

Sustainability Trends

QUARTERLY OUTLOOK

October 2024



TREND 1

Rising energy demand driven by Artificial Intelligence is causing a race for clean power

The rapid growth of artificial intelligence (AI) technologies is significantly increasing global energy consumption, driving demand for cleaner power. There is a growing conflict between AI's energy consumption and the industry's push for decarbonization, which in some regions, leads to a return to fossil fuels.

Data centers are intensive energy users with high carbon footprints

- The expansion of data centers around the world is a significant driver for the growing electricity demand across many regions. According to the [International Energy Agency's annual electricity report](#), the rapid development of AI-related services has led to the exponential rise in electricity demand, with many providers heavily investing in power-hungry graphics processing units (GPU) to support these services. By 2026, the data center electricity consumption is expected to double to 1,000 terawatt-hours (TWh) annually.
- Generative AI's massive energy demand is putting the climate commitments of big technology companies at risk, with data centers expected to produce around 2.5 billion metric tons of carbon dioxide equivalent emissions globally by the end of the decade. In May, Microsoft's sustainability report highlighted the

construction of data centers optimized to support AI workloads as a key contributor to their 30 percent higher total planet warming impact from 2020. Similarly, Google's new sustainability report recorded a greenhouse gas emissions rise of 48 percent since 2019 due to data center energy consumption and supply chain emissions.

- To address increasing emissions impacts, technology companies are expanding their decarbonization initiatives. In September, Microsoft introduced a new supplier decarbonization team focused on combatting the growing carbon footprint of its AI and cloud operations. This comes at a time of increasing scrutiny for technology companies' real carbon footprint. Reports suggest the real emissions from company-owned data centers of Google, Microsoft, Meta, and Apple are likely 7.62 times higher than officially reported. In China, a recent report by Greenpeace East Asia has urged data centers and cloud operators to take greater action on addressing climate change.

A growing race for clean energy among technology companies

- To keep their climate commitments on track, technology companies are driving up demand for clean energy, with cloud services providers announcing goals to run their data centers entirely on green energy by 2025 ([Amazon](#) and [Google](#)) and 2030 ([Microsoft](#)). The construction of new and bigger data centers is increasing the risk of their energy usage equaling or exceeding some countries' renewable energy supply. In 2022, Ireland's data center usage was equal to 53 percent of its renewable energy supply, a growing concern for a nation that aims to have 80 percent renewable electricity in its grid by 2030. These concerns have been intensified by recent underperforming clean power auctions, which fell short of minimum Irish government projections.
- In the search for low carbon solutions to match AI energy demands, technology companies are turning their attention to nuclear power. Companies are willing to pay a premium for the uninterrupted carbon-free power that nuclear provides. In March, Amazon Web Services bought a nuclear-powered data center in Pennsylvania, followed by Microsoft in September announcing a 20-year power purchase agreement with Constellation Energy, who own the Three Mile Island energy plant, the site of the biggest commercial nuclear accident in United States' history. In October, both [Google](#) and [Amazon](#) announced investments in advanced small modular nuclear reactors, marking the start of technology companies commissioning new nuclear power plants to help meet the demand of their energy-hungry data centers.

- Technology's turn to nuclear energy illustrates a renaissance of the nuclear power industry with fourteen of the world's biggest banks and financial institutions pledging their support to the COP28 goal of tripling nuclear capacity by 2050. Further, in mid-October, a few weeks ahead of COP29's commencement, EU ministers endorsed nuclear energy as a part of their mandate for the upcoming UN climate summit, reflecting a shift in Europe's stance on atomic power. Over the past two decades, nuclear plants have struggled to contend with wind, solar, and natural gas due to complexities of project financing, high levels of risk, and questions of compliance with environmental, social, and governance standards. The construction of new nuclear plants has been concentrated in Asia and the Middle East, however, countries including the U.S., UK, and Japan are increasingly returning their focus to nuclear energy solutions to meet their net zero commitments. It is anticipated that this shift will unlock finance for a new wave of nuclear power plants to help meet country and company climate goals.



The limited supply of clean power means some data centers are returning to fossil fuels

- The rapid surge of data center electricity demand has surpassed the available power supply in many regions. To maintain grid reliability and keep up with demand, some regional grid operators are keeping coal-fired power plants online longer than planned. PJM Interconnection, the grid operator that powers “[data center alley](#)” (a 30 square mile area of northern Virginia), has been criticized for their plans to use coal-fired power from the state of West Virginia to address the power needs of data center alley 35 miles away.
- In some regions, coal-fired power is expected to power data centers that have not even been built yet. Microsoft, Amazon, and Princeton Digital Group are investing in data centers in the suburbs of [Johor Bahru in Malaysia](#). However, local power is predominantly supplied by coal and gas-fired plants. Although there are plans to build a 500-megawatt solar farm, considering data center construction plans, the amount of electricity consumed would exceed Malaysia’s total renewable output in 2022.





TREND 2

Regulatory pressure and crackdown on misleading sustainable plastic claims trigger the development of innovative alternatives

False corporate claims on sustainable plastics are increasingly called out in court and by regulators. This pressure has been driving innovation and demand for sustainable packaging but has also led to corporate backtracking on earlier commitments.

Corporations are being challenged on their greenwashing claims

- Companies are being challenged on their greenwashing claims, particularly in regard to plastic. Local authorities, non-profits, and consumer protection groups are launching a swell of lawsuits against corporations about their impact on climate change and the environment more broadly. With the world producing approximately 400 million tons of plastic waste every year, regulators have started to clamp down on companies who are making misleading claims about the plastics. In August, Walmart and Reynolds Consumer Products reached a settlement with the Minnesota Attorney General's Office, after being sued over their misleading marketing of "recycling bags," that were neither recyclable themselves nor made of recycled materials.
- In September, California became the first U.S. state to sue an oil major for plastic pollution. California's lawsuit against ExxonMobil alleges the company misled the public on plastic recycling. The State claims

that ExxonMobil continually promoted recycling even though its industry representatives have long acknowledged that it was not a solution to the plastic waste crisis. Other brands, such as PepsiCo, have also been sued for misleading the public about their efforts to combat plastic waste pollution. The state of New York, for instance, has demanded that the company reduce the quantity of packaging it releases into the Buffalo River and pay for damages caused by microplastics.

- Because of these lawsuits and investor calls to focus on profitability over sustainability, companies are tweaking their own plastics targets and rolling back some commitments. Unilever previously committed to halving its use of virgin plastics by 2025, however, in April, the consumer goods firm changed this goal to one third by 2026. Similarly, back in 2022, Nestlé reworded its plastic packing goals. These tweaks will amount to a difference of 280,000 metric tons of additional non-recyclable plastic waste a year in Nestlé's case, and 100,000 for Unilever.



Policy and regulatory action on plastic gains traction in the U.S.

- 2024 has seen increasing regulatory action to reduce plastic pollution. In August, the U.S. signaled a major policy shift by announcing their support for a global United Nations treaty calling for a reduction in annual plastic production. As one of the world's largest producers of plastic, there is hope that this shift will increase the treaty's prospects, with negotiations set to take place in Busan, South Korea in November. The U.S. is now aligned with a group of countries including the European Union (EU), Canada, South Korea, Rwanda, and Peru, who have endorsed the treaty.
- At the state level, starting on January 1, 2026, California will ban single-use plastic grocery bags. In 2014, California was the first U.S. state to pass a plastic bag ban, however, a loophole allowed grocery stores to continue charging for thicker plastic bags. This new law will give customers three choices instead: to pay at least ten cents for a paper bag, use a reusable bag, or hand carry their purchases.

Companies are innovating and adapting their operations to create more sustainable packaging

- Companies are adapting their packaging and operations to reduce their plastic waste. In the United Kingdom, Ocado Retail is piloting a new reusable packaging scheme designed for online shopping. Customers will have their food staples and laundry products delivered in reusable vessels to reduce single use plastics for everyday items. Each vessel will replace up to five single use plastic items and is designed to be used over 60 times. In the U.S., Amazon has removed all plastic air pillows from its global packaging and retrofitted its machinery to produce custom-fit paper bags, while Coca-Cola formed a partnership with Circular Solutions Advisors (CSA) to implement closed-loop recycling systems at large venues, such as university stadiums and sporting arenas.
- Other corporations are pursuing innovative technologies to create sustainable packaging alternatives to plastic. Current paper packaging

contains a thin layer of plastic coating that is used to provide a barrier against moisture transmission. A partnership between Henkel Adhesive technologies and Panverta CCP looks to change that. The companies developed a solution to reduce the amount of polypropylene film needed in paper packaging. Other companies such as Papkot are working to remove plastic entirely from the packaging by creating a paper coating that is fully biodegradable and recyclable, eliminating the need for the thin plastic layer entirely.

TREND 3

Extreme weather patterns force companies to implement climate adaptation strategies

The economic losses and financial risks caused by climate change and extreme weather are rising sharply. Companies are trying to soften the blow by implementing resilience and adaptation strategies. By preparing, they avoid risks and higher costs of capital.

Climate change is leading to economic loss, increasing financial risk for companies

- Economic loss due to climate change is soaring, increasing financial risk for companies. In September, Johan Rockström and the Potsdam Institute for Climate Impact Research launched the first Planetary Health Check which finds that climate change is one of the six of nine planetary boundaries that is substantially breached. Almost all industries are directly or indirectly exposed to physical and transition risks from the effects of climate change. Research by Lloyd's and the Cambridge Centre for Risk Studies predicts that global economic losses under a plausible increase in extreme weather events could reach \$5 trillion in the next four years. In addition, the rise of global temperatures by 1°C has the potential to reduce global GDP by 12 percent after 6 years, with effects that persist up to 10 years.
- The global insurance industry has been particularly hard-hit, with Verisk predicting \$151 billion in annual

losses from natural catastrophes. The industry has been inundated with property claims from natural disasters, as climate change worsens, populations grow into at-risk areas and rebuilding costs rise. Where risk models have previously focused on “peak perils” such as hurricanes and earthquakes, insurance companies are now investing heavily in researching “secondary perils” such as wildfires and storms that have a lower individual cost but have significant combined impact.

- The BlackRock Global Insurance survey showed virtually all global insurers now include at least one low-carbon transition goal within their investment plans, with 57 percent attributing their interest in transition investing to a need to mitigate climate risks. On East Asian Insurance Congress Day, General Secretary, Masayuki Tanaka, emphasized raising awareness on Asia's greenhouse gas emissions and biodiversity loss, as climate scientists stress the need to protect and restore nature to keep climate change within manageable levels. However, this comes at a





time when more than 85 percent of countries were expected to miss the UN's deadline to submit new nature pledges ahead of the COP16 biodiversity summit in Colombia.

- As the insurance industry faces increased financial risks from climate change, commercial real estate insurance costs are rising. Properties in high-risk climate zones, such as California and Florida in the U.S, are facing some of the highest insurance rates in the country. In addition, it has been challenging for companies to find sufficient insurance at acceptable terms, with some of their properties without enough insurance to fully cover potential damages. In the short-term, property investors and lenders are taking on these additional risks, which traditionally would have been covered by insurance. Any significant loss or damage could result in substantial unplanned costs to property investors and lenders, increasing their financial vulnerability, in turn creating a ripple effect on overall market stability.

Companies are pursuing resilience and adaptation strategies for their products and operations

- Food and beverage companies are entering agreements to advance climate resilience and sustainable agriculture. Dilmah, a tea company from Sri Lanka, signed a Memorandum of Understanding (MoU) with the Climate Vulnerable Forum (CVF) seeking to enhance climate resilience of tea-growing communities. Companies are also increasingly investing in research and development to create climate-resilient crops. In July, Nestlé unveiled Star 4, a new high-yielding Arabica coffee variety,

characterized by a larger bean size and resistance to coffee rust, which it hopes will enable higher yields and greater resilience. Likewise, Kraft Heinz, the owner of the Heinz Tomato Ketchup brand, has quadrupled its investment into HeinzSeed research, developing tomato varieties that can withstand hotter, dryer growing seasons in California, without compromising quality.

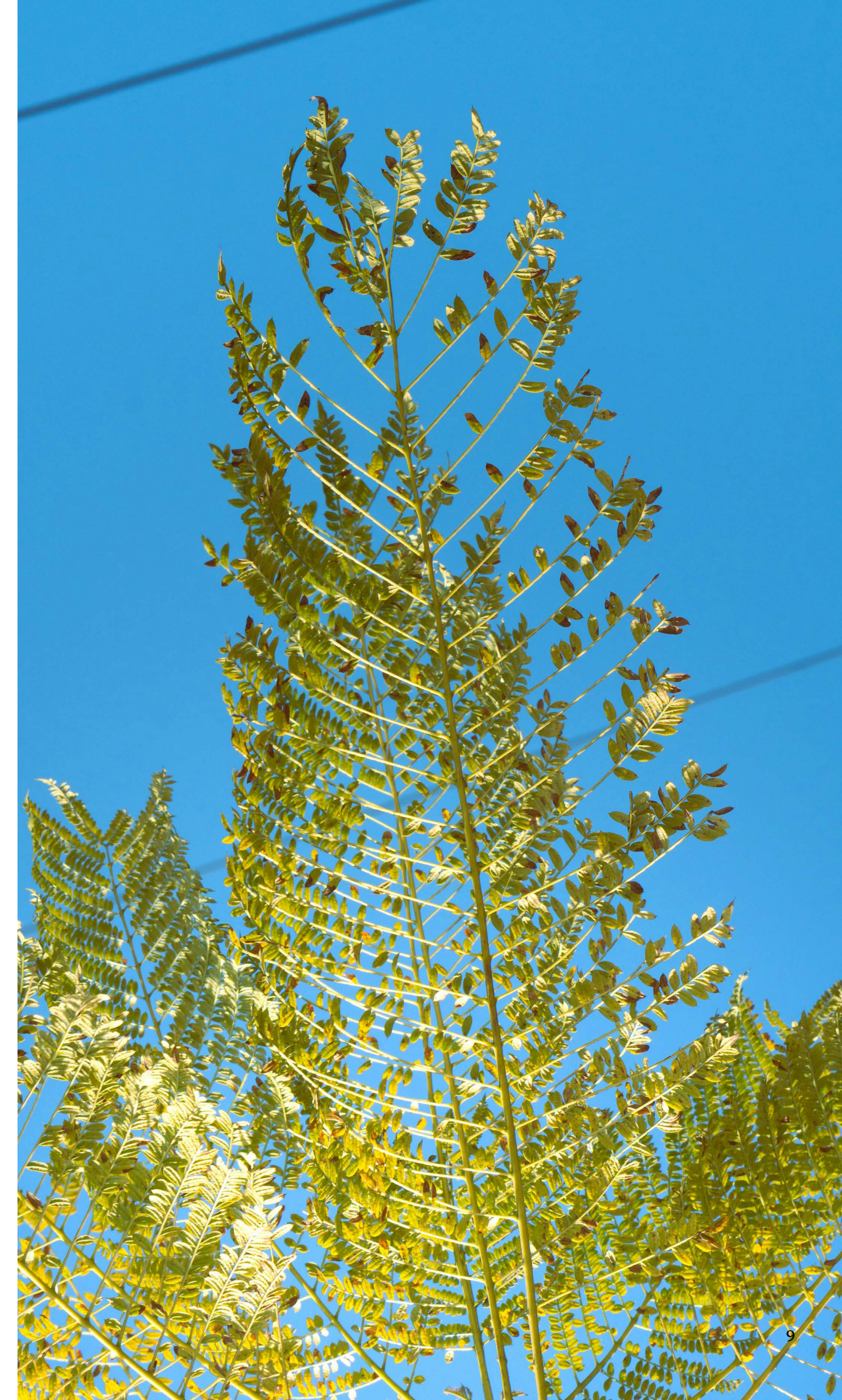
- Companies across industries are adapting their operations to reduce their climate impacts. PepsiCo Europe has launched a long-term partnership with Yara, a crop nutrition company, to provide farms in the EU and UK with low carbon fertilizers. This partnership is a way for PepsiCo to decarbonize its food value chain to meet EU goals for sustainable food production. Further, the rise in sustainability conscious clients has prompted companies like IHG Hotels & Resorts, which has just launched its new “Low Carbon Pioneers Program”. This program helps corporate clients meet their own sustainable travel commitments by showcasing hotels that are leaders in energy efficiency and have limited fossil fuel combustion on-site. Other businesses are creating innovative solutions like Terra, a Kenyan climate technology company converting agricultural waste into biochar, an alternative fertilizer that enhances crop resilience and soil health.

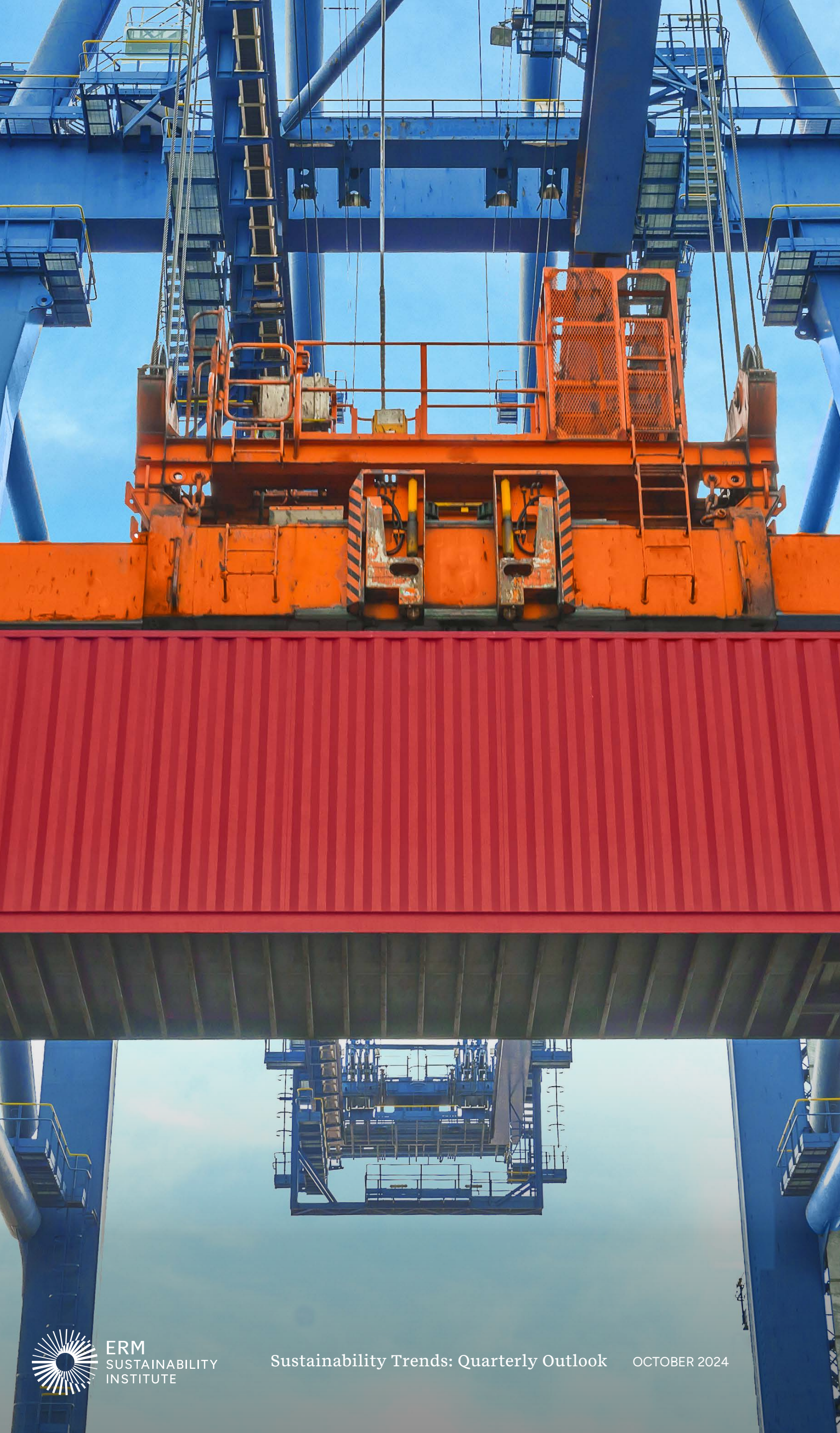
Companies that prepare for climate change impacts not only lower their risk, but also avoid higher cost of capital

- During New York Climate Week in September, it was evident that more companies and investors understand the commercial value of decarbonization and sustainability strategies. However, to increase

low carbon investments, entities must understand the costs of inaction as well. Climate laggard corporations are facing higher financial costs as banks begin to restrict or stop financing those that fail to reduce their climate impact. In August, the Commonwealth Bank of Australia announced that from 2025, it would not provide loans to fossil fuel companies that did not have a transition plan in line with the Paris Agreement’s goals. Similarly, Dutch bank ING assessed 2,000 public climate transition plans of their largest clients and will stop working with those that have not made sufficient progress by 2026.

- Recent evidence also shows that polluting companies are paying higher interest rates. A study by the European Central Bank found that Eurozone banks have started to price climate risk into their lending policies and that companies in the top quartile of carbon emissions are being charged rates that were, on average, 14 basis points higher than those paid by those in the bottom quartile. Similarly, the Dutch central bank found that Europe’s largest carbon polluters are paying higher interest rates on their bonds, with the difference between borrowing costs of big and small emitters widening to more than 40 basis points.





TREND 4

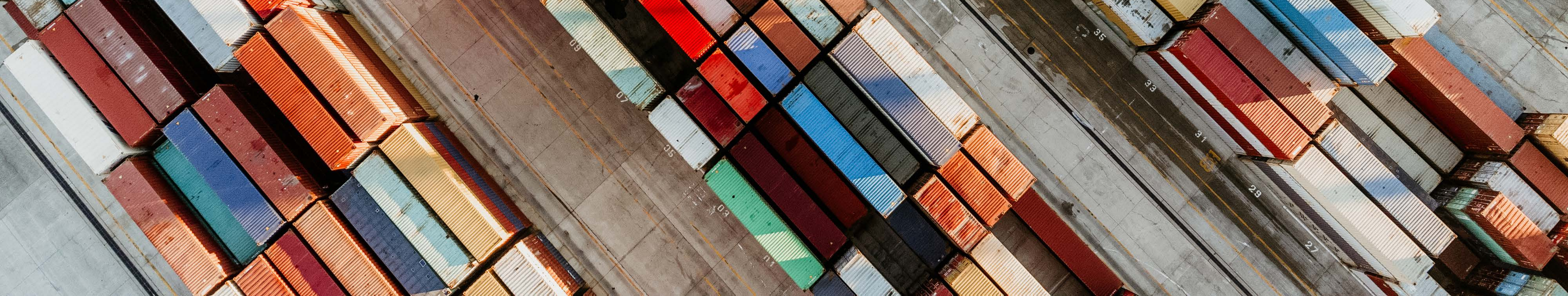
Companies step up decarbonization throughout their value chains and tighten the thumbscrews on suppliers

Companies are intensifying decarbonization efforts throughout their value chains, both in their own operations and by pushing suppliers to do the same. At the same time, geopolitical tensions force companies to shift their supply chains, posing new trade-offs between environmental objectives and geopolitical realities.

Companies accelerate their supply chain decarbonization efforts through innovative partnerships

- 2025 and 2030 are significant years for companies' climate goals as regulations pile on, influenced by the [Paris Agreement's](#) looming deadlines, which require greenhouse emissions to peak before 2025 at the latest and decline 43 percent by 2030. With this in mind, companies have been pushing harder to decarbonize their supply chains, using a range of strategies and innovative partnerships. In July, [DHL and Envision Group](#) announced a partnership focused on sustainable aviation fuel (SAF). Envision will supply SAF to DHL, which aims to power 30 percent of its air transport by 2030 with the fuel as a part of its broader sustainability roadmap. Through this collaboration, Envision will further support DHL by exploring renewable feedstock and other technologies to help decarbonize air transportation.

- In fashion, [H&M Group](#) partnered with Rondo Energy to utilize the company's Heat Batteries, which convert renewable energy into continuous high-temperature heat. These batteries will help the company reduce fabric production emissions and cut the carbon footprint of its clothing by nearly two-thirds. In food, [Thai Union Group](#) launched the Shrimp Decarbonization initiative in collaboration with The Nature Conservancy and Ahold Delhaize USA to significantly reduce greenhouse gas emissions in the shrimp supply chain. This pilot program aims to produce 1,000 metric tons of sustainable shrimp that is fully traceable, with a focus on on-farm investments to enhance efficiency, reduce energy usage, and source sustainable feed, with plans to scale these practices throughout the world.



Companies continue to ramp up the pressure on suppliers to meet their sustainability targets

- While corporations accelerate their own decarbonization efforts, they are also increasing pressure on suppliers. Initiatives like [LEGO Group's](#) new requirement for suppliers to set emissions reduction targets and report their progress on an annual basis highlights this trend. Through this initiative, LEGO aims to address its supply chain emissions which account for 99 percent of the company's total emissions. LEGO's program will also offer suppliers knowledge-sharing and support from the company's sustainability experts. Similarly, [Google](#) has asked its large suppliers to commit to using 100 percent renewable energy by 2029, pushing its partners to adopt cleaner energy practices via its new program, the Google Renewable Energy Addendum.
- [Deutsche Bank](#) recently introduced a sustainability-linked payables finance program for BASF in Asia. The program offers preferential interest rates to suppliers

based on their sustainability performance, assessed through the EcoVadis rating platform, and motivates unrated suppliers to adopt sustainable practices. The initiative supports Deutsche Bank's goal of enabling nearly \$550 billion in sustainable financing by 2025, focusing on supply chain resilience and sustainability.

Supply chains are in motion as geopolitical tensions prompt strategic relocations

- Companies are strengthening their domestic supply chains as geopolitical tensions increase. In September, the U.S. Commerce Department proposed a [ban](#) on Chinese software and hardware in vehicles due to national security concerns (citing risks of foreign surveillance and control), effectively blocking Chinese cars and trucks from the U.S. market. This proposal also requires automakers to remove Chinese components from vehicles by 2027 and 2029, for software and hardware, respectively. This move follows the imposition of a 100 percent duty on electric vehicles (EVs) and the introduction of new tariffs on EV batteries

and essential minerals by the Biden administration earlier in the month.

- Companies across industries are relocating their value chains in response to rising geopolitical tensions. [Intel](#) is one of the latest companies to reduce its presence in China and shift operations elsewhere (following [Apple's](#) move last year and [Tesla's](#) earlier this year). There is also a federal push in the U.S. to boost [domestic active pharmaceutical ingredients](#) (APIs) production to address the country's reliance on its foreign counterparts, particularly from China and India. While U.S. companies express interest in localizing production, many continue to rely on overseas suppliers as their efforts to reshore API production face challenges due to high costs, time constraints, and regulatory hurdles.