2022

Climate Report

DWS

Letter from the Executive Board

Dear Stakeholders,

We are delighted to present our third annual Climate Report.

2022 was a challenging year and demonstrated again that the fight against climate change is a global issue. While COP27 resulted in some progress with respect to climate change adaptation and funding for loss and damages, it fell short on taking action on climate change mitigation and led to increasing doubts over whether the 1.5°C goal can be reached globally. It is clear that governments around the world need to intensify their policy ambition to make net zero a reality. At DWS, we remain committed to doing our part by supporting our clients in their climate goals.

Our Climate Report provides an overview of how we incorporate climate-related factors into our investments and operational activities. We consider climate reporting a key component in gaining a comprehensive understanding of our impact on climate change. As such, we follow the Financial Stability Board's Taskforce on Climate-related Financial Disclosure recommendations for our Climate Report.

Over the last few years, we have further developed climate-related activities, improved governance and processes, and developed both qualitative and quantitative climate-related analysis. Our legal entities based in the EU prioritised climate-related issues in their engagements with investee companies.

We remain committed to our Net Zero pledge, made in December 2020, when we became a signatory to the Net Zero Asset Manager initiative. We published our first Net Zero Annual Disclosure for the base year 2020 via CDP and are making progress towards our 2030 interim target. We are pleased to report that in 2022 our CDP rating improved to A- from a B rating in 2021. We will continue to provide progress updates in our annual Climate Reports.

We trust that this report will provide you with insightful information about our approach towards mitigating climate change for both our investments and operations.

Sincerely,

The DWS Executive Board

Climate Reporting: the road ahead

Q. What are your observations from three years of climate reporting?

Corinna: We have seen the profound impact of climate change over the last couple of years. As an asset manager, it is important that we understand how climate change may impact investee companies, hence the importance of climate reporting. As a publicly listed company, we in turn provide our own climate reporting in this report following the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD). Governments in Switzerland, UK, Japan, Brazil, the USA, Singapore and New Zealand have already adopted TCFD aligned reporting requirements. According to the Financial Stability Board's latest TCFD status report, a growing number of organisations have pledged their support for the TCFD, from 2,600 in 2021 to 3,900 in 2022.[1] This demonstrates the increasing importance of climate reporting at a corporate and investor level. The more data becomes available, the better we will be able to understand the financial implications of climate change, manage the related risks and opportunities and systematically incorporate the findings into our business and investments.

Q. What progress are you making on your commitment to the Net Zero Asset Manager initiative?

Corinna: We are making progress. In November 2021 we set our 2030 interim Net Zero Assets under Management (AuM) target, which amounted to 35.4% or EUR 281.2 bn. of our total AuM at the end of 2020. In our first Net Zero annual disclosure submitted to CDP in July 2022, we reported a 6.3% decrease in inflation-adjusted WACI[2] for those AuM in scope for 2020 versus the 2019 baseline. This decrease is broadly in line with the average annual reduction required to meet our interim decarbonisation target of 50% by 2030. However, reductions may vary year over year. External factors – for example, the war in Ukraine and the resulting shortage and surge in the price of gas – may influence future decarbonisation rates.

Q. Why do you deem engagement a key driver of transformation?

Corinna: Let me give you an example; the steel and cement industries are emission intensive sectors. We could decide not to invest in them, but the world needs cement and steel. Therefore, the goal must be to use our influence as an investor to engage with the boards of our investee companies and ask them to develop a clear understanding of climate-related risks and opportunities for their company. This discussion should not be about which industry is fundamentally sustainable, but instead should focus on which companies are able to transition their business models. As an investor we are in a good position to influence and engage with the boards of our investee companies. Through our climate-related engagements, we aim to impact real economy carbon emissions.

Q. How do you work with clients towards lower emission portfolios?

Roelfien: Climate risks and opportunities may cause a financial impact and are a frequent topic in discussions with institutional clients. Many clients have committed to decarbonise their portfolios and ask us, as their asset manager, for support to develop climate-resilient portfolios. We also provide topical research on the advantages and disadvantages of different carbon metrics, the identification of carbon-intensive hot spots and potential strategy-specific decarbonisation requirements.

Roelfien Kuijpers
Global ESG Client Officer

Corinna Orbach
Global Head of Corporate Strategy and M&A ESG

(1) https://www.fsb-tcfd.org/press/tcfd-report-finds-steady-increase-in-climate-related-financial-disclosures-since-2017/
(2) Weighted average carbon intensity

Q. What are the future opportunities and challenges in Europe?

Roelfien: Given geopolitical uncertainties, the need to become energy independent, driving technological change and becoming more sustainable, Europe will need to transform its economy. Additionally, Europe aims to protect its current high level of living standards and lay the foundation for future prosperity, which requires substantial investment. According to the EU Commission, the EU green transition and digital transformation will require investments of EUR 595 bn. per year in the transport, real estate, power, and industrial sectors.[3] We regard the European transformation as a key strategic issue for 2023 and beyond and aim to support the funding needed through existing and future investment solutions.

Q. Looking ahead, how can innovative product concepts contribute to the change needed?

Corinna: A critical component of our climate transition strategy is to shift the mix of investment products towards investment solutions that offer a better alignment with the green transition. This includes investment products and solutions that invest in low carbon intensity companies, companies with initially high but rapidly falling carbon intensity, and companies that facilitate the green transition with their tools, financing and technology. An example is the Net Zero Pathway, Paris Aligned ETF series we launched in 2022.

Q. What is your outlook for 2023?

Roelfien: Despite the climate challenges ahead, we remain cautiously optimistic, and look forward to the continued progress in climate policies that are being developed by governments, climate initiatives of companies and investors and the advocacy for increased climate-related reporting. In this report we show how we have further streamlined our climate-related activities, adjusted governance and processes and developed qualitative and quantitative climate analysis.

Looking forward, in 2023 we aim for even closer alignment to TCFD recommendations and local entity readiness, for example we will publish our first UK TCFD-aligned legal entity report. To support our net zero commitment, we intend to adopt and implement a coal policy, which will result in applying investment restrictions to a wider range of investment portfolios.

(3) European Commission Working Document – Identifying Europe's Recovery Needs (May 2020)

Table of contents

This report follows the structure of the TCFD recommendations including our approach to net zero.

I / About the Report

Since 2020, we have developed a roadmap to align with the recommendations of the Task Force on Climate Related Financial Disclosures (TCFD). In our 2022 Climate Report, we have moved last year's section on Portfolio and Corporate Scenario Analysis into the Strategy section and continue to have a separate sub-chapter on net zero progress.

The structure of the report is in accordance with the four TCFD disclosure areas: Governance, Strategy, Risk Management, and Metrics and Targets. All information in this report is where feasible aligned to the agnostic and asset management specific TCFD recommendations. The data and information for the reporting period from 1 January 2022 to 31 December 2022 is sourced from our experts using representative methods. Relevant information is included up to the editorial deadline of 2 March 2023 and the report is published in English only. A glossary can be found at the back of the report, summarizing all key acronyms, and bodies referenced throughout the report.

The scope of consolidation comprises DWS Group GmbH & Co. KGaA (DWS KGaA) and all its fully consolidated subsidiaries according to section 15 et. seq. German Stock Corporation Act (AktG) unless stated otherwise.

Our Corporate Governance Center is organised by regional focus areas to account for varying market practice standards and proxy voting operational procedures. It defines the proprietary standards and expectations for good corporate governance for our portfolios and mandates according to the pooled voting rights agreements between DWS Investment GmbH, DWS Investment S.A. and for specific portfolio management mandates of DWS International GmbH. The Corporate Governance Center provides guidance and support on relevant stewardship topics to other DWS legal entities that have their own processes and policies in place. In 2022, the Corporate Governance Center has further expanded its headcount to accommodate for increasing proxy voting coverage and corresponding engagement duties. DWS Investment Management Americas, Inc. ("DIMA"), DBX Advisors LLC ("DBX") and RREEF Americas L.L.C. ("RREEF") as well as DWS registered investment advisers based outside of the US who provide services to US accounts based on delegation from DIMA, DBX or RREEF have different processes in place and follow different guidelines.

In the UK, the Financial Conduct Authority (FCA) published its policy statement on climate-related disclosures to extend mandatory TCFD reporting to asset managers. Our legal entity DWS Investments UK Limited is in scope of this reporting obligation for phase 1 and will publish a TCFD Entity Report by June 2023.

Table 1: TCFD Disclosures

Disclosure Focus Area	Recommended Disclosure	Section in the document
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	Governance – Introduction, Central Sustainability Governance
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	Governance –Divisional sustainability governance
Strategy	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	Strategy – Introduction, How climate change is embedded in the decisions we take, How we identify Climate Risks
	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	Strategy – How we incorporate climate change within our investment process, How we incorporate climate change within our products, Active Ownership, Collaboration with other stakeholders and policy advocacy, Our actions towards becoming a net zero asset manager
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Strategy – Our approach to measuring climate-related risks
Risk Management	a) Describe the organisation's process for identifying and assessing climate-related risks.	Risk Management – What we mean by sustainability risk Strategy – How we identify Climate Risks, Our approach to measuring climate-related risks
	b) Describe the organisation's processes for managing climate-related risks.	Risk Management – Integrating Sustainability Risk in the Risk Framework, Integration of sustainability (including climate-related) risks into corporate risk management, Integration of climate-related risks into our investment risk management Strategy – How we incorporate climate change within our investment process
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	Risk Management – Integration of sustainability (including climate-related) risks into corporate risk management
Metrics and Targets	a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk-management process.	Metrics and Targets
	b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	Metrics and Targets
	c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Metrics and Targets

II / Executive Summary

We have set ourselves a clear interim Net Zero target for 2030 and commit to the Science Based Targets initiative (SBTi) as the underlying reference framework. During 2022, we adapted our sustainability governance structure and submitted our first Net Zero Annual Disclosure for the base year 2020 via our CDP disclosures.

This climate report is fundamental to enhancing our non-financial reporting and providing transparent disclosures on climate action in accordance with TCFD recommendations. Progress in 2022 is summarized below:

- The **Governance** section outlines how we continued to embed Environmental, Social and Governance (ESG) including climate-related topics, in our internal governance. In 2022, we made changes to our sustainability governance transforming the former Group Sustainability Council into a decision-making committee. In addition, we established a dedicated Sustainability Strategy team and a Sustainability Oversight Office.
- The **Strategy** section describes climate-related opportunities and risk management for our products and investment strategy. We report on progress towards our Net Zero Asset Manager's (NZAM) commitment including our dedicated net zero engagement. Additionally, we extended portfolio scenario analysis using MSCI Climate Value at Risk (CVaR) to analyse impacts of climate change on our portfolios.
- The **Risk Management** section features an update on the integration of climate-related risks in our risk framework. We made progress on the integration of Adverse Impacts in our risk management framework, sustainability risk management policy, and risk appetite statement.
- The **Metrics and Targets** section includes a progress update on our climate-related sustainability Key Performance Indicators (KPIs), and SBTi and Transition Pathways Initiative (TPI) portfolio alignment. In 2022, our ESG AuM increased, we improved our CDP score from B in 2021 to A- and further reduced our operations energy consumption.

Governance

In 2022, we made changes to our sustainability governance.

We transformed the Group Sustainability Council into a decision-making committee.

We established a dedicated Sustainability Strategy team and a Sustainability Oversight Office.

TCFD Recommendations

a) Describe the board's oversight of climate-related risks and opportunities.

b) Describe management's role in assessing and managing climate-related risks and opportunities.

1 / Governance

GRI 102-27; 102-28

Introduction

We aim to incorporate the management of climate-related risks and opportunities throughout our organisation, for which the Executive Board (the Board) has the overall responsibility. During 2022, we adapted our sustainability governance and created a Sustainability Strategy Team to support the CEO in the development of our sustainability strategy and to ensure that it is embedded in our corporate strategy.

Effective January 2023, the Board is supported by a new sub-committee, the Group Sustainability Committee, which is empowered to take decisions to implement our sustainability strategy. Additionally, we set up a Sustainability Oversight Office which aims to ensure effective sustainability governance throughout the organisation and to support the Group Sustainability Committee.

The ESG Advisory Board continues to advise the Board on sustainability issues and opportunities.

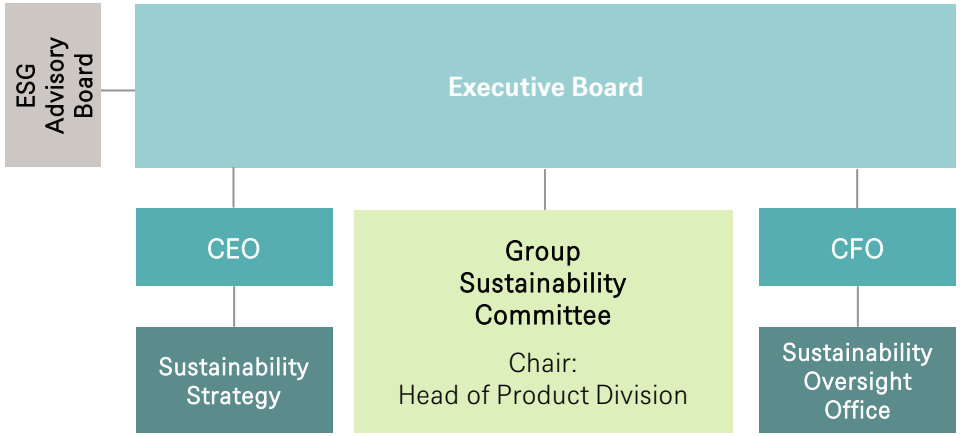
The new governance structure is illustrated in the graph on the right.

We have incorporated climate-related risks and opportunities into our sustainability governance. While we intend to have a global approach to incorporate climate and sustainability issues, we are shaped by local regulations in how to implement our approach in different jurisdictions. The Board aims to work with the relevant stakeholders to ensure that climate and sustainability issues are incorporated throughout our value chain in accordance with local regulations. Material climate-related issues are presented to the Board as necessary and appropriate.

The Board has assigned responsibility to the Risk and Control Committee (RCC) for approving key risk management principles, risk appetite metrics, and thresholds related to sustainability risks and adverse impacts. The risk management function reports the sustainability risk appetite metrics to the RCC to enable monitoring and management of these risks. The Reputational Risk Committee (RRC) reviews, approves, manages, and monitors escalated reputational risk issues.

Further information on governance of climate-related risks can be found in the sections ‘Strategy’ and ‘Risk Management’.

Graph 1: Cross-divisional sustainability governance



Group Sustainability Committee

In January 2023, we transformed the Group Sustainability Council into a Committee of the Board. In 2022 the Group Sustainability Council supported the Board in driving group-wide alignment and oversight of climate-related activities including the pre-discussion and review of recommendations prior to Board presentations. The Group Sustainability Council recommended to the Board including the following topics for approval: corporate sustainability-related disclosures, a coal policy framework, and the implementation plan for our operational net zero ambitions.

The Group Sustainability Committee is mandated to implement the sustainability strategy as approved by the Board at the fiduciary and corporate level across all divisions and legal entities. It consists of global senior representatives from all divisions, is chaired by the Head of Product Division and acts as a senior decision-making body for sustainability-related topics unless decision-making falls in the core area of competence of the Board or a legal entity. Relevant legal entities are regularly informed about discussions and decisions of the Group Sustainability Committee. This includes DWS Investments UK Limited to support inter alia its climate governance under the FCA UK TCFD rules.

ESG Advisory Board

The ESG Advisory Board consists of internationally recognized sustainability experts from diverse disciplines and met four times during 2022. The members act independently and advise the Board on a range of long-term sustainability trends, challenges, and opportunities. Topics discussed included the future of sustainability, regional differences in sustainability, the geopolitical situation and its impact on sustainability, climate change and the growing importance of biodiversity. Five of the six ESG Advisory Board members renewed their contracts for another two years in 2022. Further details about its composition are described in our Annual Report 2021.

Divisional sustainability governance

Investment Division (ID)

The integration of climate change risks and opportunities in the ID is supported by the Chief Investment Officer (CIO), Head of Active, Head of Passive, and the Head of Alternatives. The integration of climate considerations takes place through the following formalised channels: The CIO Office, is responsible for delivering market and economic views to internal and external stakeholders and since 2018 we have incorporated ESG, including climate, into our CIO View publications and internal CIO daily newsletter. The integration of climate-related risks and opportunities at portfolio level is supported by the ESG Engine, ESG Integration team and the Corporate Governance Centre as well as a net zero working group that provide data and processes so that these risks and opportunities can be incorporated in the investment process.

Product Division (PD)

The PD owns processes across the whole product value chain starting from product specific strategic planning process, product development, product launches and product lifecycle management. The Head of PD is responsible for overseeing climate-related topics in the launch of new products and management of existing products in line with our sustainability strategy. Dedicated ESG teams within PD support our internal investment teams and external clients in providing ESG and climate-related information, analysis, and investment solutions.

Client Coverage Division (CCD)

The CCD aims to deliver sustainable and climate-related investment solutions and advice to our clients. The Global ESG Client Officer leads these efforts to ensure that sustainability remains central to our strategic client relationships. Additionally, 25 ESG Ambassadors, organized regionally and along distribution/client channels, coordinate regional sustainability solutions for our clients working with investment professionals and product experts.

Executive Division (ED)

The ED comprises Human Resources, Corporate Office, Corporate Strategy and M&A, and Communications, Brand & Corporate Social Responsibility (CSR). Human Resources is responsible for incorporating sustainability-related KPIs into the compensation structure. The Corporate Office ensures that the Board's agenda reflects relevant sustainability items. Communications, Brand and CSR manages our sustainability-related communications, corporate marketing, and CSR. Within our Corporate Strategy and M&A function, the new Sustainability Strategy team supports the CEO in the development of our sustainability strategy and ensures that it is embedded within our corporate strategy.

Chief Financial Office (CFO) Division

Climate-related matters are overseen by three functions. Finance Sustainability is responsible for managing all corporate climate-related disclosures including the Climate Report and CDP questionnaire, the non-financial reporting control framework and tracking of sustainability KPIs. Sustainability Risk is responsible for tracking sustainability risks, the Sustainability Risk Policy, the integration of ESG factors in our Risk Management Framework and the Risk Appetite Statement. The Sustainability Oversight Office aims to ensure sustainability governance across the organisation and supports the Group Sustainability Committee.

Chief Operating Office (COO) Division

The COO Division leads our objective to achieve operational net zero. For further details please refer to the section 'Our actions towards becoming a net zero asset manager'.

Chief Administrative Office (CAO) Division

The CAO Division consists of AFC & Compliance, Client & Investment Monitoring, Corporate Governance and Legal. CAO Division advises on all relevant regulations, including those with a focus on sustainability including climate-related matters.

Climate competence

In line with Suitability Guidelines[4], our Supervisory and Executive Boards periodically self-assess ongoing suitability individually and collectively including their knowledge of climate, environmental, social and governance risks and knowledge of regulation, principles, and frameworks for Environmental, Social and Corporate Governance.

Compensation

We consider sustainability an integral part of the compensation system for the Board and all employees. A portion of the annual variable compensation is determined based on the degree of achievement of sustainability, including climate-related indicators. Further details on the compensation systems are disclosed in the Annual Report 2022 under "Compensation Report".

(4) Joint ESMA and EBA Guidelines on the assessment of the suitability of members of the management body and key function holders under Directive 2013/36/EU and Directive 2014/65/EU.

Strategy

We published our Net Zero Annual Disclosure for the base year 2020 via CDP.

We reported a 6.3% year-on-year decrease in the inflation-adjusted WACI.

We extended our scenario analysis using MSCI Climate VaR to analyse impacts of climate change on our portfolios.

TCFD Recommendations

a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

2 / Strategy

Introduction

We are further refining our approach regarding sustainability to better meet the evolving needs of our stakeholders – most importantly our clients. In this context, we remain committed to sustainability with a focus on climate and stakeholder engagement.

To mitigate climate change, transformational change is required across all parts of the real economy. Reflecting on our responsibilities as an asset manager, we are committed to supporting our clients in navigating this transformation by providing our expertise and bespoke investment solutions. As a founding signatory to the Net Zero Asset Managers initiative (NZAM), we have set ourselves a net zero framework with interim targets for 2030 based in science. In navigating the path to net zero, we are intending to focus on systematic engagement with key stakeholders along the entire investment value-chain.

Our sustainability strategy is anchored around four strategic priorities:
- Corporate transformation: We continue seeking to increase the level of sustainability associated with our activities throughout our organisation.
- ESG in the investment process: While having already built-up strong capabilities, we seek to further embed ESG considerations into our investment process that are designed to improve the assessment of the future expected risk and return of a security.
- Innovative and sustainable investment solutions: We seek to launch new and innovative ESG products and solutions across asset classes to meet the requirements of our clients. At the same time, we acknowledge a more differentiated client demand as well as further regulatory clarifications, which we intend to reflect in our new product offering.
- Stakeholder engagement: We seek to take a holistic and systematic approach to engagement as we consider engagement with key stakeholders across the entire investment value-chain as the key driver for achieving our transformation.

For further information please refer to the Annual Report 2022.

Our approach to address climate change

Achieving net zero by 2050 will have implications across the global economy, including changes to business models, and will also create significant new investment opportunities. The global economy may shift away from the linear growth model of "Take-Make-Waste" to a more circular economic model that results from the transition to a low carbon economy. The road ahead is challenging, and all stakeholders – governments, regulators, financial institutions, businesses, investors, and broader civil society – need to be involved (including global asset managers like ourselves), to facilitate and finance this transformation.

In 2022, our internal Net Zero Working Group identified the issuers and the portfolios with the largest emissions based on the use of the inflation-adjusted weighted-average carbon intensity (WACI adj.) portfolio contribution. This analysis will be the basis for our decarbonisation target. The Net Zero Working Group together with our ESG Integration and Corporate Governance Center teams identified net zero key performance indicators to measure decarbonisation performance. We aim to finalise the framework for decarbonisation at portfolio level in 2023.

We recognise the challenges associated with the implementation of a strategy where the benefits are long-term (2050), but where most of the action needs to be taken in the near future. We also acknowledge that there is not yet a perfect framework to enable the conversion of long-term climate-related risks into medium-term financial risks. Furthermore, there are challenges and limitations of data, regulation, reporting and resources. We do know there are long-term effects associated with climate change and that the world is best served by an agreed decarbonisation strategy. We are aware that there are several paths to a decarbonised economy and that we require the development and commercialisation of technologies and/or much higher carbon prices.

How we identify Climate Risks

Sustainability risk, including climate-related risk, is defined as the potential negative impact to the value of an investment from sustainability factors. Sustainability factors are environmental, social and governance events or conditions. They can either be "outside-in" factors, such as physical climate or climate transition factors, or "inside-out" factors caused by us or any investment, for example environmental impacts from our company activities. More information on climate-related risk factors can be found in the section "Risk Management".

Our overall risk management and control framework covers three main areas: non-financial risks (operational and reputational risks), financial risks and fiduciary investment risks. Climate factors – including physical and transitional climate risk factors – can impact all three of these risk areas. There is also an increased focus on assessing and monitoring the adverse impacts of our corporate and investment activity on the environment and society.

To support effective sustainability and climate-related risk identification and assessment, we have classified the impact of the identified sustainability factors under "ESG Risk themes" aggregating patterns of impact related to sustainability factors. ESG Risk themes can be grouped into:
– Adverse Impacts
– Sustainability Risk materializing as Non-Financial Risks
– Sustainability Risk materializing as Strategic and Financial Risks, and
– Sustainability Risk materializing as Investment Risks

These form the basis for defining guiding principles for managing the resulting risks.

We have reviewed existing risk types for both portfolio and corporate risks and determined whether sustainability factors may potentially be relevant risk factors. A summary of the most important climate-related risks with the potential to have a substantive financial or strategic impact on our business, is provided below. We have also defined the following time horizons:
– Short-term: 1 year
– Medium-term: 1-5 years
– Long-term: >5 years

We recognise that sustainability risks, including climate risks are inherent to overall business activity and are considered integral to our strategy.

Table 2: Selected Climate-related Risks

Risk	Description	Time horizon
Strategic risk: Decreased revenues due to reduced demand for products and services from changing customer behaviour	The most significant strategic risk is related to the conversion of our existing product suite into an ESG-aligned product suite – factoring in the changing market environment, client demand, regulatory constraints, and investee company strategies. It is expected that the changes in the regulatory environment, client perceptions, expectations for ESG and, climate-related products will continue to evolve. For example, if the ESG filter criteria applied to our ESG products does not meet market expectations, distribution partners could stop selling our ESG products (or only sell them without the ESG label), which would have a significant business impact.	Short-term
Reputational risk: Negative press or NGO coverage related to support of projects or activities with negative impacts on the climate (e.g., GHG emissions, deforestation, water stress)	Given the strategic relevance of ESG within our corporate strategy, any ESG and climate-related incident may have significant implications for our reputation and may mean that our sales partners stop selling our products.	Short-term
Policy and legal risk: Weak governance may lead to a failure to meet ESG and climate-related regulatory requirements	We may fail to identify or adequately implement ESG and climate-related regulatory requirements within the investment, control, or disclosure processes. Regulatory risk may result from non-compliance with ESG and climate-related regulatory requirements.	Short-term
Policy and legal risk: Regulatory risk if we consider ESG and climate criteria in investment decisions	There may be jurisdictions in which we could face sanctions or fines if ESG and climate criteria are being considered in investment decisions or investments in fossil fuel companies are being discontinued, based on the assumption of a potential negative impact on returns.	Short-term
Non-financial risk: Risk of inaccurate, misleading, or non-disclosure of ESG or climate-related information	We publish ESG and climate-related information in regulatory and non-regulatory external reporting at product and corporate level, in marketing materials and in other types of communication with clients or the public. In case of inaccurate, misleading, or non-disclosure of such information, we face substantial reputational and regulatory risk.	Short-term
Market risk: Decreased asset value or asset useful life leading to write-offs, asset impairment or early retirement of existing assets	Liquid product range – climate-related portfolio transition risks are events or conditions related to climate transition factors, the occurrence of which can have a real or potentially significant negative impact on the assets and liabilities, reputation or revenues of any investment or investee contained in a portfolio we manage.	Medium-term
	Illiquid product range – real estate assets in our portfolios can be exposed to physical risks that arise both from extreme weather events (e.g., floods, storms, forest fires) and to long-term changes in climatic conditions (e.g., frequency of precipitation, weather instability, rise in sea level). Assets can significantly reduce in value, become damaged, or even destroyed. In addition, transition risks can arise in connection with the switch to a low-carbon economy. Political measures can lead to higher energy prices or high investment costs due to the required refurbishment of real estate, e.g., due to city, national or regional legislation to increase the energy efficiency of buildings. Transitional risks can also lead to a fall in demand for emission-intensive real estate.	Long-term

Our approach to measuring climate-related risks

Our approach to portfolio climate scenario analysis

Given future uncertainty, climate-related risks and opportunities for our current investments cannot be quantified with certainty – instead, we apply climate scenario analysis at the portfolio level to estimate the potential financial impact under various climate scenarios.

Standard climate models and simulations suggest that average global temperatures are likely to rise between 1.1°C and 5.4°C by 2100 versus pre-industrial levels, depending on the mitigating measures taken. We have chosen scenarios ranging from 1.5°C to 5°C temperature increase as a basis to assess the potential impact on our current investments, evaluated based on the MSCI Climate Value-at-Risk (CVaR) model. These scenarios include a range of temperature rises and incorporate assumptions on government regulation, energy systems, land use, the impacts on business operations, physical properties and on the wider economy.

Risks and opportunities from climate-related events can be categorized into two types: transition risks and opportunities, and physical risks. Transition risks and opportunities focus on the impact which policy changes, designed to bring about a transition to a greener economy, may have on individual companies. This includes potential increased costs to companies and business opportunities that may arise from adopting or developing low-carbon technologies and climate solutions. In this section, we will refer to the former as "policy risks" and to the latter as "technology opportunities". Climate change is also likely to cause acute or chronic physical climate effects, resulting in property damage or business interruptions – such effects are referred to as "physical risks".

The potential financial impact on our liquid investments (as of 31 December 2022) from policy risks, technology opportunities or physical risks are assessed in these simulations. The nature of these risks and opportunities for our liquid investment portfolios is explained in the following sections.

Key drivers of transition risks and opportunities

Transition risks and opportunities reflect the potential financial impact on companies when they adapt to policy changes under certain climate pathway assumptions. We have selected climate pathways with global warming outcomes between 1.5°C and 3°C to assess these risks and opportunities. Within these scenarios, Greenhouse Gas (GHG) emission trajectories and implied carbon price assumptions are key factors.

Policy risks can be estimated using an investee's GHG emissions resulting from its entire value chain. Required carbon price trajectories are modelled under assumptions about the intensity and the timing of fiscal and regulatory policies. Investees developing low-carbon technologies may benefit from stricter climate policies and subsequent resulting growth opportunities. One of the key indicators related to technology opportunities for individual companies are low-carbon patents. However, these input parameters also illustrate that such models make numerous assumptions, including that today's innovators are tomorrow's innovators – but cannot anticipate how companies will eventually transform in their individual response to climate risks and opportunities.

Key drivers of physical risk

The rise of global temperature levels is expected to result in more frequent extreme weather events, including extreme heatwaves, heavy storms, and flooding. Within the assessment, we mainly consider two types of economic impact: business interruption and physical damage. The exposure of investees to physical risks will depend on the sensitivity of their business operations to such factors.

Evaluation and Analysis

The MSCI CVaR model considers relevant regional, sectorial and company factors as well as transition pathway assumptions that are tailored to the assumed temperature level increase; however, the complexity of climate systems leads to significant uncertainty in calculating the financial impact. In addition, investee responses to policy changes or physical climate changes cannot be fully predicted. Therefore, the results presented below should be interpreted as a rough guide to the potential impact of climate change on sectors, regions or asset classes under certain modelling assumptions and should not be seen as making specific predictions on individual investments or portfolios.

Transition risks and opportunities – by sectors and regions

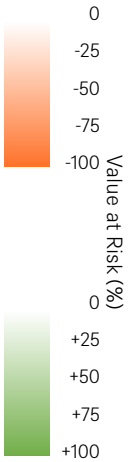
The two heatmaps below show policy risks and technology opportunities under an orderly climate transition pathway for a 1.5°C temperature increase. Orderly transition scenarios assume that climate change policies are introduced at an early stage and become more stringent over time, while disorderly scenarios assume late and divergent policies across regions and sectors.

Policy risks are expected to be more material for carbon-intense industries, such as energy, utilities, and materials. However, sectors showing high policy risks also demonstrate higher potential in technology opportunities that may be leveraged by early adopters of policy changes. APAC and Europe are estimated to benefit slightly more from adoption of low-carbon technology in most sectors.

Table 3: Aggregated value at risk under 1.5°C orderly scenario coming from policy risk (top heatmap, darker colour equals increased downside risk) and technology opportunity (bottom, darker colour equals increased upside potential)

Policy risk under 1.5°C orderly scenario	Communication Services	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Information Technology	Materials	Real Estate	Utilities	Subtotal (by region)
Asia Pacific												
Europe												
Middle East/Africa												
North America												
South/Central/Latin America												
Sub Total (by sector)												

Technology opportunities under 1.5°C orderly scenario	Communication Services	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Information Technology	Materials	Real Estate	Utilities	Subtotal (by region)
Asia Pacific												
Europe												
Middle East/Africa												
North America												
South/Central/Latin America												
Sub Total (by sector)												

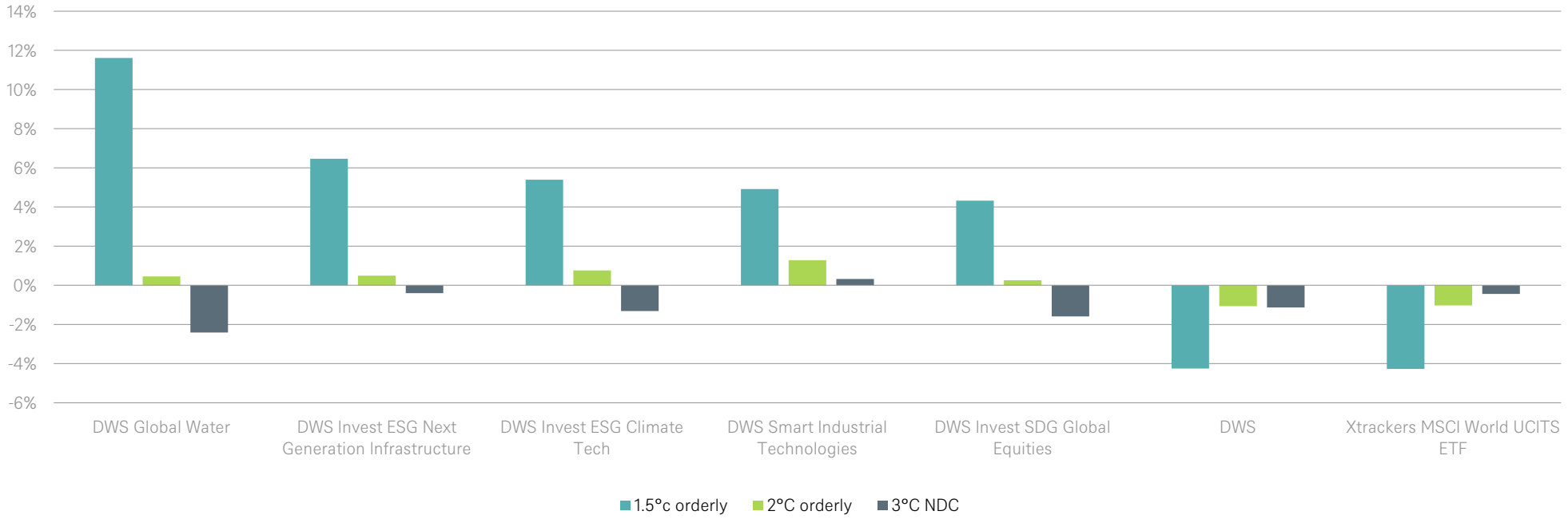


Source: BRS Aladdin, MSCI Climate VaR, DWS own analytics/calculations; Data as of 31 December 2022.

Transition risks and opportunities – selected strategies

The following chart compares selected thematic funds managed by us, the aggregated view on our holdings[5] and a representative equity market index (MSCI World Index). The results indicate that certain thematic fund strategies may benefit under such a transition scenario from their increased exposure to early adopters to policy changes in comparison with the broader market or our aggregated holdings.

Graph 2: Aggregated value at risk under scenarios of 1.5°C orderly, 2°C orderly, 3°C Nationally Determined Contribution (NDC) coming from climate transition risk and opportunities for selected DWS funds and aggregated DWS Group assets



Source: BRS Aladdin, MSCI Climate VaR, DWS own analytics/calculations; Data as of 31 December 2022.

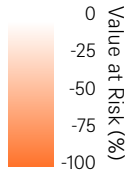
(5) Portfolio climate scenario analysis includes all corporate assets (stocks and bonds) held in DWS Group liquid investment portfolios that are covered by MSCI ESG database.

Physical risks by sector and region

Physical climate risks are most extreme in scenarios with a significant temperature rise. The table below shows potential physical risks under a 5°C transition pathway and suggests that the APAC and South/Central/Latin Americas regions may be impacted more significantly from extreme climate events. Among the climate events considered, heatwaves may result in a multitude of adverse effects on labour availability, productivity, and thermal efficiency. Companies in capital-intensive sectors including utilities and energy, especially those where production facilities are located at coastal locations, are more likely to suffer from acute events, especially flooding and tropical cyclones.

Table 4: Aggregated value at risk under +5°C scenario coming from physical risks (by sector and region)

Physical risk under 5°C scenario	Communication Services	Consumer Discretionary	Consumer Staples	Energy	Financials	Health Care	Industrials	Information Technology	Materials	Real Estate	Utilities	Subtotal (by region)
Asia Pacific												
Europe												
Middle East/Africa												
North America												
South/Central/Latin America												
Sub Total (by sector)												



Source: BRS Aladdin, MSCI Climate VaR, DWS own analytics/calculations; Data as of 31 December 2022.

Our approach to Corporate Scenario Analysis

In addition to the portfolio-level scenario analysis described above, we analyse the strategic and financial impacts of sustainability risk at corporate level.

The Network for Greening the Financial System (NGFS) partnered with an expert group of climate scientists and economists to design a set of hypothetical scenarios, which are categorized as follows:

- Orderly scenarios: Climate policies are introduced early and become gradually more stringent. Both physical and transition risks are relatively subdued.
- Disorderly scenarios: Higher transition risk due to policies being delayed or divergent across countries and sectors. Carbon prices are typically higher for a given temperature outcome.
- Hot house world scenarios: Some climate policies are implemented in some jurisdictions, but global efforts are insufficient to halt significant global warming. Critical temperature thresholds are exceeded, leading to severe physical risks and irreversible impacts like sea-level rise.
- Too little, too late scenarios: A late transition fails to limit physical risks (no scenarios have been designed for this purpose by NGFS).

Climate transition risks are more pronounced in scenarios where more decisive action is taken to mitigate climate change, i.e., orderly scenarios and disorderly scenarios.

In our analysis, we focussed on the strategic and financial impact of changes in the regulatory environment and client perceptions and expectations of us and for the products we sell. Two types of ad-hoc analyses were performed considering strategic and reputational developments throughout the year.

In the first analysis, we assessed strategic risks resulting from a potential decrease in AuM due to reduced demand for selected ESG products following new regulatory requirements and changing ESG-related market expectations. In this scenario the implementation of MIFID II delegated acts and the SFDR Regulatory Technical Standards led key distribution partners to implement ESG screening policies (based on their own data sources) that define minimum standards which external and internal ESG products must comply with.

These ESG screening policies reflect the new regulatory requirements and the distribution partners ESG policy. If our DWS ESG Investment Standard products do not meet these criteria, they could lose their ESG classification and no longer be distributed by our partners or may be divested. To analyse the outcome of this scenario, we have identified the risks on AuM of specific individual funds and selected distribution partners. The analysis emphasizes the strategic importance to offer a product suite that meets client and market expectations with regards to ESG standards.

In the second analysis, we assessed the impact of certain ESG-related reputational risk scenarios on flows and the associated revenues related to selected distribution partners. ESG and climate-related scenarios may have implications for our reputation and may mean that distribution partners no longer actively sell our products. To determine the potential financial impact of these scenarios, we modelled the revenue effect of reduced inflows under different scenario assumptions while keeping outflows stable. The observed simulated fee impact highlighted the importance of maintaining an effective control environment to avoid such reputational scenarios.

How we incorporate climate change within our investment process

Active

Our ESG Integration Policy for Active Investment Management includes special emphasis on climate-related risks, measured by our proprietary Climate and Transition Risk Assessments (CTRR). The CTRR assessment highlights potential risks and opportunities associated with carbon emissions and water. The CTRR and other climate-relevant information are made available to our Active investment professionals via the DWS ESG Engine, our proprietary data tool, which covers most listed asset classes and uses five leading commercial ESG data providers. Furthermore, our CTRR is a building block for managing climate-related risks and opportunities for our investments, provides climate information to our engagement leads and assists the Corporate Governance Center in its proxy voting process.

Our investment professionals are expected to be aware of any exposure to climate change risks and opportunities, and to act in line with internal processes as well as legal and contractual obligations. The sustainability risk team regularly assesses all funds' exposures to ESG laggards related to climate transition risk and reports the results to the asset class heads and product management heads. On a quarterly basis risk management reviews decisions on exceedances, risk appetite changes and, if necessary, escalates to portfolio or senior management with senior representatives of investment and product management. More details on the sustainability risk governance framework can be found in the risk management section.

Passive

Our EMEA Xtrackers fund business complies with the "ESG Integration Policy for Passive Investment Management", which specifies minimum standards for certain indices tracked by our Exchange Traded Funds (ETFs). These minimum standards include a requirement to exclude issuers with material activities in thermal coal mining and power generation, while dedicated ESG ETFs apply stricter exclusion criteria.

Alternatives

For most of the alternative asset classes, climate change risk is managed in accordance with an environmental and social management system (ESMS). The ESMS aims to assess and manage ESG risks, including climate change risks across the investment life cycle for the underlying portfolio assets and advancing ESG practice. For four funds within the Sustainable Investments (SI) platform, there is an additional impact framework, which aims to align with the Operating Principles for Impact Management (OPIM) to which we became a signatory in 2019.

Real Estate

Resilience, encompassing efficiency and adaptation, is one of the four strategic ESG themes within Real Estate, alongside wellbeing, nature, and community. From a fiduciary standpoint, we identify and manage transitional and physical risks from climate change.

Transitional risks can arise from the switch to a low-carbon economy and are related to energy and carbon efficiency of buildings. Political measures can lead to higher energy prices or high investment costs due to the necessary refurbishment of real estate. Transitional risks can also materialise in a fall in demand for emission-intensive real estate. Exposure is assessed primarily using Carbon Risk Real Estate Monitor (CRREM) pathways including energy efficiency and carbon emissions compliance.

Real estate can be exposed to physical risks from individual extreme weather events and to long-term changes in weather conditions. Assets can be significantly reduced in value, damaged, or even destroyed if they are not adapted to be resilient to events such as wildfires and floods. The physical risks are estimated utilising the S&P Trucost tool and supplemented with asset-level assessment of a building's resilience.

Sustainability-related factors, including the above mentioned climate risks, are considered at each stage of the investment process, directly informing acquisition, asset management and disposal decisions. Identified actions are assessed against accretive returns, investment objectives and integrated in sustainable asset management plans.

To provide transparency to our investors, on the sustainability of our portfolios, we report into the Global Real Estate Sustainability Benchmark (GRESB). Aggregated across all portfolios, using the GRESB analysis feature, we achieved a 30/30 Management score, compared to the GRESB average of 28. Furthermore, the aggregated portfolio achieved a performance score of 52/70, as compared with the GRESB average of 51. Performance score measures certifications and ratings, carbon, energy, water, and waste performance. Five portfolios achieved 4-star or above GRESB rating (5 Stars is the highest rating and recognition for being an industry leader). In addition, 18 portfolios achieved Green Star recognition[6].

Infrastructure

We seek to incorporate environmental considerations into the infrastructure business investment framework at all stages of the investment lifecycle for equity investments – from the initial screening and due diligence to the asset management and exit stages. During the holding period, we monitor environmental attributes such as carbon footprint and water usage of the investments through the regular reporting of KPIs by portfolio companies, and through completion of the annual GRESB Infrastructure benchmarking assessment at both fund and asset level. Due diligence includes climate-related considerations and is incorporated into the Investment Committee[7] paper and presented to the Investment Committee for consideration.

The infrastructure business also produces an annual Sustainable and Responsible Investment report for investors. This report addresses environmental issues for the fund's underlying investments and from 2023 is intended to include information aligned with TCFD.

During 2022, we updated the ESMS under which the business operates to reflect changes in the ESG environment and to strengthen our procedures. The ESMS has also been updated to reflect our obligations under the SFDR. It applies to all potential and existing portfolio investments in infrastructure equity. It also creates obligations on portfolio companies to ensure regular reporting to us.

The Infrastructure Debt business uses a bespoke proprietary ESG scoring methodology, which has been rolled out to new and existing investments since 2021. The methodology supports the overall investment process and ongoing monitoring of environmental risks of the infrastructure debt portfolios among other ESG risks.

(6) Other than the GRESB Rating, which is a relative rating, the GRESB Green Star is a rating on absolute performance. For more information, please see https://www.gresb.com/nl-en/faq/what-is-a-green-star/.
(7) The Investment Committee is a body made up of members of the Infrastructure team to screen, evaluate and decide upon investment opportunities with respect to the Fund. The responsibilities of the Investment Committee will include the evaluation of the investment market for the Fund, the review of the analysis on target investments, the development of strategies to acquire, manage and divest of Investments, advising on the Fund's broader Investment Strategy, and the decision-making in respect of investment opportunities in which the Fund is to engage, each subject to the overall supervision of the General Partner and the Manager.

How we incorporate climate change within our products

Active

In 2022, we continued to increase the number of our European domiciled actively managed mutual funds which promote environmental or social characteristics and report as Article 8 SFDR. Most of our actively managed mutual funds in the EU now apply one of two ESG filters: the "DWS Basic Exclusions" filter or the "DWS ESG Investment Standard" filter[8].

By applying these ESG filters to our European domiciled actively managed mutual funds, climate and transition risks are considered as part of the investment process. Both filters exclude issuers with excessive climate risk profiles by screening issuers for their CTRR.

Since August 2022, investment advisors and financial portfolio managers have had to consider the sustainability preferences of their clients in accordance with the amended MiFID II Directive. For our EU-domiciled actively-managed retail funds, we have therefore implemented the requirements for the inclusion of relevant sustainability-related information in product documentation already in 2022, which were required to be implemented by beginning of 2023 only. By applying one of our ESG filters, and the CTRR screening as part of the filter methodology, the "carbon footprint of a company" (PAII 2) as well as its "GHG Intensity" (PAII 3) and "exposure to fossil fuel" (PAII 4) is considered. Funds applying the "DWS ESG Investment Standard" filter also consider a company´s emissions to water (PAII 8).

Passive

We continued to increase the number of European Xtrackers ETFs which promote environmental or social characteristics and report as Article 8 SFDR throughout 2022. Also, for our EU-domiciled passively-managed retail funds, we have implemented the requirements for the inclusion of relevant sustainability-related information in product documentation already in 2022, which were required to be implemented by beginning of 2023 only.

Alternatives

In Alternatives, we have dedicated funds addressing climate mitigation and other climate change-related topics such as pollution. We are also developing dedicated strategies within our real estate and infrastructure business, following our track record in investing in green buildings and green infrastructure assets.

Sustainable Investments (SI)

SI aims to deliver market risk-adjusted returns with economic, social and/or environmental outcomes and operates in investment initiatives ranging from energy efficiency, renewable energy, and clean urban transport, as well as sustainable agriculture. The following SI funds address climate-related issues:

- European Energy Efficiency Fund (eeef): Region-Specific Sustainable Energy Strategy
- China Renewable Energy Fund (CREF): Country-Specific Clean Energy Fund
- Clean Energy and Environmental Fund (CEEF): Country-Specific Environment Fund
- Universal Green Energy Access Programme (UGEAP): Region-Specific Sustainable Energy Strategy.

(8) The "DWS Basic Exclusions" filter represents our basic approach to incorporating certain exclusions in the investment policy of the relevant fund. Products applying this filter only are excluded from the 2022 ESG AuM number. The "DWS ESG Investment Standard" filter enhances the exclusions in comparison to the "DWS Basic Exclusion" filter and adds an "ESG quality assessment" approach encompassing investments in issuers selected for positive ESG performance relative to industry peers (so-called "Best-In-Class approach"). Products applying this filter are included in the 2022 ESG AuM number (see DWS Annual Report 2022, chapter 'Our Product Suite').

Active Ownership

Active Ownership as part of our NZAM commitment

As part of our commitment as DWS Group to NZAM, we identified a group of more than 180 global investee companies based on their contribution to the carbon intensity of our portfolios and their climate transition risk assessment and initiated a dedicated net zero engagement programme with them.

Active Ownership in US and EMEA

We have two separate corporate governance and proxy voting policies and processes in place. One for the three pooled legal entities in EMEA (DWS Investment GmbH, DWS International GmbH, DWS Investment S.A. (including SICAVs and PLCs)) and one for DWS Americas (DIMA, DBX Advisors LLC and RREEF Americas L.L.C., as well as DWS registered investment advisers based outside of the US who provide services to US accounts based on delegation from DIMA, DBX or RREEF), due to different market and regulatory practices.

Active Ownership in the US

In the US, DWS Americas has adopted policies and guidelines to ensure that proxies are voted in accordance with the best economic interest of our clients, as determined by ourselves, in good faith after appropriate review. We believe that profitability and responsible management of ESG factors complement each other in many ways, leading us to apply ESG criteria when evaluating shareholder proposals. Moreover, our policy considers the Coalition for Environmentally Responsible Economies (CERES) recommendation on environmental matters contained in the CERES Roadmap for Sustainability as well as the recommendations of ISS Socially Responsible Investment Policy on sustainability issues. In general, climate factors are considered when electing certain directors.

Starting in 2022, our Proxy Voting Policy and Guidelines – DWS Americas considered voting against directors at companies that are significant GHG emitters who fail to take the minimum steps needed to understand, assess, and mitigate the risks related to climate change.

Active Ownership for the three Pooled Legal Entities in EMEA

For equity holdings in the scope of our EMEA Corporate Governance and Proxy Voting Policy targets towards sustainability outcomes are set.

We believe that we best achieve positive change when we exert influence, and we exert influence most effectively when we are invested. We evaluate each company individually and try to generate sustainability outcomes via direct dialogue. Our focus will normally be on issuers with insufficient climate change oversight.

In Q4 2021, we introduced an enhanced engagement framework for portfolios and mandates domiciled with the three European legal entities that have pooled their voting rights. It considers active and passive holdings and sets targets towards sustainability outcomes that are, amongst others, mapped to the PAIs and SDGs. In addition, our investee engagement reports aim to map the relevant SDG and PAI categories to the targeted KPIs. Progress is tracked with clearly defined timelines for follow-up and escalation, as required. Engagement may lead to a review of ESG assessments that could have an impact on the ability of our portfolio managers to invest in the security. By sending thematic engagement letters, we started to engage with non-issuers, such as index providers and stock exchanges, given the limited ability of a passive product to divest from individual securities composing the index it is tracking.

The enhanced engagement framework establishes three clusters of engagement for issuers depending on the type and degree of interaction with the investee company:

- Core List: This is the main list for proxy voting and builds the source for the focus and strategic lists. It contains holdings that are screened according to agreed criteria and covers holdings in Passive portfolios.
- For the Focus and Strategic Engagement Lists different engagement themes are defined according to a detailed screening process. For certain investees, the main priority is on climate and norm violations as well as on governance related issues. With our engagement activities, we also support the Climate Action 100+ initiative, where we are engaging with an Italian utility company to enhance their governance of climate change risk and opportunities, reducing emissions, and strengthening climate-related financial disclosures.

Stewardship to advance climate action in our investments

In 2022 climate action was an important topic not only for proxy voting but also in our engagement activities. We accelerated constructive dialogue with board members and other representatives of investee companies also via direct participation in more than 64 virtual shareholder meetings (2021: 40). For more details, all questions are uploaded on our website.

Considering climate risk within Proxy Voting and Engagement Activity

Although the degree of exposure to climate-related risks may vary across sectors and assets, we expect the board of an investee company to develop a robust understanding of company-specific risks and how to mitigate them. Companies that face substantial climate-related risks, should accelerate their efforts in setting ambitious targets and provide enhanced transparency on their long-term climate strategy.

We expect companies to follow broadly established standards for disclosure and transparency such as the TCFD recommendations and to comply with and report on frameworks such as the UN Global Compact Principles, CDP, Principles for Responsible Investment (PRI), and the SDGs.

Our voting approach on climate issues includes:

- Voting on shareholder proposals that are explicitly climate-focused, such as GHG reduction targets or reporting.
- Holding Board of Directors accountable when we believe they do not adequately manage climate risks.
- Voting on executive remuneration policies and reports, which do not incentivize addressing climate risks and opportunities.

With our net zero commitment in mind, in 2022, we sent our thematic letter to more than 50 additional companies that were newly identified for engagement, following the initial letter sent in 2021.

The engagement letter is available on our website. We clearly articulated our expectations and possible voting implications and invited the recipients to take ambitious steps on the path to net zero. Investee companies not responding at all to our engagement requests were considered for voting sanctions at their 2022 AGM.

Engagement case studies

In 2022, we prioritised climate topics in our engagement activities, and voted against the re-election of directors at 24 companies who failed to provide adequate oversight of climate-related risks. Below are some examples where we held directors accountable for the failure to address and/or mitigate climate change in 2022:

- Company A: We voted against two directors at an electric utility for failing to set ambitious decarbonisation targets and aligning the company's business plans and policy to influence such targets. In this case, the company was able to take additional steps that would mitigate risks associated with climate change, specifically by enhancing GHG emissions reductions targets.
- Company B: We voted against directors at an energy company for failing to respond to several attempts to engage on how they plan to address climate risks through decarbonisation. Following our communication that we had taken this escalation step, the company has since responded, and we engaged on the issue. We will continue to monitor progress.
- Company C: We voted against certain directors at a multinational mining company for failing to take sufficient action on multiple environmental issues, including failure to mitigate climate impacts from their operations, deforestation, and wider environmental concerns over multiple sites.

Management 'say-on-climate proposals', which offers shareholders an advisory vote on companies' carbon reduction and transition strategies, continued to appear on ballots in 2022. We voted on a total of 39 say-on-climate proposals with a focus on emissions, target setting, and reporting aligned to TCFD.

We support reasonable climate-related shareholder proposals, such as enhanced disclosures, setting meaningful decarbonisation targets and reporting on capital expenditure within the context of climate risk and decarbonisation. In assessing such cases, we aim to follow internationally recognised standards.

In 2022, we continued to support social and environmental shareholder proposals. We have a process in place to internally flag any investee company holding that has environmental shareholder proposals on the agenda and in 2022 we voted on many of these shareholder proposals directly related to climate change and GHG emission reductions.

For example:

- Company D: An oil and gas company received a shareholder proposal to report on the company's short, medium and long-term climate change and GHG emission reduction targets. We supported this shareholder proposal because despite the satisfactory target setting, we believe that the company should provide more clarity on how these targets will be met, particularly regarding capital allocation and the alignment to a 1.5°C scenario.
- Company E: At the AGM of a large engineering and technology company, we supported a proposal to report on climate lobbying. Paris Agreement aligned lobbying is an area of increasing focus. In this case, the company already disclosed to a certain level, however, shareholders would benefit from understanding how lobbying is conducted via their membership in certain organisations/trade associations.

Collaboration with other stakeholders and policy advocacy

We continue to collaborate with other stakeholders and investor initiatives where relevant and legally feasible to further advance climate-related matters, such as, net zero investment methodologies, climate-related initiatives, and stakeholder education. The table below highlights our 2022 activities.

Table 5: Climate Collaboration

Climate		
CDP	Signatory, Member, Commitment, Reporter	DWS has been an investor signatory of CDP since 2006. As a CDP reporter, DWS received a CDP score of A-, reaching CDP "Leadership level". In addition, DWS is once again a signatory to CDP Science-Based Targets (SBTs) campaign with the purpose to accelerate the adoption of science-based climate targets in the corporate sector. In addition, DWS became a signatory to CDP Municipal Disclosure campaign aimed at increasing US municipality participation in annual CDP reporting.
Ceres Investor Network on Climate Risk and Sustainability	Member	DWS employees participated in working group update sessions including on net zero in private equity and attended presentations. DWS collaborated with Ceres to publish a report on the financial materiality of water. The report won an award from Environmental Finance. The report helped to establish the Valuing Water Finance initiative's investor engagement, which DWS became a member of.
Climate Action 100+	Signatory	DWS has been a signatory to Climate Action 100+ since 2017 and continued the engagement with an Italian utilities company via Climate Action 100+.
Climate Policy Initiative's (CPI) Global Innovation Lab for Climate Finance	Founding Member	DWS is a member of the Climate Lab cycle and participated in conferences and workshops held by the Climate Policy Initiative.
Coalition for Climate Resilient Investments (CCRI)	Founding Member	DWS is a founding member of the Coalition for Climate Resilient Investment (CCRI). A DWS expert provided input to CCRI's guide to incorporate physical climate assessment methodology, which received special recognition in the report.
EU Energy Efficiency Financial Institutions Group (EEFIG)	Founder and Steering Committee Member	A DWS employee is a member of the EEFIG steering committee. As such, the activities of the employee include providing advice to the EU Commission on energy efficiency policy and participating in a working group on financial risk in energy efficient loans and being a keynote speaker at EEFIG's annual meeting.
Eurosif	Working group member	A DWS employee participated in the climate reporting & indicators advisory group.

Table 5: Climate Collaboration (continued)

Climate		
Global Investor Statement on Climate Change	Signatory	DWS renewed its signatory for the Global Investor Statement on Climate Change and is one of the longest standing supporters since the statement was initiated in 2009.
Global Off-Grid Lighting Association (GOGLA)	Member	DWS became a member of GOGLA in January 2021, alongside contributing to work streams on best practice for transparency in off-grid solar.
Green Climate Fund (GCF)	Accredited Entity Status	In 2022, GCF entered into a commitment agreement worth USD 78.4m and a technical assistance facility agreement worth USD 1.6m for DWS's Universal Green Energy Access Programme, an investment fund that invests in decentralised renewable electrical energy production and distribution in Africa. The investment fund is managed by DWS Investments S.A..
Institutional Investors Group on Climate Change (IIGCC)	Member	Various DWS experts contributed to working groups covering net zero, physical climate risk and resilience, providing feedback on net zero metrics for banks and providing input to investor expectations for data providers. A DWS expert joined the policy working group, providing input to energy efficiency related policy advocacy.
Investment Adviser Association (IAA)	Member	DWS continued to participate in the ESG Committee focused on ESG investing in the context of SEC-registered investment advisors. Specifically, DWS provided input to the Investment Advisor Association on industry-group comment letter to SEC on the proposed climate disclosure rule.
Investing in a Just Transition	Signatory	DWS continued to support the PRI Investor Statement on a Just Transition on Climate Change.
Net Zero Asset Manager Initiative (NZAM)	Signatory	DWS has been a founding signatory to the NZAM initiative since 2020. DWS provided its first "Net Zero Annual Disclosure – Base year 2020" publication in December 2022.
Science Based Targets Initiative (SBTi)	Commitment	DWS committed to SBTi in 2021 and regularly engages with SBTi in context of its net zero activities. A DWS employee served in a SBTi working group to develop a target setting methodology for Sovereign Debt.
Taskforce on Climate related Financial Disclosure (TCFD)	Supporter	DWS has been a TCFD supporter since 2017 and issues a Climate Report since 2020.
UK The Investment Association (IA)	Member	DWS employees participated in the TCFD Implementation Forum on a regular basis.

Source: DWS Annual Report 2022.

Our actions towards becoming a net zero asset manager

In November 2021, we published our net zero interim target framework for 2030 and committed to the SBTi methodology as the underlying reference framework for our net zero approach. We put 35.4% (or € 281.2 bn.) of our total global AuM (as of 31 December 2020) in scope to be managed towards net zero by 2030 (subject to the consent of our clients and legal entities, as well as fund board approval). These in-scope assets comprise equity and corporate bond holdings in mutual funds (ex-US) and mandates of net zero committed clients, as well as selected real estate and infrastructure holdings. For these assets, we aim to achieve a 50% reduction in WACI adj. for Scope 1 and Scope 2 emissions by 2030, compared to the base year 2019.

As a NZAM signatory, we aim to regularly report against our net zero commitments. In the first annual disclosure submitted to CDP in July 2022, we reported a 6.3% year-on-year decrease in the WACI adj. for those AuM in scope for net zero (emissions for 2020 vs. the 2019 baseline[9]).

Our progress towards portfolio net zero

Main drivers of our reported portfolio decarbonisation

The reduction in WACI adj. of 6.3%[10] in our portfolios is the combined result of three main underlying effects:

- Changes made by portfolio companies to their own carbon intensity (Step 2, see table 6)
- Changes to our product mix, i.e., closure of existing products or launch of new products (Steps 3 + 5)
- Changes to portfolio holdings either due to fund flows, market movements, or other portfolio considerations (Step 4).

Table 6: Portfolio emission data and assets in scope of net zero

	AuM in scope for NZ (EUR bn.)	WACI (tonnes CO_2e / mn$ rev)
Starting point (2019 emissions in Dec. 2020 holdings)	251.2	170.5
Step 1. Revisions to historical carbon data	251.2	170.2
Step 2. Self-decarbonisation of portfolio companies	251.2	166.8
Step 3. Changes to DWS' product mix i.e. existing products being closed	247.6	165.8
Step 4. Changes to portfolio holdings (net flows, market movements, portfolio changes)	318.7	157.0
Step 5. Changes to DWS' product mix i.e. new product launches	325.3	157.6
Step 6. In-scope adjustment (post calculation)	328.6	162.0
Next starting point (2020 emissions on Dec. 2021 holdings)	328.6	162.0
Illiquid assets in scope for NZ (Dec 2021 holdings, currently not part of WACI calculation)	29.3	

WACI gross reduction: -7.4%

Adjusted by inflation: 1.2%

Infl. adj. WACI reduction: -6.3%

The WACI is currently only calculated for liquid in-scope AuM where carbon data is available from our current vendors. Illiquid assets in scope for NZ are currently not part of the WACI calculation (2020: 30bn. and 2021: 29.3bn.). The 6.3% decrease is derived as follows (1-7.4%)x(1+1.2%)-1=-6.3%.

Source: DWS as of 31 December 2022.

(9) Due to a lag in reporting, emission data for 2021 was not available for all companies at the time of DWS reporting to CDP. To account for this lag, emission data for 2020 (in combination with 2021 holdings) has been used.
(10) The WACI is calculated for the liquid in-scope AuM, where carbon data is available. The new WACI figure for the relevant in-scope assets for 2020 stands at 162 tonnes of CO_2 per million $ of revenue. The change from the 2019 baseline figure of 170.5, reflects both the 7.4% gross WACI reduction accounted for as decarbonisation as well as other changes classified as rebaselining effect (Step 1 + 6, see table above. This rebaselining includes the effect of data revisions to companies' emissions as well as changes and adjustments of assets in scope of net zero (Step 1+6 in table below).

Changes to the assets in scope

The AuM in scope for our net zero commitment increased from € 281.2 bn. (includes € 30 bn. of illiquid assets not part of the WACI calculation) as per 31 December 2020 to € 358.0 bn. (includes € 29.3bn of illiquid assets not part of the WACI calculation) representing 38.6% of total AuM as of 31 December 2021. The overall expansion of in-scope assets includes both changes in AuM of portfolios that were already in scope in 2020 as well as some new portfolios coming into scope.

Relation of first year results to overall market and our interim targets 2030

The inflation-adjusted 6.3% WACI is broadly in-line with the average year-on-year reduction needed to reach our overall 50% interim decarbonisation target by 2030. To put this into context, the MSCI All-Country World Index over the same year saw an inflation-adjusted WACI decline of 0.3%. A meaningful share of the portfolio-related decline is attributable to European based funds that have been converted from Art. 6 into Art. 8 SFDR over the course of 2022. SFDR Art. 8 funds apply specific ESG Filters which also result in a reduction of carbon intensity. As such, the year over year reduction is partly driven by conscious product-related decisions.

The Net Zero Annual Disclosure – Base year 2020 including an extract of our latest CDP disclosure can be found on our website with further details on the methodology, metrics and reconciliation of figures.

Engagement strategy

The guiding principle of our actions towards portfolio net zero is to help transition the real economy towards real world reduction in carbon emissions. Therefore, engagement rather than divestment is a key part of our strategy to achieve portfolio net zero outcomes.

We select companies for net zero thematic engagement based on their inclusion in the Climate Action 100+ net zero benchmark, their climate transition risk assessments (CTRR), and their contribution to the overall WACI for the net zero in-scope assets of our portfolios.

In 2022, we sent a thematic letter to more than 50 additional companies, following our initial letter in 2021.

Further details of our engagement process, how we consider climate risk in engagement and proxy voting activities, as well as specific engagement case studies can be found in an earlier section of this document on “Considering climate risk within Proxy Voting and Engagement Activity”.

Climate Transition plan and related actions

Whilst engagement remains an important lever towards our net zero goals, our engagement efforts will also be supported by other actions. Collectively these actions will form part of our climate transition plan.

Coal policy: The overall path to net zero is dependent on a timely and scheduled transition away from fossil fuels. According to the International Energy Agency (IEA), this requires a complete phase-out of thermal coal in EU/OECD economies by 2030, and the rest of the world by 2040. In accordance with this, any development of new thermal coal capacity must not be undertaken. We acknowledge and seek to support these implications in our climate transition plan.

Certain products, for example, actively managed funds following the “ESG Investment Standard” and European-domiciled ETFs under the Article 8 SFDR classification, already restrict investment in companies with excessive coal exposure.

In 2023, we aim to adopt and implement a coal policy that will contain investment restrictions on a wider set of investment portfolios.

Product innovation: A critical component of our climate transition strategy will be to tilt the mix of investment products we offer our clients towards more sustainable options. This includes products that invest in low-carbon intensity companies, companies with high but rapidly falling carbon intensity, and companies that facilitate the green transition with their tools and technology. Tangible examples include the seven dedicated Net Zero Pathway, Paris aligned Xtrackers ETFs we launched in 2022. Development of innovative low carbon products requires close partnerships with other industry participants, most notably index providers. We continue to work with these stakeholders to develop appropriate benchmarks for net zero investment products.

SBTi alignment: In compliance with our NZAM commitment, we focus on moving toward a SBTi target framework in 2023.

Business line specific approach

While all these actions will contribute to the decarbonisation of in-scope portfolios overall, their suitability and relative importance will differ for each business line. Hence, each business line will devise their own specific approach to deliver on the overarching climate transition targets and to translate net zero targets to specific portfolio-based management actions.

For the **Active** business, the first phase of the climate transition plan will focus on engagement with investee companies, while at the same time being selective in the launch of new products and tilting the nature of existing products to a greater climate transition focus. In the second phase, the implementation of a fossil fuel policy and the corresponding investment restrictions they impose will lead the progress on decarbonisation of portfolios. As we get closer to the 2030 interim target date, the third phase begins where we expect to see positive results from the engagement with our investee companies.

For the **Passive** business given the constraints of tracking a publicly available index benchmark, there is limited scope to apply discretionary investment choices at the portfolio construction stage. Hence, for Passive, we will rely on changes to our product mix. This includes switching existing Passive products to track ESG and/or low-carbon screened versions of the regular indices which delivers significant changes to the carbon intensity of portfolios. It also involves launching new tailor-made ESG and net zero compliant products after working with index providers to incorporate new datasets in their index construction.

For the **Alternatives** business our approach to decarbonize portfolios starts with an analysis and understanding of the carbon footprint followed by setting out a pathway to decarbonize together with the investee companies or assets. In our real estate funds, there is scope for direct action on our part to improve the energy efficiency of buildings and /or adding a renewable energy source. In our Sustainable Investments business, we have launched and managed 100% decarbonisation dedicated funds (see Strategy – Sustainable Investments). In addition, decarbonisation targeted funds, aligned to our net zero commitment are being developed in our Real Estate business.

Outlook

In addition to the above outlined measures that are intended to have a direct effect on carbon emissions across our portfolios, we expect that working with institutional clients towards setting net zero and portfolio targets will also support our 2030 interim target. External factors outside of our investee companies' influence may, however, also heavily influence achieving our interim 2030 decarbonisation target:

- For example, in 2020 the effects of COVID lockdowns and the associated volatility in economic activity influenced the reduction in emissions between 2019 and 2020. A reversal of this effect will likely be seen in the following years as the rebound from lockdowns is captured in underlying emissions data.
- We also expect the pace of decarbonisation to be impacted by the unfolding energy crisis resulting from the war in Ukraine. The resulting shortage and surge in the price of gas has led to a greater reliance on thermal coal, with obvious consequences for carbon emission figures. An associated impact of this surge in fossil fuel prices is the accompanying outperformance in the share prices of fossil fuel and other high emission companies. This raises the relative weight of these high emitters in portfolios and in market benchmarks, thereby potentially leading to higher WACI numbers.

We do not expect the path of WACI reduction to follow a linear trend. But even if the short-term numbers may vary, we remain committed to our overall 50% decarbonisation target by 2030. Along the way we may need to adjust measures and apply portfolio construction changes to reach our targets.

Becoming and maintaining operational net zero

As stated in our Climate Report 2021, we are also conscious of our responsibility for our corporate operational emissions and aim to work actively to reduce these emissions in accordance with science-based methodology. This is supported by our SBTi commitment, which covers emissions both from our portfolio and operational activities.

In 2022 we have made progress towards delivering our long-term target of achieving operational net zero by 2050. We have continued to make progress against our operational climate-related sustainability KPIs first communicated in 2020, are on track to meet our medium-term targets, and achieved both 2022 targets (please refer to the 'Metrics and Targets' section).

After completing a review of our operational emissions in accordance with the GHG Protocol against a 2019 baseline, in 2022 we have established an operational emissions boundary that is in accordance with SBTi guidance[11] and have also set interim operational emission targets for 2030. These targets are driven by the SBTi absolute contraction methodology that is aligned with the Paris Agreement 1.5°C pathway.

We have also internally assessed and developed plans to implement a series of interventions and emission reduction strategies that we are confident will help us to decarbonise our operations by 2030 in accordance with the latest guidance. These strategies include interventions targeted directly at reducing emissions from our corporate real estate, corporate fleet, and business travel, as well as at enhancing the quality of our supply chain, even though emissions from purchased goods and services are not currently quantified and outside of our SBTi-boundary. Where possible, interventions have also been prioritised according to the decarbonisation hierarchy, focusing primarily on strategies that avoid and reduce operational emissions.

These targets and interventions remain subject to formal SBTi validation in 2023 but form the basis for our new operational sustainability KPIs. Identified interventions also build on existing in-flight actions around sourcing renewable energy, reducing the amount of energy consumed in our operations, and reducing business travel, and target impact across the full scope of our SBTi-aligned operational emissions boundary.

As noted in prior years, much of our corporate real estate comprises offices leased from Deutsche Bank Group, and as a result we currently only hold head leases with third party landlords for a small number of locations, which might change over time. We continue to work in partnership with Deutsche Bank Group and landlords in intervening periods to enhance the operational efficiency of our offices, as well as procuring energy from renewable sources.

Additionally, we have taken initial action with respect to our corporate fleet scheme, with electric and hybrid vehicle options, a "bike2work" scheme at certain locations as well as free job tickets for public transport for employees in Germany. With respect to business travel, we continue to prioritise essential travel, while also working to promote more climate-friendly options.

In addition to the SBTi-aligned strategies, we will also work to validate and enhance the quality of our supply chain through use of inputs from sustainability rating agencies in our third-party risk management processes. This is in addition to broader steps relating to integration of the requirements of the German Supply Chain Due Diligence Act in our third-party selection processes from 2023 onwards.

We are also committed to cultivating a climate-conscious culture across our workforce. To this end, in 2022, we assembled a Sustainability Think Tank incorporating sustainability-passionate employees from across the firm. The objective for this group going into 2023 is to provide information, tools, and optional informal training to employees to enable them to make better informed climate-conscious decisions in their actions, while reducing their carbon footprint both inside and outside of the workplace.

(11) DWS Operational Emissions boundary developed in accordance with SBTi methodology and the GHG Protocol.

Risk Management

We made progress on the integration of Adverse Impacts in our risk management framework, sustainability risk management policy, and risk appetite statement.

TCFD Recommendations

a) Describe the organisation's processes for identifying and assessing climate-related risks.

b) Describe the organisation's processes for managing climate-related risks.

c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

3 / Risk Management

What we mean by climate and other sustainability risks

Sustainability factors include environmental, social and governance events or conditions that could either be of an "outside-in" nature, such as physical climate risk or transition risk issues, but can also be in direct relation to the impact or "inside-out" effects caused by us or any investment, such as environmental impacts from the company's activity.

This is also referred to as the concept of "double materiality", which aims to describe the fact that sustainability factors are connected to two dimensions of materiality: "Financial materiality" describes the ESG-related financial risks, whereas "non-financial materiality" describes "Adverse Impacts" to the environment or society. Non-financial materiality refers to negative, material or potentially material effects on sustainability factors that result from or are directly related to actions made by us, our employees, investee companies within our portfolios or other related stakeholders. Climate-related risk factors may therefore be separated into the following two groups:

Graph 3: Our impact on climate and vice versa

— Physical climate factors include extreme weather events such as heat waves, floods and forest fires as well as long-term climate change leading for example to rising sea levels or unstable weather conditions.
— Climate transition factors include policy measures, technological changes and changes in customer preferences associated with the transition to a low-carbon economy.

— Environmental factors include various matters, including but not limited to greenhouse gas emissions, impacts on biodiversity, unsustainable use of water and maritime resources, failure in avoiding waste or unsustainable land use.

Source: DWS interpretation of "Guidelines on reporting climate-related information" on https://european-union.europa.eu/index_en, 2023.

Table 7: Physical and transitional climate risk factors considered within our climate-related risk assessments:

Current and emerging regulation	Transitional climate risks due to existing and emerging regulation are considered in the assessment of risks at the corporate and portfolio level. This comprises regulations and industry-specific regulations, which can be relevant for the investment market risks of our portfolios.
Technology	Transitional climate risks from technological change and breakthroughs during the transition to a carbon-neutral economy. This is especially relevant when assessing the transitional climate risk of investee assets and companies at the portfolio level.
Legal	Legal risks at the corporate level are considered especially in the context of compliance with regulatory requirements for sustainable finance. Furthermore, legal risks may arise in the case of greenwashing. At the portfolio level, legal aspects related to climate change, such as litigation for contribution to climate change or for violating climate regulation, may be relevant for investee companies and thus contribute to investment market risk.
Market	Transitional climate risks due to market changes are considered in the assessment of risks at the corporate and portfolio level. At the corporate level, changing client preferences in the consideration of climate risk and other sustainability aspects in investment products can lead to strategic risks. At the portfolio level, market expectations are particularly relevant as factors of investment market risks.
Reputation	The reputational aspects of climate risks are an important driver of reputational risks of our company. These risks can arise from investments in companies that are involved in activities perceived to be unsustainable, and potentially unsustainable practices by ourselves.
Acute and chronic physical climate events	At the corporate level, acute physical climate events are covered in contingency planning. At the portfolio level, acute physical climate events such as storms or floods can potentially damage or destroy assets and thus impact their value. Long-term physical climate change effects are especially relevant as a driver of investment market risk at the portfolio level.

Source: DWS, 2023.

Integrating Climate and other Sustainability Risks in the Risk Framework

We further integrated sustainability risks into our risk management framework. In the below, when we refer to ESG and sustainability risks, this includes climate-related risks:

- Identification of ESG risk themes impacting individual risk types and definition of ESG risk scenarios for selected risk types in the risk taxonomy.
- Formalisation of an ESG risk strategy for each ESG risk theme.
- Updating the Sustainability Risk Management Policy to provide guiding principles on ESG risk management based on ESG risk themes.
- Updating the risk appetite statement with qualitative statements and quantitative indicators. Enhancements of ESG risk appetite monitoring and reporting processes in accordance with the development of our Risk Appetite Statement.

To integrate adverse impacts in our Risk Management Framework, adverse impacts have been integrated in the Sustainability Risk Management Policy and our Risk Appetite Statement. National or regional regulations as well as existing contractual relationships may supersede the consideration of principal adverse impact for certain regions or asset classes.

The Sustainability Risk Management Policy describes how sustainability risks, including climate risks, are integrated into our Risk Management Framework. It requires sustainability risks to be incorporated into our operating model for impacted risk types and business functions. This policy outlines ESG and sustainability risk-related definitions, how sustainability factors interact with the risk taxonomy, as well as roles and responsibilities for the management of sustainability risk factors, including climate-related risk.

The Risk Appetite Statement lists qualitative statements and/or quantitative metrics. Four qualitative statements have been included in the Risk Appetite Statement, one for each group of ESG Risk Themes (please refer to section `Strategy – How we identify Climate Risks in this document). They define the tone from the top for ESG-related risk taking within the organisation. Quantitative indicators have been defined related to each group of ESG risk themes. An overview is provided below:

Table 8: ESG Risk Theme Groups

ESG Risk Theme Group	Qualitative statement	Selected quantitative indicators
Adverse Impacts[12]	Strive to establish policies to limit and reduce the adverse impacts of our corporate activities, the activities of investee companies, real assets, clients or suppliers to the environment or the society. Where appropriate, engage with major investee companies, clients, suppliers, and other stakeholders, transform the product offering including underlying real assets.	— Portfolio carbon emissions — Selected sector exposures
Sustainability impacts on Non-Financial Risks	We have no appetite for ESG-related regulatory and legal violations. While further ESG-related non-financial risks are inherent to our business strategy, we strive to avoid material impacts from sustainability factors on non-financial risk types – and aim to maintain an effective control environment to keep the risks "as low as reasonably possible".	— Number of operational errors in processing ESG-related data — Number of validated fraud incidents related to ESG matters
Sustainability impacts on Financial and Strategic Risks	Establish effective processes to identify and assess ESG impacts on financial and strategic risks; consider such ESG impacts in the decision-making processes in line with our ESG strategy.	— Achievement rate for published sustainability KPIs
Sustainability impacts on Investment Risks	Strive to establish product level risk governance and risk appetite frameworks to ensure that sustainability risk taking is in line with the respective risk profile of the product or portfolio.	— Number of funds with mismatch between sustainability risk profile and agreed risk appetite, where an escalation was required

(12) While the formulated statement sets the overall tone for our approach to Adverse Impacts, national or regional regulations as well as existing contractual relationships may supersede this overarching statement.

Integration of sustainability (including climate-related) risks into corporate risk management

Non-Financial Risk: We have established risk assessment processes to identify inherent risks exposures, to assess the related control environment and to highlight areas where residual risk levels are not in line with the risk appetite. Dedicated ESG assessment templates were established in 2022 that have been enhanced compared to previous years in terms of ESG impact identification and assessment approach. Using these ESG assessment templates, the risk assessors evaluated their risk types as follows: If ESG factors are identified to be a key driver of a risk type, relevant ESG risk themes or ESG risk scenarios, including climate-related scenarios impacting that risk types were mapped using these ESG assessment templates. Based on the selected theme(s) or scenario(s) and other ESG specific context data, the ESG impact on inherent risk, control effectiveness and residual risk level was assessed.

Reputational Risk: We consider ESG factors in our reputational risk management procedure. Once identified, ESG-related activities that may potentially have a material impact on our reputation are analysed and addressed to the Reputational Risk Committee (please refer to the section Governance in this document). Additionally, an analysis of the impact of certain ESG-related reputational risk scenarios on flows and the associated revenues was performed in 2022 (please refer to the section Strategy in this document for further details).

Financial and Strategic Risk: ESG factors were integrated in selected financial and strategic risk management processes related to corporate investments. In addition, we performed an impact analysis of the strategic risk of selected ESG products not meeting ESG-related client and market expectations (please see also section Strategy for further details).

Integration of climate-related risks into our investment risk management

Fiduciary Sustainability Risk Management in Liquid Asset Classes: To identify and assess the climate risk profile of a portfolio, the Climate Transition Risk assessment as well as a Norm Controversy assessment (including climate-related controversies) are considered by risk management in combination with gross and risk-adjusted exposure information. In 2021, we implemented a portfolio sustainability risk governance process for European-domiciled funds pursuing actively managed Equity or Fixed Income strategies.

In 2022, this process was enhanced and subsequently implemented across all European domiciled UCITS and AIFs, including the Xtrackers ETF product range. This process includes systematic measurement of CTRR exposures, including risk-contribution based metrics (see also section “Metrics and Targets”), portfolio risk appetite setting, monitoring against individual fund risk appetite and reporting to relevant stakeholders including the Investment Division (represented by the asset class heads) as well as responsible product management team leads. Furthermore, on a quarterly basis, risk management holds regular review meetings with all stakeholders including senior representatives of investment and product management where exceedances and other observations are discussed and, if necessary, decisions are taken related to risk appetite adjustments or escalations to fund managers, portfolio managers or senior management. In addition to the above, selected climate-related signals were considered within counterparty risk and issuer concentration risk processes.

Fiduciary Sustainability Risk Management in Alternative Asset Classes: We identify and assess the level of sustainability risk, including climate risks, taken by illiquid alternatives funds based on individual asset level risk scores or assessments, which are informed by both quantitative and qualitative data points. These can be based on external ESG data providers (e.g., Measurabl for Real Estate), as well as internal subject-matter experts (e.g., our ESG Specialists).In 2022, sustainability risk measurement and management processes were developed and formalized for the European domiciled illiquid alternative asset classes Real Estate, Infrastructure Equity, Private Equity, Sustainable Investments and Private Debt.

Metrics and Targets

We improved our CDP score from B in 2021 to A-.

We reduced our operations energy consumption.

We reported progress on climate-related sustainability KPIs, and SBTi and TPI portfolio alignment.

TCFD Recommendations

a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.

c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

4 / Metrics and Targets

In 2022, we have separated our group level metrics into three categories:

Business metrics: these metrics help measure our sustainability performance and achievement of our sustainability strategy.

Corporate emissions metrics: these metrics provide transparency of our corporate emissions and energy consumption. They are used to oversee our operational net zero strategy.

Portfolio net zero metrics: these metrics provide transparency of the emissions from our portfolio companies in the context of our NZAM commitment. They are used to oversee our portfolio net zero strategy.

Our most important metrics are defined as Sustainability KPIs, as reported in our Annual Report (please refer to the section "Our Responsibility – Sustainable Action" in our Annual Report 2022). The KPIs we tracked in 2022 are shaded in grey in the below tables. Please refer to the Annual Report "Our Strategy" section for details of changes to the KPI population to be tracked in 2023.

In addition, in this section we also disclose details of metrics used at investment level and metrics covering SBTi / TPI portfolio alignment.

Table 9: Business metrics

Metric	Definition	How this relates to our climate strategy, risks and opportunities	2020 result	2021 result	2022 result	Ambition as of 31 December 2022
ESG AuM	Products that meet our definition of ESG AuM[13].	Growing our ESG AuM represents a business opportunity for us to deliver sustainable solutions to meet client demand.	N/A	€ 115.2 bn.	€ 117.0 bn.	Continue to grow our ESG AuM through a combination of flows into existing products, flows into new products and supporting the transfer by existing clients of their assets from non-ESG products into ESG products.
ESG Net Flows	Net flows from products that meet our definition of ESG AuM.		N/A	€ 18.9 bn.	€ 1.0 bn.	Grow ESG net flows at the same, or at a faster rate, than our overall flow target of >4% of AuM.
Corporate engagements	Number of corporate engagements addressing ESG and additional topics.	Through engagements and voting we can exert influence in our investee companies. We seek to assess their climate-related risks and opportunities, reduce their emissions, and strengthen their climate disclosures.	454	581	532	Participate in 475 or more corporate engagements per annum by 2024.
Proxy voting: number of companies voted (EMEA and APAC)	Number of companies whose meetings we submitted votes at.		1,859	2,426	2,897	N/A
Proxy voting: number of companies voted (US)			6,720	6,879	6,777	
Sustainability rating	CDP rating measures our disclosures, awareness and management of environmental risks and best practices associated with environmental leadership.	The CDP rating acts as a mechanism to drive improvements in our disclosure and environmental performance in relation to climate-related risks and opportunities.	C	B	A-	Maintain or improve CDP B rating by 2024.

(13) Based on the refinements to our global ESG Framework, the following products are considered as ESG AuM as at the end of 2022:
- Liquid actively managed products: retail mutual funds which follow the "DWS ESG Investment Standard" filter, or have a "sustainable investment objective", and US mutual funds which have been labelled as ESG and seek to adhere to an ESG investment strategy.
- Liquid passively managed funds (ETFs) which apply a screen comparable to the "DWS ESG Investment Standard" filter, or which track indices that comply with the EU Benchmark regulation on EU Climate Transition Benchmark and EU Paris-Aligned Benchmark, or have a "sustainable investment objective", and other liquid passively managed funds which have been labelled as ESG and/or seek to adhere to an ESG investment strategy
- Liquid mandates or special funds for institutional clients or White Label products in scope of SFDR and report pursuant to Article 8 SFDR which follow the "DWS ESG Investment Standard" filter or a comparable ESG filter aligned with the client, or which are in-scope of SFDR and report pursuant to Article 9 SFDR
- Liquid mandates or special funds for institutional clients or White Label products which are out-of-scope of SFDR but comply with certain of the "General Industry Standards and Guidelines for Sustainable Investing"
- Illiquid products which are in scope of SFDR and report pursuant to Article 9 SFDR
- Illiquid products which are out-of-scope of SFDR, but which have a "sustainable investment objective".

Business metrics: comments on 2022 results

We have made progress in 2022 against our sustainability KPIs and remain confident of meeting our medium-term ambitions. As of 31 December 2022, we had € 117 bn. in ESG AuM and achieved ESG net flows of € 1 bn. in 2022, despite a challenging market environment. In 2022, we improved our CDP rating to A- compared to B in the prior year, despite a fall in the financial services average from B to B-. The decline in corporate engagements versus prior year was driven by additional requirements for preparation and documentation of engagements under our enhanced engagement framework, however, we remain above our medium-term ambition.

Table 10: Corporate emissions metrics

Metric	Definition	How this relates to our climate strategy, risks and opportunities	2020 result	2021 result	2022 result	Ambition as of 31 December 2022
Energy consumption	% reduction in total energy consumption measured in GWh vs 2019 baseline.	For more details, please refer to "Our actions towards becoming a net zero asset manager".	--18%	-21%	-28%	Reduce our total energy consumption by 20% by 2025 compared to 2019.
Electricity from renewable energy sources	Electricity consumption from renewable energy sources in GWh / total electricity consumption in GWh.		78%	95%	96%	Source 100% renewable electricity by 2025, with an interim ambition of 85% by 2022.
Travel (Air and Rail) emissions reduction	% reduction in travel emissions (Air and Rail) vs a 2019 t/C02 baseline.		-79%	-88%	-49%	Reduce our travel emissions by 25% by 2022 compared to 2019.
Scope 1 and 2 emissions	Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. For us this primarily relates to our corporate real estate.		4,553	2,693	2,350	
Scope 3 emissions (business travel)	Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in our value chain. For us we currently report Scope 3 emissions for business travel (air and rail).		1,695	974	4,134	

Note: DWS Group energy consumption, electricity from renewable sources, fleet emissions and rail emissions are determined on a pro-rata average number of effective staff employed (full-time equivalent) basis from Deutsche Bank Group data. DWS flight data is sourced from Deutsche Bank Group and the associated air emissions are calculated using Deutsche Bank Group methodology. Prior year emissions and energy consumption results have been restated due to updated methodology and historic data.

Corporate emissions metrics: comments on 2022 results

Our business travel emissions increased in 2022 compared to 2021 due to an increase in air travel following the relaxation of COVD-19 restrictions. However, our emissions from business travel continue to be significantly lower than our 2019 baseline, primarily driven by the residual impact from COVID-19 and the new ways of working this has promoted including the increased use of technology. We also continued to make progress in our transition towards procuring 100% of electricity we consume from renewable sources and reducing the overall amount of energy we consume in conducting our operations.

Table 11: Portfolio net zero metrics

Metric	Definition	How this relates to our climate strategy, risks and opportunities	2020 result	2021 result	2022 result	Ambition as of 31 December 2022
Change in adjusted WACI	We employ the inflation-adjusted WACI instead of the standard WACI to strip out the effect of price increases from the decarbonisation metric	For more details, please refer to "Our actions towards becoming a net zero asset manager"	NA	-6.3%	Available mid 2023	50% reduction in WACI adj. related to Scope 1 and 2 emissions by 2030, compared to base year 2019
Assets in scope of Net Zero (%)	The % of total AuM covered by the NZAM commitment		35.4%	38.6%		
Assets in scope of Net Zero (€)	The € value of AuM covered by the NZAM commitment		€ 281.2 bn. (as of Dec 20)	€ 358.0 bn. (as of Dec 21)		
Adjusted WACI for in scope assets (tons CO_2 / m$ rev)	The total inflation-adjusted Weighted Average Carbon Intensity (WACI adj.) of the assets in scope of the NZAM commitment		170.2	157.6		

Note: The Adjusted WACI is currently only calculated for liquid in-scope AuM where carbon data is available from our current vendors. Illiquid assets in scope for NZ (€ 29.3 bn. as of year-end 2021) are currently not part of the WACI calculation

Portfolio net zero metrics: comments on 2022 results

Please refer to the section Strategy - Our actions towards becoming a net zero asset manager in this document.

Fiduciary Sustainability Risk related metrics for liquid asset classes

As described in the risk management section, we have established a portfolio sustainability risk governance process to manage fiduciary climate risks. The Climate Transition Risk assessment as well as a Norm Controversy assessment are considered by the Risk function in combination with gross and risk-adjusted exposure information to assess the climate risk profile of a fund. Risk levels are then determined based on a dedicated set of thresholds related to CTRR and Norm Controversy laggards. The risk appetites for those metrics at a fund level are based on a fund's SFDR classifications, investment objectives as well as individual discussions between risk, investment, and product management. Quantitative indicators related to risk appetite exceedances were included in our Risk Appetite Statement.

Table 12: Fund level metrics: definitions and usage

Metric	Definition	How this relates to our climate strategy, risks and opportunities
Market-weight Exposure to ESG laggards (%)	A funds allocation to ESG laggard companies related to Climate Transition Risk and Norm Controversies. Measured on absolute or relative base depending on benchmark definition.	Having an independent governance framework in place to ensure fund-specific control of exposure and risk taking versus defined sustainability risk appetites is helping to strengthen our fund's climate risk and opportunities profile while not violating our fiduciary duties to our clients
Risk contribution to ESG laggards (%)	A funds risk contribution to ESG laggard companies related to Climate Transition Risk and Norm Controversy. Measured on absolute or relative base depending on benchmark definition.	

Fund level metrics: comments on 2022 results

The portfolio-level metrics are being checked regularly against fund specific sustainability risk appetites (related to each specific ESG assessment) which are derived from SFDR classifications, contractual obligations, and investment objectives. Given that the results of these metrics are being monitored on fund level, they cannot be represented meaningfully in an aggregated manner at DWS group level.

Asset Management supplemental metrics

In line with the supplemental guidance by TCFD to provide metrics considered in investment decisions and monitoring, we have been tracking our portfolio's SBTi and Transition Pathway Initiative (TPI) coverage since 2020 and introduced new sustainability risk related metrics for liquid asset classes in 2022.

We note that there is no market agreement on the 'right' forward looking climate benchmarks.

Portfolio coverage of companies with Science-Based Targets (SBTs)

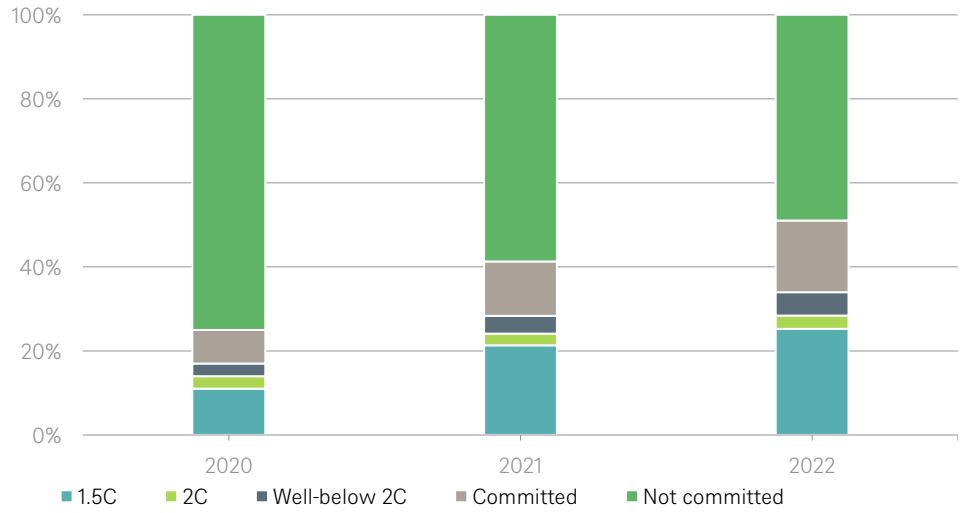
Our liquid asset portfolio coverage of companies with Science Based Targets (SBT) was assessed across equities and corporate bonds in Active, Passive and Liquid Real Assets (LRA), which together are 56% of our total AuM as of end of 2022. Data on status of companies' SBT has been added to the DWS ESG Engine. A rapidly growing number of publicly listed and private companies are committing to the SBTi. As of 2022, 51% of liquid assets had committed to develop or had an approved SBT representing 3,581 issuers. For 2021, 41% of liquid assets representing 1,510 companies, had committed to set or had a validated SBT. In 2020 only 25% of our portfolio had committed to set or had a validated SBT.

Our investee engagement efforts described earlier in 'Our actions towards becoming a net zero asset manager', encourage more companies to set SBTs.

The SBTi portfolio coverage analysis is different from our interim net zero target framework, which includes equities, corporate bonds, and LRA. Also note that our net zero target framework includes many direct real estate and infrastructure investments, primarily in mutual funds, but also in selected individually managed institutional accounts. The net zero target framework excludes legal entities in geographic locations that have known regulatory requirements regarding any change to investment processes, including approval from independent fund boards. The SBTi portfolio coverage includes assets held in all equities, corporate bonds, and LRA held across all mutual funds and mandates globally.

Graph 4: Our SBTi portfolio coverage over time

(%)



Source: DWS, SBTi; 2022

Forward looking benchmark: TPI's Sectoral Decarbonisation Benchmarks

For TCFD's recommendation to disclose performance against a forward-looking benchmark, we use the asset owner led TPI. We are a supporter of TPI, and the initiative's data has been added to the DWS ESG Engine. While commitment to a SBT is an important step for a company, evaluation is also needed on whether a company is making progress towards their target. TPI's carbon performance metrics focus on how companies plans compare to the targets of the Paris agreement. The evaluation uses International Energy Agency (IEA) modelling to translate emissions targets into benchmarks by sectors, against which the performance of individual companies can be compared. This methodology is known as the Sectoral Decarbonisation Approach (SDA benchmarks). We acknowledge that there are some differences between TPI's and SBTi's benchmarks, but TPI states that both models have their merits.

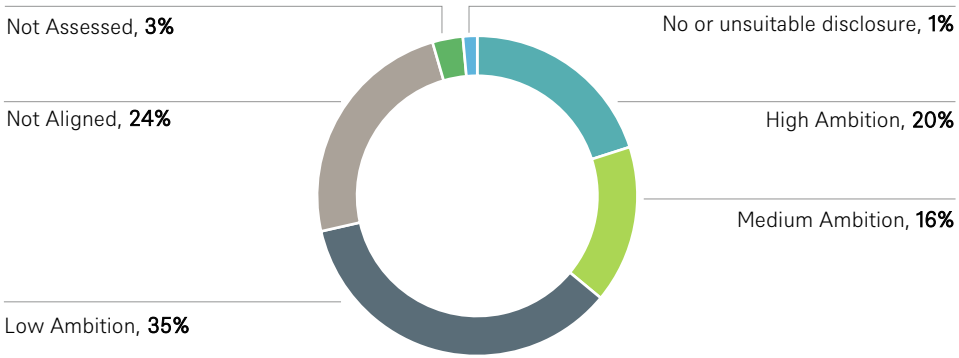
TPI analysis currently focuses on the largest companies in the most carbon intensive sectors, with data for 582 companies as of end of 2022 (2021: 492). TPI is working to expand the number of companies and sectors in scope and has developed 1.5°C aligned sectoral benchmarks for electricity, oil and gas, diversified mining, cement, steel, shipping, and aviation. As 1.5°C benchmarks have not yet been finalised for all sectors we disclose the proportion of our holdings in companies as follows:

– Aligned with a low, medium, or high climate ambition scenario[14],
– Not aligned
– Not assessed or had unsuitable disclosures.

Due to some sectors now having 1.5°C aligned benchmarks, the TPI disclosure in our 2020/21 Climate Report is not directly comparable.

TPI assessed companies in our equities and corporate bonds in Active, Passive and LRA representing USD53 bn. AuM or 6% of our total AuM. As TPI's analysis of companies and sectors expands, this will cover more of our portfolio over time. Within these holdings, 20% of the investments are in companies with an emissions trajectory that has a strong climate ambition, 16% medium ambition, 36% low ambition with 24% not aligned.
We note that there is no market agreement on the most appropriate forward looking climate benchmarks. In addition, major asset owners through the TPI[15] stated that using implied temperature rise metrics could make it increasingly difficult to hold a portfolio of carbon intensive companies even if those companies had been responsive to investor engagement and had made credible and independently verified net zero aligned targets.

Graph 5: Transition Pathway Initiative (TPI) carbon performance assessment of our liquid AuM



Source: DWS, SBTi; 2022

(14) Based on TPI classification, high ambition scenario includes companies aligned with TPI scenarios: 1.5 degrees in electricity, oil & gas, diversified mining, cement, steel, shipping, and aviation plus below 2 degrees scenario in paper and aluminium and 2 degrees (high efficiency) in the automotive sector. Medium ambition includes below 2 degrees in electricity, oil & gas, diversified mining, cement, steel, shipping, and aviation plus 2 degrees in paper al aluminium and 2 degrees (shift improve) in the automotive sector. Low ambition includes National Pledges in electricity, oil & gas, diversified mining, cement, and steel plus International pledges in aviation and shipping and Paris Pledges in automotive, paper and aluminium.
(15) TPI 2021 https://www.transitionpathwayinitiative.org/publications/86.pdf

5 / Glossary

Term	Meaning
AFC	Anti-Financial Crime
AGM	Annual General Meeting
AIF	Alternative Investment Fund
AktG	German Stock Corporation Act (Aktiengesetz)
APAC	Asia Pacific
AuM	Assets under Management
Bn.	Billion
CAO	Chief Administrative Office
CCRI	Coalition for Climate Resilient Investments
CDP	Formerly Carbon Disclosure Project: Sustainability rating with focus on climate change
CEO	Chief Executive Officer
CERES	Coalition for Environmentally Responsible Economies
CFO	Chief Financial Officer
CIO	Chief Investment Officer
Climate Action 100+	Investor-led initiative to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change.
Climate neutral	The concept of climate neutrality refers to a state where human activities result in no net effect on the climate system. To achieve such a state, relevant bio-geophysical changes due to human activities (e.g., changes to earth's surface reflectivity or a regional water system) would need to be avoided and net zero emissions would need to be achieved. For reference see page 48, https://sciencebasedtargets.org/resources/files/foundations-for-net zero-full-paper.pdf
CO_2	Carbon Dioxide
COO	Chief Operating Officer
COP27	27. UN Climate Change Conference 2022
COVID-19	Coronavirus disease 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).
CPI	Climate Policy Initiative's
CRREM	Carbon Risk Real Estate Monitor
CSR	Corporate Social Responsibility

Term	Meaning
CTRR	Climate and Transition Risk Assessment. Our ESG Engine enables a tailored ESG advisory offering to our institutional clients. A key component is the in-house Climate and Transition Risk Assessment (CTRR).
CVaR	Climate Value at Risk
Deutsche Bank Group	Deutsche Bank AG and its subsidiaries
DIMA	Deutsche Investment Management Americas
E&S	Environmental and Social
ESG	Environmental, Social and Governance
e.g.	for example
EAB	ESG Advisory Board
EC	European Commission
EEFIG	EU Energy Efficiency Financial Institutions Group
EMEA	Europe, Middle East and Africa
ESG	Environment, Social and Governance
ESG Engine	The DWS ESG Engine is a proprietary software system that combines the different perspectives and approaches of five leading external data providers
ESMS	Environmental and Social Management System
ETF	Exchange Traded Fund
EU	European Union
FTE	Full-time equivalent
GCF	Green Climate Fund
GHG	Greenhouse Gas
GOGLA	Global Off-Grid Lighting Association
GRESB	Global Real Estate Sustainability Benchmark
GRI	Global Reporting Initiative
Gt	Gigatonne
GWh	Gigawatt hour
IAA	Investment Adviser Association
IEA	International Energy Agency
IIGCC	Institutional Investor Group on Climate Change

Term	Meaning
Inside out	The "inside out" perspective covers the material impacts that a company has on climate.
IPCC	Intergovernmental Panel on Climate Change
ISS	Institutional Shareholder Services
KPI	Key Performance Indicator
LRA	Liquid Real Assets
m	Million
M&A	Mergers and Acquisitions
MiFID II	Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU.
MSCI	Morgan Stanley Capital International
NDC	Nationally Determined Contribution
Net zero	Net zero emissions are achieved when anthropogenic emissions of GHGs to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple GHGs are involved, the quantification of net zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, chosen time horizon, and others). For reference see page 48, https://sciencebasedtargets.org/resources/files/foundations-for-net zero-full-paper.pdf
NGFS	Network for Greening the Financial System
NGO	Non-Governmental Organisation
NZAM	Net Zero Asset Managers Initiative
OECD	Organisation for Economic Co-operation and Development
Operational Emission	Operational emissions encompass all activities related to the use of our buildings and emissions caused by business activities of our employees.
OPIM	Operating Principles for Impact Management
Outside in	The "outside in" perspective covers financial risks driven by climate change that have a material financial impact on companies and their product portfolios.
PAI(I)	Principal Adverse Impact (Indicators)
PRI Rating	Principles for Responsible Investment Rating
PLC	Public Limited Company
rev	Revenue
RCC	Risk and Control Committee
RCP	Representative Concentration Pathway
RRC	Reputational Risk Committee

Term	Meaning
S&P	Standard & Poor's
SBT	Science Based Targets
SBTi	Science Based Targets initiative
SDA	Sectoral Decarbonisation Approach
UN SDG	UN Sustainable Development Goal (overview of SDGs: https://sustainabledevelopment.un.org/sdgs)
SFDR	Sustainable Finance Disclosure Regulation
SI	Sustainable Investments
SICAV	Société d'Investissement à Capital Variable; Collective investment scheme
t/CO_2e	Tonnes per carbon dioxide (equivalent)
TCFD	Task Force on Climate-related Financial Disclosures
Temperature score	Temperature scores are intuitive and enable investors and portfolio managers to easily understand the scale of the challenge that corporates face on the path to net zero.
TPI	Transition Pathway Initiative
UCITS	Undertakings for Collective Investment in Transferable Securities
UK	United Kingdom
UN	United Nations
US	United States
USD	United States Dollar
WACI (adj.)	(Inflation-adjusted) Weighted average carbon intensity
We	"We" means DWS Group

Important information

Cautionary statement regarding forward-looking statements

This report contains forward-looking statements. Forward-looking statements are statements that are not historical facts; they include statements about our beliefs and expectations and the assumptions underlying them. These statements are based on plans, estimates and projections as they are currently available to the management of DWS Group GmbH & Co. KGaA. Forward-looking statements therefore speak only as of the date they are made, and we undertake no obligation to update publicly any of them in light of new information or future events.

By their very nature, forward-looking statements involve risks and uncertainties. A number of important factors could therefore cause actual results to differ materially from those contained in any forward-looking statement. Such factors include the conditions in the financial markets in Germany, in Europe, in the United States and elsewhere from which we derive a substantial portion of our revenues and in which we hold a substantial portion of our assets, the development of asset prices and market volatility, the implementation of our strategic initiatives, the reliability of our risk management policies, procedures and methods, and other risks.

DWS Group GmbH & Co. KGaA
Mainzer Landstrasse 11-17
60329 Frankfurt am Main
Germany
Phone: +49 (69) 910 12371
info@dws.com

We thank all colleagues who have contributed to this report.

Investor Relations
Phone: +49 (69) 910 14700
investor.relations@dws.com

Publication
Published on 17 March 2023