trump Administration's EPA that proposed significant PFAS action, and his new EPA head, Lee Zeldin, was one of the few Republicans to support cracking down on PFAS.
- **Utilization of the Loper-Bright Ruling to overturn the Chevron Deference:** The abrogation of the Chevron deference earlier this year may have a profound impact on the EPA's ability to regulate any chemicals, including PFAS, as it removes courts' deference to the EPA's interpretation of relevant statutes.
- **Watering down of proposed PFAS regulations:** The final text of the EU's PFAS Restriction Proposal is expected to differ from the initial proposal.
- **Public Awareness of PFAS in Water, Soil, etc.:** Rising public concern drives regulatory risks, litigation risks, and demand shifts.

- **Critical raw materials (CRM):** The EU Critical Raw Materials Act, entered into force in May 2024, will soon announce strategic projects (as recycling and substitution projects) that will benefit from improved financing and shorter permitting time-frames. CRM sourcing and processing is highly geographically concentrated, especially for Copper, Cobalt, Lithium, Graphite and rare earths in China, which exposes countries to potential supply chain risks. In order to reduce these risks and increase self-sufficiency, we expect opportunities for countries to increase exploration and recycling capacity.
- **Climate-resilient and Sustainable Food Systems:** Food security is an important aspect of geopolitics and key to countries' ability to sustain growth and employment. Climate change and biodiversity losses will exert significant pressures on food systems, requiring adaptation and implementation of more sustainable and regenerative production processes. These changes are vital to ensure that food systems can withstand the adverse effects of climate change, such as extreme weather events, altered growing seasons and reduced crop yields. The EU is expected to release its new vision for agriculture and food in February and finalize mandatory food waste reduction measures soon, aiming to minimize the environmental impact of food production and consumption. Regen10 will also release its outcome framework metrics

guidance, providing more credibility to regenerative agriculture practices that restore soil health, enhance biodiversity and reduce greenhouse gas emissions.

SOCIAL:

- **Green skills and green labor market:** As ESG / sustainability integration deepens, companies face challenges finding skilled professionals to implement and monitor sustainability strategies. This talent shortage is prompting investments in education and training programs. The global labour market now faces the dual issues of higher unemployment and a widening talent shortage. It is widely expected that in 2030 that the talent shortage could result in about \$8.5tn in unrealized annual revenues. The labor market's tightness, especially seen in the solar and wind energy sectors, is highlighting the need for reskilling and training. The overall workforce and the demand for "green talent" grew twice as fast as the supply of workers between 2023 and 2024. Addressing the skills shortage is crucial for the development of the green industry, particularly in Europe. We see as catalysts initiatives to promote green skills that include vocational training programs, partnerships between industry and educational institutions and government support for workforce development.
- **Workforce downsizing:** The transition towards a greener economy has shown that there are some social side effects linked to job cuts. In the last year and still in 2025, some automotive companies planned to cut their workforce as part of broader restructuring efforts due to changing market conditions related to EV sales. In December, Volkswagen announced to reduce by more than 35,000 jobs, or around a quarter of the division's workforce, by 2030 along with a reduction of 734,000 units at the VW's German plants, which corresponds to roughly a quarter of VW AG's entire German capacity. In US, there were 57,727 job cuts in November, more than 26% from the same month last year and the automotive sector was responsible for 14,373 of the eliminated positions, more than any other single industry. The main challenges as reasons for the shrinking job numbers include potential tariffs affecting U.S. automakers with overseas factories, intensify competition from Chinese electric vehicle manufacturers and shifts in government subsidies for EVs.
- **Cybersecurity and Data Privacy:** Emerging cyber threats and data privacy challenges are increasing and posing significant risks across all sectors. Further, the rise of AI and big data is intensifying cybersecurity concerns, making robust data protection measures and regulatory compliance essential. Organizations are investing in advanced cybersecurity technologies and practices to protect their digital assets and maintain stakeholder trust.

SUSTAINABLE INVESTMENT OUTLOOK

- **Sustainable finance in the EU is expected to grow steadily**, with ESG-labeled bonds (primarily green) projected to increase by around 10%. This growth contrasts with the U.S. market that shows declining interest, with green bonds accounting for less than 1% of recent (November) issuances. This divergence highlights the EU's leadership in sustainable finance and the potential for continued expansion in this area: the EU's commitment to sustainable finance is further supported by initiatives such as the EU Green Bond Standard, which aims to enhance the credibility and transparency of green bonds.
- **Transition bonds and Sustainability-Linked Bonds (SLB):** The SLB market will continue to play a crucial role in achieving 2030 climate targets. These bonds link financing to specific sustainability outcomes, incentivizing companies to meet their ESG goals. In addition, the expected expansion of eligible activities under the EU Taxonomy could lead to a broader scope of sectors financed by sustainable debt instruments linked to the Environmental Objectives 3-6. Key targets, step-up and observation dates will remain critical to monitor progress and assess the impact of these financial instruments.
- **Social bonds:** Total impact AuM increased to \$249bn in 2024. Most impact investors are channeling funds in SDG 8 (decent work and economic growth). These investments tackle unemployment and income inequality, unlocking potentials in emerging markets, youth and women's unemployment, and social enterprises, while enhancing economic resilience. Companies aligned with SDG 8 can benefit from government incentives, ESG regulations and increasing consumer demand for ethical and sustainable practices. SDG 8 is the most targeted SDG by impact investors and it is also the second most important sustainable development goal for European businesses after SDG 13 (Climate Action). A BofA survey of the U.S. securitization market shows that investors consider social issues (e.g. affordable housing) the main area of focus for the third year in a row (2022-2024). In 2025, \$70bn in labeled supply across US Securitized Products are expected.

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