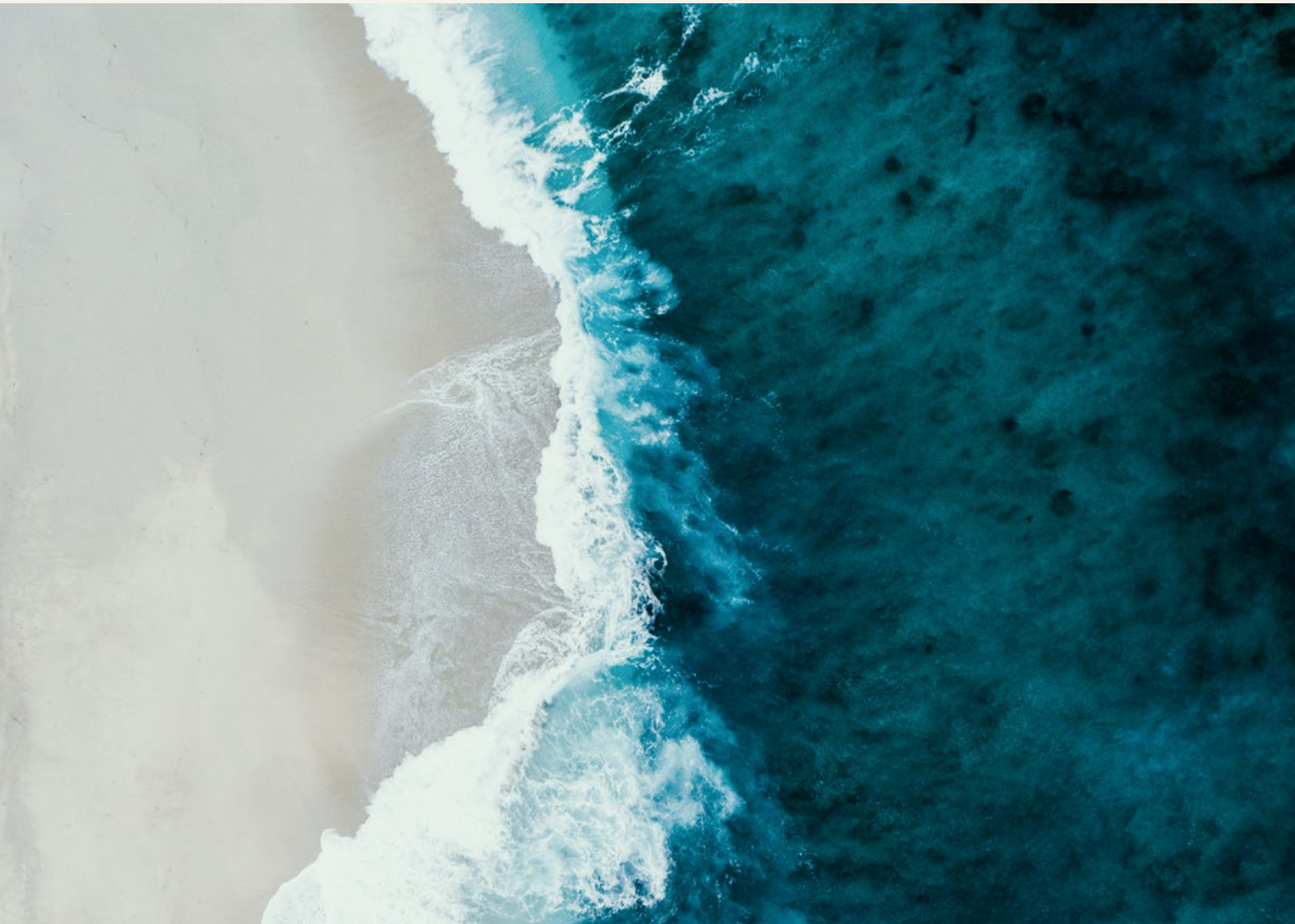
Norges Bank Investment Management

Climate and nature disclosures 2024

Government Pension Fund Global



At a glance

The fund is a financial investor, with a management mandate set by the Ministry of Finance. The mandate states that the responsible management activities of Norges Bank shall be based on the long-term goal that the companies in the investment portfolio organise their activities in such a way as to make these compatible with global net zero emissions in accordance with the Paris Agreement.

The mandate also states that climate risk efforts, including stress tests, assessments of companies' forward-looking emissions pathways and measures that seek to capture exposure to climate- and environmentally-related activities shall be reported on. Such reporting shall be appropriate and shall be based on, and in accordance with, developments in internationally recognised standards and methods.

These disclosures provide information relevant for understanding the fund's exposures to climate and nature risks and opportunities, along with actions we take to address them. They also outline our progress in implementing our 2025 Climate action plan. We strive to use leading methodologies and high-quality data, but disclosures and stress tests are by nature uncertain, and context and assumption specific. They can provide insights that are relevant in understanding the fund's climate and nature risk exposures, but will not in themselves be appropriate as a basis for management decisions. We include an index indicating how our reporting fulfils the recommendations established by the Task Force for Climate-Related Financial Disclosures and the Taskforce for Nature-related Financial Disclosures. The content of these disclosures that is included in Norges Bank's annual report, is externally assured.

519

companies engaged with on climate and nature

1,891MW

renewable electricity generation capacity added to the portfolio

10 (8)

climate and nature related divestments (reversed)

Our actions

We engage with our portfolio companies to support value creation and manage the fund's climate and nature risk exposure. We expect companies to address material climate and nature issues in their governance, risk management, disclosures and stakeholder engagement. A key priority is supporting portfolio companies in setting net zero emissions targets and robust transition plans. Our climate related engagements cover 54 percent of the fund's financed emissions.

We invest in renewable energy infrastructure to capitalise on the opportunities presented by the energy transition. Our investments are financially motivated and active decisions. We significantly expanded our renewable energy portfolio through several strategic investments, including joint ventures in Portugal and Spain, our first asset acquisition in the UK, and our first commitment to an infrastructure fund.

We divest from companies to mitigate climate and nature financial risks for the fund. We may reverse these decisions if companies have adequately addressed the risks.

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47 million tCO2e

financed emissions (scope 1 and 2), up 41 thousand tCO2e relative to revised numbers for 2023 (+0.1%)

403 million tCO2e

financed emissions (scope 3), up 10 million tCO2e (+3%)

74%

financed emissions covered by net zero targets, up 6 percentage point since 2023

Our climate exposure

Financed emissions represent our estimated share of emissions from companies in our investment portfolio. In 2024, we refined our methodology for calculating these emissions. To enable meaningful comparison, we revised our 2023 figures accordingly. Scope 1 and 2 emissions, which are directly associated with company-controlled entities and activities, remained stable between the two years.

Scope 3 emissions, which are associated with companies' upstream and downstream activities, increased by 3 percent from 2023 to 2024. The increase reflects the addition of downstream emissions in this year's reporting of scope 3 emissions, a component that was not part of the 2023 methodology.

This metric shows the percentage of the fund's financed emissions covered by companies' science-based net zero 2050 targets. A net zero target may indicate that a company has a plan for managing the energy transition, and therefore, as such, exposes the fund to lower climate transition risk than companies that have not set net zero targets.

2.52 °C

implied temperature rise of the equity portfolio, up 0.1°C since 2023 (revised).

Implied temperature rise is a forward-looking metric that measures the implied warming associated with a company's future emissions profile. It is calculated by taking a company's current scope 1, 2 and 3 carbon intensity, its emission reduction targets and sector decarbonisation pathways which align with a 1.5°C world, to project its future emission pathway. Results are aggregated for the whole equity portfolio. Substantial methodological improvements were made in 2024, including an assessment of the credibility of net zero targets. A contributing factor for the increase since 2023 is that the scope 3 emissions of many large technology companies, and their future emissions paths derived from the targets they have set, will cause them to significantly overshoot their respective sector decarbonisation pathways.

43%

of real estate portfolio aligned with a 1.5°C decarbonisation pathway, up 2 percentage points since 2023

This metric shows the share of our real estate portfolio by value where current and projected emissions align with the goals of the Paris Agreement, using the CRREM decarbonisation pathways. The assessment helps us understand financial and operational risks associated with each of our assets, and the portfolio as a whole.

56%

average climate expectation score

We quantify to what extent each of our portfolio companies meets our expectations in managing climate risks and opportunities. Our expectations cover key aspects of policy, strategy, risk management, stakeholder engagement, and disclosure, including whether companies have set science-based interim and net zero 2050 targets. This percentage represents the average score covering 96 percent of net asset value (NAV).

Our nature exposure

8%

estimated exposure to Key Biodiversity Areas

We use geospatial data to map the intersections between our portfolio companies operations and key biodiversity areas. This metric provides an estimate of the average percentage of our portfolio companies' assets that are near to Key Biodiversity Areas, helping us to assess nature risks across sectors that depend on or impact ecosystem services.

12,000

dollars in impacts per million dollars in revenue, 3% below equity benchmark index

This metric measures how our portfolio companies' revenue streams impact or depend on natural resources. Our portfolio shows a lower nature impact intensity relative to our benchmark due to specific investments in companies with lower impact intensities in the basic materials, utilities and consumer staples sectors.

32%

average biodiversity expectation score

Our expectations cover key aspects of policy, strategy, risk management, stakeholder engagement, and disclosure, including whether companies are transparent about how they depend on and impact biodiversity and ecosystems. This percentage represents the average score covering 96 percent of NAV.

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Preface

As a diversified and long-term investor, the fund's exposure to climate and nature risks broadly resembles that of global capital markets. The revenue of the companies listed on those markets are affected by climate policies, technological change, consumer preferences and the physical impact of climate change. It is becoming increasingly clear that the climate system and ecosystems are closely linked and mutually dependent. To understand the fund's financial risk exposures we need to analyse both climate and nature risks.

As a global, long-term investor we have an inherent interest in the achievement of the global climate goals, and the reduced degradation of biodiversity and ecosystems. The extent to which, and how, these global policy ambitions are reached, will influence the fund's climate and nature resilience. An effective and predictable climate policy is the most important tool to reduce financial climate risk. Within our investment mandate, we address climate and nature risks and opportunities in an integrated approach. Our approach rests on three pillars: (1) improving market standards, (2) increasing portfolio resilience, and (3) engaging directly with our portfolio companies. These disclosures cover all these activities.

Our 2025 Climate action plan includes an ambition to encourage portfolio companies to align their operations with the goals of the Paris Agreement, in line with the fund's mandate. We expect companies to disclose detailed plans for reducing their emissions over time and implement robust practices to eliminate deforestation and protect biodiversity. Overall, more companies are setting science-based net zero targets. At an aggregate level, the fund's financed emissions have decreased 30 percent since 2017.

We invest broadly across markets and industry sectors. This provides a hedge against individual climate events. Yet, the fund and capital markets remain exposed to systemic economic impacts of climate change. Higher levels of warming increase the possibility of economy-wide climate shocks,

> We are encouraged by companies' responses to our climate and nature dialogues. These are not challenges companies can solve on their own.

Carine Smith Ihenacho
Chief Governance and Compliance Officer

and puts pressure on crucial ecosystem services. While improving, available climate models remain inadequate to fully capture the complex economic impacts of physical risks of climate change. Nevertheless, results of more advanced climate scenario analyses reported here indicate that the fund's value at risk from climate change and nature loss may be higher than previously estimated.

These disclosures show our current understanding of the fund's exposure to climate and nature risks, using different methods. We present the climate and nature information together to provide a more complete picture, in light of their close relationship and interdependency. Numbers are invariably uncertain, and models will continue to develop over time. Our analyses of nature risk are less developed than our climate risk assessment, reflecting the emerging state of nature risk measurement and reporting. By being transparent on our assessments and activities, we aim to contribute to advancing reporting practices. Our funding of research and engagement with academics and market participants will help us expand our knowledge further.

> Climate and nature risks are inter-linked. They are already impacting the markets we invest in.

Dag Huse
Chief Risk Officer

Governance

The fund assesses climate and nature risks and opportunities from the perspective of a financial investor. The management mandate for the fund issued by the Norwegian Ministry of Finance includes climate-related requirements. Norges Bank's Executive Board has issued principles for responsible investment management and risk management.

The fund's mandate

The investment mandate issued by the Norwegian Ministry of Finance states that the objective of the fund is to achieve the highest possible return with acceptable risk. In accordance with the mandate, responsible management should form an integral part of the management of the investment portfolio. A central premise is that a good long-term return is considered to depend on sustainable economic, environmental and social development, as well as on well-functioning, legitimate and efficient markets.

We primarily address the risk to the fund posed by greenhouse gas emissions from our position as an investor in global equity markets. The mandate states that Norges Bank's responsible investment efforts are to be based on a long-term goal that portfolio companies have operations that are compatible with global net zero emissions in accordance with the Paris Agreement. This goal for our ownership activities is a central element of our 2025 Climate action plan.

The mandate also requires financial climate risks to be measured, managed and reported, in accordance with international standards. It states that we should measure climate risk using different methods, and stress test the portfolio against different climate scenarios, including a scenario that is consistent with global warming of 1.5°C. These disclosures include information on the fund's climate and nature risk exposure across different metrics, including an estimate of portfolio losses associated with a 1.5°C climate scenario.

The Ministry publishes an annual white paper on the management of the fund which discusses the further development of the investment strategy and the fund's work on responsible investment.

> In accordance with the mandate, responsible management should form an integral part of the management of the investment portfolio.

Relevant governance bodies in the Norges Bank organisation.

Board oversight

The management of the fund is overseen by Norges Bank's Executive Board. The Executive Board has issued principles for responsible investment management, and risk management and is responsible for overseeing these. The principles state that climate risk is an investment risk to the fund that should be integrated into investment management. It should be identified, analysed and monitored systematically, and addressed in company engagements, risk monitoring, and work with market standards. The principles are based on internationally recognised standards from the UN and the OECD, which reference management of climate and nature risks and opportunities.

The Executive Board has established an Ownership Committee with a preparatory and advisory role when it comes to the fund's responsible investment activities and decisions on observation and exclusion, and a Risk and Investment Committee that oversees the management of fund risk, including climate risk. The Executive Board approved the fund's 2025 Climate action plan and our expectation documents on climate and on biodiversity and ecosystems. The Executive Board also makes the final decision on observation and exclusion of companies, based on a recommendation from the Council on Ethics. For exclusions of companies under the coal-based product criterion and the emissions-based conduct criterion, the Executive Board can make decisions at its own discretion.

> The Executive Board has issued principles for responsible investment management and risk management.

Role of management

The Chief Executive Officer (CEO) of Norges Bank Investment Management has overall responsibility for implementing the requirements set by the Executive Board. The CEO issues mandates and job descriptions for members of the Leader Group and sets policies, including on responsible investment and climate risk management. The Chief Governance and Compliance Officer (CGCO) and the Chief Risk Officer (CRO) report directly to the CEO. The CGCO is responsible for the fund's work on responsible investment management and is supported by the Active Ownership department. The CRO is responsible for analysing, measuring, and reporting investment risk for the fund, including climate and nature risk, and managing risk-based divestments, and is supported by the Risk Monitoring department.

The Co-Chief Investment Officers, Active Strategies are responsible for integrating energy transition risks and opportunities into our active investment strategies. The investment mandates issued to all the fund's internal and external investment managers require investment decisions to consider information on governance and sustainability, including climate risk. Our Climate Advisory Board, consisting of members with extensive knowledge of climate risk, market standards, and finance is supporting us in the implementation of our 2025 Climate action plan. In 2024, we held three meetings with the Climate Advisory Board.

Stakeholder engagement

Our stakeholders include the Norwegian people as our ultimate owners, our own employees, and those affected by our portfolio companies' operations, including local communities. We regularly invite civil society and subject matter experts to give feedback on our responsible investment work through direct dialogue, consultations and seminars. We receive input in the form of letters, emails, and reports on the fund's investments on an ongoing basis. In 2024, we received input on topics such as climate lobbying, transition plans, climate scenario analysis, ocean data and deforestation.

We align our expectation documents and stakeholder engagement work with internationally recognised human rights principles, such as the UN Guiding Principles on Business and Human Rights. Directed at our portfolio companies, our expectations on biodiversity and ecosystems further specify that they should collaborate with stakeholders on the ground, including non-governmental organisations (NGOs), local communities, smallholder farmers, and national and international institutions. We expect companies to respect the rights of indigenous peoples and local communities, including the right to Free, Prior and Informed Consent. Our human rights expectations emphasise that companies should engage transparently and responsibly on human rights, including through grievance mechanisms. We follow up on these expectations in our ownership work and risk management.

We regularly invite civil society and subject matter experts to give feedback on our responsible investment work.

Strategy

The fund is a long-term, diversified owner, investing in global markets. Climate and nature risks are interconnected and can affect the fund's long-term financial performance. Our 2025 Climate action plan sets out our approach to managing these risks and associated opportunities.

Integrating climate and nature

We are a broadly diversified investor with a long-term investment horizon. Our investments span listed equities, tradable bonds, unlisted real estate, and unlisted renewable energy infrastructure. The benchmark for our equity portfolio is based on a broad global equity index that captures most of the value creation by the world's listed companies.

Climate change and nature degradation are long-term global challenges. These challenges will affect the financial performance of companies and the economy as a whole. We may see significant environmental threats even at relatively low levels of global warming. The impact on companies can occur indirectly via global economic growth or directly through energy prices, consumer demand, regulatory requirements, and changes to the physical and natural environment.

Climate systems and ecosystems are closely linked and mutually dependent. Climate change threatens biodiversity. Natural capital, which includes plants, animals, air, water, soil, and minerals, provides a constant flow of benefits to people and supports economic development. These ecosystem services supply essential goods like fuel, food, and clean water and help maintain processes such as nutrient cycling, pollination, climate regulation, and protection from natural hazards. Maintaining these ecosystem services is crucial for a liveable world. Understanding this complex interplay is key for ensuring food and energy security, reducing carbon emissions, and preserving ecosystems' adaptive capacity – and hence for managing the fund's long-term investments.

Given these interdependencies, the fund addresses climate and nature risks and opportunities in an integrated approach in our responsible investment processes. Our approach rests on three pillars: (1) improving market standards, (2) increasing portfolio resilience, and (3) engaging directly with our portfolio companies.

> Climate change and nature degradation will affect the financial performance of companies and the economy as a whole.

At the market level, our goal is to support the development of improved global frameworks and standards for identifying, measuring, and disclosing on climate and nature risks and opportunities. We support and contribute to advancing methodologies and analytical approaches for modelling the effects of climate and nature on asset prices, particularly looking into the future. We also collaborate with and support academic research that aims to better understand the interdependencies between climate and nature issues and asset prices.

At the portfolio level, we increase financial resilience by investing in climate opportunities. We have a dedicated renewable infrastructure mandate for unlisted investments. Such investments are financial and part of the active management of the fund. We also have a dedicated energy transition mandate for listed equities to increase our exposure to financial opportunities arising from transitioning to a low-carbon economy. We may divest from companies with excessive climate and nature risk exposures and re-include them when we see significant and credible improvements. Divestments are capital allocation decisions that help us manage the fund's exposure to climate transition risks. In addition, we use quantitative tools to monitor how climate and nature risks affect our investments. Data on corporate emissions allow us to analyse the carbon footprint of the portfolio over time and across markets and sectors. Various forward-looking models help us to identify whether the portfolio aligns with different emissions pathways and estimate portfolio losses associated with specific climate scenarios.

At the company level, we are an active and responsible owner, supporting companies as they transition towards more environmentally friendly business practices. We use our ownership rights to promote long-term value creation and reduce risk at the companies we invest in. We take a materiality-based approach to engaging with companies on how they integrate climate and nature-related issues into their governance, strategy, and reporting. We vote at shareholder meetings to hold boards accountable for their decisions, including significant environmental impacts. We also file shareholder proposals in specific instances to promote our shareholder interests.

Given the fund's mandate and investment strategy, our overall exposure to climate and nature risk largely depends on adequate government policies supporting global climate goals, and whether the companies we invest in reach their climate targets. We stand to benefit from an orderly transition to a low-carbon economy, as this will enable a predictable, efficient, and necessary large-scale redeployment of investment and resources away from carbon-intensive activities.

Progress on 2025 Climate action plan

Climate and nature disclosures

The fund's management mandate states that our portfolio companies should align their business activities with the goals of the Paris Agreement. In our 2025 Climate action plan, we aim to support this goal and reduce the fund's climate risk. Specifically, we expect companies with high emissions to set net zero 2050 targets as a matter of urgency, and all companies in our portfolio to have done so by 2040 at the latest.

A focus of our plan is to engage with the highest emitters in our portfolio. We advocate for net zero targets, robust climate plans, and sustainable business transformation, while respecting companies' operational independence and their need to adapt to their specific business environments. In 2024, we engaged with 141 companies as part of our in-depth net zero dialogues. The most common topics were climate targets, transition plans and policy, advocacy, and lobbying. In total, climate change was raised in meetings with 424 companies. We also voted in favour of a third of 114 shareholder proposals on climate, filed three of our own, and voted against the re-election of 96 directors due to the mismanagement of climate risks.

141

companies we engaged with as part of our in-depth net zero dialogues

In 2024, 74 percent of the fund's financed emissions were generated by companies that had set science-based net zero targets, up from 43 percent in 2021. This indicates that many large emitters have set science-based targets. The overall number of portfolio companies with science-based net zero 2050 targets also increased from 12 percent to 32 percent over the same period. We are on a clear trajectory towards most materially exposed companies having targets in place (see section 'Corporate net zero targets' for further information).

We also delivered a range of other actions specified in our plan at the market, portfolio and company level. See section 'Our actions' for further details on our climate work at all three levels.

Climate action plan progress

Market	Portfolio	Reporting	Company	
			Investment	Engagement
Promoted climate-related financial disclosures aligned with IFRS S2. Funded three new research projects on climate finance. Joined the board of the newly established CRREM Foundation to develop science-based decarbonization pathways for global real estate markets.	Achieved a 16% reduction in carbon emissions intensity of our unlisted real estate portfolio compared to 2019, with 43% of the portfolio now aligned with a 1.5°C pathway. Divested from five high-emitting companies and reversed eight divestments in companies with positive energy transition exposure. Initiated quarterly fund carbon-intensity and financed emissions tracking; expanded climate scenario analysis.	Launched more extensive public reporting on climate- and nature related risks and opportunities, in line with TCFD and TNFD recommendations. Complemented climate scenario analyses with in-house model capturing potential portfolio effects of accelerated and exponential growth in physical damages. Expanded reporting on financed Scope 3 emissions by including downstream categories.	Established Energy department, merging Renewable Energy Infrastructure and Energy Equities teams to leverage energy transition knowledge across asset classes. Launched Climate Expectation Scores to measure companies' alignment with updated Expectations for better climate risk and opportunity management. Expanded renewable energy with 1,891MW wind and solar investments.	Launched three new net zero dialogues with cement companies, auto manufacturers and pulp and paper producers, covering 11 percent of our financed emissions (scope 1 and 2). Engaged 141 companies as part of in-depth net zero dialogues. Filed three shareholder proposals in the US, withdrew two after successful negotiation.

Deep-dive: Leveraging analytics for company engagements

We employ a data-driven approach to help us identify the companies where engagement is likely to have the largest impact. We systematically evaluate corporate emissions and companies' management and disclosure of climate and nature risks.

Climate focus list – prioritising our engagements

We place portfolio companies that account for large shares of the fund's financed scope 1 and 2 emissions on a climate focus list. Our largest investments in sectors with significant indirect exposure to climate risk, and additional companies with elevated climate risk based on proprietary assessments, are also part of the list. These companies are prioritised for engagement in line with the ambition of our 2025 Climate action plan to engage with the highest emitters in our portfolio.

We update our climate focus list annually to reflect the companies with the highest climate risk. The list expanded from 241 companies in 2023 to 267 companies in 2024. This can primarily be attributed to our heightened scrutiny of the basic materials and industrials sectors.

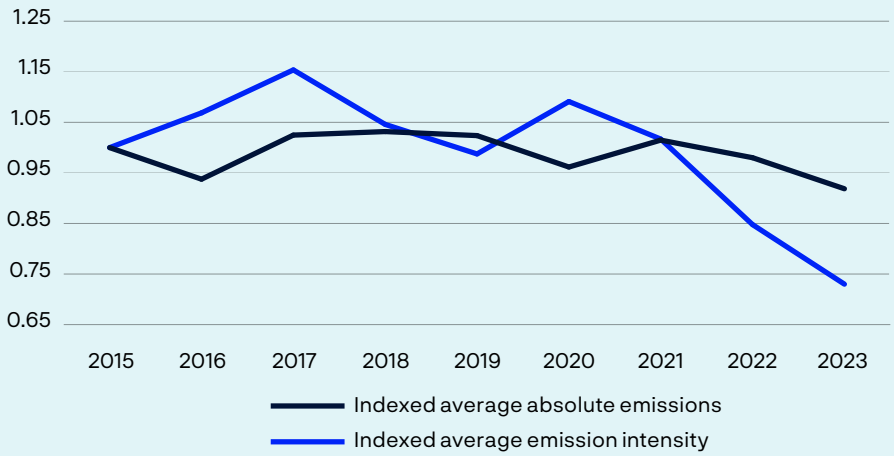
We observe that the average emission intensity by companies on our climate focus list shows a peak in 2020 followed by a clear downward sloping trend over the last three years. Intensity is measured as the ratio of absolute scope 1 and 2 emissions to revenue in millions of dollars. Similarly, the average absolute scope 1 and 2 emissions have trended downward since 2019. Although it is not possible to attribute these trends to our investment or engagement activities, we find that the companies we engage are on average making progress in reducing emissions.

267

companies on our climate focus list

FIGURE 1

Indexed average absolute scope 1 and 2 emissions and emission intensity for 147 companies included in the climate focus list across all of 2022, 2023, and 2024. Source: S&P Global Trucost.



Assessing companies' alignment with our expectations

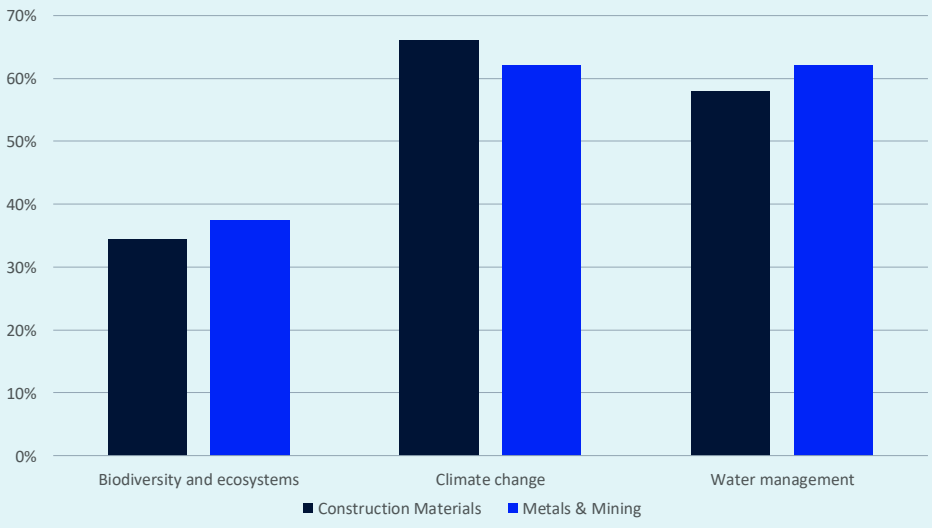
In 2024, we enhanced our assessments and introduced expectation scores, a quantitative evaluation of companies' disclosures against our expectations of companies on sustainability matters. The scores incorporate data from multiple third-party vendors and use AI to extract additional data from public disclosures that are specific to our needs. Machine learning techniques are employed to handle missing data to increase coverage and comparability. We compare company scores relative to their industry peers to inform our investment and ownership decisions.

On environmental issues, our scores currently cover our expectations on climate change, water management, and biodiversity and ecosystems. The scores assess whether companies meet key expectations such as managing climate risks, performing biodiversity impact assessments, and establishing water-related targets. Each score consists of around 20 individual indicators, with 100 percent indicating full compliance with our quantitative measures. The climate and biodiversity scores cover more than 5,000 companies each, and the score for water covers approximately 3,000 companies, representing over 90 percent and 70 percent of the equity portfolio's NAV, respectively.

On average, companies scored 56 percent against our climate change expectations, but significantly less on water management (49 percent) and biodiversity (33 percent). To provide further insights, we present the average scores in sectors where all topics are significant according to Sustainability Accounting Standards Board (SASB). The averages in these sectors exceed the portfolio-wide scores, reflecting these companies' focus on reporting material issues.

FIGURE 2

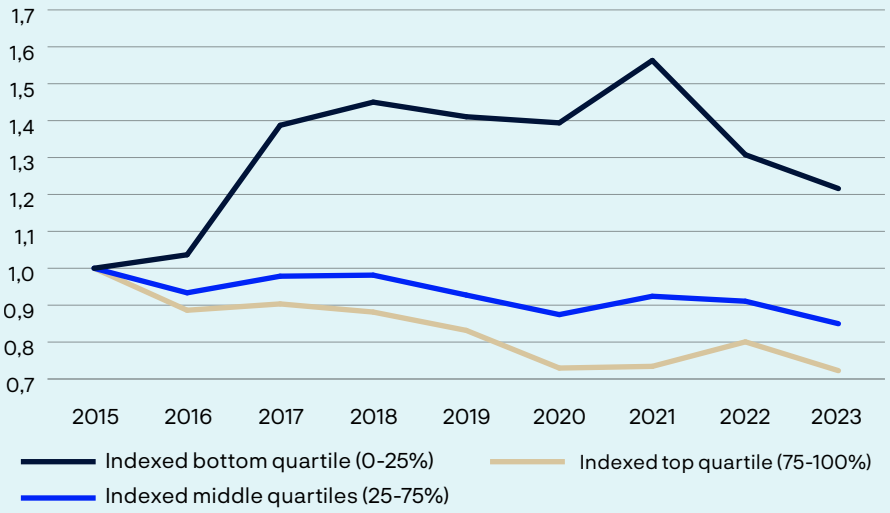
Climate- and nature-related expectation scores for construction materials and metals and mining. Source: S&P Global Trucost for emissions data.



While many companies have improved their disclosures, there remains considerable room for improvement. In sectors materially exposed to water and climate risks, more than half of the companies now report on the majority of our expectations. However, biodiversity-related disclosures are lagging in areas such as quantified indicators and risk management (e.g. reporting on impacts and dependencies), and biodiversity-related targets.

The quality of transition plans is a significant factor in our climate expectation scores. Important components of these plans are allocation of financial resources, interim goals, and net zero targets for 2050. These targets should subsequently be reflected in actual emission reduction. Our analyses indicate that companies on our focus list that meet most of our expectations, as measured by our expectation scores in 2024, have reduced their emissions (since the Paris Agreement was reached in 2015), while emissions have increased at companies that fall short of most of our expectations.

FIGURE 3
Indexed absolute scope 1 and 2 emissions of companies on our climate focus list, by climate expectation scores in 2024. Source: S&P Global Trucost.



Real assets

Real estate

The built environment accounts for 40 percent of global greenhouse gas emissions. Decarbonizing real estate is a critical component of a global net zero 2050 scenario. We believe that buildings that consume less energy are also more cost-efficient in the long-run, more attractive to tenants, and more resilient to climate regulation.

We aim for our unlisted real estate portfolio to achieve net zero emissions by 2050. For real estate, we need to consider all emissions generated throughout their life cycle. We distinguish between operational carbon emissions, which are related to energy used to operate tenant and landlord spaces in a building, and embodied carbon emissions, which are related to the construction, renovation, and demolition of the building. Operational carbon is highly influenced by the carbon-intensity of the local energy grid, alongside energy-efficiency measures implemented at the building. As grids themselves decarbonise, a building's operational emissions from electricity consumption will diminish. Meanwhile, the carbon emissions from building materials and the construction process are locked-in once construction has been complete.

The decarbonization strategy for our existing portfolio is focused on making our buildings more energy efficient, electrifying heating, prioritizing on-site renewable energy generation, and building and renovating smarter by using lower carbon materials and improving building design. We also look at physical risks and assess the climate resilience of buildings and implement measures to make them less vulnerable to extreme weather. Floods pose the most material physical climate risk to our assets, given their location. To assess flood risk in the US, we use First Street's nationwide probabilistic flood model which considers current risk flooding from rain, streamflow, sea level rise, tide, and storm surge as well as forecasted changes to this risk due to climate change. We categorise risk based on both the depth and probability of flooding. The most extreme risk in the portfolio is where there is a risk of flooding deeper than 152cm over the next 30 years. The associated direct damages is equivalent to 4 percent of the gross asset value of the US portfolio.

Our progress toward net zero

To measure the progress of our unlisted real estate portfolio towards net zero emissions by 2050, we have set an interim target to reduce carbon emission intensity by 40 percent by 2030 compared to a 2019 baseline. Decarbonization trajectories can vary greatly between real estate sectors, and we aim for long-term, sustainable solutions without divesting energy-intensive sectors solely to meet our carbon emission reduction target. We disclose emission reductions per sector and geography to be transparent about our progress. From 2019 to 2023, carbon emission intensity fell by 16 percent for the real estate portfolio. When energy consumption data is not available for a building, we utilise estimates and disclose numbers in alignment with PCAF recommendations. We reviewed our 2019 baseline methodology during the year, resulting in minor adjustments based on best practices. Between 2019 and 2023, the office and retail sectors decreased

by 17 percent and 35 percent respectively, due to portfolio improvements and a cleaner energy grid across our markets.

We use a combination of actual and estimated data to measure the energy and carbon-intensity of our logistics portfolio. Where we use estimated data, there are no year-on-year changes to the energy intensity per square foot versus the baseline values. Based on actual data collected, our assets' carbon-intensity in 2023 decreased by 16 percent from the estimated 2019 baseline. In addition, our logistics assets have 76.6 MW of solar generating capacity across the portfolio, of which 11 MW was added in 2024. Solar generated and consumed on-site has not yet been factored into the emissions figures. Expansion of solar generation across the logistics portfolio would contribute positively to reducing the carbon-intensity of energy consumed in our buildings.

TABLE 1
Emmission intensity, unlisted real estate portfolio, by sector.

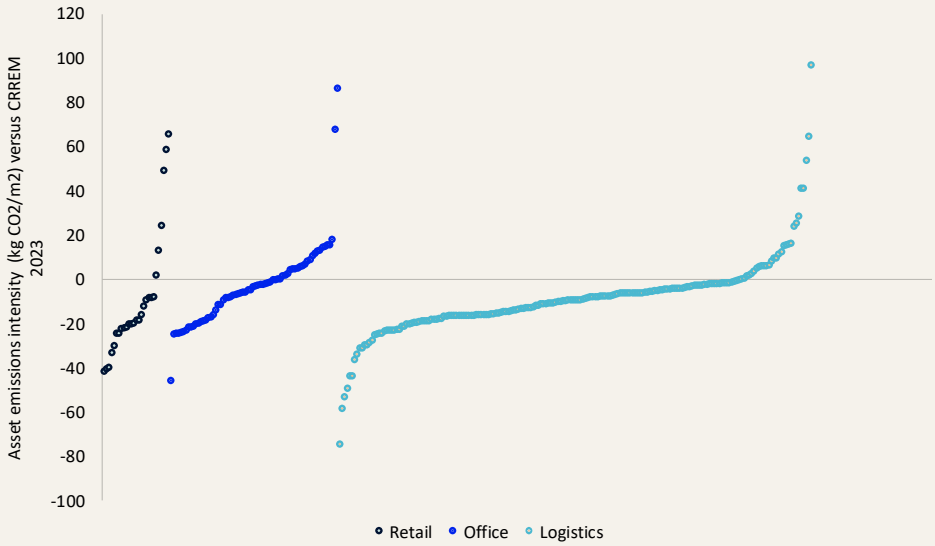
Sector	Emission intensity (kg CO2/m2, 2019 base-line)	Area estimated (percent)	Sector contribution to emissions (percent)	Carbon Intensity (kg CO2/m2, 2023)	Area estimated (percent)	Sector contribution to emissions (percent)	Change in emission intensity 2019–2023
Office	47	4%	39%	39	3%	35%	-8
Retail	48	71%	6%	32	18%	4%	-17
Logistics	20	100%	55%	18	66%	61%	-2
All	**27**	**71%**		**23**	**52%**		**-4**

"Future"-proofing our assets

To develop asset-level decarbonisation plans, we require actual energy consumption data for the whole building. In 2023, our consumption data coverage increased from 62 percent in 2022 to 71 percent (by value), driven by improved data quality across our logistics portfolio operated by our joint venture partner, Prologis.

In 2024, we benchmarked each building for which we have collected energy consumption data against the relevant 1.5°C decarbonisation pathway developed by Carbon Risk Real Estate Monitor (CRREM). We identified outliers by comparing buildings' emission magnitude and intensity with the 2030 CRREM pathway and conducted workshops with investment teams to plan energy retrofits. In aggregate, we also assessed whether our portfolio's current and projected emissions aligned with the Paris Agreement targets. By the end of 2023, 43 percent of the portfolio by value aligned with the 2023 CRREM decarbonisation pathway, up from 41 percent at the end of 2022. 59 assets (6 retail, 25 offices, 28 logistics) have an emissions intensity (kg CO2/m2) above their respective 2023 CRREM target, (28 percent of portfolio value). We do not perform a CRREM analysis on buildings for which we have not collected any actual energy consumption (29 percent of portfolio).

FIGURE 4
2023 emissions intensity by asset versus 2023 CRREM decarbonisation pathway.



Renewable energy infrastructure

Our renewable energy infrastructure investment strategy focuses on acquiring high-quality assets that offer sustainable, long-term returns. The fund emphasises diversification across both renewable energy technologies and geographical regions. This approach helps spread risk and enhances the fund's ability to capitalise on advances in different renewable energy sectors.

Our investments in unlisted renewable energy infrastructure currently make up 0.1 percent of the fund and represent an installed capacity of 2285MW offshore wind energy, 2088MW of solar energy and 530MW of onshore wind energy. These are active, financially motivated investment decisions and our mandate allows for investing up to 2 percent of the fund's investment portfolio in renewable energy infrastructure.

See our responsible investment report 2024 for more information on our renewable infrastructure investments in 2024 and a case study on our solar energy investment in the Iberian Peninsula.

The resilience of our strategy

Climate and nature disclosures

As a diversified and long-term investor, the fund's financial exposure to climate and nature risks broadly resembles that of the global capital markets. Our investment strategy's resilience is influenced by factors largely beyond our control, including the macroeconomic environment, policies and regulations, technological developments, and changes in demand. Ultimately, our climate and nature related financial resilience depends on the global achievement of an orderly transition to net zero emissions, and nature-related policy ambitions. An orderly transition requires government action, both globally and at market level, to efficiently price and mitigate climate gas emissions.

To contribute to financial resilience, we focus on supporting global standards for financially relevant sustainability disclosures, as well as improving our climate and nature analysis, risk management and company engagements. We aim to enhance our investment processes and support the companies in the portfolio to reduce risks and exploit opportunities through active ownership. In 2024, we onboarded new geospatial data to better understand nature risk. By combining data sources in our expectation scores, we increased the number of companies where we can quantify alignment with our expectations on climate change and biodiversity and ecosystems. Additionally, we initiated a project to better understand the effectiveness of our climate engagement efforts, leveraging recent advances in technology and data. Large language models assist us in analysing the depth and quality of our discussions with companies. Our engagement tracking platform helps us analyse achieved engagement objectives and use third-party data to assess changes in companies' sustainability disclosures and performance.

We run various climate scenarios to estimate the financial impacts on our portfolio over different time horizons. We support climate finance research and research on how the future supply of and demand for, natural resources may affect the fund's equity investments. In an uncertain world, understanding a range of outcomes helps us remain vigilant about developments and relationships in the fund's exposure to climate and nature risks.

Risk identification and assessment

We use a variety of approaches to identify and assess financially relevant climate and nature risks affecting the companies in the fund's equity portfolio. This includes assessing the sustainability risks of all companies in our portfolio and equity benchmark index, monitoring all portfolio constituents, and identifying aggregated portfolio risks.

Risk monitoring processes

We monitor the exposure of the fund to climate and nature risk through a variety of systematic risk monitoring processes. Every quarter, we assess all companies in the portfolio and benchmark, and we review all companies entering our equity index, so called pre-screening. We also monitor sustainability- and governance-related incidents and controversies on a continuous basis. Our assessments of companies are informed by a variety of information sources, including corporate disclosures, data procured from data providers, external reports, the media and other publicly available information. When we lack information, we may use estimation models to fill gaps in data coverage or forecast risk trajectories.

In broad terms, we consider risk to be high if we believe a company's long-term market valuation may be adversely affected by its mismanagement of climate and nature issues. We also seek to identify documented and potential impacts that companies may have on the environment and society. Climate and nature risks uncovered in these processes, such as pollution incidents and adverse effects on conservation areas, may trigger risk mitigation actions. These include informing portfolio or stewardship managers, sharing information with the Council on Ethics, and considering divestment.

Our risk-based divestments influence the fund's emissions. When we divest from a company that has higher financed emissions than the average for companies in its market, the fund's financed emissions decrease. Conversely, if such a divestment decision is reversed, the fund's financed emissions increase.

In 2024, we reversed the decision to divest from three large industrial companies with high emissions (see section Our actions – portfolio level for a case study). The decision increased the fund's financed emissions and narrowed the gap to the benchmark index. Nevertheless, we believe the decision was warranted, as the companies had put in place credible transition plans to reduce their emissions over time since the time of divestment. By re-investing in these companies, we can use our capital and engagement activities to capture opportunities associated with the low-carbon transition.

Data quality and coverage

We use multiple data sources to analyse climate and nature risks and opportunities. A large share of the data stems from corporate reporting, whereas other data are estimated by external data providers. We are increasingly leveraging AI to extract tailored data directly from corporate reporting rather than obtaining the data from vendors. In addition, we are expanding our use of data from alternative sources including geospatial data to better understand our portfolio's interdependencies with nature risk.

We use corporate emissions data from S&P Global Trucost, combined with our holdings and fundamentals, to calculate financed emissions and the weighted average carbon intensity of our portfolio. The quality of the emissions data used as inputs into climate metrics has a large bearing on the quality and uncertainty associated with the results. If available, we rely on emissions data reported by companies as it is assumed to have a higher degree of accuracy than data estimates provided by vendors.

We measure the quality of emissions data using a methodology developed by PCAF. Data based on verified corporate disclosures achieve the highest data quality score (1), whereas estimates based on economic disclosures from the company achieve the lowest score (5). The quality of corporate emissions data linked to companies in our equity and corporate bonds portfolio improved marginally in 2024. The observed differences from 2023 to 2024 can be attributed primarily to the greater availability of reported data in 2024. On average, scope 3 data quality of value chain emissions is lower than for scopes 1 and 2, although the same sectors drive down data quality due to low reporting in both cases, namely technology and financials.

TABLE 2
PCAF data quality of emissions data by emission scope, weighted by market value of equity and corporate bonds holdings. Source: S&P Global Trucost. 31 December 2024.

	Scope 1 and 2	Scope 3 downstream	Scope 3 upstream
2024	2.97	2.55	3.87
2023	2.98	2.56	3.87

Our analysis of nature risk consists of data from different sources covering impacts and dependencies on ecosystem services, geospatial asset data, and natural capital impact data.

We use the ENCORE tool in our analysis of portfolio companies' potential impacts and dependencies on ecosystem services. This tool is based on extensive research and both quantitative and qualitative data. The materiality ratings for pressures and dependencies are aggregated at sector level. As the data are not company-specific, they are intended to serve as an indication of impacts and dependencies for the portfolio. They do not show important company-specific nuances.

Our analysis of geospatial asset data provides valuable insights into our portfolio's exposure to key biodiversity areas, albeit limited by coverage and completeness. Asset level data are available for 68 percent of our portfolio companies, representing 77 percent of the fund's net-asset value. The regional and sectoral distribution of the data is representative.

We have also obtained a dataset that estimates the cost to society that companies generate as a result of their direct impacts on the environment. Since higher costs may increase the likelihood that governments introduce regulations that force companies to absorb some of these costs, impact metrics in this context may be a proxy for financial risk. Key impact drivers covered by this dataset are emissions, air pollution, water consumption, land use changes, and waste management. As these data are available at company level, they allow us to delve further into pockets of risks identified with sector-level tools such as ENCORE, and to monitor these risks relative to our benchmark index. The dataset covers 99 percent of our portfolio companies and provides a location-specific view of a company's impacts on natural (in economic terms), based on the social costs of each company's pollution. The share of portfolio companies that have disclosed natural capital impact data in public reports varies significantly by sector. Technology, industrials and health care are the highest contributors to our portfolio's weighted disclosure, while utilities, real estate and energy lag behind. Metrics that monetise a company's costs to society are at an early stage and come with limitations.

The quality of data has implications for our analyses. When using data to inform decisions and engagements, we always seek to verify the information and understand key limitations. We apply this same caution to the analyses presented in this report.

Addressing climate risks and opportunities

The fund's carbon footprint

We track the fund's exposure to climate transition risk on a quarterly basis using various methods. We ingest, process and quality assure emissions data we obtain from a data provider. To enhance data quality, our own emissions data validation process detects outliers and replaces erroneous values with higher quality estimates. Our internal system of data ingestion, processing, and assurance allows us to prepare the climate-related disclosures recommended by TCFD. The emissions associated with the operations of Norges Bank Investment Management, are measured and reported by Norges Bank.

Financed emissions

Financed emissions is a metric for estimating the emissions that are associated with our investments in companies. We measure our share of a company's emissions relative to its enterprise value including cash. We estimate that the fund's financed emissions (scope 1 and 2) at year end 2024, compared to reported 2023 financed emissions, decreased by 12 million tCO2e. However, if we revise the financed emissions for 2023 adjusting for methodology changes, financed emissions between 2024 and 2023 were flat. Financed emissions remain 2 percent lower than those for the fund's benchmark index.

TABLE 3

Financed scope 1 and 2 weighted by share of enterprise value including cash. Source: S&P Global Trucost. 31 December 2024.

	Equity and corporate bonds, financed emissions, tonnes CO2 - equivalent	
Industry	**Portfolio**	**Benchmark index**
Basic materials	11.0	12.7
Consumer discretionary	3.9	3.6
Consumer staples	2.2	2.0
Energy	10.5	10.0
Financials	0.3	0.2
Health care	0.6	0.6
Industrials	9.8	10.4
Real estate	0.1	0.1
Technology	1.6	1.6
Telecommunications	0.6	0.6
Utilities	6.7	6.5
Total	**47.3**	**48.3**

In 2024, we started reporting scope 3 financed emissions for our portfolio, including both upstream and downstream activities of a company. As an example, scope 3 emissions include emissions generated by suppliers and customers. All figures are estimated, either by the companies themselves, or based on a model from our data vendor. In our portfolio, financed emissions scope 3 are concentrated in the downstream activities of companies in the industrials and energy sectors. Relative to revised financed emissions in 2023, this year's financed scope 3 emissions have increased by 10 million tonnes of CO2 – equivalent.

TABLE 4
Financed scope 3 emissions, tonnes CO2 – equivalent, weighted by share of enterprise value including cash. Source: S&P Global Trucost. 31 December 2024.

Industry	Upstream	Downstream	Total
Basic materials	5.7	31.1	36.8
Consumer discretionary	9.8	41.9	51.8
Consumer staples	10.3	5.5	15.9
Energy	8.2	112.0	120.2
Financials	1.6	21.3	22.9
Health care	2.8	0.8	3.6
Industrials	10.9	105.6	116.5
Real estate	0.2	1.2	1.4
Technology	3.9	16.6	20.5
Telecommunications	1.0	3.2	4.2
Utilities	1.2	8.0	9.2
Total	**55.7**	**347.2**	**402.8**

Weighted average carbon-intensity (WACI)

The WACI of the equity portfolio is influenced by changes to the relative share of industry sectors. In 2024, the WACI of the equity portfolio decreased relative to reported 2023 values primarily due to improvements to our methodology. Relative to revised values for 2023, the current WACI of the equity portfolio has increased by 1 percent due to the reversal of three divestments in companies with high emissions-intensity. The portfolio has a lower WACI than the benchmark index due primarily to the selection effect from risk-based divestments in utilities and industrials, and allocation to cash.

TABLE 5
Carbon intensity, tCO2e per million dollars in revenue, weighted by market value of fund holdings, companies' scope 1 and 2 emissions. Source: S&P Global Trucost. 31 December 2024.

Industry	Equity portfolio	Equity benchmark index	FTSE Global All Cap
Basic materials	14	15	15
Consumer discretionary	6	5	5
Consumer staples	3	2	3
Energy	10	10	14
Financials	1	1	1
Health care	2	2	2
Industrials	17	19	19
Real estate	3	1	1
Technology	8	7	7
Telecommunications	1	1	1
Utilities	20	23	40
Total	**83**	**88**	**108**

We measure the WACI of corporate bonds in our fixed income portfolio. In 2024, it was 24 percent higher than the benchmark. The largest contributor is selected investments in the utilities sector. Changes to the allocation of capital away from utilities and high intensity corporate debt issuers has decreased WACI by 3 percent between 2024 and 2023, using a revised 2023 figure for the fixed income portfolio.

TABLE 6

Carbon intensity, corporate bonds portfolio and benchmark index, scope 1 and 2 emissions. 31 December 2024.

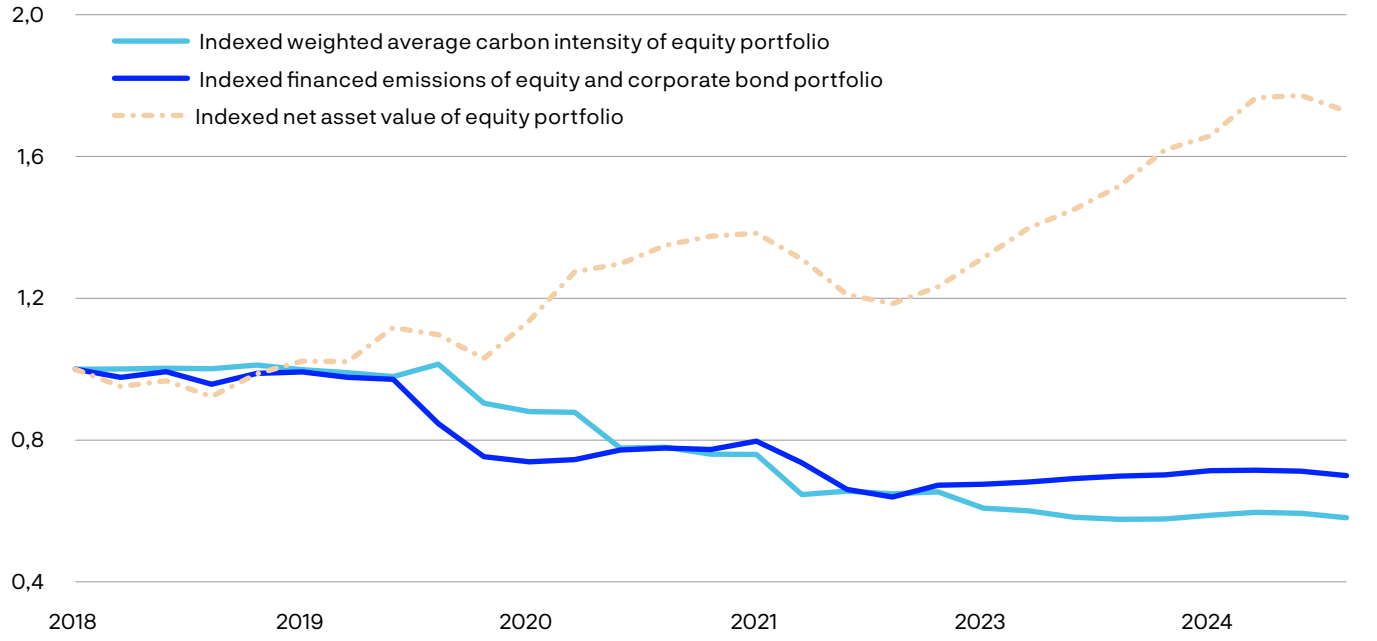
Industry	Fixed income portfolio	Fixed income benchmark index
Financial Institutions	3	3
Industrial	53	51
Utility	33	18
Total	**89**	**72**

A review of the fund's key carbon metrics reveals that the fund's carbon footprint has decreased over time. In 2024, improvements were made to the methodology. We revised values for all emission-related metrics back to 2018 to create a comparable time series. The fund's financed emissions have declined 30 percent since 2018. This is mainly due to changes in the companies in the fund's equity portfolio, in part driven by divestment decisions and ethical exclusions. The overall decline is also explained by companies in the portfolio reporting lower emissions at the end of the period than the beginning. Finally, changes to our relative ownership share in companies with high and low emissions also contributed to the decline. Inflows to the fund generally increase financed emissions as our share of investments in portfolio companies increases. However, on aggregate, this factor was counterbalanced during this time period by the other effects mentioned above.

Meanwhile, the WACI of the fund's equity holdings has decreased by 42 percent since 2018. This metric is sensitive to both changes in emissions and revenues. The latter is significantly driven by the price of goods. In recent years, growth in industry sectors with low scope 1 and 2 emissions intensity, such as technology, has crowded out growth in sectors with higher intensities, such as energy and industrials. This effect has lowered the WACI of the entire equity portfolio during the period.[1]

FIGURE 5

Time series of key carbon metrics: WACI for scope 1 and 2 of the equity portfolio, financed emissions for scope 1 and 2 of the equity and corporate bond portfolio, and net asset value of the equity portfolio. Source: S&P Global Trucost. 31 December 2024.



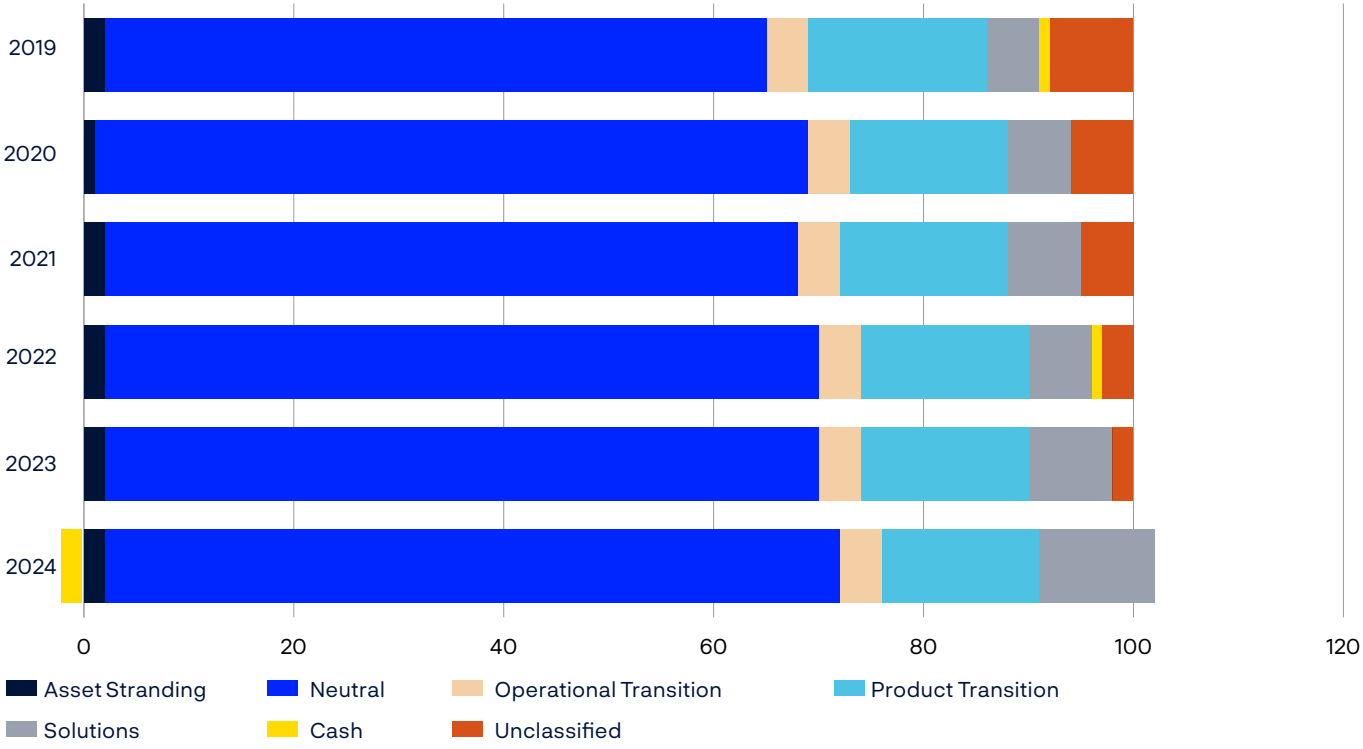
[1] In 2024, we also improved our methodologies for calculating financed emissions and weighted average carbon intensity. This has lead us to revise reported numbers for previous years. On average revised values are eight percent lower than previously reported.

Our exposure to transition opportunities

We monitor the exposure of the fund to climate and nature-related opportunities. Since 2019, there has been a 7 percentage points increase in the share of the fund's equity portfolio invested in "climate solutions". This increase has primarily been driven by growth in investments in the technology and financial sector, where companies are more often classified as contributors to 'climate solutions'. Additionally, approximately 16 percent of the equity portfolio's NAV at the end of 2023 was invested in companies included in the FTSE Environmental Opportunities index. Companies included in this index derive at least 20 percent of their revenues from environmental products and services such as renewable energy, energy management, water infrastructure, and pollution control.

FIGURE 6

Exposure of the equity portfolio to climate transition risks and opportunities since 2019. Source: MSCI. 31 December 2024.



Climate scenario analysis

The fund's vulnerability to future climate change is challenging to assess. We rely mainly on climate scenarios developed by the Network for Greening the Financial System (NGFS), which explore various combinations of climate policy, technology trends, and supply-demand dynamics. The NGFS scenarios are clustered around a set off climate scenarios that would yield relatively modest levels of warming and corresponding benign impacts on the economy. As such, they are not particularly suitable for stress-testing, which would require the inclusion of a plausible scenario that is associated with very high warming.

Since 2021, we have estimated net portfolio losses associated with different climate scenarios using MSCI's Climate Value at (CVaR) model. This is a bottom-up model based on the NGFS scenarios (NGFS Phase IV) which approximates the net climate costs of each individual company we are invested in, and then aggregates these estimates at a portfolio level. It covers climate transition risk and physical climate risk separately. In broad terms, the loss estimates are the discounted sum of portfolio losses until 2080 associated with climate policy risk, technological opportunities, and physical climate impacts. Variations in predicted losses from year to year are driven by changes to the composition of our equity portfolio, and updates to the model.

Based on our global equity investments at the end of 2024, the cumulative impact of climate change on the portfolio's value by 2080 across various scenarios is estimated to result in a reduction ranging from 2 to 10 percent of present value, and 2 to 8 percent when technology opportunities are taken into account. Higher losses are estimated in scenarios with either abrupt or stringent climate policy which would realise costs, while higher temperature scenarios with relaxed climate policy would come at a lower policy cost but higher costs from physical damages.

The cost of a transition to a low-carbon economy for the fund may indeed be modest given the falling cost of green technologies. However, we believe the effects of physical climate risk on the fund may be severely underestimated. Unless global emissions peak very soon and fall significantly, the economic costs associated with physical climate risks in numerous countries are projected to accelerate at an increasing rate, and potentially in a non-linear manner due to various tipping points, during the latter part of this century.

TABLE 7
Climate transition risk scenario analysis, equity portfolio. Source: MSCI CvaR model. 31 December 2024.

Scenario	Estimated reduction in value - Policy risk	Estimated reduction in value - Technology opportunities	Estimated reduction in value - Net transition risk effect
1.5°C NGFS Orderly	10	2	8
1°C NGFS Low Demand	6	1	7
2°C NGFS Disorderly	4	1	5
2°C NGFS Orderly	2	0	3
2.4°C NGFS Fragmented World	2	0	2
2.3°C NGFS NDC	2	0	2

However, when we use the CvaR model to estimate losses from physical risk, we find implausibly low loss estimates even for higher temperature scenarios. Moreover, there is a surprisingly limited spread in the estimated losses across physical risk scenarios that science suggests may yield widely different consequences for climate, nature and the economy. The current CVaR model does not yet incorporate the NGFS Phase V scenarios which project slightly higher economic losses from physical climate risk. Overall, bottom-up approaches which seek to estimate portfolio-wide losses from physical climate risk inherently fail to capture the systemic effects to the macroeconomy that climate change is certain to generate.

In 2024, we started developing an internal top-down approach as an alternative to using a bottom-up approach to stress-test the equity portfolio against an extreme physical risk scenario. We calculated the damages to US equity investments against a Current Policies scenario, which assumes that no additional climate action is taken relative to today, potentially resulting in warming of 3°C by 2100. We applied the damage function used in the latest iteration of the NGFS long-term scenarios (NGFS Phase V). Losses were estimated on the basis of our assumptions on equity premia, risk- free interest rates, and dividend growth. By also running the bottom-up approach on our US equity investments against the Current Policies scenario, we can compare the effects of the different damage functions across the two approaches. Specifically, the two approaches differ in their inclusion of chronic and acute impacts from climate change. Neither fully captures the full risk and uncertainty associated with future climate change as they both omit systemic impacts or parallel economic shocks that can potentially cause damages to grow exponentially.

Comparison of bottom-up and top-down approaches to climate scenario analysis.
Source: Norges Bank Investment Management

	Bottom-up approach (MSCI Climate Value-at-Risk)	**Top-down approach** (Norges Bank Investment Management, internal)
Chronic impacts	Includes changes to extreme cold, heat and wind, as well as heavy snowfall and precipitation. Losses are estimated by modelling cost of business disruption from days where thresholds are exceeded.	Includes changes to annual temperature and variability, total annual precipitation, number of wet days and extreme daily precipitation. Losses are estimated based on labour supply loss, productivity losses, impacts on physical health, conflict and travel disruption, and flood damages.
Acute impacts	Includes coastal and fluvial flooding, tropical cyclones, wildfires, river lows, and water scarcity. Losses are based on the cost of business disruption and asset damages from events.	Partially includes acute impacts in the damage function. Very limited. Losses modelled together with chronic impacts.
Systemic impacts	Not included in either model. Comprises feedback loops between the climate system and the natural carbon cycle, and between the real economy and financial markets, in addition to tipping points and other cascading effects, climate impacts on natural resources and ecosystem services, and the amplification effects of multiple climate and non-climate shocks happening concurrently (polycrises).	

We find that the present value of average expected losses from physical climate risk on our US equity investments under a Current Policy scenario is 19 percent (and 27 percent at the 95th percentile) when using the top-down approach, compared to 2 percent (and 3 percent at the 95th percentile) with the bottom-up approach. Even though the top-down approach only includes acute hazards to a limited degree, estimated losses are still much higher than with the bottom-up approach, mainly due to the damage function used to estimate chronic risks. To test this further with a bottom-up approach, we ran the CvaR model on our US equity investments against the more aggressive RCP 8.5 scenario, which implies up to 4.5 °C of warming. This yielded 4 percent (and 6 percent at the 95th percentile) losses in present value, which is still 15 percentage points below (21 percentage points for the estimate at the 95th percentile) the top-down approach using the less aggressive Current Policies scenario.

We believe the higher losses associated with the top-down approach are more credible given that the estimation of chronic risk-related losses includes a wider range of economic impacts. However, both approaches underestimate physical climate risk, as the damage functions fail to capture the losses associated with the systemic impacts of climate change, and neither consider the potential for adaptation measures to reduce the losses.

Case study: Research to incorporate nature into scenario analysis

While climate change significantly impacts natural resources and ecosystem services, these effects are generally not captured in traditional climate scenario models used in financial markets. Since 2023, we have supported research at the University of Minnesota to analyse how changes in global ecosystems under various climate scenarios affect different markets and industry sectors, and their implications for future resource availability and economic growth. We have explored an extreme scenario in which three ecosystem services - wild pollinators, timber provision, and marine fisheries - completely collapse by 2030. These ecosystem services are particularly relevant to forestry and agriculture, which directly underpins value creation at many companies in the basic materials sector.

The model projects that the direct effects of a collapse of the three ecosystem services could result in a 2 percent decline in global GDP (1.7 trillion dollars)[2]. Of this decline, 85 percent is attributable to productivity losses in timber production from forests. These losses mainly affect the fund's equity investments in the basic materials sector, which could decline in value by up to 30 percent by 2030. While the estimated direct effects on the fund's equity holdings overall is relatively modest, significant supply declines in forestry and agricultural commodities are likely to influence the fund indirectly through macroeconomic factors such as economic output, employment, and inflation, and potentially trigger disruptions in trade and cause political instability in certain regions.

We are currently expanding this model to include additional ecosystem services and more climate scenarios. This will provide a more complete understanding of the link between climate change, the natural environment, economic growth and productivity, and consequently, fund value.

[2] Johnson, J. A. et al. 2023. Investing in nature can improve equity and economic returns. Proceedings of the National Academy of Sciencwes of the United States of America.

The estimated impact on global economy and fund equities of three ecosystem services collapsing.

Scenario	Global economy	Fund equities
Ecosystem services collapse in 2030 • Crop pollination • Timber provision • Marine fisheries	Estimated global net GDP loss in 2030: ~ 2 percent, 1.7 trillion USD Of this, 85 percent is associated with productivity loss in forestry: ~1,4 trillion USD	Estimated fund equity loss in 2030 driven by productivity loss in forestry: ~ 4 percent, 57 billion USD This is associated with investments in Basic Materials sector which could see valuation loss of 28 percent

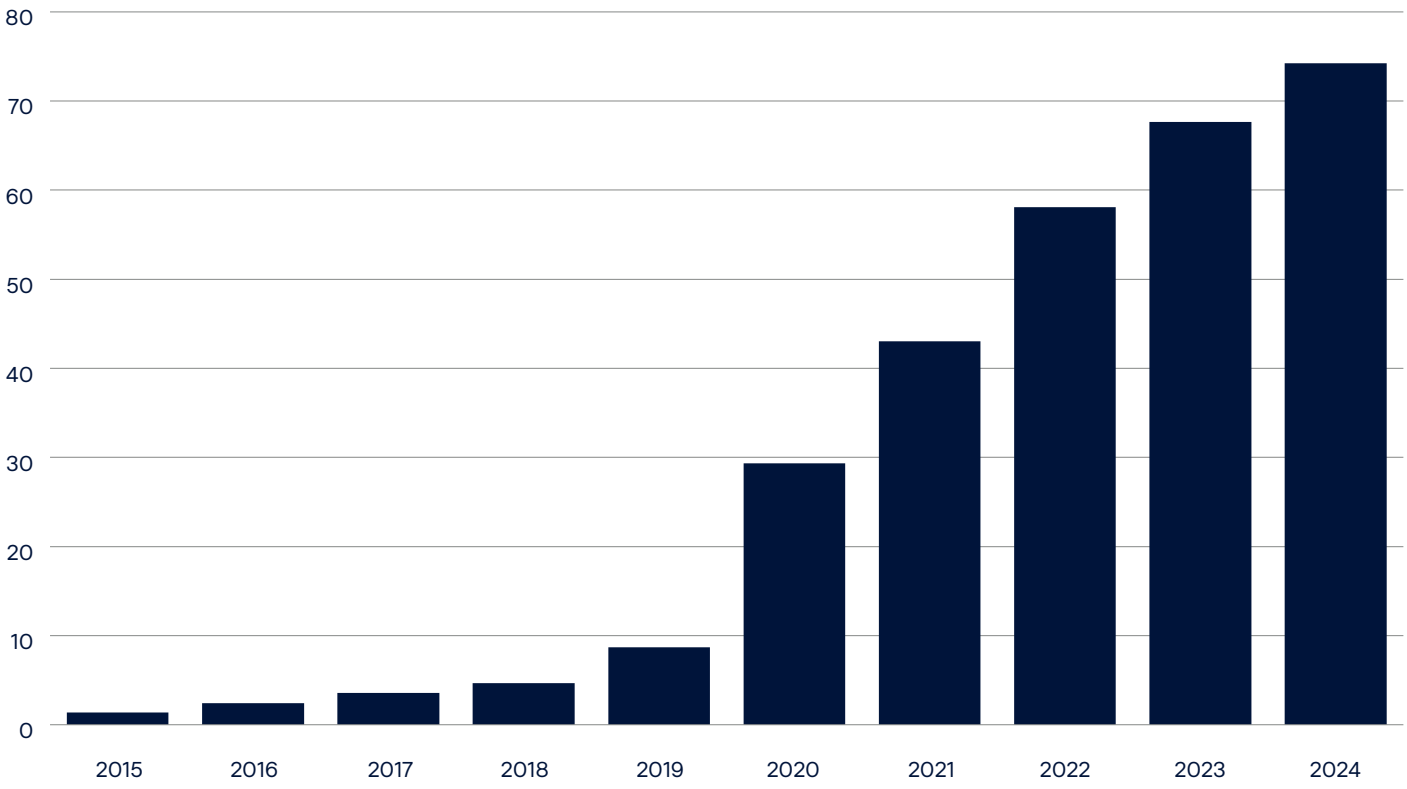
Corporate net zero targets

Corporate net zero targets indicate that companies have a strategy to reduce their emissions. The core of our ownership work is to support companies in setting science-based targets and transition plans. We track the number of companies in our portfolio with net zero targets for scope 1 and 2 emissions and try to evaluate the quality of these targets. One important forward-looking risk indicator is the share of the fund's financed emissions covered by net zero 2050 targets, as these emissions are presumed to pose less risk to the fund than unmanaged emissions.

At the end of 2024, 74 percent of the fund's financed scope 1 and 2 emissions were covered by net zero targets for 2050 or sooner, up 6 percentage points in 2023. Only science-based targets are counted in this analysis. Given the rapid development in both companies adopting net zero targets and recognised methodologies, these figures are subject to uncertainty. In 2023, the Science Based Targets initiative (SBTi) removed net zero targets from more than 200 portfolio companies (7 percent of financed emissions). After our own evaluation, we reinstated 151 of these companies, resulting in a 0.6 percent net percent reduction in covered emissions. Despite this, our overall coverage increased in 2024, mainly because companies with existing net zero targets now represent a larger share of financed emissions.

FIGURE 7

Percentage of financed emissions covered by corporate net zero 2050 targets. Sources: SBTi and MSCI ESG Research LLC for net zero targets S&P Global Trucost for scope 1 and 2 emissions.



Implied temperature rise

Implied temperature rise (ITR) is a forward-looking metric that measures the warming associated with a company's future emissions profile. It is calculated by taking a company's current emissions intensity and using its emission reduction targets to project its future emissions pathway and comparing this to a reference pathway estimated for the relevant country and sector. We then aggregate the results in each sector, and for the entire equity portfolio. A lower implied warming means lower climate transition risk. Each company's contribution to the implied temperature rise of the portfolio varies according to its current scope 1, 2 and 3 emissions, the ambition of its emission reduction targets, and the size of our investment.

In 2024, the estimated ITR was 2.52 °C for the equity portfolio and 2.41 °C for the equity benchmark index. In 2023, the equivalent reported values for the portfolio and benchmark were 1.94 °C, and 1.96 °C, respectively. Adjusted for methodological changes, revised 2023 ITR values for the equity portfolio would be 2.42 °C. The increase in ITR relative to reported values, was mainly driven by model updates, including target credibility assessment, updates to scope 2 and 3 decarbonisation pathways, and the adjustment of companies' available carbon budgets in a 1.5 °C scenario which allows deduction for already realised emissions. The top contributor is the technology sector, driven by a large number of companies lacking credible targets for reducing their emissions, especially scope 3 emissions, and updates to the ITR methodology. Work on emission pathways and sector allocations is at an early stage, and model updates are likely to continue to account for a significant share of changes in ITR from one year to the next.

TABLE 9

Portfolio ITR scope 1, 2 and 3. Source: MSCI. 31 December 2024.

Industry	Equity portfolio ITR (°C)	Benchmark index ITR (°C)
Basic materials	0.16	0.16
Consumer discretionary	0.40	0.40
Consumer staples	0.10	0.11
Energy	0.11	0.11
Financials	0.35	0.36
Health care	0.22	0.22
Industrials	0.36	0.36
Real estate	0.14	0.07
Technology	0.55	0.51
Telecommunications	0.06	0.05
Utilities	0.06	0.06
Total	**2.52**	**2.41**

Company nature impacts and dependencies

The activities of our portfolio companies can have significant impacts and dependencies on nature, exposing them to potential physical and transition-related risks. Building a comprehensive understanding of these dynamics, and how they translate into risks and opportunities for us as an investor, requires a diverse range of analytical tools.

In 2023, we mapped and disclosed the direct impacts and dependencies of key sectors we invest in, focusing on their reliance on ecosystem services and the natural resources they potentially affect. In 2024, we expanded this analysis to explore additional dimensions of nature risks: how different industries are exposed to indirect impacts and dependencies through their value chain, moving beyond sector and industry mapping to deepen our understanding of where our portfolio companies' interface with environmentally sensitive areas, and estimating the natural capital intensity of individual holdings.

- Evaluating sector-level impacts and dependencies across our portfolio underscores the critical reliance of many business activities on stable access to water resources and biodiverse ecosystems. Our analysis also sheds light on additional dimensions such as the significance of cultural ecosystem services for various sectors and the potential impact of invasive alien species, a key driver of global biodiversity loss. Through our value chain analysis, we identify key sectors that heavily impact and depend on natural capital via indirect links.
- Using geospatial data, we have mapped the intersections between our portfolio companies' operations and environmentally sensitive areas, pinpointing specific subsets of our holdings that are exposed to high-biodiversity regions or areas under significant water stress. This spatial analysis allows us to assess potential hotspots where local environmental context may amplify the impacts and dependencies of our investments.
- Estimating the natural capital intensity of individual holdings highlights land-use change, greenhouse gas emissions, and waste generation as critical impact drivers across our equity portfolio, with the healthcare sector emerging as a notable contributor to relative impact due to its estimated waste impacts.

These analyses are novel and come with limitations and caveats. However, they provide important insights into the emerging topic of nature risks for a broadly diversified portfolio and will help guide and prioritise our future risk management and ownership efforts. See data quality chapter for more information on the limitations of the analyses below.

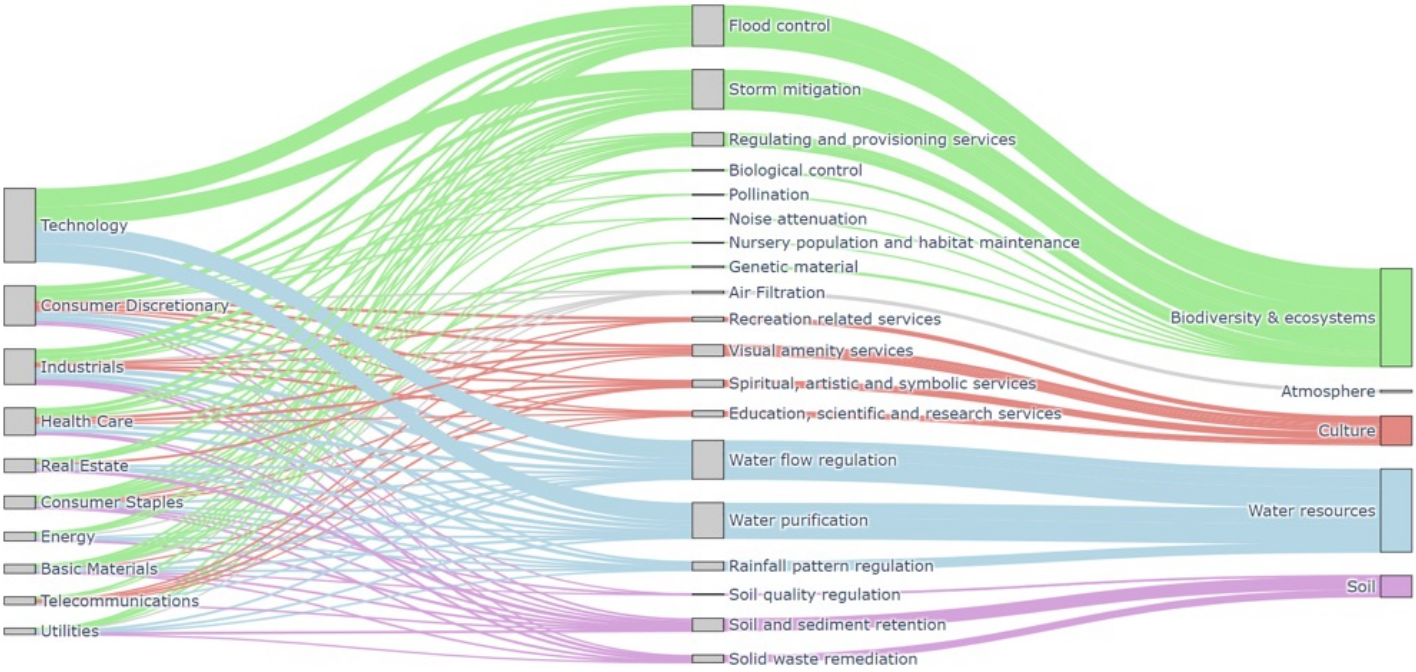
Sector-level direct and indirect impacts and dependencies

Mapping sector-level impacts and dependencies are an important step in deepening our understanding of potential sources of nature risks in our portfolio. These insights can be complemented by exploring estimates of

individual companies' natural capital intensity, focusing on the sectors that stand out as potentially having significant impacts and/or dependencies on nature.

The updates to the ENCORE tool in 2024[3] have enabled us to identify how different sectors in our equity portfolio depend on cultural ecosystem services, in addition to other ecosystem services. The largest sector in our equity portfolio, technology, depends heavily on water resources for central economic activities. Consumer staples is still the sector that depends on the widest range of ecosystem services in its direct operations. This is mainly due to economic activities related to food production. Economic activities within sectors such as consumer discretionary, basic materials, and industrials also rely heavily on ecosystem services and natural capital assets. Where these assets are degraded or lost, this can lead to financial consequences for companies in these sectors.

FIGURE 8
Sector dependencies on ecosystem services.



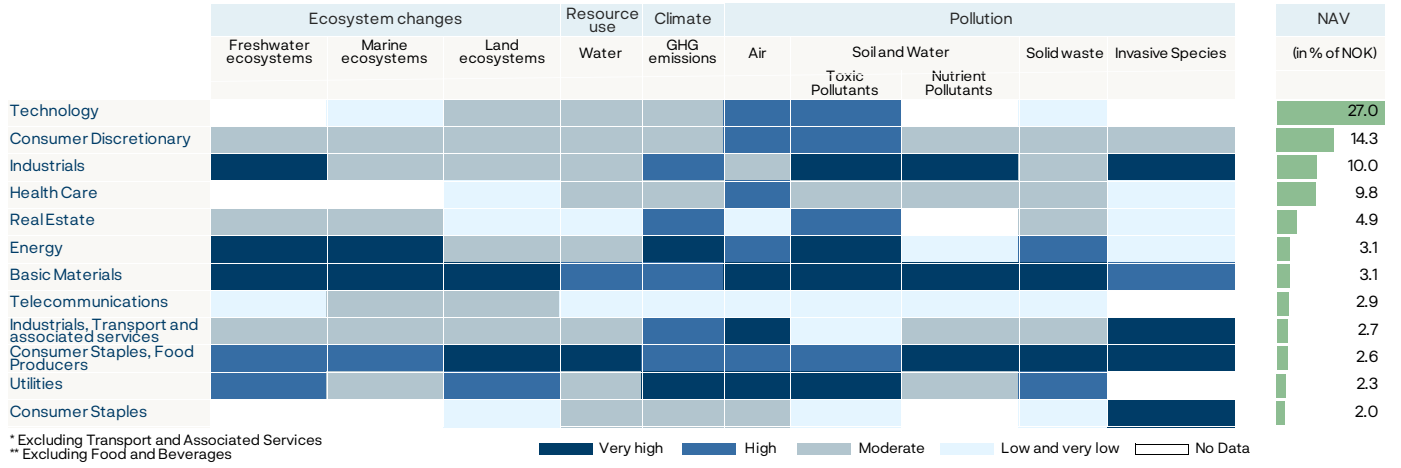
Source: ENCORE and internal calculations. Note: Chart only includes processes that depend moderately, highly or very highly on ecosystem services. The thickness of the lines represents the number of processes. Sectors are weighted by NAV. The financial sector is not included as the Sankey diagram only covers direct dependencies.

[3] ENCORE Partners (Global Canopy, UNEP FI, and UNEP-WCMC) (2024). ENCORE: Exploring Natural Capital Opportunities, Risks and Exposure. Accessed: September 2024, Cambridge, UK: ENCORE Partners. Available at: https://encorenature.org/en, DOI: https://doi.org/10.34892/dz3x-y059

The heatmap illustrates the equity portfolio's exposure to sectors with potential direct impacts on nature through their economic activities. The heatmap is based on materiality ratings of impact drivers from the ENCORE tool. Companies can cause changes to the state of nature through land or freshwater use, or by emitting pollutants to air, water, and soil. Basic materials, industrials, energy, utilities, and food producers have the highest materiality ratings across several impact drivers, including ecosystem changes and, emissions of pollution to air, water, and soil. These high-impact sectors comprise 21 percent of NAV. While technology and consumer discretionary are the largest sectors in our portfolio, accounting for approximately 41 percent of NAV, they generally have moderate materiality ratings. However, these sectors do exhibit high materiality in their impacts through air, soil, and water pollution.

In 2024 we also examined the contribution of our portfolio companies to the potential introduction and spread of invasive species, outlined as a significant driver of biodiversity loss globally. Companies in industrials, food producers, transportation, and consumer staples (17 percent of NAV) have a very high impact on the spread of invasive species.

Heatmap of impacts, sectors sorted by net asset value.



Source: ENCORE and internal calculations. Note: Heatmap illustrates the maximum materiality rating in each sector.

The sectors in our portfolio depend on and impact natural capital through their value chain links. By utilising new information on upstream value chain links in the ENCORE tool, we can identify the sectors that have potentially high indirect impacts and dependencies. The consumer staples sector has high materiality ratings for both impact drivers and dependencies through upstream links.

FIGURE 9
Impact and dependencies through upstream value chain links.

Climate and nature disclosures

Source: ENCORE and internal calculations. Note: Score is calculated as the mean of the materiality scores. The scores are indexed with technology as the reference sector. This means that the figure shows other sectors' scores relative to the technology sector. The figure shows tier 1 links. Plot sizes reflect industry NAV. As with direct impacts and dependencies the financial sector is excluded from the analysis.

Locating our equity portfolio's interface with nature

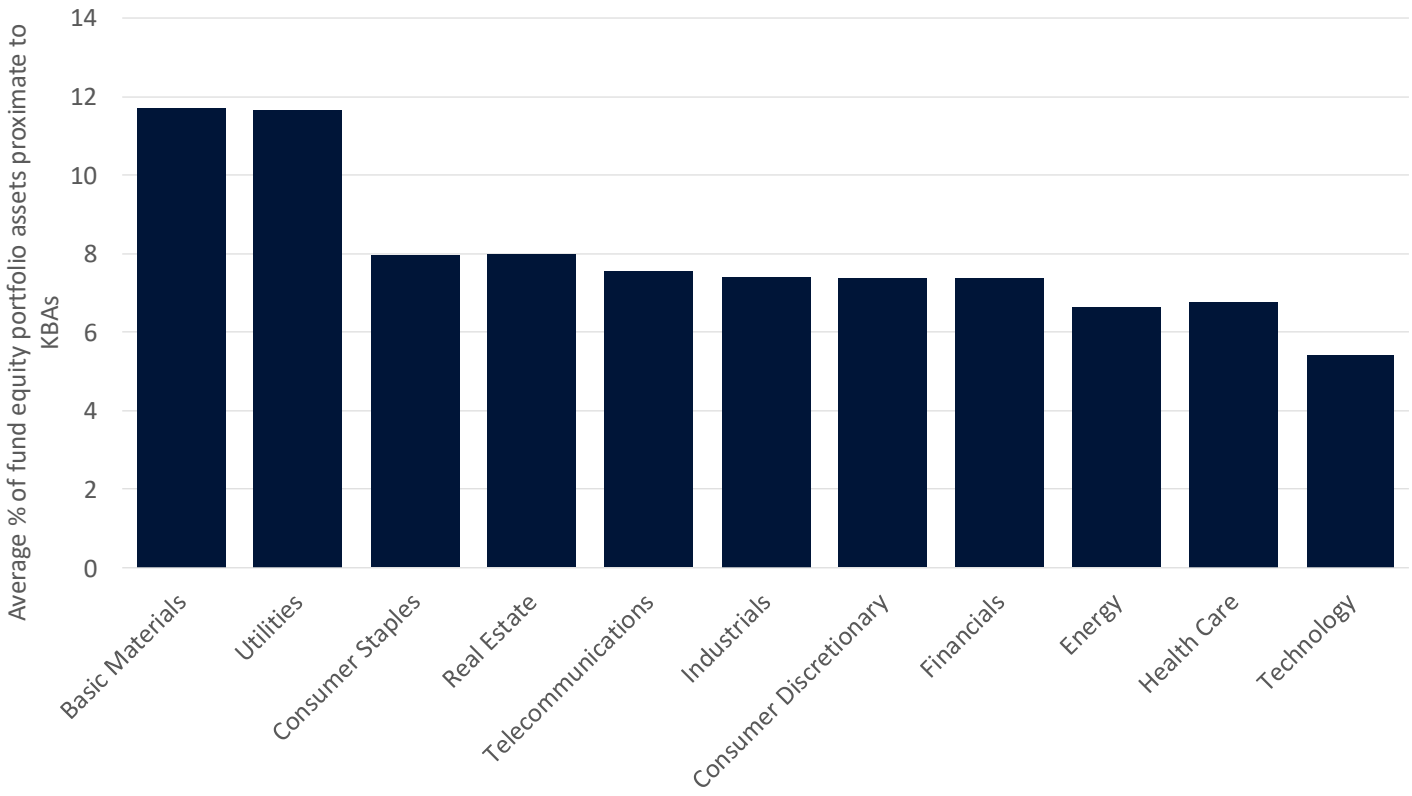
The nature-related impacts and dependencies of a broadly diversified portfolio vary not only by industry but also by location, requiring insight into companies' broader geographical footprints beyond their country of listing or incorporation. In our expectations, we ask companies to disclose information about the location of their physical assets and be transparent about sourcing from environmentally sensitive areas. As our portfolio companies adopt the TNFD toolkit and disclose more nature-related information, we anticipate deeper insights into their location-specific risks and impacts. In parallel with these enhancements in company-reported information, we have also started exploring geospatial asset data from third-party providers, to identify where our portfolio companies' intersect with sensitive locations.

To guide our analysis, we focused on the criteria outlined by the TNFD for defining environmentally sensitive locations. We examined where assets owned by the fund's portfolio companies' are proximate to key biodiversity areas (KBAs), as well as areas with high physical water

stress and/or demand[4]. KBAs, defined by the KBA Partnership of global conservation organisations, are sites that contribute significantly to the global persistence of biodiversity. They are identified based on rigorous scientific criteria, ensuring that they represent the most important areas for species and ecosystems. While KBA's do not capture all areas of high biodiversity value, they provide a globally consistent framework which enables meaningful comparison across our portfolio, allowing us to assess biodiversity impact in regions where formal protection may be lacking or inadequate.

Our portfolio exposure to KBAs by sector is based on the available data. The intersecting percentage is defined as the average share of a company's known assets proximate to sensitive locations.

FIGURE 10
Average percentage of company assets exposed to KBAs, by sector. Source: GIST Impact. 31 December 2024.



[4] Derived data at the portfolio level has been developed by GIST Impact using Protected Area, Key Biodiversity Area, and Species data licensed from the Integrated Biodiversity Assessment Tool (IBAT) (https://www.ibat-alliance.org/), provided by BirdLife International, Conservation International, IUCN, and UNEP-WCMC, to support the analysis presented in this report.

Geospatial exposure to very high water demand and stress – technology sector

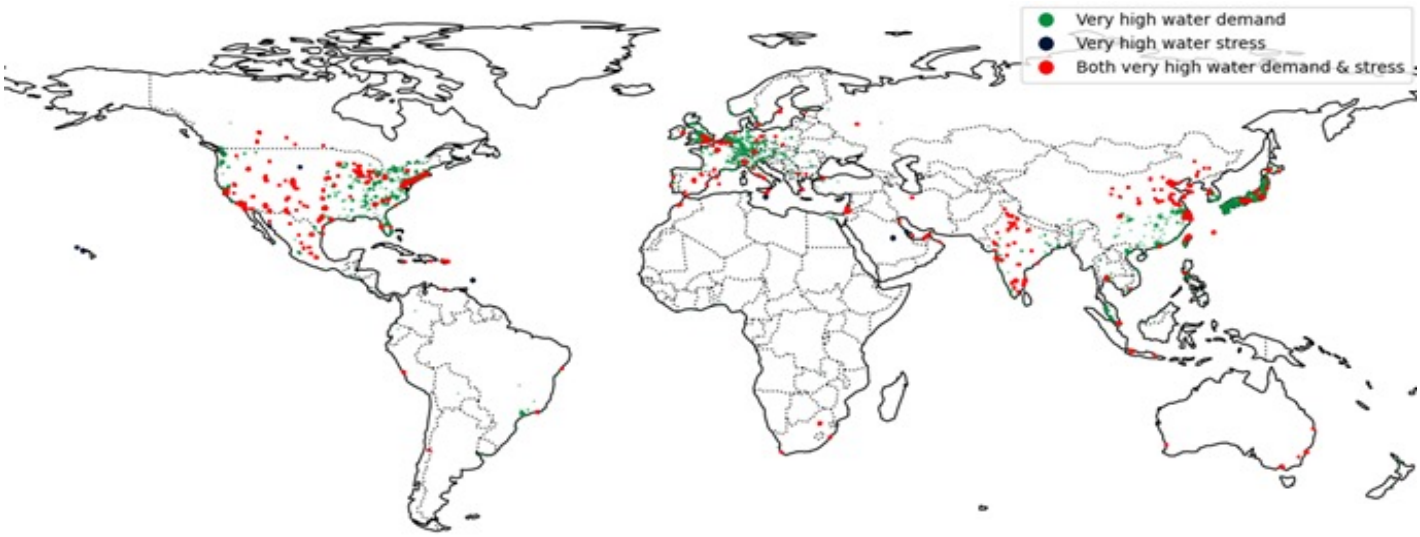
The technology sector makes up the largest percent share of the fund's portfolio by net asset value. It was also identified by the ENCORE analysis as having high potential dependencies and impacts on water resources.

We explore the technology sector's asset exposure (642 unique organisations with a total of 30,348 assests) to areas of very high water stress and demand. Water stress refers to the inability to access sufficient clean water for domestic and industrial activities. It arises when water demand exceeds available supply, preventing adequate water distribution to all users. This presents material risks as water shortages can significantly impact industrial operations and profitability. Water demand refers to the quantity of water required by different users (including households, industries, and ecosystems) to satisfy their needs.

Our geographic overview illustrates the technology sector's considerable asset exposure to both very high water demand and very high water stress across the United States, Europe, India, China, and Japan. The analysis considers company assets involved in transportation, construction, agriculture, manufacturing, production, and mineral exploration/extraction. This geographical overview helps us deepen our understanding of potential implications faced by companies due to water stress, such as increased operational costs, disruptions, regulatory challenges or conflicts with local communities over water use, and foster more informed and targeted dialogue on water management and stewardship of this critical resource.

FIGURE 11

Asset locations of the fund's portfolio companies in the technology sector exposed to very high-water demand and/or water stress. Source: GIST Impact. 31 December 2024.



Using the TNFD's guidance to integrate geospatial asset data with information about sector-specific dependencies and impacts deepens our understanding of nature risks in our equity portfolio. While this analysis provides valuable insights, it is important to acknowledge that it has limitations.

First, the data cover only a portion of our portfolio, and so may not capture some assets with significant environmental exposure. We will work with our data providers to expand coverage and monitor company disclosures on exposure to sensitive locations. Second, companies' interactions with natural resources and ecosystems are constantly evolving, limiting the accuracy of static datapoints. This highlights the need to continually refine our approach to nature-related risk assessment.

Third, data on ecosystem integrity and critical areas for ecosystem services remains limited. Our initial geospatial analysis has focused on areas of high biodiversity value or high physical water stress/demand, and we hope to broaden the scope over time to meet further criteria specified by the TNFD.

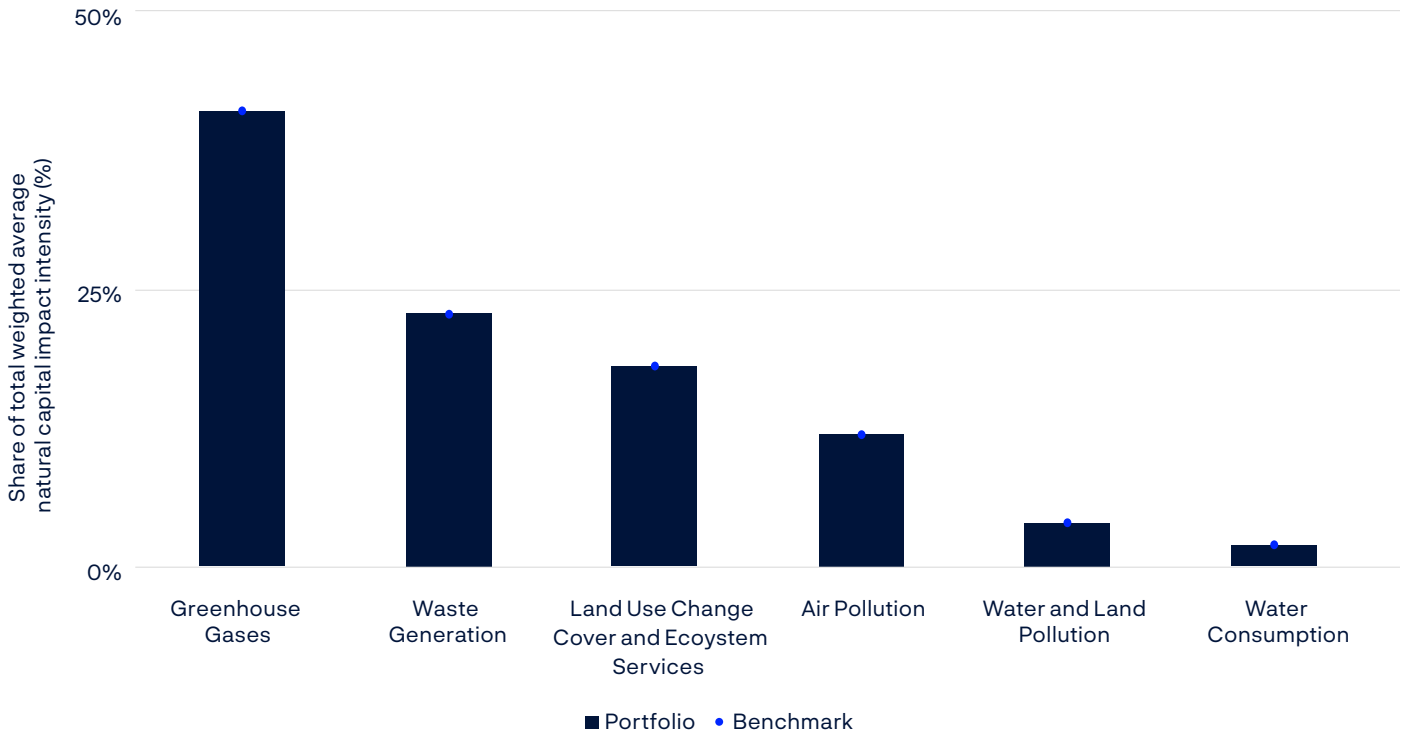
Evaluating companies' natural capital impact intensity

The ENCORE analysis provides insights into sector-level potential impacts and dependencies on nature, and the geospatial analysis highlights sensitive locations where these impacts and dependencies can be particularly pronounced. To further explore how these exposures can be estimated at company level, we also measure the natural capital impact intensity of our equity investments.[5] This metric indicates the share of corporate revenue streams that cause adverse effects on nature and society or rely on inputs from nature. In aggregate, it is a proxy measure for the fund's dependency on nature. It differentiates between six different impact drivers; greenhouse gas emissions, air pollution, water consumption, water and land pollution, waste generation and land use change.

We analyse the natural capital impact intensity (revenue-based) of the fund's equity investments and equity benchmark index. It disaggregates the total natural capital impacts into the underlying impact drivers. Impacts from greenhouse gases, waste generation and land use change and ecosystem services contribute the most to both the equity portfolio's and the benchmark's natural capital impact. A novel finding is that waste generation impacts are concentrated in the basic materials sector. Waste generation impacts primarily human health and climate change through increased air pollution, land and water pollution, and greenhouse gas emissions. Contributions to land use change and ecosystem impacts can be attributed primarily to companies in the consumer staples sector, which impacts land use and land cover change through practices associated with the food industry. The results for consumer staples and basic materials obtained through this analysis are consistent with the results presented above using ENCORE.

[5] Source: GIST Impact. 3 January 2025. Disclaimer: Neither GIST Impact nor any other party involved in or related to compiling, computing or creating the GIST Impact data makes any express or implied warranties or representations with respect to such data (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of such data. Without limiting any of the foregoing, in no event shall GIST Impact, any of its affiliates or any third party involved in or related to compiling, computing or creating the data have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages. No further distribution or dissemination of the GIST Impact data is permitted without GIST Impact's express written consent.

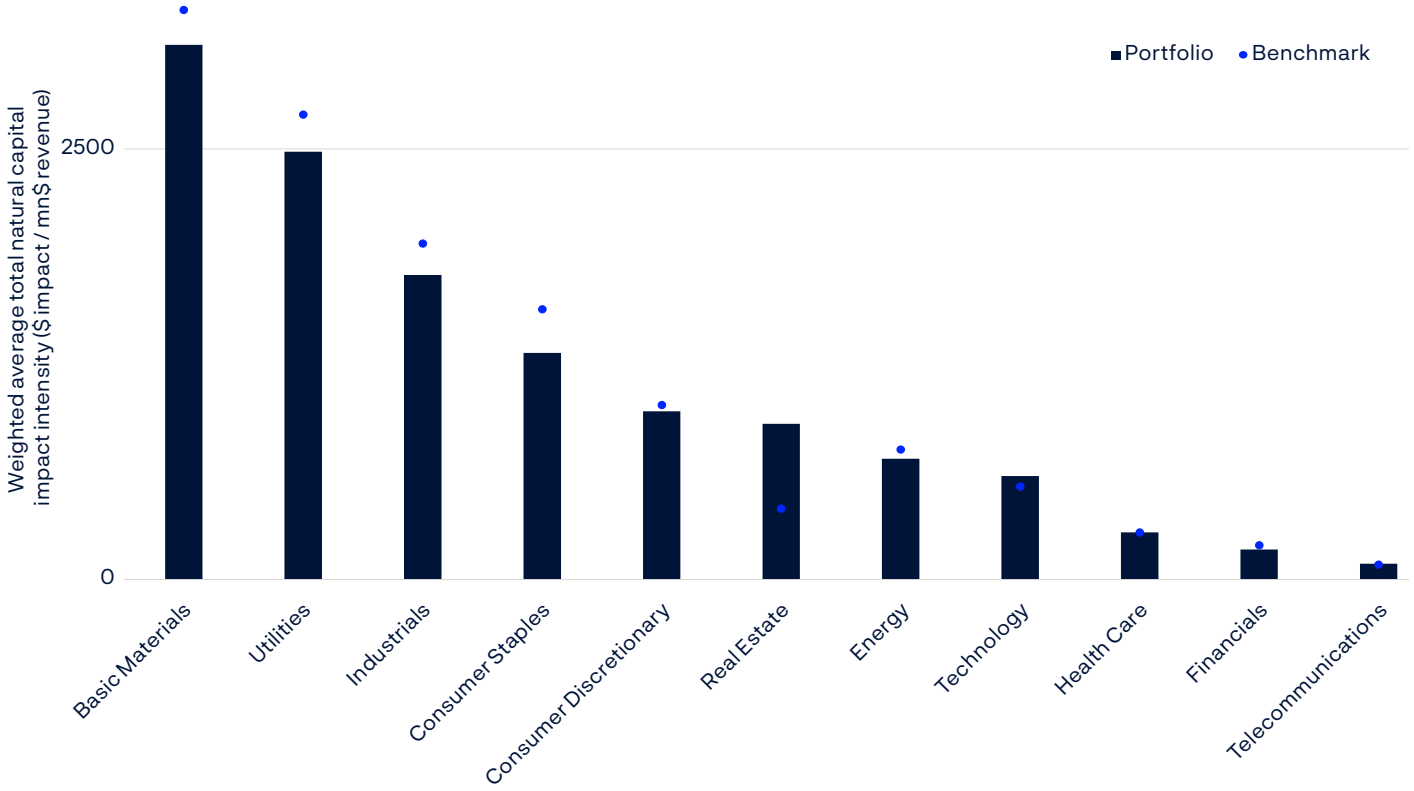
FIGURE 12
Share of total weighted average natural capital impact intensity by key impact driver, equity portfolio and benchmark index. Source: GIST Impact. 31 December 2024.



As shown, most impact intensive companies are concentrated in the basic materials, utilities and industrials sector for their greenhouse gas impacts, while consumer staples also emerges in the context of land use change impacts. This result should be viewed in the light of the uncertainty around data quality as described in the section Data quality and coverage. The high uptake in public disclosure of greenhouse gas impacts by companies in heavy industrial sectors relative to other sectors in our portfolio could indicate that other sectors' impacts are underestimated.

The equity portfolio's weighted average natural capital impact intensity is 12,000 dollars per million dollars of revenue, which is 3 percent lower than the benchmark index. This is primarily due to risk-based divestments, and lower relative exposure to impacts of waste generation and greenhouse gas associated with selected investment in the basic materials and utilities sectors. On average, hazardous waste has significantly higher societal costs associated with end disposal (such as health-related impacts) than non-hazardous waste. This type of waste is concentrated in the basic materials and health care sector due to the generation and disposal requirements of biochemical waste. Paradoxically, the higher quality of disclosure of waste management practices means that these companies are generally assigned higher costs for their waste management practices than companies in sectors with less disclosure.

FIGURE 13
Weighted average natural capital impact intensity by sector, equity portfolio and benchmark index. Source: GIST Impact. 31 December 2024.



Our actions

Climate and nature disclosures

We use complementary tools to address climate and nature risks that affect the companies in the fund's portfolio, and the fund's other assets[1]. At the market level, we engage with standard setters for improved climate disclosures and support academic research to increase our knowledge on sustainability risks. At the portfolio level, we have frameworks to integrate sustainability and governance considerations into investment decisions and divest from companies based on our sustainability risk assessments. At the company level, we engage with portfolio companies and exercise our voting rights at shareholder meetings.

[1] Note that these disclosures contain a dedicated section on real assets.

Overview of our actions.

See the Governance section on the decision-making process for ethical exclusions.

Market level

Engaging standard setters for improved practices and standards

We engage with standard setters to improve standards for climate and nature risk management, and we advocate for mandatory climate-related corporate disclosures.

- We called for the regulatory adoption of the IFRS S2 Climate Standard. We have engaged on this topic in 11 jurisdictions, including submitting 15 consultation responses.
- We contributed to the Adaptation Working Group of the UK Transition Plan Taskforce, and to the development of GHG accounting standards in the financial sector as a member of the Partnership for Carbon Accounting Financials (PCAF).
- As a member of the Taskforce for Nature-related Financial Disclosures (TNFD), we participated in the Financial Institutions and Transition Planning working groups, and contributed to its wider work on market adoption, capacity building and data needs.

We support the development of tools for measuring decarbonization in real estate markets.

- We helped fund the development of the Carbon Risk Real Estate Monitor (CRREM) in 2019 to support benchmarking the carbon performance of real estate assets against net zero-aligned decarbonisation pathways. In 2024, we helped CRREM transition into a new independent legal entity, joined its board and supported the development of more granular US decarbonization pathways.
- We published a white paper on how to unlock the low-carbon real estate market with Leaders of the Urban Future (LOTUF) and co-hosted a summit at one of our assets in Berlin.

Supporting research on climate and nature

We aim to strengthen the scientific foundation of our responsible investment management. Our research strategy has two pillars. We give financial support to academic initiatives where we deem that our research funding will help stimulate research on questions of direct relevance to the fund. We also occasionally enter collaborative research projects with academics where we contribute expertise and data. This helps produce relevant research findings and, at the same time, helps us to learn from academics and build our internal research capabilities. In 2024, we continued funding for one research project, awarded funding to three new research projects and began one collaborative research study.

We also launched a Call for Proposals on Climate Finance, highlighting three key areas where we believe more and rigorous academic research is necessary: Interactions between climate, nature, and financial risk: climate transition and geopolitics; and climate action and its effectiveness. Based on the evaluation by Norges Bank's Scientific Advisory Board, we decided

to fund three projects. See our Responsible Investment Report 2024 for more information on the projects funded and our research collaboration on corporate perceptions of nature risk.

Climate and nature disclosures

Portfolio level

Investment integration

In 2024, we merged our Renewable Energy Infrastructure and Energy Equities teams into one department to strengthen our ability to support portfolio companies in their transition and capitalise on financial opportunities across listed and unlisted investments. This combined team serves as an energy transition knowledge hub, collaborating with portfolio managers and sustainability experts across the organisation. Our integrated approach ensures that material climate and nature considerations inform investment decisions while leveraging insights from our active ownership and risk analysis work.

We make a broad array of company-specific governance and sustainability information available to the organisation in our research and portfolio management systems. We continuously develop these tools and made several new features available during 2024:

- We added a regulatory monitoring feature that allows portfolio managers and others in the organisation to review climate policy developments that are relevant for a specific company and sector.
- We enhanced our internal country-sector model for analysing governance and sustainability risk across companies based on the markets and sectors they operate in.
- We expanded our climate performance feature by adding information on companies' carbon emissions performance relative to peers, and the ambition and quality of their net zero targets.

Risk-based divestments

We may divest from companies with high exposure to climate and nature risks as a result of their business models and management practices. The divestment decisions of companies that improve their practices may be reversed. In 2024, we reviewed a set of risk-based divestments in extractive industries and industrials exposed to the transition to a low-carbon economy (see case study). In addition, we reassessed risk-based divestments linked to unsustainable business models in the forest commodity sectors. As part of this latter review, we reversed the divestments of a company that had reduced its adverse impacts on deforestation and strengthened the external certification of its production of forest commodity products.

TABLE 10

Climate and nature-related risk-based divestments in 2024.

Topic	Criteria	Divestments	Reversed divestments
Climate change	Elevated risk related to high greenhouse gas emissions, including coal mining and coal-based electricity generation	5	3
Water management	Insufficient risk management related to water use	3	4
Biodiversity and ecosystems	Exposure to markets associated with degradation of biodiversity and ecosystems	2	1*
Total		**10**	**8**

Case study: Reversing divestments and the energy transition
When we reverse a risk-based divestment, the company becomes investable for our investment managers. These are financially motivated, operational management decisions.

In 2014-2015, we divested from three companies in the industrials sector in an emerging market that emitted significantly more greenhouse gases than their peers in the same sector. At the time, they were not disclosing their emissions, they had not set targets to reduce them, and they had not invested significant capital in technologies and processes to reduce the emission-intensity of their industrial production. In 2024, we reversed the divestment decisions. We found that the three companies had started disclosing their emissions, had set net zero emission targets and plans, and had lower greenhouse gas emissions per unit of production than their peers. Overall, they had taken important steps in line with our climate expectations to be competitive in a low-carbon economy.

In 2015–2016, we divested from four mining companies that owned and operated mines in the Asia Pacific region. The companies had been involved in separate incidents of what we consider inadequate water management, and had not disclosed information about their water management policies, plans, or practices. They also experienced frequent conflicts with local communities over access to land, environmental pollution, and the health and safety of workers.

In 2024, the four companies were included in a broader re-assessment of divested mining companies. We observed that the companies had improved their water management and had been involved in fewer conflicts with communities. Some had also invested in minerals that are critical to the global energy transition. Reversing divestment decisions in companies like these, that are transitioning their business models to a low-carbon economy, expands opportunities for the fund to invest in, and generate value from, the global energy transition.

Company level

A core pillar of our responsible investment strategy is to be an active and responsible owner of companies, support value creation and reduce risks associated with environmental practices and climate change. We engage with companies on how they integrate climate and nature-related considerations into their governance, strategy and reporting. We vote at shareholder meetings and use our voting rights as an escalation mechanism to hold boards to account for their decisions, including significant impacts on the environment.

Climate Engagements

We engaged with 480 companies on climate-related topics in 2024, representing 54 percent of the fund's financed emissions and 32 percent of our equity portfolio's market value. Of these, 141 companies were engaged in specific net zero dialogues, accounting for 46 percent of financed emissions.

FIGURE 14

Number of objectives and progress status in percent for our net zero dialogues at the end of 2024.

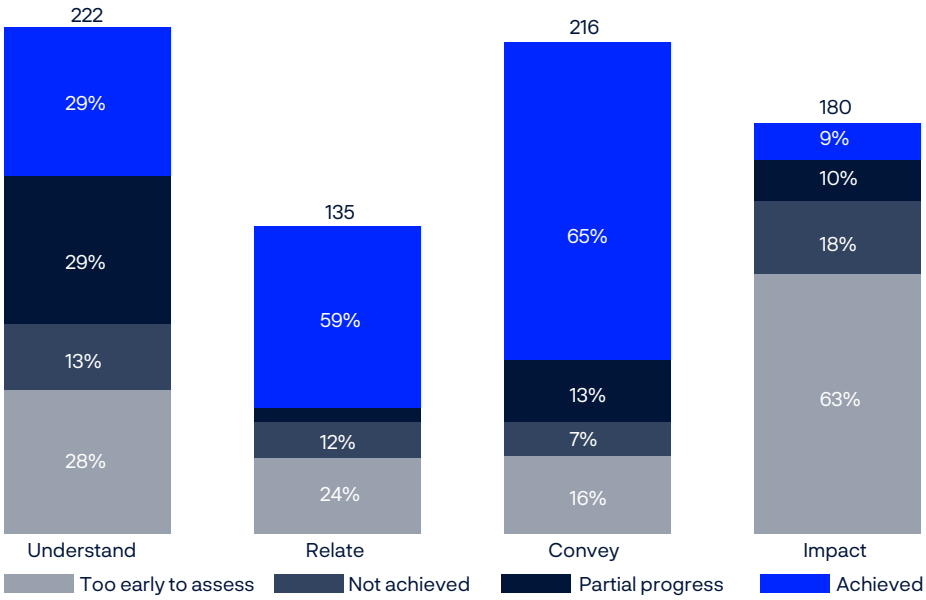


TABLE 11

Overview of our net zero dialogues in 2024.

Status	Sector	Number of companies	Share of financed emissions	Main objective	Examples of specific objectives
Ongoing	Oil and gas companies	29	19.6%	Engage with large integrated, midstream and refinery oil and gas companies. Focus on decarbonisation of companies' operational emissions and associated capital expenditure, while communicating expectations also on scope 3 emissions.	Understand: role of downstream business segment in 2035 scope 1 and 2 target. Impact: company to set an emission reduction target. Impact: company to publish detailed transition plan with relative importance of levers to reach interim targets.
Ongoing	Banks	18	0.1%	Engage with the largest global financial institutions. Focus on targets for financed emissions, disclosure of transition plans to reach them, and opportunities in sustainable finance.	Understand: high-level actions to reach 2030 targets across business. Understand: scope and implications of client assessments. Impact: company to publish a detailed transition plan with quantified levers for all targets published in 2021.
Ongoing	Transportation	25	2.9%	Engage with companies transporting goods or passengers via air, rail or sea. Focus on emission reduction targets, alternative fuels, advance market commitments and customer demand.	Understand: cost of retrofitting ships for alternative fuels. Convey: our view on the role of offsets in achieving climate targets. Impact: company to set blend-target for use of sustainable aviation fuels.

Status	Sector	Number of companies	Share of financed emissions	Main objective	Examples of specific objectives
Ongoing	Consumer and telecoms companies	12	1.6%	Engage with consumer and telecoms companies that are high contributors to the fund's carbon footprint. Focus in particular on scope 3 measurement and reduction for material categories, including no-deforestation and no-conversion targets.	Understand: plans to measure and reduce land related emissions. Convey: express support for company decarbonisation ambition. Impact: company to include scope 3 emissions in climate targets.
Ongoing	Metals and mining	25	9.3%	Engage with diversified metals and mining companies. Focus on transition plans, reduction of operational emissions in the interim timeframe, and technology pathways for low-carbon steel.	Understand: company's operational decarbonisation levers. Impact: company to publish transition plan towards 2030 targets. Impact: company to set a scope 3 target.
Ongoing	Electric utilities	34	10.4%	Engage with electricity, gas and multi-utilities on their emission reduction targets, transition plans and carbon performance.	Understand: company's assessment of climate related risks and opportunities. Convey: Norges Bank Investment Management's view on responsible cor-porate policy engagement. Impact: strengthen interim emission reduction target.
Ongoing	Technology companies	13	2.8%	Engage high-emitting technology companies on interim and net zero targets and accompanying transition plans. Further engage technology enablers to understand and encourage their role in accelerating the decarbonisation of customers or the use of a low carbon technology.	Understand: new/strengthened scope 2 target. Understand: impact of US CHIPS and Science Act on climate targets. Impact: company to set a scope 3 emissi-on reduction target.
Started 2024	Pulp and paper	15	1.3%	Engage with high-emitting portfolio companies in the pulp and paper industry on net zero targets, transition plans and performance. The engagement emphasises companies' plans to achieve net zero by 2050 or sooner, and also focuses on relevant nature-related considerations in their transition plans.	Understand: priorities, best practice and challenges for transition plans incorpora-ting both nature and climate. Convey: share NBIM's expectations related to nature reporting to encourage TNFD adoption. Impact: company to set net zero 2050 target.
Started 2024	Building materials	19	8.9%	Engage with companies in the building materials sector on their approach to decarbonisation, with a particular focus on cement companies , as these are par-ticularly carbon-intensive.	Understand: near-term decarbonization levers, with a focus on currently available technologies. Understand: how companies drive demand for low-carbon products. Impact: company to publish time-bound, quantified transition plans.
Started 2024	Insurance companies	3	0%	Engage with insurance companies to inform our views on insurance associa-ted emissions and encourage action in closing the insurance protection.	Understand: risk pooling in face of increasing natural disasters Understand: opportunities in climate adaptation and considerations in insurance-associated emissions Relate: build relationship with company on sustainability matters.
Ongoing	Autos	15	0.5%	Engage with large automobile producers on their electrification strategies and emission reduction targets. The initial focus is on emission reductions in the upstream supply chain.	Understand: key levers to decarbonise, with a focus on their upstream supply chain. Relate: strengthen climate-focused dia-logue. Convey: Our view on responsible cor-po-rate policy engagement.
Ongoing	Chemicals	20	3.9%	Engage with diversified and specialty chemicals producers, and fertiliser companies. Focus on technologies to decarbonise own operations, bio-based feedstocks, circular solutions and strategic customer relationships.	Understand: progress on blue and green hydrogen projects. Convey: updated expectations on climate change. Impact: company to increase disclosures on how they intend to reach targets.

Nature engagements

Nature-related issues feature in our company engagements through both regular dialogue and targeted thematic dialogues. In 2024, we hosted a workshop at our Singapore offices on financing the transition to resilient agri-food systems. Companies across the value chain and financial institutions gathered to share insights on value chain dynamics and best practices for sustainable production.

We conducted five thematic sector dialogues focused on biodiversity, ocean sustainability, and water management during the year, encompassing a total of 54 portfolio companies. Our total nature-related engagements reached 195 companies, representing 10 percent of our equity portfolio's market value.

FIGURE 15

Number of nature-related meetings with portfolio companies by topic in 2024.

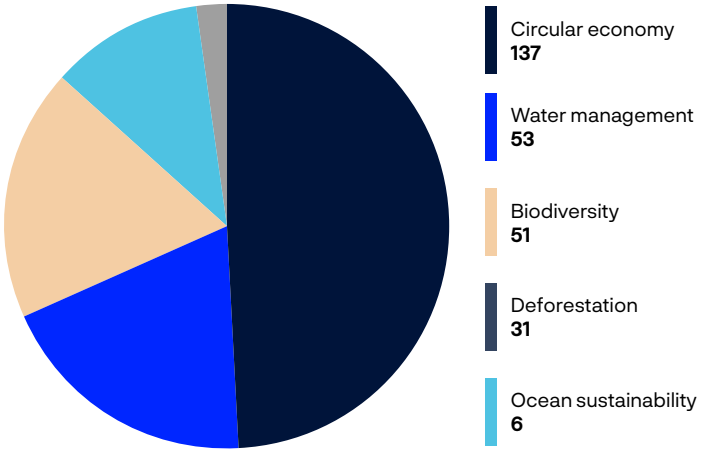


FIGURE 16

Number of objectives and progress status in percent for our nature dialogues at the end of 2024.

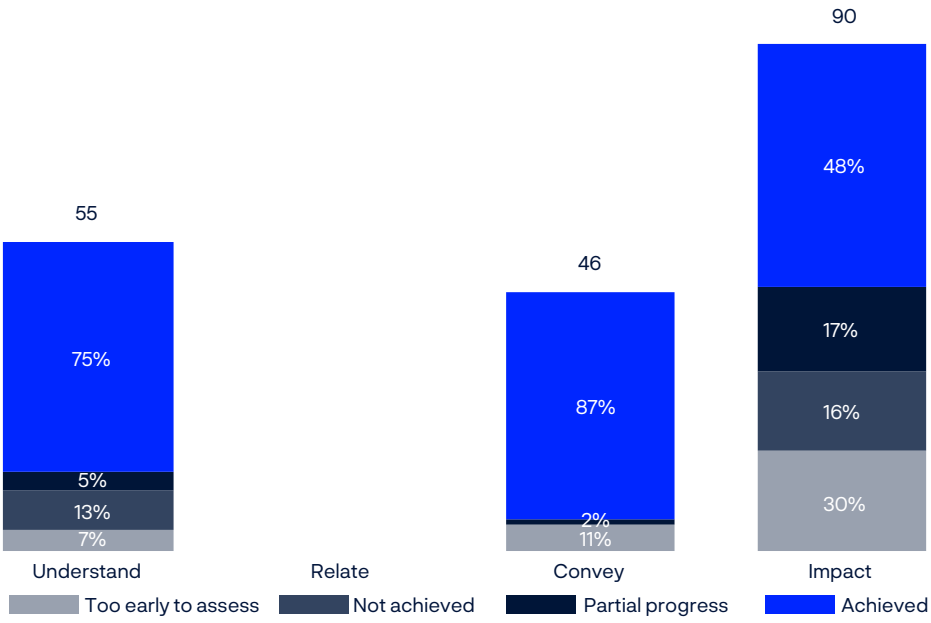


TABLE 12
Overview of our nature dialogues in 2024.

Status	Title of engagement	Number of companies	Objective
Concluded	Mining in sensitive areas	11	Engage mining companies exposed to areas with high biodiversity value or indigenous peoples' territories: • Convey our expectations on biodiversity and ecosystems, including on stakeholder engagement and on free, prior and informed consent. • Understand better the sustainability-related risks and opportunities faced by mining companies. • Encourage the companies to manage and disclose how they approach these risks and opportunities.
Concluded	Environmental risks and opportunities in global food systems	13	Engage food-producing companies to understand the physical and transition risks they face as a result of their dependencies and impacts on the natural environment. Encourage companies to manage and disclose how they ap-proach these risks and opportunities, with a focus on implementation of more sustainable agricultural practices in their operations and supply chains.
Concluded	Forest risk commodities in consumer goods	12	Engage companies purchasing commodities linked to deforestation. Encourage them to implement best practices in their management of deforestation and ecosystem conversion risk in these value chains. Areas of focus include no-deforestation and no-conversion policies, use of internationally recognised certification schemes, implementation of traceability measures, and programmes to engage with suppliers and stakeholders.
Concluded	Water utilities dialogue	3	Engage with UK water utilities to understand their exposures and management of key environmental risks. Areas of focus included water pollution, leakage, environmental impacts, long-term resilience of the networks and water supply, and expected effects of changes to the regulatory regime.
Concluded	Sustainable fisheries	14	Engage with companies in the fisheries value chain, including both upstream and downstream actors, to understand their approach to sustainability. The dialogue has a specific focus on transparency and traceability to increase understanding of how companies manage the risk of overfishing.

To enhance companies' management of material nature-related risks, we sent letters to companies that, in our assessment, had inadequate disclosures on biodiversity and water management. The companies were selected based on their exposure to nature-sensitive locations and our proprietary expectation scores. The letters outlined our expectations and encouraged the companies to assess their impacts and dependencies on nature, and to enhance their disclosures.

Voting

Board accountability

We hold boards accountable to account for overseeing material sustainability risks and may vote against directors if we find material failures in oversight, risk management or disclosure of environmental, social or climate risks. Before doing so we generally seek to engage with the company to better understand their practices.

In 2024, we voted against 96 directors at 25 companies (23 for climate, two for nature) out of 76 companies identified as having inadequate nature or climate risk management.

Shareholder proposals

In 2024, we supported 33 percent of 114 climate change proposals and 27 percent of 51 nature proposals. We assess all proposals in detail, and vote according to a framework that considers whether:

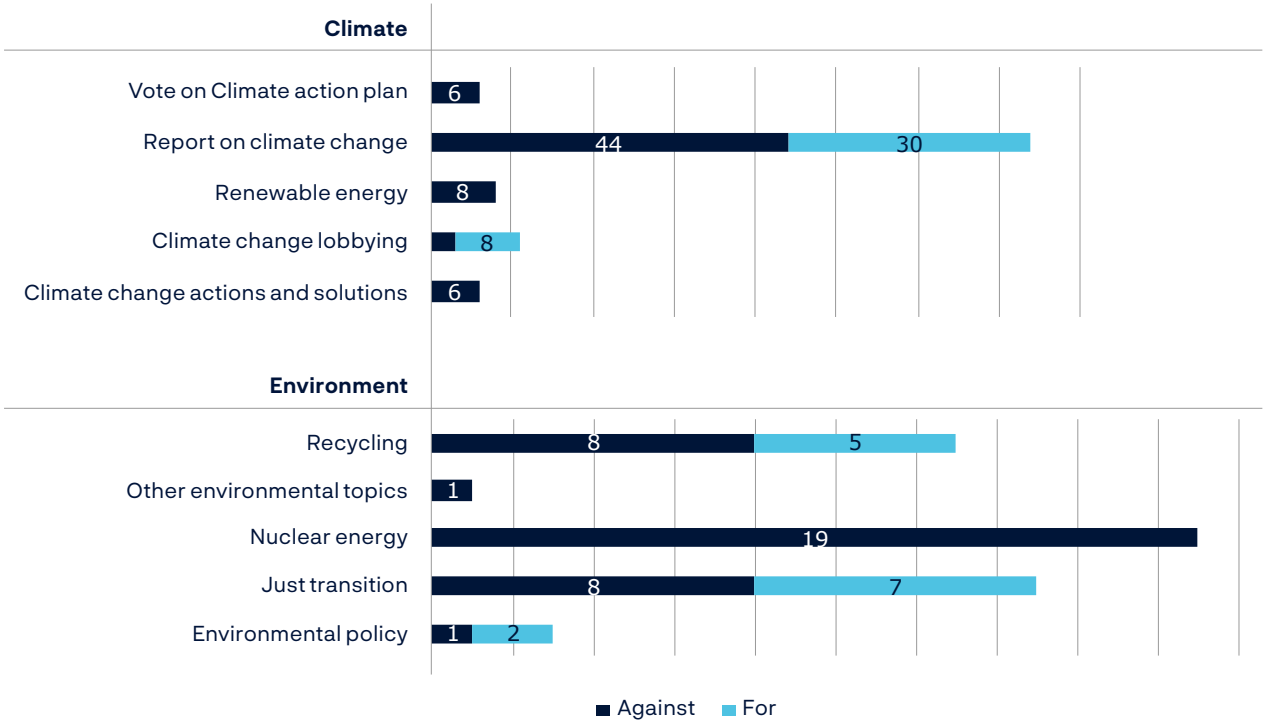
- the topic is important enough (i.e. material).
- the topic entails micromanaging the company (i.e. prescriptive).
- the company is already doing enough (i.e. not appropriate).

We opposed many overly prescriptive proposals, such as those demanding articles of association amendments for renewable energy production or annual climate plan votes.

We also filed three climate-related shareholder proposals in the US. We withdrew two after constructive dialogue with the companies. We proceeded with the shareholder proposal at Kinder Morgan Inc. The proposal received approximately 31 percent support from the investor base. Members of the company's management and board, who have a significant holding of 12.6 percent, did not recommend support for the proposal. In a meeting with management following the annual meeting, the company committed to paying attention to climate-related risks.

FIGURE 17

Our vote decisions on shareholder proposals 2024.



'Say-on-climate' proposals

Many companies ask their shareholders to approve their climate plans, typically, through non-binding and advisory votes, every three years, with annual progress reports in between.

Standards for what climate transition plans should contain are still evolving, but the field has settled somewhat over the last few years. Our assessment of 'say-on-climate' proposals is guided by our expectations on climate change . We place particular emphasis on our core expectations, and the chapter on transition plans. We conduct more detailed evaluations for companies on our climate focus list, where climate risks are heightened and our net zero dialogues inform our voting decisions.

'Say-on-climate' votes emerged in 2020 and 2021, with several major companies putting their strategies up for vote. 2023/2024 therefore marked the first renewal cycle for many companies' climate strategies. In line with our updated expectations, we may not support all plans in this cycle that we previously endorsed. In 2024, we withheld our support from two out of 28 proposals.

Ethical exclusions

In 2024, Norges Bank excluded four companies under the environmental criterion, bringing the total number of companies excluded under this criterion to 28.

Norges Bank did not exclude any further companies under the conduct-based climate criterion in 2024. No new companies were excluded or placed under observation under the product-based coal criterion, but the exclusion of six companies and observation of two companies was reversed.

Outlook

Climate and nature risks remain urgent challenges to the long-term financial performance of the fund. The fund's risks are inherently tied to the development of nature and climate risks themselves, and their implications for long- term growth. Measuring and, to the extent possible, managing our exposure to these risks will continue to be a priority.

Our analyses in 2024 deepened our understanding of these interconnected issues. Climate scenario analysis indicates higher potential financial impacts than previously estimated, while our geospatial assessments reveal significant portfolio exposure to sensitive ecosystems and water stress. There remains a need for improved models and analyses to more accurately estimate the effect of climate and nature risk on asset prices and better address them with our risk management tools. We look forward to the results of newly funded research projects on Climate Finance to enhance our understanding of the interplay between climate and nature risks.

As more corporate environmental data become available through increased reporting and more aligned requirements, AI will help us extract and analyse these data more efficiently. This will enable us to assess companies' actual performance in reducing emissions and managing nature risks, including those arising in value chains and in particular locations, in addition to evaluating their disclosure and management practices. Our aim with these improvements is to strengthen the effectiveness of our ownership work and provide more nuanced investment insights.

Our 2025 Climate action plan will be reviewed during 2025. Based on this review we expect to present an updated plan with further direction to 2030.

Index

Reference to TCFD requirements

Core elements	Recommended disclosures	Description	Section
Governance	Board oversight	Board's oversight of climate risks and opportunities	Board oversight
		Process and frequency of board information on climate issues	Board oversight
	Management's role	Management's role in assessing and managing climate risks	Role of management
		Integration of climate considerations into executive decisions	Progress on 2025 Climate action plan
Strategy	Climate-related risks and opportunities	Short, medium, and long-term climate risks identified	Risk identification and assessment
		Strategic planning implications	Progress on 2025 Climate action plan
	Impact on organization	Impact on business operations and financial planning	Climate scenario analysis
		Capital allocation considerations	Strategy
	Resilience of strategy	Analysis of strategy against different climate scenarios	Climate scenario analysis
		Assessment of strategic resilience	The resilience of our strategy
Risk management	Risk identification	Processes for identifying climate risks	Risk monitoring processes
	Risk management	Processes for managing identified climate risks	Risk monitoring processes
		Adaptation planning and implementation	Strategy
	Integration	Integration into overall risk management	Addressing climate risks and opportunities
Metrics and targets	Climate-related metrics	Metrics used to assess climate risks and opportunities	At a glance
		Key performance indicators	At a glance
	GHG emissions	Scope 1 emissions data and methodology	Addressing climate risks and opportunities
		Scope 2 and 3 emissions data	Addressing climate risks and opportunities
	Targets	Climate goals and targets	Our actions - Company level
		Progress against targets	Progress on 2025 Climate action plan
Additional resources	Supporting documentation	Climate change policy	Progress on 2025 Climate action plan
		Environmental management system	Addressing climate risks and opportunities
		Stakeholder engagement	Stakeholder engagement
		External assurance	At a glance

Reference to TNFD disclosure recommendations

Theme	Recommended disclosure	Report section
Governance	A. Board oversight	Governance: Board oversight
	B. Management's role	Governance: Role of management
	C. Stakeholder engagement	Governance: Stakeholder engagement
Strategy	A. Dependencies, impacts, risks and opportunities	Strategy: Integrating climate and nature
	B. Impact on organisation	Strategy: Integrating climate and nature
	C. Strategy resilience	Strategy: The resilience of our strategy; Risk identification and assessment: Climate scenario analysis (case study: Research to incorporate nature into scenario analysis)
	D. Priority location assessment	Risk identification and assessment: Locating our equity portfolio's interface with nature
Risk and impact management	A. Assessment processes	Risk identification and assessment: Risk monitoring pro-cesses, Sector-level direct and indirect impacts and dependencies, Locating our equity portfolio's interface with nature
	B. Management processes	Risk identification and assessment: Risk monitoring pro-cesses
	C. Integration with risk man-agement	Risk identification and assessment: Risk monitoring pro-cesses
Metrics and targets	A. Risk assessment metrics	Risk identification and assessment: Risk monitoring processes, Evaluating companies' natural capital impact intensity
	B. Impact metrics	Risk identification and assessment: Sector-level direct and indirect impacts and dependencies
	C. Targets & goals	Strategy: Progress on 2025 Climate action plan; Our actions: Market level, Portfolio level, Company level

TNFD General requirement	Comment	Report section
A. Application of materiality	Our returns over time depend on sustainable economic, environmental and social development, as well as well-functioning, legitimate and efficient markets. Many environmental and social impacts may become financially material over time, given the fund's long investment horizon and broad diversification. The ethical guidelines for the fund also specify that it must not be invested in companies whose products or conduct violate fundamental ethical norms , including contributing to severe environmental damage.	Governance: The fund's mandate
B. Scope of disclosures	This report covers our climate and nature risks and opportunities across our investment portfolio. For nature risk-specific analyses, we focus on our equity investments which represent the majority of the fund's assets, and therefore accounts for a significant portion of our overall impacts and dependencies on nature.	Risk identification and assessment: Data quality and coverage, Company nature impacts and dependencies
C. Location of nature-related issues	We invest in over 8,800 companies globally. These companies interface with nature through their operations and value chains across multiple locations, often outside their country of listing. In 2024, we have enhanced our understanding of these interfaces through geospatial analysis mapping our portfolio companies' assets against key biodiversity areas, protected areas, and areas of water stress.	Risk identification and assessment: Locating our equity portfolio's interface with nature
D. Integration with other sustainability-related disclosures	These climate and nature disclosures combine our previous separate reporting on climate risk and nature risk to provide an integrated view of these interconnected issues.	Strategy: Integrating climate and nature
E. Time horizons considered	Our mandate emphasises that a good long-term return depends on sustainable development. This long-term horizon is central to our investment strategies, risk management and ownership work.	Governance: The fund's mandate; Strategy: Integrating climate and nature
F. Engagement with Indigenous Peoples, Local Communities and affected stakeholders	Engaging with our stakeholders is integral to our work on responsible investment. We also expect our portfolio companies to engage responsibly with their stakeholders. This includes engagement with indigenous people, local communities and affected stakeholders, as outlined in our expectations on biodiversity and ecosystems.	Governance: Stakeholder engagement

Climate and nature disclosures
Government Pension Fund Global

Norges Bank Investment Management

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