Net Zero Transition Plan
2024

HSBC | Opening up a world of opportunity

Contents

Certain defined terms

Unless the context requires otherwise, 'HSBC Holdings' means HSBC Holdings plc and 'HSBC', the 'Group', 'we', 'us' and 'our' refer to HSBC Holdings together with its subsidiaries. Within this document the Hong Kong Special Administrative Region of the People's Republic of China is referred to as 'Hong Kong'. The abbreviations '$m', '$bn' and '$tn' represent millions, billions (thousands of millions) and trillions of US dollars, respectively.

Group Chief Executive foreword

Tackling climate change is one of the most urgent and complex challenges facing humanity.

The key question the world faces is how to deliver the wholesale economic transformation required to limit global warming to 1.5°C, at the speed and scale that is needed. A challenge compounded by the need to, in tandem, address wider societal challenges to deliver inclusive economic growth and protect and restore nature and biodiversity.

As one of the world's largest international banks – which has supported much of the world's industrial base for more than 155 years and is present in the regions and sectors where the most significant change is needed – HSBC is well placed to help support and finance the transformation. We also see significant commercial opportunities in helping to finance the new economy, transition to a new type of sustainable economic growth, and create a more secure and resilient planet.

We recognise that our history brings with it an unavoidable starting point – a portfolio today with a heavy financed emissions footprint. In 2020, we set an ambition to become a net zero bank by 2050. Since then, we have made progress in support of this ambition – including providing and facilitating sustainable finance and investment for our clients, updating key financing policies, investing in the scaling up of emerging climate technologies and setting 2030 targets for financed emissions in a range of high-emitting sectors. While there is much more to do, we are bringing all this work together to provide an overview of the actions being taken and planned to embed our net zero ambition across HSBC in our first net zero transition plan.

Our motivation to act is threefold: (1) to seize the significant economic opportunity that exists in financing the investment needs of our customers in the transition, while helping them to prosper; (2) to help mitigate the rising financial and wider societal risks associated with failing to achieve the required transition across industries and geographies; and (3) to help shape (not just follow) the understanding, policies, market structures and standards necessary to achieve a just transition while maintaining sound economies.

Our first net zero transition plan is an important milestone in our journey to achieving our net zero ambition. Our aim is to help our people, customers, investors and other stakeholders to understand our long-term vision, the challenges and dependencies that exist, and the progress we are making in our own transition. We also want to demonstrate how we intend to harness our strengths and capabilities in the areas where we believe we can best support large-scale emissions reductions: transitioning industry, catalysing the new economy, and decarbonising trade and supply chains.

Achieving net zero will require change in every sector of the economy. A key mechanism for driving this change will be the development and implementation of viable transition plans within all sectors. The existence of these transition plans will help companies mobilise the support necessary from their suppliers, customers, investors, bankers and governments, as well as from within their own organisations. The plans can outline the practical steps, options, dependencies and risks a company faces to decarbonise its business model, manage risks, and seize opportunities from the transition.

The radical change in the shape of many industries required by net zero cannot be achieved by any one organisation or part of the financial system alone. Our own ability to become a net zero bank by 2050 is dependent on the pace of decarbonisation in the real economy and on our customers' ability to transition their business models. Our customers are themselves dependent on the scaling of new technologies and on the policies that support this. Ultimately, as a bank, our transition plan is the aggregation of our customers' transition plans, which is why our approach is based on working with our customers. In addition to our corporate and public sector customers, we also aim to work with our retail customers, who will need to adopt new sustainable solutions at scale if we are to meet our ambition.

In the years ahead, the science, methodologies and data we use to set our targets, inform our policies and measure our progress will all need to continue to evolve. It is imperative we have an iterative approach, guided by industry standards, that keeps up-to-date with real economy progress on decarbonisation across the sectors and geographies we serve. This will be impacted by fiscal and regulatory policy development, as well as the uptake of new business models and emerging technologies we need to reach net zero.

All of this means that our own approach – including our transition plan itself – will continue to evolve. We will need to regularly reassess our progress openly, transparently and in conjunction with our stakeholders – with a belief that future iterations of our transition plan can continue to build upon the last one.

HSBC has succeeded for more than 155 years because we have acted in the long-term interests of our clients, our people and the communities we serve. Today, we must help to finance and drive the clean industrial revolution and collaborate globally to help enable change at scale. Our first net zero transition plan explains how we are working to do this – and playing our part in working towards a net zero future.

Noel Quinn
Group Chief Executive

25 January 2024

Understanding our net zero transition plan

Founded in 1865, HSBC is one of the largest banking and financial service organisations in the world. In delivering on our purpose – opening up a world of opportunity – we bring together the people, ideas, and capital that nurture progress and growth, for our customers, our people, our investors and our communities.

The net zero imperative

Many of the financial and economic risks posed by climate change, as well as some of the measures necessary to mitigate it, are readily apparent.

There is a need to accelerate progress on the transition to a net zero global economy to try to limit global warming to 1.5°C: the threshold for a safe climate according to the Intergovernmental Panel on Climate Change,[1] endorsed both by the global scientific community and through the Paris Agreement. So far approximately 150 countries have announced net zero targets, as well as many regions, cities and companies.[2] However, even if today's pledges are implemented in full there is still an emissions gap to get on track for 1.5°C if we and society at large are to achieve our shared goals.[3]

If the world is to achieve 1.5°C, strong action is needed to enhance and operationalise net zero pledges. The transition itself will bring new risks and uncertainties, which need to be carefully managed. These range from energy security and risks related to new critical and volatile supply chains, through to the impact of transition policies and regulations on credit risk or forward-looking asset prices, technology risks or corporate liability risks.

For economies to decarbonise while still serving the social and economic needs of countries, businesses across all industrial sectors will need to find and invest in alternative technological solutions and business practices to lower their greenhouse gas emissions, and consumers will need to adopt the ensuing new solutions at scale.

Industrial transformation on this scale will require significant investment over the next 20 to 30 years. Such investment will require unprecedented cooperation between public sector finance and private sector finance. The shape, speed and overall costs of the transition in a country or in the global economy will be heavily determined by government policy, which itself can help propel innovation and investment. Addressing climate change will not be easy, but both the risks of inaction and the scale of opportunity are significant.

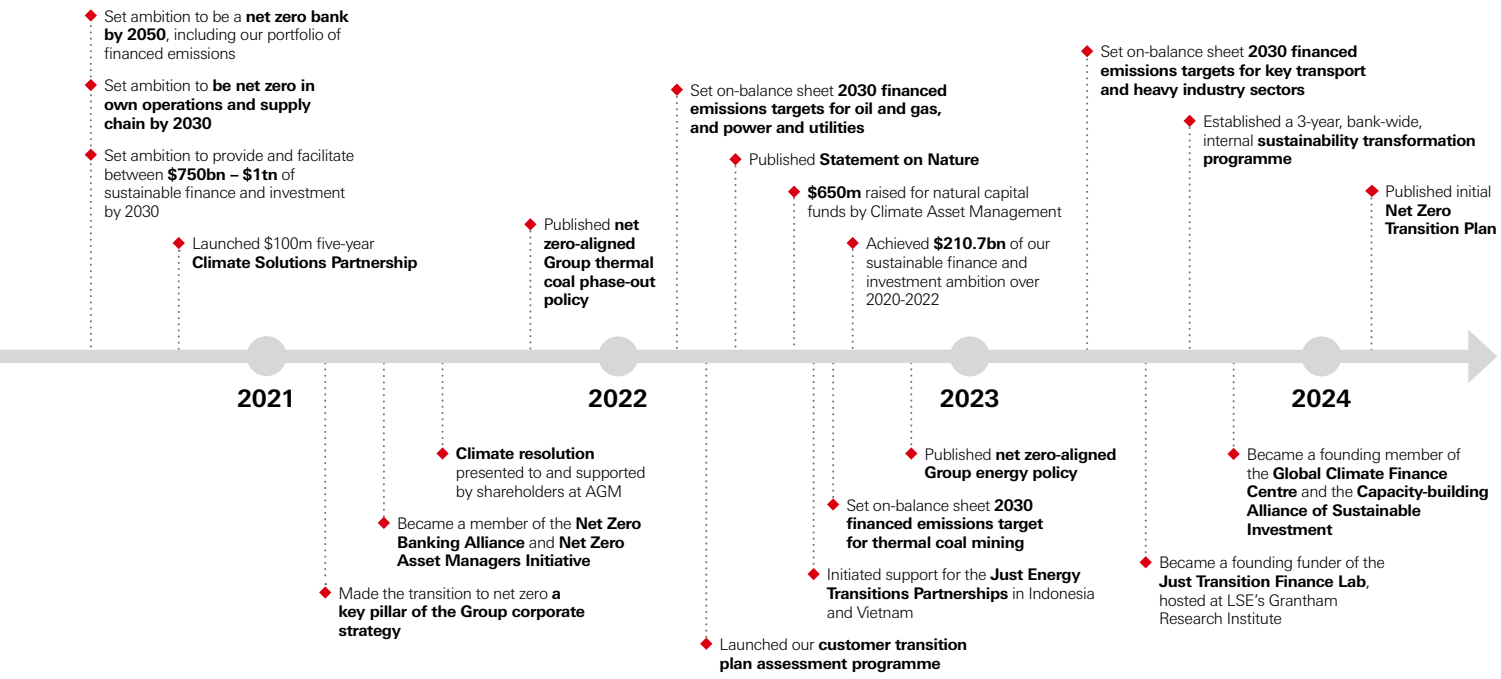
Our net zero journey so far

In October 2020 we announced our ambition to become a net zero bank by 2050. In 2021, we included the transition to net zero as one of the four key pillars of our corporate strategy. In May 2021 we also passed a resolution on climate change that had the backing of 99.71% of our shareholders. It was based on a core aim to support our customers in their transition to net zero and to a science-based strategy, with interim targets on a sector-by-sector basis consistent with achieving net zero by 2050. Since 2020, we have taken a number of steps to begin to execute on our net zero ambition and manage our climate risks (see below).

As a global universal bank that serves over 40 million customers across 62 countries and territories, with millions of transactions each year, a top-down approach to making progress is critical.

This means focusing our efforts on where we can help drive material and implementable change, and applying learnings as we work to embed net zero and climate risk management across the Group. It means focusing first on the sectors and customers with the highest emissions and transition risks. It means using materiality to guide how we set our sectoral 2030 targets, where we apply our policies, where we prioritise customer transition plan engagement, where we direct transition finance and investment, and how we report on relevant exposures. It means using a risk based, proportionate and iterative approach to how we work to embed net zero into our organisation over time.

Highlights from our net zero journey since October 2020



Our net zero transition plan

We have prepared our net zero transition plan to provide an overview of our approach to net zero and the actions we are taking to help meet our ambition. We want to be clear about our approach, the change underway today and what we plan to do in the future. We also want to be transparent about where there are still uncertainties and dependencies.

Our transition plan covers the HSBC Group. For the purposes of our first transition plan we have focused primarily on the sectors and customers where we would anticipate making the most significant impact on emissions reductions. We have highlighted where a tailored approach is being taken by individual business lines, for example HSBC Asset Management's separate policies and targets, in response to their own obligations and regulatory requirements.

The plan is organised into three sections: vision and strategic approach, sector transitions and implementation plan.

1 Vision and strategic approach – sets out our vision for financing the transition to net zero. It outlines how we intend to use our strengths to make the financing, facilitation and investment choices that can have a meaningful impact on decarbonisation in the real economy, as well as the principles we aim to use to help guide this approach.

In this section we provide an overview of our approach to sector transitions, including how we seek to use sector pathways to engage with customers on the future of their industries. It includes our approach to setting and evolving our sectoral financed emissions targets and making progress towards them.

We introduce the key elements of our implementation plan, which we structure around how we aim to support our customers, embed net zero into the way that we operate as an organisation, and partner for systemic change.

2 Sector transitions – looks at the expected transition in the following key economic sectors: energy supply (which includes oil and gas and power and utilities); automotives; aviation; shipping; cement; chemicals; iron, steel and aluminium; mining; real estate (including commercial and residential); and food, forests and other land use. For each we describe the technologies, investment needs and external dependencies that, based on current understanding, are needed to make a net zero by 2050 pathway viable, and where a 1.5°C-aligned 2030 pathway is most at risk. We also outline our related portfolio and our aims and targets, where applicable, and the actions we are taking to support sector decarbonisation.

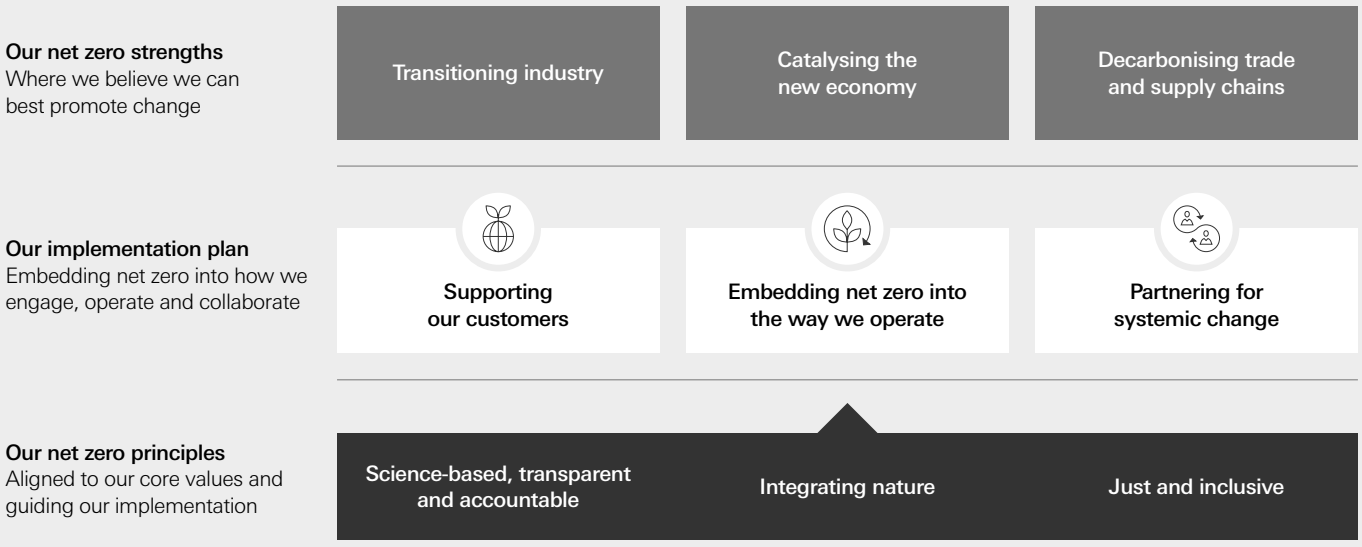
3 Implementation plan – provides details of how we are working to embed net zero across key areas of our organisation to help ensure that we can play a role in enabling the transition to net zero in the markets we serve. Our implementation plan sets out how we have begun to embed net zero: into the way that we support our customers, both through customer engagement and the provision of financing solutions; into the way that we operate as an organisation, including risk management, policies, governance and own operations; and into how we partner externally in support of systemic change.

Uncertainties and dependencies

The most significant challenge in developing a transition plan at this early stage is the relative novelty of the process and the uncertainty in many of the areas we are seeking to address. This includes evolving science, methodologies, scenario analysis and industry standards, challenges on data quality and availability, and the need to build data sets and reporting infrastructure for types of data that financial institutions historically have not gathered. It includes the pace of technology evolution, which varies dramatically from industry to industry, and is heavily reliant on the emergence of a supportive regulatory and fiscal policy environment. Economic and geopolitical events will also continue to have an impact. The only certainty is that these and other developing areas will unfold in ways that we cannot accurately forecast today. As a result, the ambition and details around implementation in this transition plan will need to evolve over time. Rather than wait for these areas to become clear and for our monitoring and reporting infrastructure to further develop, we have chosen to lay out and pursue the plans we have today, based on currently available data, infrastructure, resources, technologies and standards.

Critical to our approach is a recognition that as a bank we cannot do this alone. Our ability to transition relies on decarbonisation in the real economy – both the supply and demand side – happening at the necessary pace. Our customers and the industries and markets we serve will need to transition effectively, supported by strong government policies and regulation, and substantially scaled investment. Engagement and collaboration are therefore key to how we respond.

Overview of our approach to net zero



The development of our transition plan has involved engagement across HSBC and draws on currently available guidance and standards.

The HSBC Holdings Board (the Board) has overseen the development of the plan, along with the Group Executive Committee and wider senior management. The Board's oversight has been supported by an assurance process involving our risk, finance and internal audit functions.

In preparing our first transition plan, we have taken into consideration the guidance available to us at the time of developing this document, recognising that the landscape of frameworks, standards, regulations and data in this area is rapidly evolving. This has included the recommendations set out in the Glasgow Financial Alliance for Net Zero's (GFANZ) Financial Institution Net-zero Transition Plans framework and the UK Transition Plan Taskforce's (TPT) draft framework, published in November 2022. We have also started to take into consideration the final TPT framework, published in October 2023.

In developing our transition plan, we have utilised a number of external sources and scenarios. Our plan also includes contextual sector information including figures, charts and graphs, some of which have been prepared by third parties or which draw on third party data. Our plan has been informed by a range of inputs, including on the estimated sizing of future transition financing and capital expenditure requirements by McKinsey's Transition Finance Model (as at June 2023), which applies publicly available 1.5ºC-aligned scenarios (including IEA Net Zero Economy (2021) and the Network for Greening the Financial System (NGFS) Net Zero 2050 from the NGFS 2.0 release). This model involves the use of estimates and assumptions in formulating its projections.

The models, data sources, figures, charts and graphs used were prepared at various points prior to the date of publication of this plan and may become outdated over time. We recognise that the models and some of the other data sources we have used in preparing our plan are not fully mature and will continue to evolve as methodologies and data develop. All such information is provided for information purposes only. Such information has not been independently verified. For further important information regarding ESG data, metrics and forward-looking statements, please see the cautionary statement on pages 95-96.

Our initial transition plan provides an overview of the progress we have made to date and what we plan to do next (see below for summary), however we acknowledge there is still much more to do.

It will form the basis of further work on our journey to net zero over time, and we expect to review and update it periodically. We plan to report on our progress against key actions and metrics in our annual disclosures.

Continuing our net zero journey in 2024 and beyond
Selected areas of focus

Supporting our customers

- Scale and innovate our sustainable finance and investing products and services to help support our customers' transitions
- Continue the roll-out of our corporate customer transition plan assessment programme
- Further enhance our support for nascent climate technologies and climate tech pioneers

Embedding net zero into the way we operate

- Continue to review and update financed emissions disclosures and targets, including considering a range of approaches for remaining key sectors
- Publish facilitated emissions and associated targets
- Explore new metrics to help measure progress towards achieving our net zero ambitions
- Continue to embed financed emissions considerations into transaction decision-making and portfolio optimisation
- Further develop and embed our approach to nature and the just transition
- Continue to develop our climate risk management activities, including scenario analysis capabilities and embedding climate risk into wholesale credit processes
- Review sustainability risk policies annually, and update as relevant, informed by emerging science and industry practice
- Strengthen data and analytics capabilities
- Deepen bank-wide net zero culture and capabilities
- Continue to review governance and incentives to facilitate delivery

Partnering for systemic change

- Continue to support systemic change through new and existing partnerships
- Engage through industry alliances and initiatives to help build a supportive enabling environment
- Further align our philanthropic spending to support the net zero agenda, including helping to deliver meaningful progress on cross-cutting issues such as nature and the just transition

Vision and strategic approach

Our vision and strategic approach

Our role in the transition

Responding to the challenge and opportunity presented by net zero requires us to work across HSBC to implement and embed our transition plan, to manage associated risks and to help sustain and grow value for our customers, our shareholders and our wider stakeholders over the decades ahead.

An opportunity to make an impact
We want to make financing, facilitating and investment choices that can lead to a meaningful impact on emissions reduction in the real economy, not just our portfolio. This requires engaging with our customers on their transitions to help finance decarbonisation in the sectors and geographies with the most change ahead, rather than simply divesting in the short term to help meet our own portfolio financed emissions targets.

For over 155 years HSBC has supported the economic development of energy, industry and entrepreneurs, from east to west. We can now help support clean industrial development and new economy entrepreneurs.

Our starting point in the transition to net zero is one of a heavy financed emissions footprint. Our history means our balance sheet is weighted towards the sectors and regions which matter the most in terms of emissions and whose transitions are therefore key to the world's ability to reach net zero on time. Our customers are the power producers that will power Asia's growing population, the energy companies and miners at the heart of future global energy value chains, the steel and cement makers, and the retailers or transport and logistics companies critical to global supply chains.

This footprint means we will naturally have a challenging and complex transition, with countries and actors at different starting points and moving at different speeds. However, it also provides us with an opportunity to work with our customers to help make an impact – in both the emissions challenge and the financing challenge.

Rapid change will require unprecedented levels of investment across industries as the world transitions away from the use of unabated fossil fuels and invests in the sectors and technologies of the net zero economy. Third-party analysis of publicly available 1.5°C-aligned scenarios suggests an order of magnitude estimate of $155 trillion is needed to finance the transition to net zero by 2050 in the markets HSBC serves, of which $39 trillion is estimated to be required by 2030.[4] Further analysis indicates that around 40 to 50 per cent of corporate capital expenditure by 2030 will be directly linked to the transition, funding the new technologies and low-carbon infrastructure vital to the industries of the future.[5]

Failure by society to respond to climate change creates potential systemic risk to the financial sector. Today's macroprudential regulators are increasingly focused on the resilience of the financial system to climate risks – both physical and transition. Recognising this, we are working to address the climate risks in our portfolio and business model, and to support our clients and help finance the transition at scale in the real economy.

Third-party analysis estimates

$155tn

is needed to finance the transition to net zero by 2050 in the markets HSBC serves.[6]

Supporting our customers
Achieving our net zero ambition depends on our customers' ability to transform their business models and decarbonise. This in turn is heavily impacted by the existence, or not, of a stable and supportive policy and regulatory environment to help de-risk and scale private sector investment, alongside public sector investment into clean energy, technologies, infrastructure and markets. The reality is that today government policies are in many cases not in line with countries' own net zero pledges, and those pledges themselves are not sufficient to meet net zero emissions by 2050.

Alongside this critical policy context, we can support companies to transition through our engagement with them, the products and services we offer, and our financing choices. Engaging with our corporate customers on their own transition plans will help inform those financing decisions and the kind of support we provide. They help us to identify where we can channel finance to projects and plans that can deliver emissions reductions and where credit or wider climate risks exist.

We have established financing and investment policies covering material activities in some of the key sectors that drive emissions (see *Using policies to drive change* on page 70) and we are setting science-based parameters for the future shape of our financing portfolio – represented by sectoral 2030 financed emissions targets (see *Our approach to sector transitions* on page 14). We are taking a materiality-based approach and have focused first on the highest emitting sectors within energy, transport and industry, with work on how to measure and support decarbonisation in wider sectors underway. Our financing decisions are informed by these policies and targets and (where relevant) corporate customers' transition plan assessments, in accordance with our approach set out on page 54 and our standard risk-return considerations (see *Managing risk in transition to net zero* on page 64).

Navigating the challenges
Our transition will be complex. We must navigate changes in regulation, consider local policy requirements when implementing our plan regionally, and recognise the differing levels of technology and infrastructure readiness our customers face around the world.

Many investments that are key to achieving net zero do not currently meet the risk-return profiles, structure or terms that are typically expected by financiers. This can include:

- Clean energy infrastructure projects, for example, often require long-term financing which may make them an attractive investment for some investors but makes them harder for banks like HSBC to finance at scale on our balance sheets given risk-weighted prudential capital requirements.
- The continued existence of a 'green premium' and a shortage of projects to scale the nascent technologies needed to decarbonise industry and long-distance transport, such as clean hydrogen and sustainable aviation fuels.
- Our emerging markets customers face rising energy demand, relatively young carbon-intensive assets, high financing needs but substantially higher capital costs due to political or currency risks.

Each of these factors can inhibit the flow of financing, facilitation and investment to where it is needed to drive meaningful impact.

As the energy system transitions to a net zero future over the coming decades, the banking sector will need to provide some ongoing finance to keep oil and gas flowing to meet current and future (declining) global demand, while maintaining energy security, access and affordability at a local level. It will need to do so with appropriate guardrails, informed by science and international guidance, that enable us to help companies and nations to decarbonise and diversify.

We will need to work to manage our portfolio-level oil and gas financed emissions downwards towards our science-based 2030 target. Transparency on progress will be important, both in terms of the financed emissions from our own balance sheet as well as from our capital markets activities for the sector.

The world cannot solve the climate crisis without addressing the nature crisis, with at least one third of the emissions reductions required to limit warming to 1.5°C linked to the land use system and nature.[7] We recognise the importance of safeguarding nature and the important role of nature in a net zero transition. As such, we are considering how we can direct finance to help scale nature-positive activities.

Finally, the world needs to promote resilience and a just and inclusive transition for communities globally. Communities around the world are grappling with cost of living challenges, climate impacts and food shortages. They will need substantial support to transition successfully and equitably. Many will also need finance to help become more resilient to a changing climate, including investment in climate-resilient agriculture technologies, flood defences and early warning systems.

Harnessing our financing capability
In partnership with our customers, we can help to support the transition from high-emitting activities to cleaner alternatives. We have already provided and facilitated $210.7 billion of sustainable finance and investment between 2020 and 2022[a] (see *Measuring progress* on page 84).

Our track record of helping entrepreneurs and companies to grow internationally gives us the capability to help scale the "new economy" business models and technologies of the future. And as one of the world's leading trade finance bank,[8] we have substantial experience in building sustainable supply chains.

As an active participant in capital markets underwriting, we understand the importance of including global capital markets in the transition. Capital markets are driving more economic activity than ever before, with estimates that at least a third of the investment needed to finance the transition will be provided via access to capital markets.[9] We are also engaging with standard setters to help incentivise decarbonisation through the green and sustainable bonds market.

We are providing our personal and private banking customers with options to invest in the technologies that will help form the foundation of the net zero economy. Our Asset Management business and its joint venture with Pollination, Climate Asset Management, are bringing new sustainability propositions to the market for global investors. These include sustainable exchange traded funds (ETFs); alternative funds focused on climate tech, carbon markets, conservation and nature-based solutions; and sustainable infrastructure.

HSBC provided and facilitated

$210.7bn

of sustainable finance and investment between 2020 and 2022[a]

[a] See HSBC's Sustainable Finance and Investment Data Dictionary 2022 for how we define sustainable finance and investment. Sustainable finance and investment figures are as reported in the HSBC Annual Report and Accounts 2022.

Our strategic approach to net zero: playing to our strengths

In October 2020, we announced our ambition to become a net zero bank by 2050. In 2021, we included the transition to net zero as one of the four key pillars of our Group corporate strategy.

Recognising both the commercial opportunity of taking action and the potential risks of inaction by society at large, we aim to rebalance our capital deployment towards achieving net zero over the coming decades.

We believe we can do this best by promoting change in three key areas that play to our strengths as an organisation and can help deliver a broader impact on decarbonisation in the global economy.

Our net zero strengths

- Transitioning industry
- Catalysing the new economy
- Decarbonising trade and supply chains

Transitioning industry

Many of the world's largest metals and mining companies, energy companies, auto makers, aviation and shipping companies, cement makers and industrial conglomerates are our customers. This provides us with an opportunity to help support the industries – and the major actors therein – that underpin future energy demand and supply and whose transformation is key to a net zero future. These are the industries and customers that are also the backbone of the global economy and many face the highest transition risks.

Working with energy, transport and industrial actors to help finance their transition will require regular engagement on transition planning and progress, and investment in innovation, diversification and decarbonisation.

As part of our strategy and supported by our climate risk approach (see *Managing risk in transition to net zero* on page 64), we are aiming to achieve a 1.5°C-aligned phase-down of our financed emissions from our portfolio. To support this, we have announced 2030 targets for the highest transition risk sectors – oil and gas, power and utilities, transport (automotives and aviation) and heavy industry (thermal coal mining, cement, and iron, steel and aluminium). We aim to disclose progress towards these targets on an annual basis.

For oil and gas and thermal coal mining, these are absolute targets, in line with our ambition to phase down fossil fuel financing. For power producers, heavy industry and transport, substantial capital investment will be required before 2030 to support customers to both reconfigure their technology and infrastructure away from fossil fuels, and to increase the production of materials required for the expansion of clean power, mobility and buildings. We have therefore set intensity-based financed emissions targets for these sectors and aim to support customers working to drive down their emissions.

In addition, there is a need to address under-investment in the clean technologies that are key to transitioning industry. This includes the clean power assets that are already mature, cost-competitive and key to reducing demand for fossil fuels in industry and buildings, as well as more nascent technologies critical to decarbonising heavy industry and transport but which require substantial scaling. We are working to accelerate these investments both on our own balance sheet and through new vehicles such as Pentagreen Capital, which is targeting $1 billion of patient capital investment in marginally bankable clean energy and adaptation projects in Asia.

Catalysing the new economy

We have been a bank for entrepreneurs for over 155 years. We are well placed to help the pioneers of the new net zero economy to grow on a global scale by directing capital, and facilitating that of our customers, towards the entrepreneurial companies innovating to create the technologies and business models needed for a net zero future.

Approximately 35 per cent of the emissions reductions required to get to net zero by 2050 are expected to come from technologies not yet available on the market[10], requiring an unprecedented level of innovation financing this decade. We want to help unlock a range of climate solutions, including smart energy systems, battery storage, sustainable food and agriculture, carbon removal technologies and sustainable fuels.

With the launch of HSBC Innovation Banking alongside our Commercial Banking business we can support innovative climate and nature-focused tech companies at their very earliest stages. We are working with customers from seed stage through to global scale up to become large international enterprises. We can provide venture debt and project finance, in addition to core banking, capital markets, advisory and trade services. We can help to introduce climate tech companies to our large corporate clients and can help to identify opportunities for co-investment through our network of family offices, endowments and mission-aligned investors.

Our new targeted propositions for the climate tech ecosystem include our $1 billion allocation of venture debt capital for climate tech start-ups, our New Economy Fund in Asia, and HSBC Asset Management's role as an active climate tech investor, including through its Climate Tech Venture Capital fund.

We want to help catalyse some of the challenging-to-finance, high capital expenditure, first- or second-of-a-kind demonstration projects critical to decarbonising high-emitting sectors. Our collaboration with, and $100 million investment into, Breakthrough Energy Catalyst to help fund such projects is one such example.

Decarbonising trade and supply chains

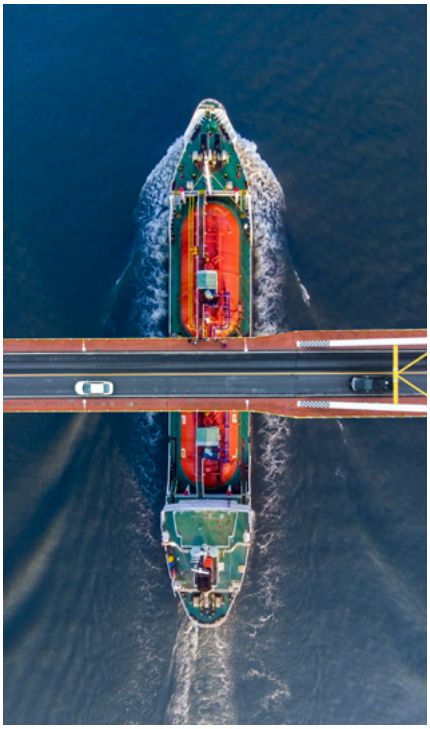
Tackling emissions from global supply chains is essential: total end-to-end emissions of industry leaders are often ten times greater than their direct emissions.[11] We can play a role in helping to decarbonise cross-border trade flows and supply chains.

Many suppliers need finance to invest in more efficient processes, better logistics and cleaner sources of power. Our sustainable supply chain solutions can help suppliers access working capital which can be used to support emissions reduction and wider sustainability improvements. They can also help customers align their sustainable procurement standards, as well as promote disclosure and certification requirements on wider sustainability metrics across their supply chain.

Trade loans, receivables finance, commodity, and structured trade finance help to drive the real economy. By incorporating sustainability principles into our global trade finance offering, we can help our customers with their working capital transition needs.

We have a range of sustainable trade financing solutions that are both purpose-led and strategic. Our purpose-led propositions, for example our green trade finance and sustainable trade instruments, are to finance specific end-use. Our strategic propositions, including sustainable supply chain financing and sustainability linked lending for trade, may help support customers in meeting their longer-term, enterprise-wide environmental and social targets.

There is more to do, particularly in the cross-border supply of green commodities and technologies from battery minerals, electric vehicles and solar panels, to sustainable fertilisers and alternative proteins. As nations and companies invest in the new economy, and as trade policies evolve, we expect new trading partners and markets for these sustainable goods and services to emerge. We want to play a key part in these new economy supply chains and trade corridors, as we have been for over a century.



Our net zero principles

In implementing our strategic approach we aim to be guided by a set of principles which are aligned with our core values.

1 Science-based, transparent and accountable

Our choices, from targets and policies to new initiatives, are informed by evolving scientific guidance from experts and leading independent bodies. Science is not static, and neither are our policies, data inputs or approaches. For example, we review our policies and approach to financed emissions annually, seeking to update them where appropriate as science, standards, data and methodologies evolve.

We have established a Sustainability Centre of Excellence, made up of scientists, technologists and experts on the net zero transition, to work with our front-line bankers and risk managers to advise on climate science, sector pathways and new technologies.

Managing our portfolios with respect to credit risk, liquidity, financial performance and other considerations is an established part of our business. However, integrating net zero considerations, specifically our climate risk approach and our 2030 financed emissions targets, into transactions and portfolio management requires us to develop new capabilities, processes and controls.

We acknowledge the evolving and nascent nature of climate and nature data and methodologies available today. We aim to use available approaches and evolving scientific guidance to make our analysis as credible as possible, being transparent on challenges and on updates we make as we do so. We expect to publish our methodologies and report on progress annually. We aim to be transparent about where we are seeing faster or slower progress. We will look to explain why and how we plan to update our approaches, data, targets and policies, where needed, as the science and the real economy evolves in the years ahead to 2030 and beyond.

Transparency and accountability are key, and we have developed metrics and targets to measure our progress towards achieving our net zero ambition. We aim to be transparent about the metrics that we are currently using, our progress against them and the associated data challenges.

2 Integrating nature

The finance sector can help to counter the decline in biodiversity, scaling up nature-related finance, implementing policies to help eliminate commodity-driven deforestation, and investing in the sustainable food and agricultural systems needed for net zero. To get this right, we will need to embed nature considerations alongside net zero.

Nature and climate go hand in hand. Nature-based solutions will play an important role in removing carbon from the atmosphere. These methods include conserving and restoring natural ecosystems and managing forests and agricultural lands more sustainably. Such solutions can also help counter key drivers of the biodiversity loss currently underway, and support action to tackle wider drivers of nature loss, including deforestation, over-fishing and waste.

We are at an early stage, but our outline approach to incorporating nature considerations is shown to the right. This includes considering how to: manage nature risks; embed nature into decision-making and corporate customer engagement; finance and invest in nature-related solutions; manage our impacts on nature; and partner for systemic change. As we continue to consider how we embed nature alongside net zero, it is our intention to develop an appropriate framework for nature. Further details of specific nature-related initiatives can be found in our Implementation Plan from page 51.

Our outline approach to incorporating nature considerations

1 Managing nature risks

We are working to address nature-related issues through our sustainability risk policies and risk management process, including through:

- Our forestry policy and agricultural commodities policy, which require customers involved with major deforestation-risk commodities to operate in accordance with sustainable business principles.
- Imposing restrictions, for example through a number of our sectoral policies, on certain financing activities in environmentally and socially critical areas.
- Piloting the Taskforce on Nature-related Financial Disclosure (TNFD) beta framework to better understand our exposure to nature-related risks, including on subsets of customers.

See *Managing risk in transition to net zero* on page 64 and *Using policies to drive change* on page 70

2 Embedding nature into decision-making and customer engagement

We are building our understanding of how to effectively embed nature into our decision-making and engagement by:

- Incorporating nature-related considerations (i.e. questions, criteria, etc.) into our corporate customer transition plan assessments and customer engagement.
- Engaging with investee companies on biodiversity and natural resources via HSBC Asset Management.
- Exploring how nature safeguarding mechanisms could be incorporated into decision-making.

See *Sector transitions* on page 20 and *Supporting our customers* on page 52

3 Financing and investing in nature-related solutions

We are testing and scaling approaches to investing in biodiversity and nature, including:

- Establishing a $650 million fund focused on nature-based assets, nature-based carbon projects and new forms of natural capital (Climate Asset Management, a joint venture between HSBC Asset Management and Pollination).
- Providing early-stage finance and investment for products seeking to protect and restore nature through our climate tech venture debt financing.
- Innovating our first biodiversity-screened exchange traded fund.

See *Supporting our customers* on page 52

4 Managing our impacts on nature

In our own operations we aim to be a responsible steward and consumer of natural resources, by:

- Striving to ensure that our premises do not adversely affect the environment or natural resources, where possible, particularly in areas subject to water stress.
- Introducing a green leasing programme so that new premises help support natural resource management.
- Aiming to achieve LEED or equivalent certification for construction projects.

See *Achieving net zero in our own operations* on page 75

5 Partnering for systemic change on nature

We continue to work to strengthen our partnerships across the public and private sector to help drive action and develop industry practice, including:

- Our Climate Solutions Partnership with the World Resources Institute (WRI) and World Wide Fund for Nature (WWF).
- Partnering with the Sustainable Markets Initiative to build the Terra Carta Accelerator Fund to finance natural capital projects in emerging markets.

See *Sector transitions* on page 20 and *Partnering for systemic change* on page 90

3 Just and inclusive

A just and inclusive transition means working to avoid people and communities being left behind. We can make efforts to support this in our approach to net zero.

A just transition can take many forms. Communities historically reliant on thermal coal mining or oil production will need financing support to pivot their industries and to retire their assets early. Regions less abundant in clean energy, let alone energy access, must be given time and resources to build clean energy security. Smaller businesses or those in emerging markets will need support tailored to their realities.

We became a signatory to Just and Urgent Energy Transition (JUET) principles at the 2021 United Nations climate change conference (COP26) and we are working on how to embed just transition considerations into our approach to net zero. We are at an early stage, but our outline approach to incorporating just transition considerations is shown to the right. This includes how we are considering this in our policies and decision-making, in how we assess customer transition plans for in-scope customers (see page 54), and how we aim to finance, facilitate and invest in the customers that face the largest constraints to mobilise capital for net zero. As we continue to develop this approach, we intend to work to embed it into our financing decisions.

Our outline approach to incorporating just transition considerations

1 Customer engagement

We are working to embed just transition considerations into our customer engagement by:
- Including just transition considerations within our corporate customer transition plan assessments.
- Providing insights to our customers through research on key topics, including the just transition.

See *Supporting our customers* on page 52

2 Policies and risk management

We are starting to address just transition-associated risks through our policies and risk management processes by:
- Integrating just transition considerations when aligning processes, policies and learning.
- Integrating just transition considerations into our thermal coal phase-out and energy policies.
- Applying the Equator Principles to assess and manage the environmental and social risks of relevant projects we finance.

See *Managing risk in transition to net zero* on page 64 and *Using policies to drive change* on page 70

3 Financing and investing

We are exploring approaches for helping to support a just transition through our sustainable financing and investing, for example by:
- Supporting SMEs in a just transition through our UK Green SME Fund.
- Participating in collaborative initiatives for blended finance to transition the energy sector, for example through our in involvement in the Just Energy Transition Partnerships in Vietnam and Indonesia.

See *Supporting our customers* on page 52

4 Partnering for systemic change

We continue to collaborate to help accelerate wider action by:
- Supporting our own suppliers in their transition, including considering just transition principles.
- Being a founding funder of the Just Transition Finance Lab, hosted at LSE's Grantham Research Institute, which aims to accelerate solutions to achieve a just transition.

See *Achieving net zero in our own operations* on page 75 and *Partnering for systemic change* on page 90

5 Governance

We are working to integrate just transition considerations within relevant corporate governance committees, including by:
- Providing oversight of just transition related aspects of our sustainability risk policies through the Environmental Risk Oversight Forum.
- Providing oversight of the development of our just transition approach through our Sustainability Execution Committee.

See *Aligning responsibilities and incentives* on page 77

Our approach to sector transitions

The global net zero challenge: decarbonising key sectors

To help provide context for the approach taken in our transition plan and how we will look to support our customers' transitions, we have set out the key changes that, based on our current understanding, are required for the transition to net zero in key sectors of the global economy.

To reach net zero CO_2e emissions globally by 2050, scenarios consistent with limiting the global temperature rise to 1.5°C (with at least 50% probability) suggest the world needs to reduce greenhouse gas (GHG) emissions globally by 7 to 8 per cent each year.[12] There are many possible paths to achieving net zero by 2050, and each will differ by sector and geography.

Across the global economy, as at 2020, 75 per cent of GHG emissions came from the use of fossil fuels for energy across all sectors, of which energy-use in industry made up 28 per cent, use in buildings 18 per cent, and use in transport 16 per cent (see chart below). A further 15 per cent of global GHG emissions came from agriculture, forestry and other land use (AFOLU), and the remaining emissions came directly from industrial processes (7 per cent) and waste (3 per cent).[13]

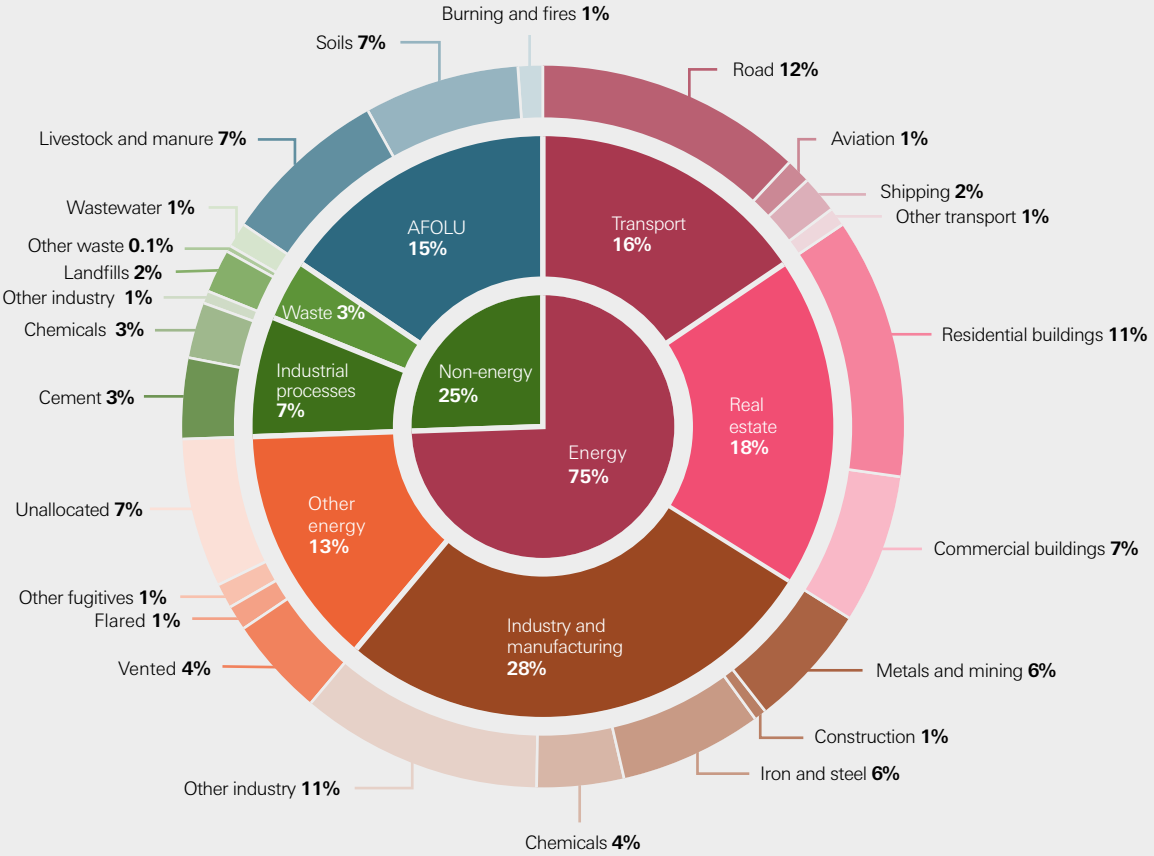
Transitioning the global energy system from fossil fuels towards clean energy is therefore vital for the world to reach net zero by 2050. Net zero requires the bulk of energy supply to be based on clean energy, largely renewables, with fossil fuels falling to slightly over one fifth of today's levels by 2050. In *Energy supply* on page 21, we describe our understanding of the energy supply pathways required for net zero and our intended approach to the key related supply sectors (oil and gas, and power and utilities).

Alongside mass deployment of clean energy, reducing the demand for fossil fuels in industry, buildings, and transport will be key to decarbonising energy. Electrification significantly improves energy efficiency, and clean fuels and advances in materials and technologies are also important. In *Sector transitions* from page 20 onwards, we describe our understanding of the pathways to decarbonise the critical demand sectors – transport, heavy industry and real estate – and our intended approach to supporting the transition of these sectors.

It will be important for supply and demand in the energy market to move concurrently in their decarbonisation to help mitigate potentially severe negative impacts on global economies and societies. Reducing scope 3 emissions of energy supply sectors by phasing down fossil fuel production in line with a 1.5°C-aligned pathway is contingent on the transformation of transport, heavy industry sectors and buildings globally. These industries will need to transform their technology bases to shift demand away from fossil fuels alongside mass deployment of clean energy infrastructure. Both require leaps in technological innovation, strong government support and an unparalleled level of investment into the new technologies, infrastructure and business models that underpin the transition.

Finally, AFOLU contribute directly to around 15 per cent of global GHG emissions. However, if one considers emissions from the agriculture-food value chain as a whole (e.g., including retail, packaging, transport and processing emissions), analysis suggests that more than one third of emissions come from the food system.[14] Nature restoration, and financing the sustainable transformation of food and land use systems, is therefore a key component of reaching net zero.

Global emissions by sector
(CO_2e)



Source: Climate Watch (2022) GHG Emissions, 2020 dataset

The investment challenge and opportunity

The scale of investment required for the global transition to net zero is significant. Published estimates for costs to achieve a 1.5°C-aligned pathway range from around $125-200 trillion between now and 2050, depending on factors including the shape and pace of the transition.[15] Third-party analysis of publicly available 1.5°C-aligned scenarios suggests that for HSBC's key regions (Asia, Middle East, Europe, and North America) around $155 trillion is required to transform the economy by 2050, and approximately $39 trillion by the end of this decade (see chart below).[16] Regardless of the estimate used, the message for HSBC as an international bank remains the same: we can have a prominent role in helping to finance the transition to net zero across the markets and sectors we serve.

A significant amount of the total capital expenditure estimated to be required for the transition is expected to be served through the financial instruments provided by banks, namely through lending, project finance, and debt and equity capital markets instruments. This highlights the scale of the transformation expected ahead and demonstrates the commercial opportunity for HSBC to be a key bank for financing the transition across the markets we serve.

The anticipated financing need varies by sector and by region, with half expected to be needed in Asia[17] – a key region for HSBC. This decade, almost half of the estimated investment needed globally will be for the energy sector, with real estate making up a further quarter.

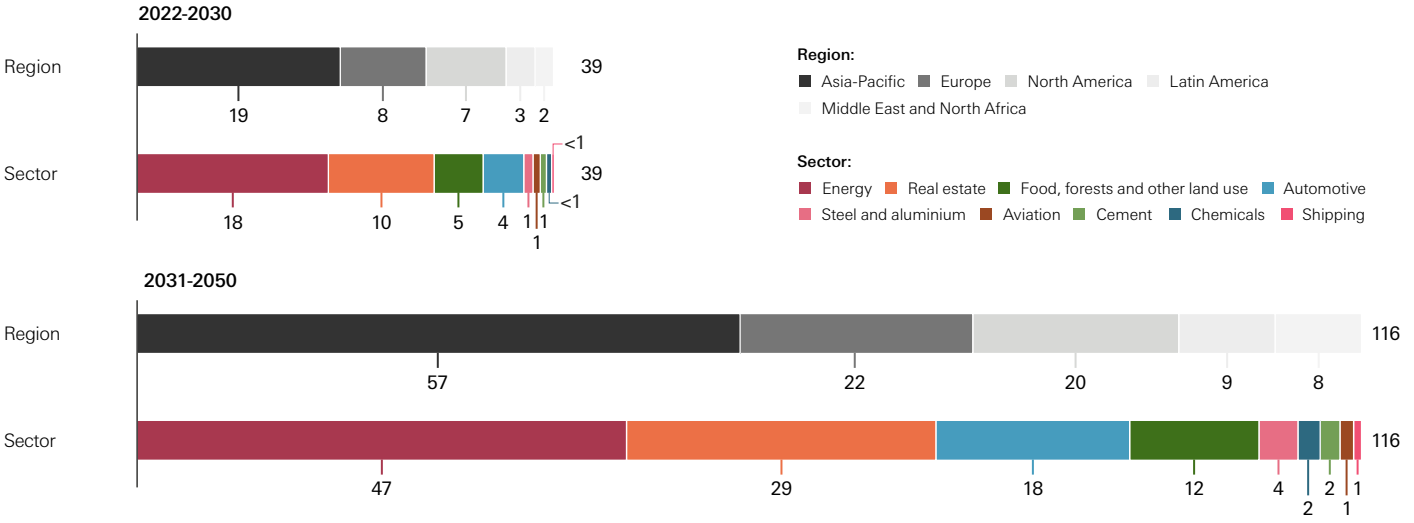
In terms of technologies, we expect that capital will be needed for both the mass deployment of mature technologies like clean energy, electricity grid infrastructure, and storage, as well as to help commercialise and scale higher-risk nascent technologies, such as clean hydrogen, green steel, sustainable aviation fuels and carbon removal technologies.

Each sector pathway relies on a cluster of mature and nascent decarbonisation technologies reaching scale. Analysis suggests around 80 per cent of the financing need through to 2050 is for mature technologies and around 20 per cent will be for scaling nascent technologies.[18] By 2030, up to four fifths of decarbonisation technology investments could represent better economic value than conventional emissions-intensive alternatives.[19]

Informed by analysis of the anticipated financing needs across technology types and regions, we are developing a net zero financing and investment approach to help guide how we allocate our financing solutions, taking into consideration our standard risk-return parameters, and will look to re-orient capital and capabilities to support the transition to net zero.

Estimated transition capital expenditure requirements[20]

$ trillion



How we use sector pathways

Sector pathways are an important consideration in how we engage with our customers on the future of their industries. This includes their plans to transform, manage risks and create value through the transition. At the sector level, these pathways can help us to engage effectively with our customers on their plans to transition and on expectations, progress and specific financing and investment needs for new technologies, capabilities and infrastructure.

Assessing the viability of sector pathways will typically involve an understanding of the following factors:

- what changes will be made to business practices and technologies in the industry to reduce emissions;
- how quickly can these new technologies be brought to scale;
- is there a viable funding model in place for these technologies to reach commercial adoption;
- is there a green premium that prevents scaling versus existing higher carbon alternatives; and
- what changes are required to public policy or regulation to facilitate widespread adoption and help drive costs down?

All of these factors will have a bearing on the shape of the relevant sector pathway, which new technologies will likely succeed in scaling and when, and whether or not a 1.5°C-aligned pathway for the sector is viable, or becomes viable, over time. For so-called "hard-to-abate" sectors, 1.5°C-aligned pathways out to 2030 are most at risk, at present, due to the heavy reliance on nascent technologies that require substantial ramping up of policy, fiscal and regulatory support to scale investment into innovation and deployment.

For all sector pathways, as years pass in the real economy – and developments in technologies, policies, markets and behaviours occur – we will need to keep revisiting our approach to sector pathways to, and beyond, 2030 to help keep our thinking current.

We address in the following chapters the sectors considered to be most critical for the net zero transition:

- *Energy supply* (Oil and Gas, Power and Utilities);
- *Transport* (Automotive, Aviation, Shipping);
- *Heavy industry* (Cement, Chemicals, Iron, steel and aluminium, Mining);
- *Real estate* (Commercial and Residential); and
- *Food, forests and other land use*.

For each sector covered in *Sector transitions* we set out:

1. Sector transition overview – an outline of the sector pathway(s) to net zero, including the key technologies, their feasibility and timeframes to reach deployment at scale, and the estimated financing required to get to net zero.
2. Our sector approach – an outline of the actions we are taking to help support the transition to net zero in the sector, including an overview of our portfolio today, our ambition and targets (where applicable), and our action plan to support the transition i.e. through customer engagement, providing financing solutions (where economically viable), managing our portfolio and partnering for systemic change.

The sector pathways describe a global view, however countries, territories and customers do not start or finish at the same place. In determining our sector approach, we need to consider the local realities that will lead to differing regional pathways, such as the existing infrastructure base, differing government ambitions and policy frameworks, and the local cost of capital. As the relevant sector technologies outlined in this plan evolve, our approach and associated support to customers around these technologies will also evolve and may differ over time. We expect our efforts in each sector to vary depending on factors, including our ability to make a positive impact and the potential commercial opportunities we can support. We recognise that we cannot act alone; our work with wider stakeholders to help support wider systems change is detailed in the sector chapters, including key areas for engagement with policymakers.

The table on page 18 provides an overview of our sector pathways and target-setting to date. Except for real estate, which also considers residential properties, these sector chapters primarily relate to our corporate (including state-owned enterprise) customers. Here, and in the sector transition chapters that follow, we outline the key transition technologies and strategies that, today, appear to present a significant opportunity to decarbonise the sector – and that may also present a commercial opportunity for us. Over time, as certain technologies scale to maturity, or as alternative technologies emerge, the focus of our support may need to change.

Nearly a fifth of our wholesale loans and advances at the end of 2022 were to certain key high transition risk sectors, including oil and gas and power and utilities.[21] Our outline action plan is most progressed for the energy supply sectors as – taking a materiality-based approach to focusing our efforts to help drive decarbonisation – this is where our target-setting, policy-alignment and transition-planning work began in 2021. In 2023, we broadened our focus – publishing targets for other key carbon-intensive sectors across transport, and heavy industry. We continue to work on our data discovery and analysis for the remaining sectors that we cover in our transition plan: shipping, chemicals, real estate and agriculture.

Beyond these key carbon-intensive sectors, our wholesale lending portfolio includes other sectors such as financial and professional services, healthcare and entertainment, among others. Lending to banks and non-bank financial institutions accounted for more than a quarter of our wholesale loans and advances as at the end of 2022. We engage in industry initiatives to help transition the financial sector and describe these activities further in our *Partnering for systemic change* chapter on page 90). For these wider sectors we anticipate financed emissions measurement and disclosures as part of our Scope 3 emissions will become necessary over time as part of the International Sustainability Standard Board's (ISSB) disclosure requirements.

Net zero benchmark scenarios and their limitations

There are many possible paths to achieve net zero emissions by 2050. Each scenario is a single pathway that has assumptions and uncertainties built in, such as the rate of deployment of new and emerging technologies, policy and regulation developments, changes in consumer behaviour, international cooperation and the success (or not) of carbon removals (nature-based and technological). For example, the International Energy Agency Net Zero Emissions by 2050 (IEA NZE) 2021 scenario details more than 400 sectoral and technology milestones needed to deliver the pathway. The sector pathways chapters in *Sector transitions* from page 20 have been included in this document with a view to providing some context on the range of technology solutions relevant for each sector, and the likely feasibility of these.

Scenarios consistent with a 1.5°C-aligned trajectory are produced by a range of different organisations. Within the *Sector transitions* chapters from page 20 onwards we draw on a range of scenarios, including those produced by the International Energy Agency (IEA), Bloomberg New Energy Finance (BNEF), the Network for Greening the Financial System (NGFS), Glasgow Financial Alliance for Net Zero (GFANZ), the Energy Transition Commission (ETC) and, where relevant, sector-specific scenarios from the International Maritime Organisation (IMO) and the Mission Possible Partnership.

Scenarios are dynamic by nature: they are typically updated every few years to incorporate significant shifts that have occurred in the real economy (e.g. the IEA NZE 2023 scenario published in September 2023 as an update to the 2021 scenario). This can include, for example, changes in the economic environment, new data on technology deployment across sectors and geographies, new policies, and increased investment in clean energy and/or in fossil fuels.

To be able to set our own portfolio targets, we select a reference scenario which is one of many credible pathways to achieve net zero emissions globally by 2050. The reference scenario we have selected for our published 2030 targets to date is the IEA NZE 2021 scenario which is 1.5°C-aligned with limited overshoot. For more detail, see our Financed Emissions Methodology publication[22] and updated publications available at hsbc.com from time to time.

Following the release of each updated set of 1.5°C-aligned scenarios, we intend to review these to further develop and enhance our understanding of the latest outlooks for evolving pathways to achieve net zero by 2050.

Finally, the IEA NZE 2021 scenario does not disaggregate by region, and we have adopted a global pathway as our chosen reference scenario for targets related to key sectors. As our financing portfolio in a number of carbon-intensive sectors is weighted towards emerging markets, we plan to continue to monitor emerging 1.5°C-aligned scenarios including those that are released with regional disaggregation. Moving forwards we intend to consult with external scientific and international bodies to inform how we embed regional implications and enable our financed emissions portfolio alignment and target setting approaches to better reflect our business context.

Setting and progressing towards 2030 targets

As highlighted in *Our vision and strategic approach*, we are focused on making the choices that do not just deliver progress towards our portfolio emissions targets, but that also lead to a meaningful impact on emissions reduction in the real economy. This means supporting our customers in high emitting sectors and regions to shape, implement and accelerate their transition plans. For that approach to work, it is essential that we have customers in our portfolio that are committed to developing and implementing their transition plans.

Today for many companies and sectors of the economy, present and future projected emissions data is not readily available and therefore financed emissions measurement and sectoral target setting brings with it considerable data and methodological challenges. Likewise, transition plan disclosure is nascent. Over time, we expect data, accounting standards and disclosures will evolve and lead to an improvement in the availability, reliability and comparability of such data, plans and approaches.

To help support our own net zero by 2050 ambition, we announced in 2021 our plans to set interim science-based, net zero-aligned, 2030 sectoral financed emissions targets. These are focused on greenhouse gas intensive sectors in our portfolio that are critical for the transition to a net zero economy.

To date, we have set on-balance sheet 2030 financed emissions targets across energy, heavy industry and transport. We plan to continue to release sectoral targets for key transition sectors where the availability of appropriate data, methodologies and approaches allow, and expect to consider Net-Zero Banking Alliance and other industry guidance in doing so. For each sector our target setting approach is focused on seeking to capture the most material greenhouse gas emissions (in the sector and in our portfolio of customers) to help drive the greatest impact – it may not cover a sector in its entirety. Further details about our targets can be found in our Financed Emissions Methodology.[23]

For sectors where we have not yet set 2030 targets, we continue to consider a range of approaches that serve to help support the transition, with a focus on both real-economy emissions impact, implementation effectiveness and just transition considerations. This could include sector-relevant sustainable financing and investment objectives to support the decarbonisation of our portfolio for a given sector, alongside disclosing financed emissions progress. This is relevant for our portfolio of residential real estate exposures, for example, where our customers are consumers not corporates. For this sector, our approach needs to consider financial inclusivity and our ability to provide customers access to suitable mortgages in addition to decarbonisation aims.

Contextualising our 2030 targets

Where specific targets have been set, they have been set using scenarios modelled on assumptions of the available carbon budget and necessary actions to limit the long-term increase in average global temperatures to 1.5°C with limited overshoot. The reality today is that the world is not currently on track for a 1.5°C-aligned pathway, with modelling of stated and announced policies and pledges suggesting there is still a gap between today's ambitions and a 1.5°C stabilisation. If implemented on time and in full, existing government commitments – as well as sectoral commitments for specific industries and company targets – keep the temperature rise in 2100 at around 1.7°C (see IEA's Announced Pledges Scenario). However, achieving these pledges requires major changes across geographies and industries to drive down emissions in the real economy.

Our target-setting approach to date has been to utilise a single reference scenario (IEA NZE 2021) to underpin both energy supply-related sectors (oil and gas, and power and utilities) and our published targets for demand-side sectors in transport and heavy industry. This reflects the importance of energy supply and demand moving concurrently: the reduction in demand for fossil fuels from demand-side sectors will be a key driver of the decarbonisation of energy supply.

Evolving our approach in line with real-economy progress

Emissions data and broader customer data is expected to continue to improve, as well as approaches to greenhouse gas accounting. We expect therefore to regularly refine and update our analysis to accommodate new data sources and updated methodologies, and intend to be transparent about any changes we make and why.

We also plan to continue to monitor the latest scientific evidence and emerging scenarios of potential pathways to net zero, as well as real economy progress on the transition in the markets we serve. This will enable us to consider whether, how and when to iterate and update our approach to scenario-selection and target-setting, portfolio alignment, policies, supporting our customers' transitions, and financing and scaling viable technologies to support the transition to net zero.

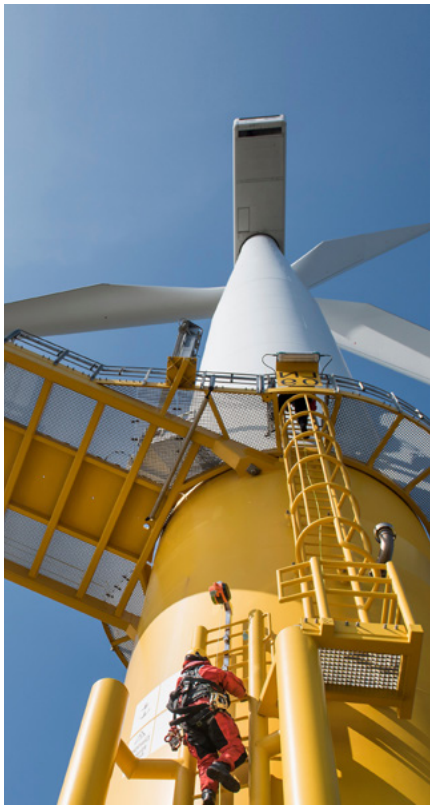
As new information becomes available, in particular the periodic publication of updated 1.5°C-aligned scenarios (which typically takes place every 2-3 years), we intend to review these factoring in science-based recommendations on good practice scenario selection from standard setters and scientific and industry bodies. It will be important that the scenarios we use to set our sectoral targets keep pace with science and real economy developments. By extension, our sectoral targets themselves will need to be refreshed periodically to reflect updated 1.5°C-aligned scenarios for achieving net zero by 2050.

We expect to update our published sectoral targets following the release of new 1.5°C-aligned scenarios, including from the IEA, and the ETC, amongst others. Recognising that the so-called "hard-to-abate" sectors – shipping, aviation, and iron, steel and aluminium – have a large dependence on nascent technologies and the presence (or not) of enabling policies and regulations, we intend to track progress relative to 1.5°C-aligned ambition ranges for these sectors in the future. This could include incorporating evolving industry-specific 1.5°C-aligned scenarios (e.g. the MPP scenario for steel and iron) alongside the benchmark net zero reference scenario.

Inclusion of capital markets

Facilitated emissions are off-balance sheet emissions that relate to services that we provide when we support customers to issue debt and equity to investors. These emissions can be included in the Scope 3 GHG accounting of the financial institutions and/or investors that provide the capital and hold these instruments.

Following the recent publication of the PCAF Global GHG Accounting Standard for Capital Markets (see Measuring progress on page 84), we aim to publish our measurement of facilitated emissions and related target-setting.



Sectoral pathway uncertainties, dependencies, and risks

We recognise that there is no precise pathway to net zero and there is a significant amount of uncertainty and complexity associated with the transition. The key decarbonisation themes we have identified, and the technologies behind them, will play out differently across sectors and geographies. Progress in the real economy towards net zero will likely be variable and non-linear and will depend heavily on external factors, including the policy landscape, the speed of technological innovation, and economic and geopolitical events. In addition, climate science and the quality of climate data continues to evolve and the scenarios and assumptions on which we have based our approach may change over time.

While we recognise that we have limited control over wider external events – from geopolitics around the world to major economic shifts – in *Sector transitions* from page 20 onwards, we set out where we intend to focus our efforts to help drive change – as well as current proposals to partner to support wider systems change.

The reality today is that some sectors – such as aviation, shipping or cement – are more at risk of missing 1.5°C aligned 2030 targets given heavy dependence on nascent technologies. Here it will be critical to monitor progress on technology scaling over the years ahead to 2030. Even where customers have made encouraging 1.5°C-aligned 2030 commitments, in hard-to-abate sectors there is still a risk of pledges not turning into the necessary emissions reductions or being pared back if technologies don't scale in time.

The actions we take in the context of progressing towards our own 2030 portfolio targets need to be grounded in impact in the real economy, including emissions impact, commercial impact and socio-economic impact. For example, consolidating a given sector portfolio to a very narrow group of "transition leader" customers may help to deliver a portfolio target, but will fail to deliver real economy emissions impact if the wider industry doesn't decarbonise. Rather, it will be important to regularly review our sector portfolio progress against how the real-economy is evolving, and chart a path to decarbonising our portfolio while supporting customers who demonstrate credible science-based targets, plans and progress.

In summary, we expect to iterate and mature our approach to supporting sector transitions over time. This includes our approach to financed emissions analysis, targets and portfolio alignment, as well as how to support customers through transition plan engagement, innovate on transition solutions and work with wider stakeholders to help support systemic change.

Overview of our financed emissions targets and sector transition approach

Sector		**HSBC on-balance sheet 2030 financed emissions targets** (versus 2019 baseline)[a]	**Key transition technologies and strategies**		**Sector approach**
Energy supply	Oil and gas	34 per cent reduction of absolute financed emissions (Mt CO_2e)	◆ Clean fuels ◆ Clean electricity	◆ Carbon capture and storage	page 21
	Power and utilities	Emissions intensity of 138 tCO_2/GWh	◆ Clean electricity ◆ Grid infrastructure improvements (inc. smart grids) and storage	◆ Thermal coal phase-out ◆ Storage and flexibility ◆ Carbon capture and storage	page 21
Transport	Automotive	Emissions intensity of 66 tCO_2/million vkm	◆ Electric vehicles and smart mobility ◆ Smart mobility	◆ Infrastructure ◆ Public transport improvements	page 26
	Aviation	Emissions intensity of 63 tCO_2/million rpk	◆ Sustainable aviation fuels ◆ Electric, hybrid, and hydrogen-fuelled aircraft	◆ Improvements to operational and aircraft efficiency ◆ Route optimisation	page 29
	Shipping	No target set; assessing data availability, methodologies and materiality of our portfolio.	◆ Clean fuels ◆ Optimising vessel routes	◆ Improved vessel design ◆ Clean port infrastructure	page 32
Heavy industry	Cement	Emissions intensity of 0.46 tCO_2/t cement	◆ Clean electricity ◆ Clean fuels ◆ Clinker substitutes	◆ Carbon capture and storage ◆ Recycling ◆ Energy efficiency	page 34
	Chemicals	No target set; assessing data availability, methodologies and materiality of our portfolio.	◆ Alternative feedstocks ◆ Clean hydrogen ◆ Elimination of single-use plastics	◆ Carbon capture and storage ◆ Recycling	page 37
	Iron, steel and aluminium	Emissions intensity of 1.05 tCO_2/t metal	◆ Recycling and secondary production ◆ Clean electricity ◆ Carbon capture and storage	◆ Inert anodes ◆ Clean fuels ◆ Upgraded raw materials	page 39
	Mining	Thermal coal mining specific target of 70 per cent reduction of absolute financed emissions[b] Approach to be defined for other mining	◆ Thermal coal phase-out ◆ Transition metals ◆ Decarbonisation of on-site operations	◆ Clean electricity ◆ CCS technology ◆ Alternative beneficiation and extraction	page 42
Real estate	Commercial and residential	No target set; assessing data availability, methodologies and materiality of our portfolio.	◆ Energy efficiency ◆ Low-carbon heating or cooling ◆ On-site clean energy generation	◆ Reduce embodied emissions ◆ Smart buildings/homes	page 45
Food, forests and other land use		No target set; assessing data availability, methodologies and materiality of our portfolio.	◆ Reduce Waste ◆ Low-carbon consumption ◆ Sustainable supply chains (preventing deforestation, low carbon)	◆ Nature restoration ◆ Low carbon agriculture (precision agriculture; alternative proteins, pesticides and fertilisers; vertical farming)	page 48

[a] For further details of our financed emissions targets, see *Measuring progress* on page 84.
[b] Versus 2020 baseline.

Our approach to implementation

Our implementation plan

In order to deliver on our ambition to be net zero by 2050 and create meaningful impact in the real economy, we are setting out our implementation plan to embed net zero across key areas of our organisation. For us, this includes embedding net zero into: how we support our customers; the way that we operate as an organisation; and how we partner for systemic change.

Embedding net zero across our business is an ongoing process. In 2024, like many of our peers and customers, we are still in the infancy of the transformation that is required to execute our net zero ambition. It will necessitate continual learning, agility, prioritisation and transparency as we look to respond to the pace of change in the real economy and evolving customer demands, policies and regulation. We have started on this journey, but recognise there is still much more to do to become a net zero organisation.

1 Supporting our customers

Our customers are central to everything we do. To help achieve the scale and speed of change required to transition industry and decarbonise trade and global supply chains, we know we need to support our customers not just with finance, but with the services, insights and tools they need to transition. Listening to and engaging with our customers is key to understanding the context and implications of decisions we take in support of their, and our, net zero transition. We appreciate that net zero considerations vary significantly for our customers depending on their business and operating environment. Our personal and private banking customers will require a different approach again. We are focused on helping to identify the solutions most suited to meet our customers' needs.

Supporting the transition in our global markets and in the "hard-to-abate" and high transition risk sectors, rather than simply pivoting to only support the "easy-to-decarbonise" sectors, is a challenge. Engagement and building trust with our customers and our stakeholders is key to success.

In our transition plan, we outline our approach to supporting our customers in two parts: engaging our customers, including how we are engaging with our in-scope corporate customers (see page 54) on their transition plans; and providing transition solutions, where we set out the products and services that we offer to support our customers to transition. Not all products and services mentioned are currently available in all HSBC markets.

For further details on how we are embedding net zero into our customer engagement, and products and services see: *Supporting our customers* on page 52.

2 Embedding net zero into the way we operate

Our first step towards embedding net zero into our business was to place "transition to net zero" as one of the four pillars of our corporate strategy in 2021. This put our ambition to play an important role in the transition at the heart of our organisation, recognising that supporting the transition can create value for HSBC, our customers and our investors.

With net zero as a key part of our corporate strategy, the transition becomes an important part of our oversight structures and resource allocation, with key performance indicators that begin to measure how we are executing on our corporate strategy and linked executive performance scorecards and management reporting.

In our transition plan we set out how we are embedding net zero considerations across key areas of our organisation. This includes how we have begun to integrate net zero into our key sustainability risk policies and our core risk, evaluation and decision-making tools and processes at client, transaction and portfolio levels. We have also highlighted where a tailored approach is being taken by individual business lines, for example in relation to our asset management and insurance businesses, in response to their own regulatory or legal obligations (see pages 62 and 63). Our transition plan also includes how we are integrating transition to net zero requirements into our governance and incentives, operating model, culture and capabilities, and how we measure our progress. We have an ambition to be net zero in our own operations and supply chain by 2030, mobilising our organisation to cut emissions across our energy consumption, travel and supply chains.

For further details on how we are embedding net zero into the way we operate please see:
- *Managing risk in transition to net zero* on page 64.
- *Using policies to drive change* on page 70.
- *Integrating net zero into transaction and portfolio decision-making* on page 73.
- *Achieving net zero in our own operations* on page 75.
- *Aligning responsibilities and incentives* on page 77.
- *Strengthening our culture and net zero capabilities* on page 79.
- *Measuring progress* on page 84.

3 Partnering for systemic change

Our ability to reach our own net zero ambition is heavily reliant on the mobilisation of all stakeholders, public and private, across geographies. We seek to engage on policies, regulation and partnerships that support the transition and help to scale the new technologies, infrastructure and business models critical to net zero. We recognise that we need to be consistent in this advocacy by engaging with trade associations and working with the wider business community to help build collective calls for change.

We have a track record of advocating for progress across the financial system. We are a signatory of the Taskforce on Climate-related Financial Disclosures (TCFD) and continue to call for disclosures on climate risk alongside company emissions and company transition plans. This is important information for investors and financiers making risk-based decisions. Other areas of focus include new standards for sustainable finance product design, addressing sustainable finance taxonomies, and policies and regulation for scaling clean technologies.

Supporting systemic change requires collaboration with industry peers, customers, governments, scientists and entrepreneurs. We plan to continue to collaborate in initiatives that support large-scale action and impact. This includes as participants in relevant strategic alliances and initiatives, for example, as founding members of the Glasgow Financial Alliance on Net Zero and the Sustainable Markets Initiative, as well as partnerships aimed at scaling finance into new technologies (e.g. Breakthrough Energy Catalyst) and into emerging markets (e.g. Just Energy Transition Partnerships).

For further details on how we are embedding net zero into our external partnerships see *Partnering for systemic change* on page 90.

Sector transitions

Energy supply

Sector transition overview

Pathways to net zero

Coal, oil, and gas contribute 80 per cent of global primary energy supply, and their extraction, transportion and use in power generation, transport, industry, buildings and petrochemicals accounts for three-quarters of world carbon emissions.[24] A breakdown of value chain emissions is shown below.

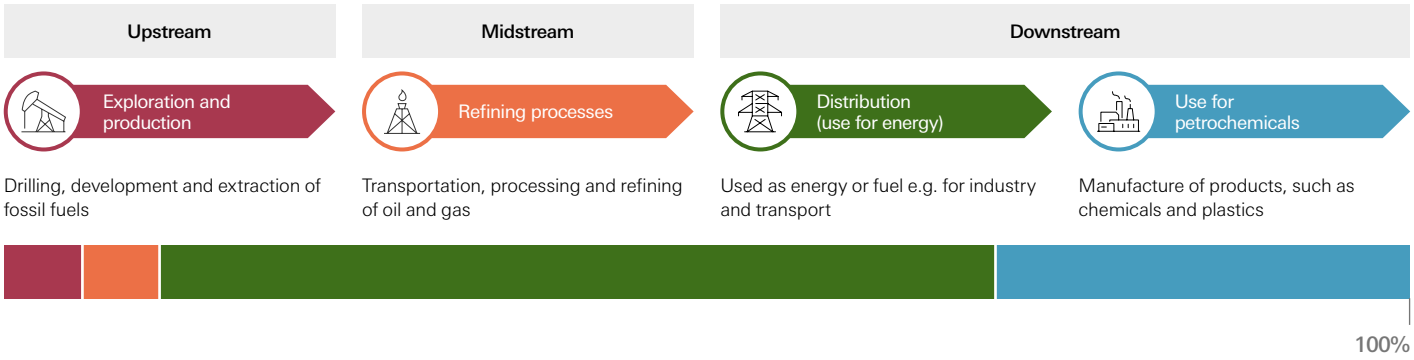
To achieve net zero, the transition away from unabated fossil fuels is essential. This requires replacing coal, oil and gas throughout the economy with clean electricity and low-carbon fuels, and using carbon capture and storage (CCS) technology where other options are not technically and economically feasible. While reducing fossil fuel use is vital, there will still be some reliance on oil and gas all the way to 2050.[25] This highlights the importance, therefore, of also abating the carbon emissions from this remaining fossil fuel use.

Rapid growth in electrification and clean electricity

Electricity demand is set to multiply at least two or three times by 2050 as consumers shift to electric vehicles; building and low and medium temperature industrial heat is electrified; and demand for clean hydrogen ramps up.[26] This will be partially offset by improvements in energy efficiency. As electricity demand increases, supply will decarbonise: the IEA NZE 2023 scenario indicates that the share of renewable electricity increases from 30 per cent in 2022 to 59 per cent by 2030, and 89 per cent by 2050, with low-cost wind and solar taking the lead.[27]

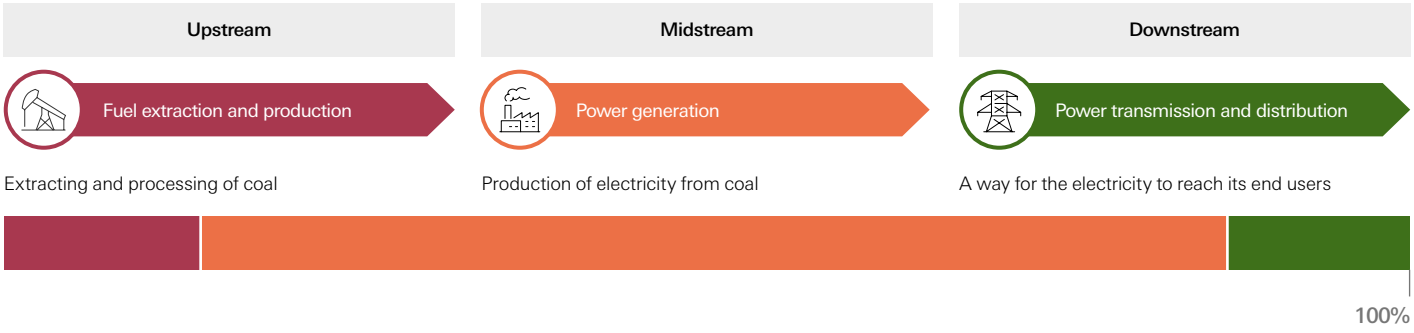
To support this growth and integrate variable wind and solar power, new grid infrastructure and flexibility will be needed, including technologies like batteries, interconnectors, demand response, and seasonal energy storage. Other zero-emissions electricity like hydro, biomass, nuclear, and geothermal will also play a role.[28,29] To support growth in clean electricity and meet demand, the world's power grids are projected to double in length by 2050. It will be particularly necessary and challenging in emerging markets to simultaneously support widespread renewables build-out and ensure universal energy access.[30,31]

Oil and gas value chain
Emissions sources (%)



Note
[1] Emissions associated with the oil and gas industry can vary depending on a range of factors, such as the specific technology and processes used, the source of the fuel, and the geographic location of the activity.
Source: Analysis deduced from Rystad Energy (2023) Exploring Emissions Trends Across the O&G Value Chain, EIP (2020) Greenhouse Gases from Oil, Gas and Petrochemical Production.

Power and utilities value chain
Emissions sources (coal power example), % of g/kWh



Notes
[1] The specific breakdown of emissions along the value chain can vary depending on various factors such as the location, technology, size and type of electricity grid and efficiency of coal mining and power generation. The emissions breakdown would also be different for different types of electricity generation.
[2] Transmission and distribution emissions are indirect emissions arising from additional electricity generation to account for losses during transmission and distribution.
[3] This value chain is taken from the perspective of the power generator (from raw materials to its delivery to the consumer) and therefore does not include all emissions stemming from each value chain component
Source: Analysis deduced from Intergovernmental Panel on Climate Change (IPCC) "Summary for Policymakers" of the IPCC´s Sixth Assessment Report (AR6), Working Group III, Chapter 2.
Libao Yin, et al. (2017) Life cycle assessment of coal-fired power plants and sensitivity analysis of CO_2 emissions from power generation side; IEA (2020) Emission Factors 2020 Database Documentation.

Switch to low-carbon fuels

Sectors like shipping, long-haul aviation, steel, and cement require high temperatures, high energy density and clean molecules for industrial processes, making electricity and current battery technologies less suitable. These sectors are therefore likely to adopt low-emission fuels like biofuels, clean hydrogen or synthetic fuels like clean ammonia.[32]

Clean hydrogen and its related derivatives, produced through applying CCS to conventional fossil fuel-based processes or through renewables – or nuclear-powered water electrolysis, has various applications in transport, industry, chemicals, and seasonal power supply. The long-term role of clean hydrogen as an energy carrier varies across scenarios at 500-800 Million tonnes (Mt) by 2050. However, even the lower bound is a significant increase from the current market of around 95 Mt of carbon-intensive "grey hydrogen".[33]

Biofuels are used today as replacements or blends for gasoline and diesel in road, sea and air transport and can often be used in existing engines. A net zero transition will see a significant rise in biofuels, and a much larger share coming from sustainably sourced biofuels (from waste, residues, and non-food crops), but their limitation is the availability and supply of sustainable feedstock.[34] The growth of electric vehicles may redirect sustainable biomass supply from road transport to aviation.[35]

Carbon capture and storage

Carbon capture and storage (CCS) can be used with existing thermal power to provide lower-emission seasonal and balancing supply, as well as for hard-to-abate sectors with high-temperature needs or where CO_2 is emitted as part of the process. CCS can also be used as part of the process to produce low-carbon blue hydrogen. Carbon can be removed from the atmosphere, for example, when CCS is coupled with biomass energy (BECCS) or through engineered atmospheric removals via Direct Air Capture and Storage (DACS). Carbon dioxide captured via BECCS or DACS can be combined with hydrogen to produce synthetic fuels.[36]

While CCS theoretically offers potential for coal and gas to continue playing a role in stationary applications, this is limited in most 1.5°C-aligned scenarios. Capacity estimates vary but can contribute up to 15 per cent of total abatement by 2050.[37] In most instances, carbon capture will not be the most cost-effective means of carbon abatement. This means it is only likely to be used in areas where decarbonisation is most challenging.

The role of fossil fuels

Major 1.5°C-aligned scenarios agree on the prominent role of clean electrification and low-carbon fuels, as well as the direction of travel for fossil fuel demand, although trajectories differ over the near-to-mid-term. This variation is driven by a range of assumptions about the remaining carbon budget, the rate of electrification and energy demand, the role of gas as a transition fuel, the mix of low-carbon fuels, the role of CCS, and the role of carbon removals post 2040.[38] Demand curves from selected 1.5°C-aligned scenarios are shown below, alongside 'current policies' scenario.

In 1.5°C-aligned scenarios, demand for coal decreases by 41-74 per cent by 2030 as the fuel is undercut by cheap renewables for power generation in the 2020s and 2030s.[39,40,41,42] The NZE 2023 scenario also suggests a decrease of up to 91 per cent by 2050 with 80 per cent of the remaining coal demand to be abated with Carbon Capture Utilisation and Storage (CCUS). Coal use has a longer runway in industry, but it is ultimately replaced with zero emissions fuels such as clean hydrogen and electrification. The IEA NZE 2023 scenario for coal demand in 2030 has been increased by 32 per cent compared to the IEA NZE 2021 scenario, due to unexpectedly strong demand after the Covid-19 pandemic, as well as a change in the modelling allowing more time for emerging markets and developing economies to transition their energy systems.[43,44]

For oil, 1.5°C-aligned scenarios show demand falling around 80 per cent by 2050,[45,46,47,48] though there are near-term variations out to 2030, with demand falling between 6-25 per cent by 2030. Such declines are driven by a shift to electric vehicles and, to a lesser extent, replacement in power generation particularly in advanced markets during the 2020s, and longer-term adoption of low-carbon fuels in shipping and aviation. Oil use as a petrochemical feedstock continues to be relevant beyond 2050, making up around 70% of oil consumed in 2050. Current market trends indicate 'peak oil' is expected before the end of the decade, with a more rapid decline in the 2030s and beyond.[49] For similar reasons as for coal demand, the IEA NZE 2023 scenario for oil demand in 2030 has been increased by 8 per cent compared to the IEA NZE 2021 scenario. Depending on the scenario being considered, natural gas has a slightly longer runway and slower rate of decline than coal and oil. Key 1.5°C-aligned scenarios suggest demand could fall by 8-38 per cent by 2030,[50,51,52,53] and decrease by 78 per cent by 2050 under the NZE 2023 scenario, with approximately 56 per cent of the remaining natural gas demand dedicated to abated gas (with CCUS). The IEA NZE 2023 scenario for natural gas demand in 2030 has decreased by 8 per cent compared to the IEA NZE 2021 scenario, due to the recent 2022 global energy crisis and energy security concerns related to gas supply.[54,55]

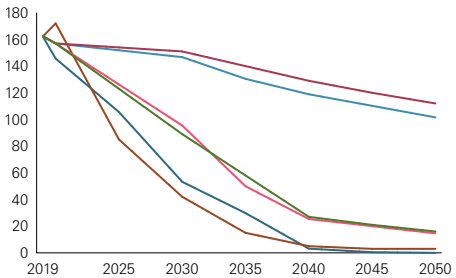
Given its lower carbon intensity, especially if methane emissions are mitigated, some scenarios enable emissions reductions through coal to gas switching in the near-term. Going forward, however, gas faces increasing competition from low-cost renewables in the power sector, particularly given the need to factor in abatement, ultimately relegating it to a peaking or seasonal role.[56] In buildings and industry, natural gas is replaced over time by electric heat pumps, clean hydrogen, and other forms of direct electrification.

Though demand for fossil fuels is significantly reduced in these scenarios, it does not go to zero by 2050. Some fossil fuels will continue to be used for non-combustion purposes, such as feedstock for plastics and chemicals. CCS also allows for some abated coal and gas to be used in hard-to-abate industries including for the production of blue hydrogen and, for gas specifically, in some regions as a peaking or seasonal power generation source.[57]

To keep the rise in global temperature to 1.5°C, it will also be crucial to reduce the emissions intensity of fossil fuel supply. Oil and gas operations account for 15 per cent of global energy-related emissions, and the IEA NZE 2023 1.5°C-aligned scenario assumes a more than 50 per cent reduction in operational emissions intensity by 2030.[58] Such goals can be achieved through reducing methane venting, flaring, and leakage, as well as deploying upstream renewables and clean electrification. Portfolio management can also help phase down the most carbon-intensive and environmentally damaging forms of oil and gas supply first.[59]

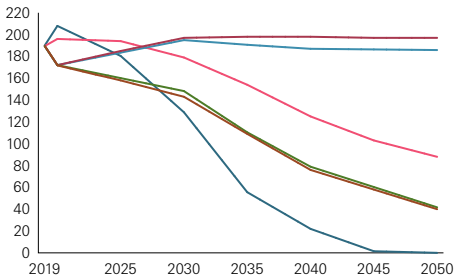
Primary energy demand for coal

EJ/year and % change



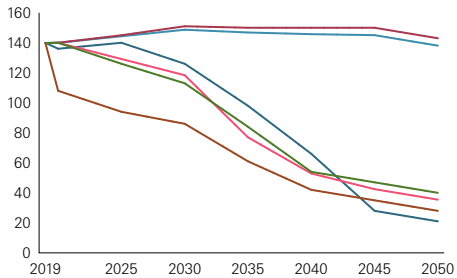
Primary energy demand for oil

EJ/year and % change



Primary energy demand for gas

EJ/year and % change



Current policies — IEA STEPS 2021 — IEA STEPS 2023 **1.5°C-aligned** — IEA NZE 2021 — IEA NZE 2023 — NGFS NZ — UTS NZ

Source: IEA (2021) *Net Zero by 2050*: A Roadmap for the Global Energy Sector, IEA (2023) Net Zero Roadmap: A Global Pathway to Keep the 1.5C Goal in Reach, NGFS Net Zero 2050 (2022): Climate Scenarios Database, Technical Documentation V3.1, UTS NZ (2021) Limit global warming to 1.5C, sectoral pathways and Key Performance Indicators.

Technology feasibility and timelines

Oil and gas
Oil and gas companies can employ two core transition strategies: decarbonising existing operations and diversifying into low-carbon energy.[60]

Technologies to reduce oil and gas scope 1 and 2 operational emissions are well-known and mature. Emissions can be reduced by addressing methane, eliminating non-emergency flaring, electrifying facilities with zero-emissions electricity, using clean hydrogen and other alternatives like clean methanol and ammonia, and applying CCS to oil and gas processes. Retrofitting hydrocarbon businesses by retiring less productive and carbon-intensive assets is also key.[61] Many oil and gas producers are announcing scope 1 and 2 targets, methane commitments, and deploying capital for these initiatives.

The IEA estimates that demand for coal, oil and natural gas will all peak this decade, due to the rapid increase in clean technologies (see following chapters on sector transitions). However, global energy sector CO_2 emissions reached a record high in 2022 of 37Gt, and in 2023, demand for fossil fuels increased, including investment in new fossil fuel supply, largely driven by a stronger than expected rebound from Covid-19, the energy crisis of 2022 and the renewed focus on diversified energy supply and energy security.[62] Meeting 1.5°C-aligned 2030 and 2050 targets will only be viable with deep emissions reductions across the value chain (Scopes 1, 2 and 3), including a peak in production and reduction thereafter.

Many oil and gas companies are diversifying into low-carbon solutions that align with their strengths and will reduce average carbon intensity of sales. Some are transitioning into broad, integrated energy companies, moving into renewables, grids, electric vehicle (EV) charging, and clean hydrogen, leveraging their expertise in large, offshore projects and strong balance sheets. Others are choosing to remain fuel and resource specialists, focusing on clean hydrogen, sustainable aviation fuel, and leveraging their expertise in subsurface technology and geology to redevelop old fields and infrastructure for CCUS.[63]

Declines in fossil fuel demand required to meet a 1.5°C-aligned pathway in 2030 and 2050 require a major surge in clean energy, electrification and energy efficiency investment. Progress is being made, particularly, for example, in solar photovoltaic and electric vehicles, but government policy and incentives, as well as investment in innovative technologies will be crucial to accelerate action in all areas.

In the longer-term, technologies such as clean hydrogen and CCUS – both at an earlier stage of cost reduction and deployment – will be needed for oil and gas producers to meet net zero by 2050.[64]

Power and utilities
Meeting 1.5°C-aligned 2030 targets for the power sector will require the accelerated deployment of solar and wind, the retirement of thermal coal-fired power plants, and the delivery of grid infrastructure and technologies that support the balancing of supply and demand. While progress in the power and utilities sector has been encouraging, stronger policies are required to incentivise more investment in renewable projects, manufacturing, supply chains and innovation to get on track with the 1.5°C-aligned pathway for net zero by 2050. Solar photovoltaic installations are tracking in line with the pathway set out in the IEA NZE 2021 scenario, however progress in other key technologies for power decarbonisation, for example wind, CCUS, energy storage and electricity grid expansion, has been less rapid and requires significant scale up.[65]

Many of these technologies required to decarbonise the power sector are available, cost-effective, and being deployed at scale – for example a record 350 GW of wind and solar was installed in 2022. However, the pace needs to accelerate. The average annual build of solar needs to roughly double, and wind triple, for the sector to get on track for net zero by 2030. In Asia, new coal power continues to grow despite the fact renewables are now cheaper in many markets. Grid systems worldwide also need rapid, large-scale extension, digitalisation and reinforcement to support renewables and electricity demand growth.[66]

Achieving the necessary acceleration to 2030 will require a combination of measures, including national targets, market and planning reforms, financing to de-risk investment, and engagement from governments and regulators to address interactions between the power sector and wider economy.

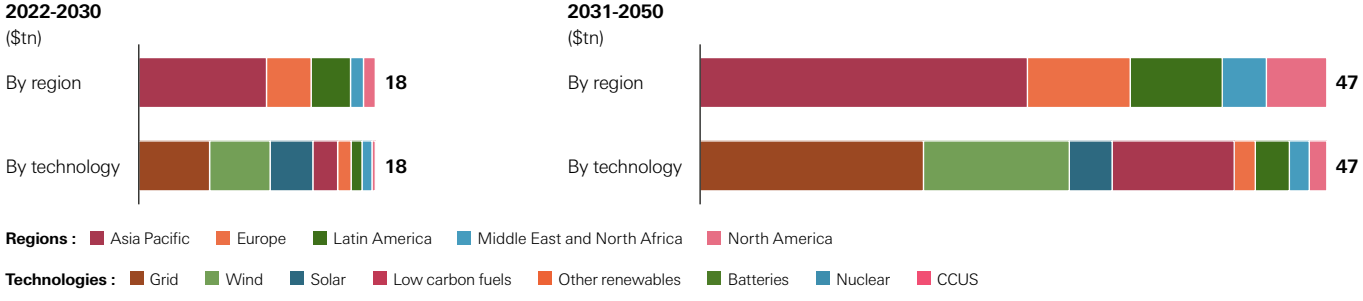
Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that the energy transition will require $18 trillion of investment by 2030, and a further $47 trillion up to 2050. Wind and solar are expected to represent around 40 per cent of this, while 30 per cent will be needed to upgrade grid infrastructure.[67]

Remaining investments are split across low-carbon fuels such as hydrogen and ammonia, as well as hydro, nuclear, and geothermal energy. Asia is projected to see over half this investment to 2030, while Europe and North America each account for roughly 20 per cent. Further information can be found in the charts below.[68]

At the same time, investment will still be required in existing oil and gas to ensure stability and security during the transition, though the balance shifts radically towards low-carbon technologies over time.[69] Analysis from BloombergNEF suggests the ratio of investment in clean energy versus fossil fuels needs to reach 4:1 to get on track for net zero this decade, increasing to 6:1 in the 2030s, and 10:1 in the 2040s.[70]

Estimated capital expenditure requirements: Energy supply[71]



Our sector approach

Our portfolio

More than three quarters of our oil and gas on-balance sheet financed emissions come from a concentrated group of upstream and integrated energy companies.[72] Taking a materiality-based approach, we intend to focus our engagement particularly on these companies and their transition plans. Approximately half of these oil and gas companies are based outside of the OECD.

Our power and utilities portfolio includes power generation, retailers and grid companies from major markets across the world. Many operate in jurisdictions in Asia with significant amounts of thermal coal-fired power generation, and without a net zero by 2050 national climate target.

Approximately half the customers in our oil and gas and power and utilities portfolios are state-owned enterprises (SOEs), many in emerging economies. Given their ownership, they play a vital contributing role to national GDP[73] and as a result there is an economic imperative for them to have a transition-resilient business model.

Targets

Oil and gas target
We have set a target to reduce absolute on-balance sheet financed emissions for our oil and gas portfolio by 34 per cent by 2030 relative to a 2019 baseline. This is consistent with a global 1.5°C-aligned pathway as defined by the IEA NZE 2021 scenario. Our analysis includes scope 1, 2, and 3 emissions, including carbon dioxide and methane, for upstream and integrated companies.

As outlined in *Our approach to sector transitions* on page 17, we plan to update our target following the periodic release of new 1.5°C-aligned scenarios in the years ahead to reflect shifts that have occurred in the real economy. For example, in comparison to the IEA NZE 2021 scenario, the updated IEA NZE scenario released in 2023 shows a minor increase in emissions from oil combustion which is partly offset by a decrease in emissions from gas combustion. In the medium term, as more oil and gas companies diversify and substitute oil and gas production with low carbon business lines, we may reassess the boundary of our oil and gas target to encompass a more holistic view of energy supply companies.

Power and utilities target
We have set a target to reduce the financed emissions intensity of our on-balance sheet power and utilities portfolio to 138 tCO_2/GWh by 2030, which represents a 77% reduction versus the 2019 baseline.

Our analysis includes scope 1 and 2 emissions for power generation companies. Although scope 1 emissions are most material for the sector, most companies report scope 1 and 2 emissions together making it challenging to split out the data.

We have chosen an intensity-based target as electricity demand is expected to more than double by 2050 due to both population growth and electrification required to decarbonise mobility, buildings, and industry. We have focused on power generation companies because they control sector output; by engaging them we believe we can help drive the most material emissions impact in the real economy.

Our target is consistent with a global 1.5°C-aligned pathway, as defined by the IEA NZE 2021 scenario. As new 1.5°C-aligned scenarios are released with regional disaggregation we expect to consider embedding regional implications into our power and utilities target setting approach to better reflect our business context which today includes a large share of emerging country customers.

As outlined in *Our approach to sector transitions* on page 14, we plan to refresh our target following the periodic release of new 1.5°C-aligned scenarios in the years ahead to reflect shifts that have occurred in the real economy. The update of the IEA NZE scenario released in 2023 indicates total energy demand in 2030 is slightly higher than in the IEA NZE 2021 scenario, and even though solar photovoltaic capacity additions and installed battery capacity is higher, the IEA NZE 2023 scenario has a higher emissions intensity figure in 2030.[74,75]

Finally, in 2022 we set a separate target to reduce on-balance sheet financed emissions for thermal coal power and thermal coal mining as part of our updated thermal coal phase-out policy. However, upon further review, we have since confirmed that the majority of customers in scope of the thermal coal power production target are already included in the power and utilities target population. To avoid duplication, we plan to continue with only the financed emissions target for thermal coal mining specifically.

Energy-related policies
Our net zero-aligned Group thermal coal phase-out and energy policies[292,293] outline our approach to engaging with customers at the heart of the energy transition on their transition plans, and covers upstream oil and gas, fossil fuel power generation, coal, hydrogen, renewables and hydropower, nuclear, biomass and waste to energy sectors. See *Using policies to drive change* on page 70 for further details.

Our action plan

1 Supporting our customers
Engage our customers
Our core approach is to engage with major oil and gas and power and utilities customers to understand their transition plans and to help support, finance and accelerate those efforts. Our transition plan assessment approach is an important part of understanding our customers' positions, opportunities for decarbonisation, and how our portfolios are evolving relative to our 2030 targets.

We recognise that different customers will transition at different speeds. For example, many of the major power companies in our power and utilities portfolio are in emerging and developing countries and face challenges in transitioning, given strong growth in demand for electricity, young thermal coal-fired power production assets and higher cost of capital relative to advanced economy peers. They are also often at earlier stages of developing their transition plans. That said, we recognise that the power sector in HSBC's emerging market regions will need access to substantial capital to finance low-emissions inclusive growth and avoid lock-in of high carbon power production.

Some national oil and gas SOEs may also have limited scope to diversify as wider clean energy activities are often carried out by separately managed state-owned companies.[76] In these cases, we may consider a set of SOEs together, while still looking at the national oil and gas entities' exploration and production plans relative to 1.5°C demand curves, their emissions targets, and broader plans to diversify, including into sustainable fuels.

Transition plan assessments for oil and gas companies
Our oil and gas 2030 on-balance sheet financed emissions target covers absolute emissions from both operations and the use of products sold. Areas for evaluation and engagement with oil and gas companies include the following (subject to data availability and other external factors):

1. Plans to reduce operational (scope 1 and 2) emissions. This includes plans to eliminate flaring and venting by 2030, unless when absolutely necessary for safety reasons, and plans to reduce fugitive methane emissions by 2025 for operations in EU and OECD markets (2030 for the rest of the world) to meet the Oil and Gas Climate Initiative's target. See our Group energy policy.[77]
2. Plans to scale investment in decarbonisation solutions and/or business activities in new clean technologies, products and/or services, including capex plans, mergers and acquisitions.
3. Emissions disclosures, including all major emissions across scope 1, 2, and 3.
4. Net zero 2050 targets and credible interim targets. This includes engagement on scope 3 emissions targets, to help drive transition in their businesses and in the energy system at large.
5. Oil and gas production plans, including for the period to 2050, such as: peak production dates; plans relative to projected demand curves for oil and gas (including 1.5°C-aligned pathways); production plans for proved and probable reserves; and plans related to the development of new oil and gas fields.

Transition plan assessments for power and utility companies
Areas for evaluation and engagement with power and utilities companies, include the following (subject to data availability and other external factors):

1. Emissions disclosures across scope 1, 2, and 3.
2. Net zero 2050 targets and credible interim emissions targets that cover greenhouse gases across scope 1, 2, and 3. This includes both absolute and intensity-based metrics.
3. Proposed energy mix of power production to 2050, including plans to: scale down fossil fuel power generation and deploy carbon abatement technologies in the period to 2040; and scale up of renewable technologies. We are also looking to include just transition considerations in our evaluation.
4. Approach to scaling-up and committing capital to clean electricity, energy storage and other clean infrastructure to support growth in electricity demand. This includes engagement on capex plans for new projects and business lines, evidence of strategic acquisitions and partnerships, and project pipelines.

Provide transition solutions

We aim to support our energy supply customers to transition to net zero by providing project finance, corporate debt, and access to capital markets for them to develop and deploy new wind, solar, hydro, nuclear, sustainable bioenergy and other zero-emissions technologies. At the same time, we will look to identify opportunities to help support emissions intensity improvements in our customers' legacy hydrocarbon businesses, including solutions to reduce methane emissions, flaring, and for wider retirement or repurposing of assets to meet net zero targets. We also aim to implement innovative financing solutions and blended finance partnerships to help scale investment into emerging and developing market clean energy infrastructure, such as our investment in Pentagreen Capital, a $150 million partnership with Temasek.

To help scale critical early-stage technologies, such as clean hydrogen, CCUS, long duration energy storage, small modular nuclear reactors and sustainable fuels (including SAF), we aim to provide finance for breakthrough first- and second-of-a-kind projects. We can help customers raise funds in capital markets to acquire businesses with innovative low-carbon technology. As part of developing some of the tools and pipelines we need for success, we bring together an internal group of multidisciplinary experts to discuss key technology solutions. In addition, we aim to identify opportunities to collaborate with other value chain actors to help scale nascent energy technologies – such as our $100 million investment as an anchor partner in Breakthrough Energy Catalyst.

2 Embedding net zero into the way we operate

Manage our portfolio

We expect to actively manage our oil and gas and our power and utilities portfolios as we look to achieve our 2030 financed emissions targets. We will look to support customers with well-developed transition strategies, as well as support those at an earlier stage of their journey who have an appetite to play an active role in the energy transition and who demonstrate progress in doing so.

We anticipate that, despite our efforts, some customers may not align with our 2030 targets and net zero ambition. In such cases, we may need to consider whether to reduce our exposure. This choice will be informed by our policies and strategic portfolio considerations, including sustainability, credit and commercial alignment.

Our sustainability risk policies include parameters that act as key levers to help decarbonise our portfolio and manage climate risks. These include ending new financing or advisory services for the specific purposes of projects pertaining to new oil and gas fields and related infrastructure and accelerating the phase down of financing for the most carbon-intensive oils, as well as in oil and gas activities in environmentally and socially critical areas (see our Group energy policy). We have set a target to reduce our thermal coal financing drawn balance exposure by at least 25 per cent by 2025 and 50 per cent by 2030, and to phase out the financing of thermal coal-fired power and thermal coal mining in EU and OECD markets by 2030, and all other markets by 2040 (see our thermal coal phase-out policy).

Optimising our portfolio for net zero means working to embed climate into customer onboarding and actively targeting new clean energy customers. For customers in scope of our sustainability risk policies, we set further conditions for on-boarding based on their engagement in certain outlined activities, their net zero transition plans, and consistency with our targets and commitments. For example, we will not onboard new oil and gas customers where more than 10 per cent of their production volumes come from unconventional oil and gas.

3 Partnering for systemic change

We expect to prioritise collaboration with key stakeholders to help accelerate a clean, secure, and inclusive energy transition. This includes partnering with industry-led coalitions, supporting established frameworks, working with governments and developed finance institutions, and engaging with scientific bodies.

For example, we are supporting the work of GFANZ to build on the framework for financial sector transition planning, which includes clarifying information banks require to help drive the energy transition. Furthermore, we can collaborate with organisations like GFANZ and greenhouse gas accounting standards setters to help develop financed emissions approaches for emerging and developing market countries that incentivise providing finance for the energy transition in these markets.

We are playing a role in the development of Just Energy Transition Plans (JETPs) for Indonesia and Vietnam and Egypt's Nexus of Water, Food and Energy (NWFE) programme, and will look for wider opportunities to help support similar country-led or regional public-private platforms and blended finance partnerships focused on helping to scale finance for clean energy in emerging and developing markets.

Finally, we are engaging in research and thought leadership with organisations like the Energy Transitions Commission and Mission Possible Partnership to help identify and address barriers to mobilising capital for energy transition efforts.

Transport – Automotive

Sector transition overview

Pathways to net zero

Fuel use by road transport currently accounts for 12 per cent of global greenhouse gas emissions and 76 per cent of all transport emissions.[78]

For auto manufacturers, the majority of total emissions are scope 3 emissions estimated from fuel combustion during lifetime use of vehicles. This is nearly six times greater than operational scope 1 and 2 emissions from vehicle manufacturing. (see chart below).[79]

To decarbonise road transport, switching from internal combustion engine (ICE) vehicles to battery electric vehicles (BEV) for passenger and light-duty commercial applications, and a mix of BEVs and hydrogen fuel cell electric vehicles (FCEVs) in heavy-duty applications is essential. Electric vehicles have zero tailpipe emissions, and although BEVs currently charge from grid electricity supplied by a mix of fossil fuels and renewables, they have a smaller overall emissions profile than ICE vehicles. This is true even in countries with large amounts of thermal coal-fired power.

As new manufacturing supply chains become more efficient and global electricity systems continue to decarbonise, the emissions reductions from BEVs relative to ICE vehicles will continue to grow.[80,81,82]

Decarbonisation is also supported by ongoing improvements in fuel efficiency, biofuel blending, and shifts from personal passenger vehicles to public transport and active travel where markets and infrastructure allow.[83]

Electrification

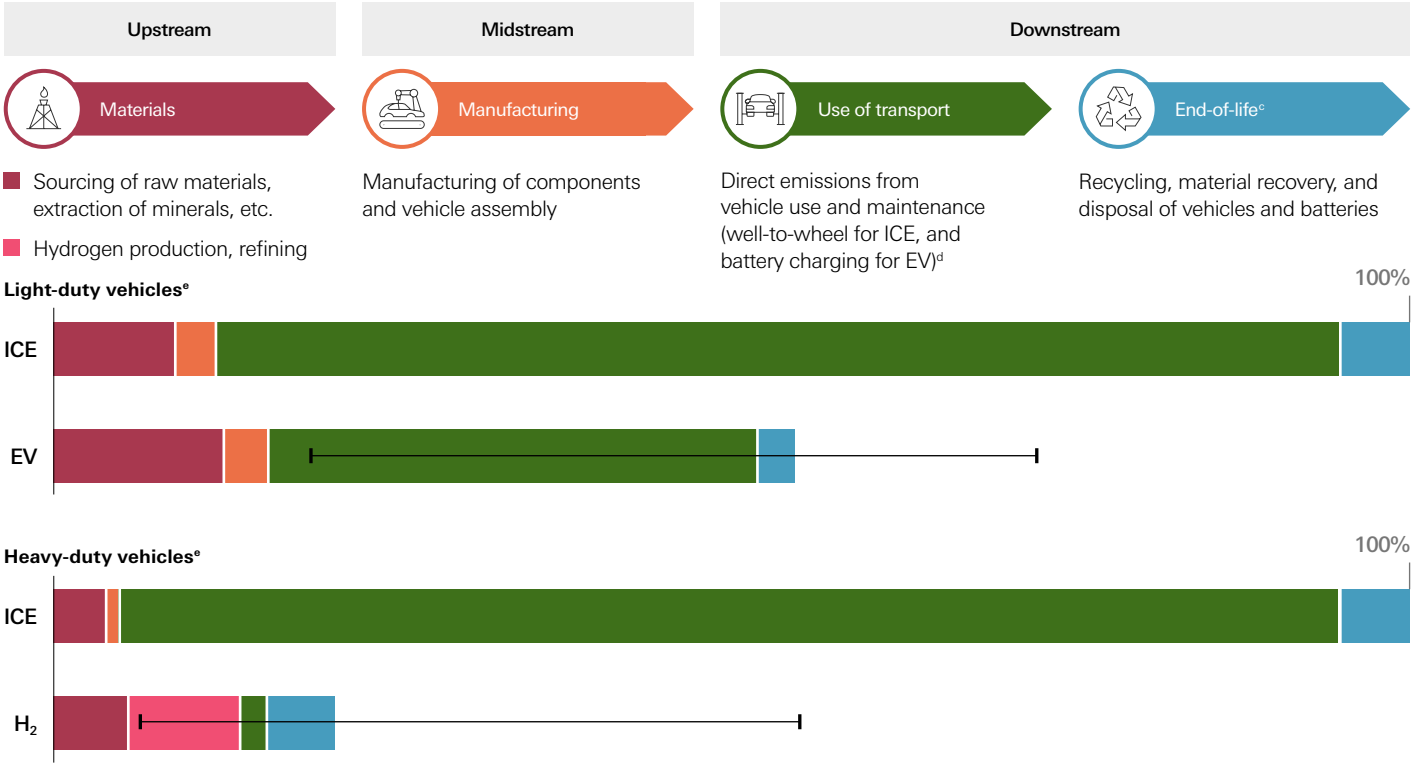
To be on track for net zero by 2050 in road transport, scenarios estimate that 43 to 89 per cent of new passenger vehicles sales will need to be electric by 2030, and the sale of new ICE passenger vehicles will need to be phased out by 2040.[84,85]

Electrifying other vehicles such as trucks and buses is also gathering pace. In 2022, BEVs accounted for nearly 4.5 per cent of bus sales and 1.2 per cent of medium and heavy-duty truck sales. There are now around 840 models of medium and heavy-duty electric vehicles available or coming to market. Amongst the medium and heavy-duty trucks, over 90 per cent are BEVs. FCEVs will also play a role, but they are at an earlier stage of development and have less models available commercially. They will be particularly suited for regions with limited grid capacity and in long-range, heavy-duty applications requiring rapid refuelling.[86]

Transport electrification will require cooperation from multiple stakeholders to expand battery supply chains, build-out of charging infrastructure, and improve grid management. Scaling in battery materials and manufacturing is perhaps the most important enabler of BEV expansion. Demand for lithium, nickel, and other critical minerals for lithium-ion batteries is likely to grow by around 30-40 times between 2020 and 2040. Extraction and refining of these materials need to grow while becoming more efficient, less emissions intensive, and sustainable.[87,88]

Automotive value chain

Emissions sources (% per vehicle) for ICE and EV light-duty vehicles and hydrogen heavy-duty vehicles in 2021



[c] End-of-life emissions are not included in the IEA's estimates. Depending on scenario assumptions arour d the volume of recycling, EOL activities could reduce overall lifecycle emissions of vehicles by up to 18%.
[d] The main EV emissions are related to the electricity that is used to charge the battery. Though classified under use of transport, these emissions are actually realised at generation point, not point of use.
[e] For further details on the ranges shown in the charts, please see the IEA (2023) Energy Technology Perspectives 2023.
Source: Analysis deduced from IEA (2023) Energy Technology Perspectives 2023, UK Department for Transport (2021) Lifecycle Analysis of UK Road Vehicles.

Continued innovation in battery technology is helping to enhance energy density, reduce costs and substitute primary materials where extraction may be linked to adverse ESG outcomes.[89] Battery pack prices have already fallen by around 90 per cent since 2010,[90] and cell energy density can now reach over 260 watt-hours per kilogram, two to three times greater than a decade ago.[91] Battery manufacturing capacity is expected to increase five-fold to 2025, which will put further downward pressure on prices.[92]

Grid expansion and enhancements, including vehicle-to-grid (V2G) technology, smart grids, and increasing the number of publicly accessible charging points, will help BEVs improve rather than challenge grid stability.[93]

Fuel economy and biofuels

Improving fuel economy and biofuel blending both offer additional routes for the transition. Incremental improvements in ICE technology combined with tightening emissions and fuel efficiency standards have already helped to reduce emissions intensity. These measures have also helped to accelerate the development and adoption of plug-in hybrid and battery electric models.[94,95,96]

Biofuels made up nearly 5 per cent of total fuel consumption globally in 2022 and can continue to help reduce emissions from road transport in the short-term. However sustainable bioenergy resources are limited and increasing demand from aviation and other hard-to-abate sectors combined with lower cost battery electric alternatives will likely see biofuels' role in road transport diminish over time.[97]

New mobility solutions

Smart mobility solutions and public transport can reduce emissions per passenger kilometre. This includes ride hailing and other Mobility-as-a-Service (MaaS) models, autonomous vehicles, and innovative logistics that reduce kilometres travelled and decongest roads.[98]

Technology feasibility and timelines

Global 2030 goals for road transport decarbonisation can be met by accelerating the deployment of existing technologies. According to BloombergNEF, passenger BEVs are expected to reach upfront cost-parity with ICE vehicles by mid-decade depending on market and vehicle type, which will further accelerate adoption.[99] At present, BEV sales and BEV battery manufacturing facility roll-out globally are tracking in line with a 1.5°C-aligned pathway. EVs were projected to reach 18 per cent of global new passenger vehicle sales by the end of 2023. BEV car sales are tracking on the required path to two-thirds of new car sales by 2030 under the IEA NZE 2023.[100,101]

To further align towards a 1.5°C-aligned pathway, adoption of BEVs needs to continue at a similar rate for passenger vehicles, but further progress is required in the heavier vehicle segments, particularly trucks and buses. Adoption of electrified trucks and buses needs to increase, as well as heavy goods vehicles powered by alternate fuels such as hydrogen. However, the role for clean-fuel based vehicles is reducing, due to the rapid progression in technology and manufacturing capability for BEV trucks and buses.[102]

To accelerate the shift to EVs across all vehicle classes and all regions, government interventions such as tailpipe emissions standards, fleet targets, production subsidies, and phase-out dates for new ICE vehicle sales need to be prioritised. Targeted support to drive consumer uptake will also be important, such as upfront subsidies, tax incentives or providing relief from congestion charges and tolls, supported by improving electricity access and delivering rapid rollout of charging networks.

Streamlined permitting, expedited development of new mines, and enhanced recycling will also be essential to ensuring uninterrupted supply of critical metals for battery manufacturing.[103]

Beyond 2030, a range of new technologies and approaches could support deeper decarbonisation alongside improved efficiency and user experience. Novel approaches such as mobility-as-a-service and autonomous vehicles could have a material impact on overall sector emissions but need continued support for innovation and piloting. Policies to support accelerated deployment in more challenging areas, such as heavy trucks, which are only expected to reach cost-parity around 2030-2035 in long-haul segments, are needed this decade to deliver rapid progress after 2030.[104]

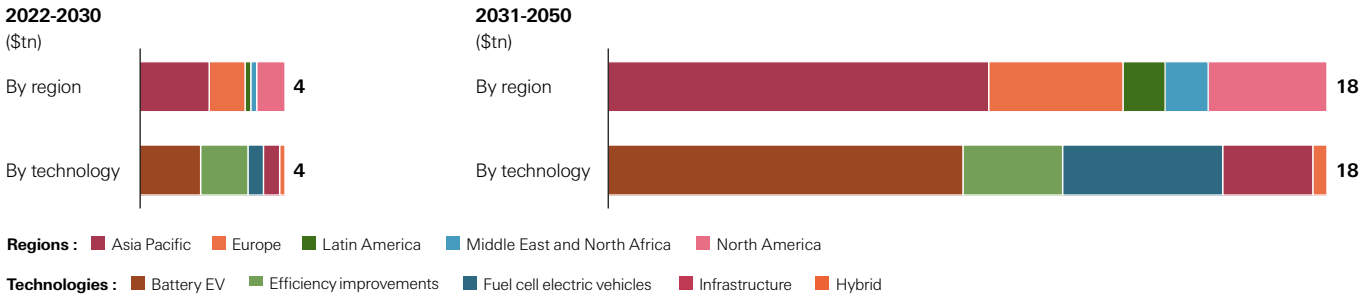
Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that the automotive sector will require $22 trillion in total capital investment to transition to net zero by 2050, of which $4 trillion is required by 2030 (see chart below).[105]

Investment in BEV production presents the biggest opportunity, particularly in Asia, where vehicle demand continues to grow. The region is expected to account for around half of global capital investment through to 2050.

Even where BEV deployment is slower, efficiency improvements are expected to require $1.2 trillion in capital by 2030.[106]

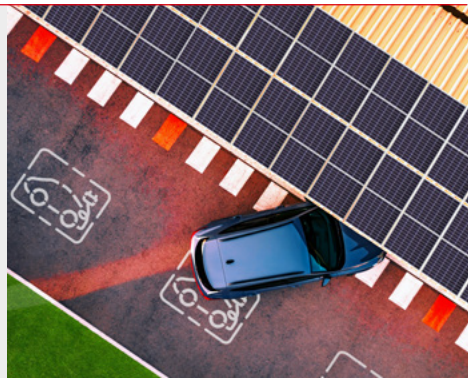
Estimated capital expenditure requirements: Automotive[107]



Our portfolio

The majority of our on-balance sheet financed emissions in the automotive sector come from a concentrated group of customers. Around half are based in OECD markets including many in the EU[110] which announced a ban from 2035 on the sale of new petrol and diesel cars and vans.

While regulation in other regions may not currently be as advanced, policy frameworks are evolving rapidly. Global manufacturers that do business in multiple markets are moving towards product lines that meet rising standards. In 2023, for example, China introduced an updated vehicle emission standard that includes a new ban on the production, importation and sale of vehicles that do not comply with national emission standards and requirements for emissions tests.[111]



Our sector approach

Targets

We have set a target to reduce the emissions intensity of on-balance sheet financed emissions for our automotive portfolio to 66 tCO_2 per million vehicle kilometres by 2030, which represents a 66% reduction versus the 2019 baseline. Our analysis includes scope 1, 2, and 3 emissions from the manufacturing of vehicles, and tank-to-wheel exhaust pipe emissions for light-duty vehicles.

Our target is based on the IEA NZE 2021 scenario, which is a global 1.5°C-aligned pathway. As outlined in *Our approach to sector transitions* on page 14, we plan to update our targets following the periodic release of new 1.5°C-aligned scenarios in the years ahead. We note, for example, that the update of the IEA NZE scenario released in 2023 recognised progress made in the uptake of electric vehicles and therefore indicates a lower emissions intensity figure to 2030 than was previously cited in its 2021 release.[108,109]

Our action plan

1 Supporting our customers

Engage our customers

Auto manufacturers and consumers are quickly embracing the shift to electrification, and we expect this may continue to provide opportunities to support our customers in this transition. Many of our largest automotive customers have already set emissions reduction targets or have committed to do so.

We will look to engage our customers on their transition plans. This includes requests for disclosure of emissions across all scopes and net zero and interim emissions reduction targets. For auto manufacturers this includes targets for zero-emissions vehicle sales, plans to reduce operational emissions, and strategies to expand battery production while managing emissions from ICE and battery supply chains. Finally, transition plans may look at opportunities to scale new business models, products, and services, including plans for capital expenditure, strategic acquisitions, industry partnerships and new revenue streams such as mobility-as-a-service.

Provide transition solutions

We aim to help support our existing automotive customers around the world with financing solutions to drive new investment in electric vehicle manufacturing and product lines. We bring together internal, multidisciplinary expert teams to help support customers in these endeavours across the electric vehicle value chain.

To help facilitate adoption of EVs, we expect to look for opportunities to support build out of new charging infrastructure and consider ways to further integrate EV financing solutions into our retail banking propositions. Key will be considering ways to support the EV supply chain, such as critical minerals and metals and battery manufacturing.

2 Embedding net zero into the way we operate

Manage our portfolio

The shift to EVs will vary across our portfolio and be heavily impacted by local policies. Customers based in North America and India, for example, may lag behind China and Europe. The pace of uptake will also be influenced by where our customers sit in the value chain, their size and internal resources and their access to electricity infrastructure.

We know that some smaller firms in our portfolio, particularly those in regions of Asia with less mature electricity infrastructure, may not be able to decarbonise as quickly.

We will look at how we can grow our share of customers that are focused on accelerating EV deployment, reconfiguring infrastructure, growing supply chains, and scaling new technologies such as next-generation batteries.

3 Partnering for systemic change

Alongside working directly with our customers, we aim to support wider transformation in the sector by engaging with industry-led coalitions and governments to help in the development of the policies, technology, infrastructure and supply chains that are key to the acceleration of EV adoption.

Transport – Aviation

Sector transition overview

Pathways to net zero

Fuel use in aviation accounts for around 1.2 per cent of total global greenhouse gas emissions,[112] a share that is set to grow as demand for air travel continues to grow. Global air miles travelled are projected to almost triple by 2050.[113] Nearly half of this growth in demand is expected to come from Asian economies.[114]

Around 80 per cent of emissions in the aviation value chain come from flight operations (see chart below). Thus, for the industry to achieve net zero targets, the key challenge will be decarbonising aviation fuel.[115,116]

Solutions to drive down aviation sector emissions include sustainable aviation fuels (SAF), operational efficiency improvements, changes in demand, and alternative engine aircraft, for example electric and hydrogen-fuelled (see 'Closing the aviation net zero gap' chart on page 30).[117]

Sustainable aviation fuels
There are two types of SAF: bio-based and synthetic. Bio-based SAF is made from waste oils or biomass. Synthetic SAF is made by synthesising clean hydrogen and captured CO_2. SAF can potentially reduce lifecycle emissions of aviation by 75 to 95 per cent compared with conventional kerosene and are currently the only technologically viable low-carbon alternative fuels for long haul aviation.[118,119]

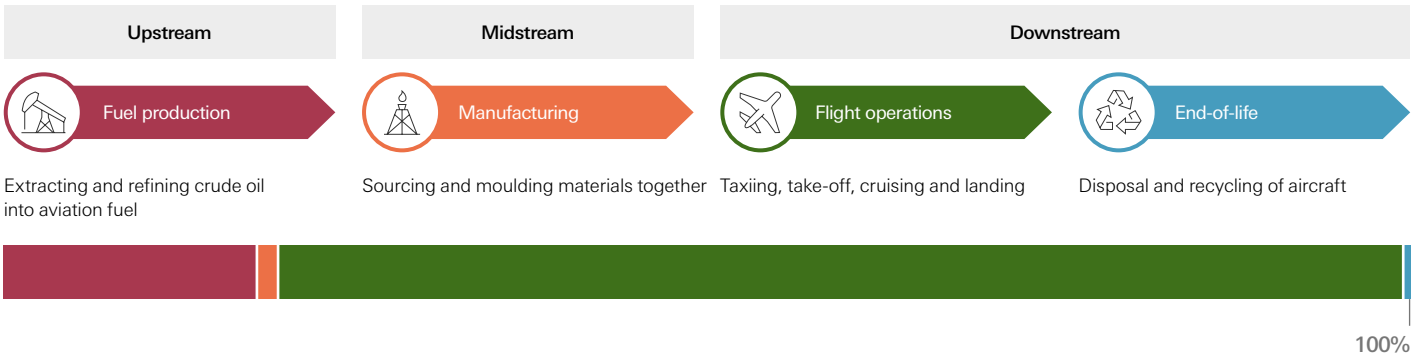
The large-scale adoption of SAF still faces various obstacles, including lack of policy support, competition for biofuel feedstocks, and the aviation industry's very strict performance requirements. All these factors mean SAF are currently around two to nine times more expensive than conventional jet fuel.[120]

Hydrogen, electric, and hybrid aircrafts
Hydrogen can be used to power aircraft either in a fuel cell or as fuel in a combustion engine, however these technologies are still in early development. The relatively low volumetric energy density of hydrogen means it can be difficult for aircraft to carry enough fuel and will also require redesigning the aircraft and fuel distribution infrastructure.[121]

Battery-powered aircraft are also under development, but batteries are heavy relative to their energy capacity. This means that like hydrogen, battery electric aircraft are best-suited for short-haul flights in smaller aircraft. Hybrid engines combining battery power or fuel cells with liquid fuels can be a possible transition solution.[122]

Aircraft owners and operators will be key to financing and commissioning the next generation of planes, and aircraft manufacturers will need to design and develop these alternative engines. However, the capital-intensive nature of the industry and the long lifespan of aircraft mean that turnover of stock will take time.[123]

Aviation value chain
Emissions sources (% per aircraft)



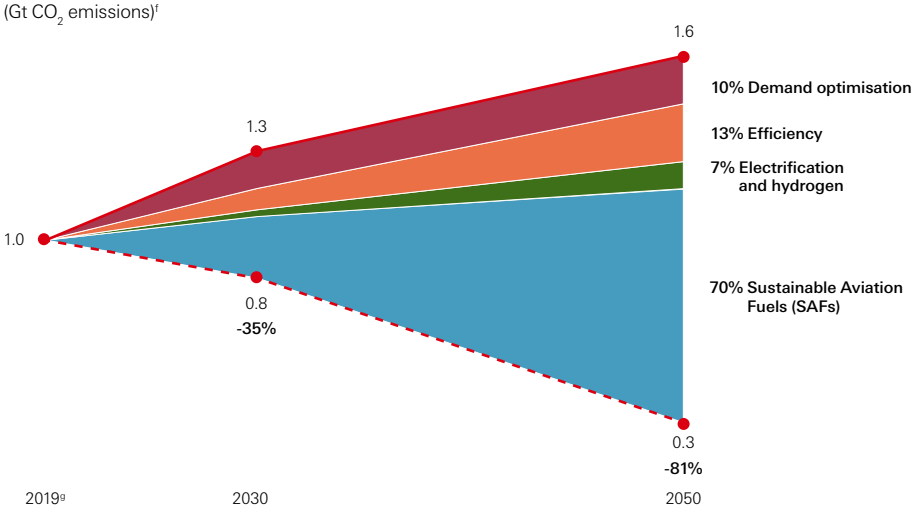
Note: These are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.
Source: Analysis deduced from Airbus (2023) Scope 3 disclosure, Jordao (2013) Life Cycle Assessment oriented to climate change mitigation by aviation

Energy efficiency and demand reduction
Emissions can also be reduced in aviation by improvements in aircraft and operational efficiency. Optimising aircraft design to redistribute weight, utilising stronger and lighter materials, and overall improving aerodynamics has already helped make each new generation of aircraft up to 20 per cent more efficient.[124]

Airlines and operators can also chart more sustainable flight paths, reduce cabin weight, and optimise air speeds to help reduce fuel consumption.[125] Using international flight hubs to reduce the number of passenger kilometres travelled will also reduce the sector's absolute emissions.[126]

Additionally, airlines have the option to influence customer behaviour to help curb absolute emissions. For example, around 17 per cent of all journeys undertaken by short-haul flights globally could be taken via high-speed rail instead. Travelling via rail has the potential to reduce emissions by 90 per cent when compared to flying.[127]

Closing the aviation net zero gap
Change in emissions reduction from current trajectory to a 1.5°C-aligned pathway, as driven by different levers (Gt CO_2 emissions)[f]



[f] For simplicity, a linear path is shown between the fixed points in 2019, 2030, and 2050. In reality, the trends of abatement measures may not be linear.
[g] 2019 is used as a baseline year from a reference point of 1.0 for simplicity.
Source: McKinsey (2020) Climate math: What a 1.5-degree pathway would take.

Technology feasibility and timelines

In 2021, the International Air Transport Association (IATA), representing commercial airlines, adopted a 2050 net zero target.[128] The International Civil Aviation Organization (ICAO), the UN body that governs international aviation, made a similar pledge in October 2022.[129] These reflect a growing commitment to net zero aviation. Technology now needs to catch up.

SAF is currently more expensive than the conventional aircraft fuel kerosene, and industry trends suggest it is unlikely to be cost competitive until the mid-2030s. Part of the challenge is scale. There are currently only 25 SAF plants worldwide that are either in operation or have reached final investment decision, supplying less than 1 per cent of global jet-fuel.[130]

Market analysis suggests we are currently on track to reach around 5 per cent SAF by the end of the decade,[131] supported by a suite of new government commitments including a 10 per cent 2030 blending target in Japan and the UK, and a 6 per cent blending mandate in the EU. In addition, 60 major airlines, airports and fuel suppliers have pledged to reach 10 per cent SAF by 2030.[c] Blending mandates will need to be set by a wider set of countries and made more ambitious, particularly in Asia where demand for air travel is growing fastest.[132,133,134]

Current progress is substantially off-track, relative to a 1.5°C-aligned pathway; to be on-track, the use of SAF needs to grow to around 20 per cent of all jet fuel by 2030.[135] Faster SAF adoption will require policy intervention to bridge the price gap while production scales. Without this it will be difficult to get the investment required to build SAF production facilities.[136]

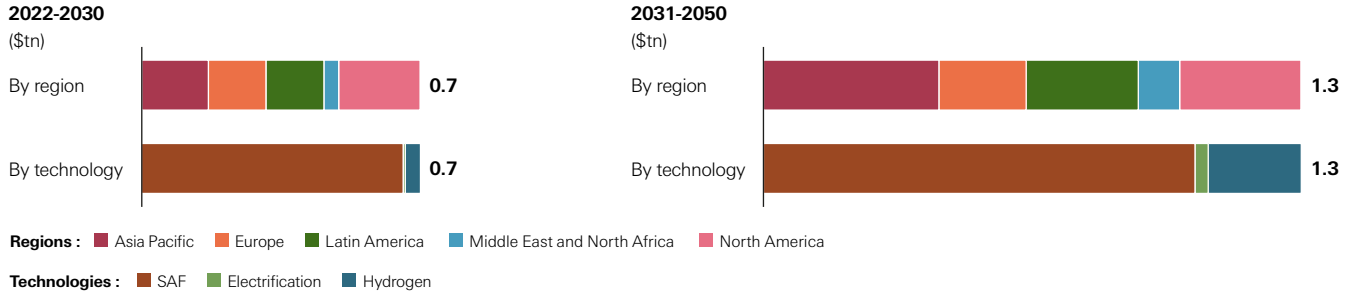
Directing limited biofuel resources to aviation can help, although even with regulatory support, bio-based SAF supply will be constrained by the availability of sustainably sourced feedstock, itself limited by constraints on land use. Furthermore, currently global biofuel production is not on track to meet a 1.5°C-aligned pathway. That means it is very likely synthetic SAF will be needed. This requires a much larger supply of clean hydrogen and captured carbon dioxide than currently available. Recently, there has been significant progress on policy announcements and investment in low carbon hydrogen, however demand from the aviation industry is still well short of what is required to meet a 1.5°C-aligned pathway.[137,138]

Additional areas of innovation and investment, alongside SAF, include alternative powertrains like hydrogen fuel cell and battery-electric aircraft, which may play a critical role in longer-term (post-2030) decarbonisation of the aviation sector.[139]

Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that decarbonising the aviation sector will require total capital investments of $0.7 trillion by 2030, followed by $1.3 trillion to 2050. Scaling up SAF alone will require more than half of the investment needed by 2030 (see chart below).[140]

Estimated capital expenditure requirements: Aviation[141]



Our sector approach

Our portfolio

The majority of our financed emissions from the aviation sector are attributable to a highly concentrated group of customers, including airlines and aircraft lessors. Of these, around half are in Asia,[142] where we expect much of the future growth in aviation demand.

Targets

We have set a target to reduce the emissions intensity of on-balance sheet financed emissions for our aviation portfolio to 63 tCO_2 per million revenue passenger kilometres by 2030, which represents a 25% reduction versus the 2019 baseline. Our analysis includes scope 1 emissions for airlines and scope 3 emissions for aircraft lessors.

Our target is based on the IEA NZE 2021 scenario, which is consistent with a global 1.5°C-aligned pathway. As outlined in *Our approach to sector transitions* on page 14, we expect to continue to evaluate our choice of reference scenarios as updated 1.5°C-aligned scenarios emerge that take into account real-world developments. We note, for example, that in the update of the IEA NZE scenario released in 2023, the aviation sector's emissions reduction by 2030 is smaller than in the 2021 release, reflecting revised (lower) estimates of biofuels and synthetic SAFs by 2030.[143,144] In the future we may consider setting a target range for the financed emissions of our aviation portfolio, recognising the heavy reliance on the scaling of nascent technologies which themselves are highly dependent on the emergence of an enabling policy environment.

Our action plan

1 Supporting our customers

Engage our customers

Engaging with our most material aviation customers to understand their targets, transition strategy and progress, including plans to scale up fuel efficiency gains, the use of SAF, and novel aircraft models, is an important first step in our efforts to decarbonise our aviation portfolio.

Provide transition solutions

As we engage with our customers, we aim to understand and look for commercial opportunities to support their plans to reduce emissions, including initiatives such as the adoption of SAFs, energy efficiency measures and novel low carbon aircraft. We also expect to consider opportunities to support early, growth stage and established SAF manufacturers to scale SAF production, where commercially viable, through a range of propositions tailored to early and growth stage companies.

2 Embedding net zero into the way we operate

Manage our portfolio

We aim to actively manage our portfolio to achieve our 2030 financed emissions target for the aviation sector, taking into account the emissions reduction actions our customers are making, such as those mentioned above.

As we do this, we will look at how we can grow our share of financing for aviation customers that are accelerating the transition.

3 Partnering for systemic change

We can help connect private and public sector actors and support industry partnerships to help scale collective action across the sector, especially with respect to SAF production, demand, pricing and certification. For example, we are involved in Cathay Pacific's Corporate Sustainable Aviation Fuel Programme and are seeking opportunities to help scale SAF production through our partnership with Breakthrough Energy Catalyst.

We aim to continue working with governments and other stakeholders on supportive policy mechanisms to help scale the uptake of SAFs, including national/regional blending mandates, and on policies to help reduce the cost differential between SAFs and conventional jet fuels.

As a founding member of Impact on Sustainable Aviation, we continue to work with airlines, financiers, investors, renewable energy providers, and innovators to help generate investment in new technologies, encourage the use of common KPIs, and push for emissions trends to be decoupled from air traffic growth.

Transport – Shipping

Sector transition overview

Pathways to net zero

Fuel use in shipping contributes about 1.7 per cent of global greenhouse gas emissions.[145] Most global trade by volume is transported via shipping, and trade volumes are projected to rise by 40-115 per cent between 2020 and 2050, meaning emissions will increase significantly without deep decarbonisation.[146]

A breakdown of value chain emissions is shown below. Operating ships accounts for around two-thirds of sector emissions, with vessels mostly running on heavy fuel oil and marine diesel. Ship manufacturing and materials make up around another quarter of emissions. Achieving net zero shipping will require improved energy efficiency and a shift to sustainable maritime fuels, with electric propulsion systems playing a role in decarbonising smaller vessels and coastal shipping.[147,148,149]

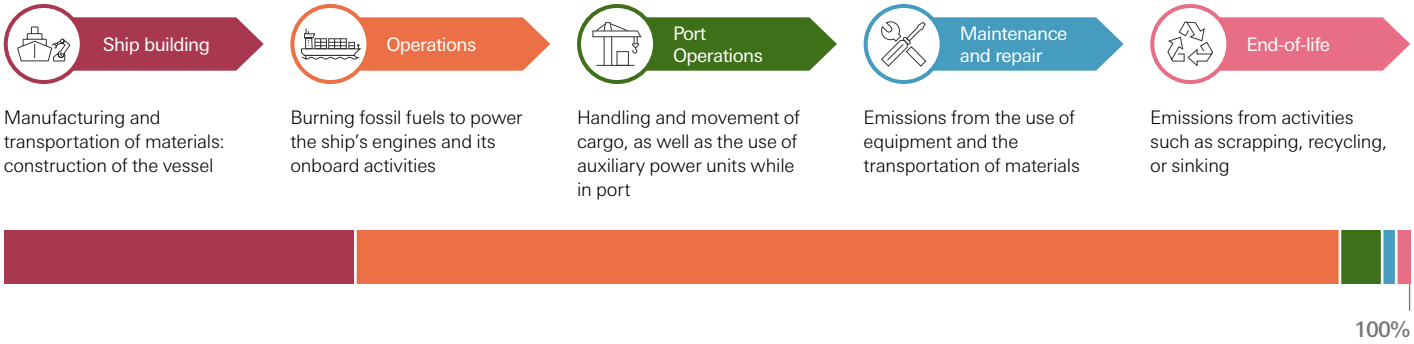
Energy efficiency and demand reduction
Shipping sector emissions can be reduced through improved energy efficiency and fuel economy. This involves optimising vessel speed, routes, and on-board power demand using AI planning and advanced autopilot systems, as well as vessel design.[150] Estimates from BloombergNEF suggest that fuel use can be reduced by 59 per cent relative to current figures if the industry prioritises operational and technical improvements this decade.[151]

Sustainable maritime fuels
Clean ammonia, clean hydrogen, clean methanol, and biofuels offer promising alternatives to conventional fuels, though they each have trade-offs, and none has yet emerged as a dominant fuel for the sector pathway.[152]

Clean ammonia has advantages in infrastructure compatibility and a greater energy density than hydrogen but would still require more fuel volume than conventional heavy fuel oil.[153] Methanol is another possible fuel in the shipping sector, however supply is currently limited and costs are higher than ammonia. Clean hydrogen, although cheaper to produce than clean ammonia, has a lower energy density and requires significant ship and port infrastructure modifications, increasing its overall cost.[154]

While regulations allow blending low-carbon fuels up to 20 per cent without engine modifications, achieving wide-scale availability will demand substantial coordinated investments in port infrastructure.[155] Though relatively expensive now, sustainable fuels have the potential to become competitive through scaled investments and carbon pricing.[156]

Shipping value chain
Emissions sources (% per vessel)



Note: these are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.
Source: Analysis deduced from ICCT (2019) Lifecycle GHG Emissions from the Shipping Sector; International Maritime Organization (2014) Third Greenhouse Gas Study.

Technology feasibility and timelines

The shipping industry has so far been slow to adopt sustainable fuels and vessels due to high costs and a low-ambition regulatory environment, with only 35 per cent of major shipping companies having set a net zero target.[157] Shipping is a particularly hard-to-abate sector and requires significant change to align to a 1.5°C-aligned pathway. However, momentum is starting to build. In July 2023, the International Maritime Organization (IMO) committed to net zero emissions from international shipping "close to 2050" and set a zero-emissions fuel share target of 5-10 per cent by 2030, with emissions intensity reduction targets of 40 per cent by 2030 and 70-80 per cent by 2040.[158] The IMO has also launched a new ship certification scheme to drive energy efficiency and carbon improvements.[159]

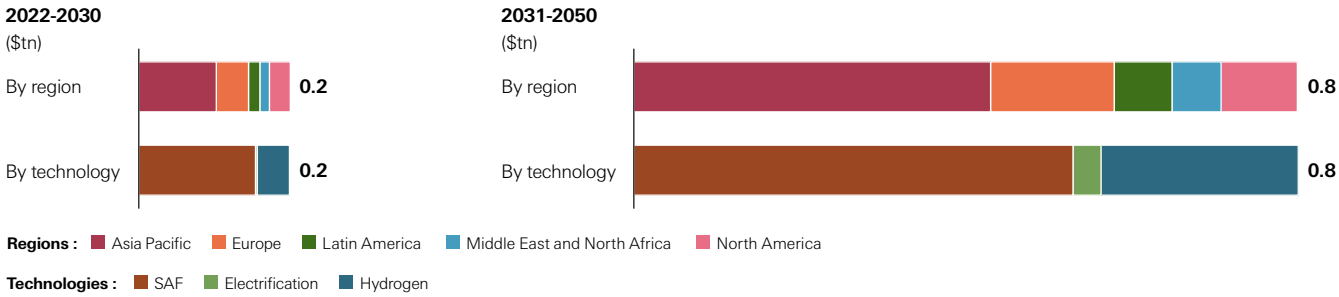
Over half of current orders for new vessels are for models running on low-carbon fuels. LNG still dominates due to methanol cost premiums, though these are expected to converge in the next 5-10 years.

Scaling the production and uptake of next-generation fuels and vessels, along with the required bunkering infrastructure, will depend on economic incentives and blending mandates.[160] While bio-methanol can be produced today in limited quantities, producing clean ammonia and synthetic methanol requires a supply of clean hydrogen, itself an early-stage technology.[161]

Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that decarbonising shipping will require $0.2 trillion in capital investments to 2030, with a further $0.8 trillion required to 2050. Around half of these investments are needed in Asia, which accounted for 42 per cent of cargo handling for global exports in 2021.[162,163] Further detail on investment needs by region and technology is shown in the chart below.

Estimated capital expenditure requirements: Shipping[164]



Our sector approach

Our portfolio

We are analysing the evolution of our shipping portfolio and its overall impact on our financed emissions. We note that although many shipping companies may be based in jurisdictions that have set national net zero targets, a significant part of sector activity occurs in international waters. Therefore, the IMO plays a key role in setting an international regulatory framework to reduce emissions from shipping.[165]

Targets

We are undertaking work to measure the financed emissions for our shipping portfolio, following a materiality-based approach to focus our analysis on ship owners and operators, which account for the majority of emissions for the sector. We delayed setting a target early in 2023 due to insufficient and poor-quality available data. We continue to work with third party vendors to seek to improve coverage of asset production data across our portfolio.

The shipping sector is hard-to-abate and reliant on widespread investment to scale the production and adoption of sustainable fuels and vessels. Today, the sector is substantially off-track for a 1.5°C-aligned pathway to 2030, and strengthened policy support across regions will be critical in the years ahead. Recognising the high dependency on nascent technologies and enabling policy, we may consider setting a target range for shipping sector financed emissions in the future.

Our action plan

1 Supporting our customers

Engage our customers

We plan to take a materiality-based approach and focus our efforts on the ship owners and operators that can significantly impact emissions reductions in our portfolio and across the sector. Key areas of engagement as part of transition plan assessments may include emissions reduction targets, emissions disclosures, transition strategies and forward-looking investment plans into low-carbon fuels, vessels, and low-carbon and climate resilient port infrastructure.

Provide transition solutions

We will look to provide financing to support operational efficiency improvements such as vessel retrofits and alternative propulsion systems, where these solutions are cost-effective, as well as for the acquisition of new vessels powered by sustainable maritime fuels. We can also explore blended finance opportunities to de-risk first or second of a kind demonstration projects, including through our collaboration with Breakthrough Energy Catalyst.

2 Embedding net zero into the way we operate

Manage our portfolio

As outlined above, we expect to manage the transition in our portfolio through engagement with our most material customers on their transition plans, taking into consideration standard risk return parameters and financed emissions implications.

3 Partnering for systemic change

Partner for systemic change

As part of our broader efforts to support the transition of hard-to-abate sectors, we aim to continue engaging on the development of a supportive enabling environment for the transition to net zero, including in the shipping sector and in transport more widely. For example through our industry collaboration and partnerships on hard-to-abate sectors with the Energy Transition Commission, World Economic Forum and the Mission Possible Platform.

Heavy industry – Cement

Sector transition overview

Pathways to net zero

The cement industry accounts for 7 per cent of global greenhouse gas emissions. Used to make concrete, cement is one of the most widely used materials in the world and one of the most difficult to decarbonise.[166]

The vast majority of cement value chain emissions occur in the production of clinker, the main component of cement (see chart below). Around 40 per cent of clinker emissions come from the combustion of fossil fuels. The remainder stems from process emissions from the chemical reactions in clinker production.[167]

Four potential decarbonisation solutions are available to reduce emissions from the cement industry: carbon capture technology, clean energy for heat production, clinker substitutes and alternative materials, and cement substitutes.[168] Cement production practices vary greatly between regions and some of the solutions are still early-stage meaning the pathway to net zero in this sector may be slower and the pace more varied.[169]

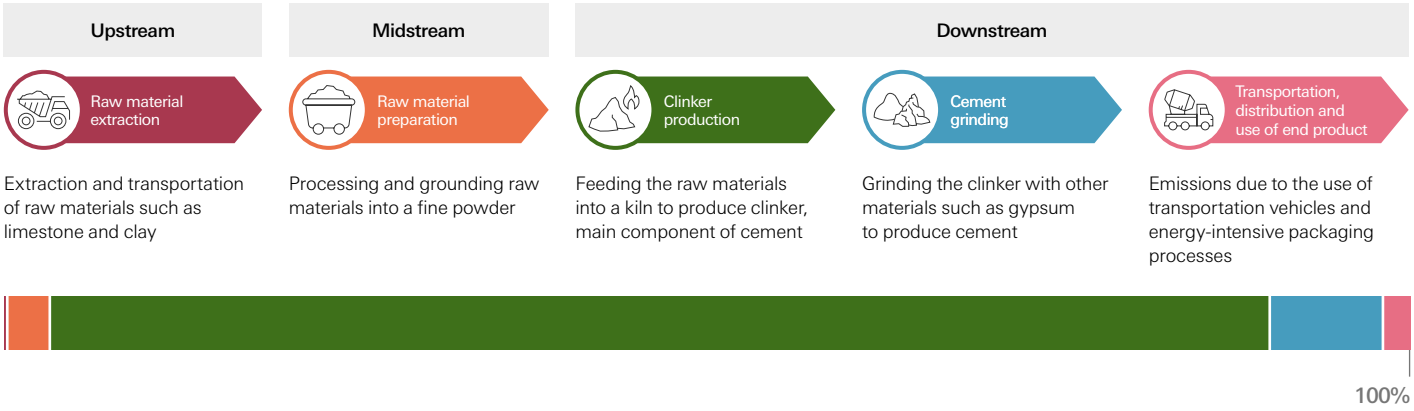
Carbon capture technology
Decarbonising cement presents one of the clearest opportunities for CCS. This is because a high fraction of total emissions come from the chemical reactions in clinker production – emissions which cannot be avoided by switching to clean energy. This stream of carbon dioxide is also relatively pure, meaning capturing it can be cheaper and more efficient.[170,171]

Clean energy for heat production
The emissions from heating kilns can be eliminated by using an alternative fuel that burns at a high temperature, such as clean hydrogen.[172] Alternatively, emissions can be reduced by fuelling kilns with lower carbon biomass or waste, or a switch to electric kilns.[173]

Clinker substitutes
Clinker production accounts for the majority of CO_2 emissions in the cement production process.[174] Cement companies can reduce emissions by swapping out some of the clinker used in cement mixes with industrial by-products like slag from steelmaking and fly ash from coal-fired power plants. Producers can also reduce the volume of clinker required via innovations in material mixes, low-binder cements, and reusable concrete modules.[175,176]

Cement substitutes
Scope also exists to switch from cement to lower-emissions materials such as sustainable timber, where technically feasible.[177] Some estimates suggest that improved building design and circular economy measures could reduce concrete use and emissions by around a third.[178]

Cement value chain
Emissions sources (%)



Note: these are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.
Source: Analysis deduced from IFC (2020) Strengthening Sustainability in the Cement Industry.

Technology feasibility and timelines

Short term actions include improving kiln energy efficiency, clean electrification, fuel switching from coal to gas, or co-firing with sustainably sourced bioenergy, and implementing more clinker substitutes. To incentivise these actions, governments need to enhance and enforce efficiency targets, embodied emissions standards, and fuel blending mandates. Global carbon intensity of cement increased by 1 per cent in 2022 due to higher clinker-to-cement ratio.[179,180]

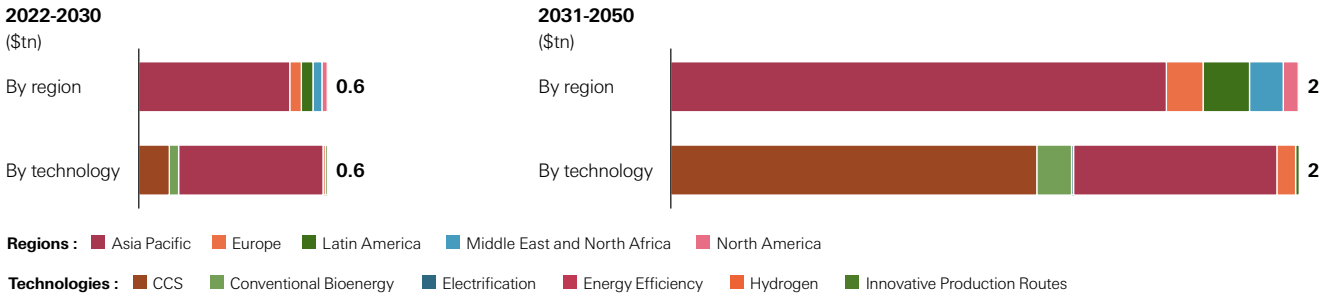
17 major global concrete consumers have committed to use 50 per cent low emission concrete by 2030 and 100 per cent by 2050.[181] These voluntary demand signals need to be augmented by additional regulatory mandates and using public procurement of green cement to send a longer-term demand signal for producers. More significant technical solutions, like CCS, are needed to enable deep decarbonisation after 2030. Currently just 0.2 $MtCO_2$ is captured from cement facilities worldwide. The announced pipeline is more than 40-times larger and can capture up to 9 $MtCO_2$ by 2030.[182] However, the number of plants involved is a relatively small proportion of total production, and this pales in comparison to the 170 $MtCO_2$ to be captured by 2030 as modelled in the IEA NZE 2023 scenario. Step changes in the emissions intensity reduction of cement is required to get this particularly hard-to-abate sector back on track to a 1.5°C-aligned pathway.[183,184]

Other early-stage technologies include clean hydrogen, direct electrification of kilns,the use of captured CO_2 to produce aggregates and magnesium cements that can potentially absorb CO_2 rather than release it. However, all these technologies are still at earlier stages of commercial maturity and require extensive policy support, R&D expenditure and pilot projects to help de-risk.[185]

Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that the cement sector will require $2 trillion in total capital investments to transition to net zero by 2050. Nearly 80 per cent of this is projected for the Asia region, where cement production and demand is highest (see chart below).[187] Three quarters of investment this decade is expected to focus on energy efficiency and clinker substitution. Investment is expected to increase dramatically after 2030 as the emphasis shifts to CCS.

Estimated capital expenditure requirements: Cement[188]



Our sector approach

Our portfolio

Over half of our on-balance sheet financed emissions from this sector come from a small number of customers, and a significant proportion of our financed emissions come from companies based in Europe and Latin America, with the majority of the remainder in Asia.[186]

Around half of our customers in the cement sector have set targets to reduce emissions. Those that have not are often in markets where supportive regulations and market incentives for the sector are not yet in place.

Targets

We have set a target to reduce the emissions intensity of on-balance sheet financed emissions for our cement portfolio to 0.46 tCO_2 per tonne of cement by 2030, which represents a 28 per cent reduction versus the 2019 baseline. Our analysis includes scope 1 and 2 emissions for companies with clinker and cement manufacturing facilities – reflective of our materiality-based approach given these activities account for more than 90 per cent of the emissions in the cement value chain.

Our cement target is based on the IEA NZE 2021 scenario which is a global 1.5°C-aligned pathway. As outlined in *Our approach to sector transitions* on page 14, 1.5°C-aligned scenarios are updated periodically to reflect new data on progress in the real economy and providing us the opportunity to periodically revisit scenario selection and update our sector targets. We note that in the updated IEA NZE scenario released in 2023, the cement emissions reduction by 2030 is marginally smaller than in the 2021 release, and we await the release of further updated 1.5°C-aligned scenarios.[189,190]

The cement sector is a particularly hard-to-abate sector that requires substantial emissions intensity reduction to get cement on track for a 1.5°C-aligned pathway by 2030. Recognising the sector's high dependency on nascent technologies and enabling policy, we may also consider moving to a 2030 target range for cement sector financed emissions in the future.

Our action plan

1 Supporting our customers

Engage our customers

We plan to engage our customers in the cement sector to understand their transition plans, and the technologies and solutions that best match their business and capabilities.

Key areas of engagement may include emissions disclosure and target setting, and plans to use low-to-zero emissions alternative fuels, clinker-substitutes and new technologies, including CCS, to lower emissions.

Given cement is used in downstream sectors like real estate and infrastructure, we recognise the demand for low carbon cement needs to increase across the value chain. We can play a role in supporting this, for example through engagement with our real-estate and our construction customers.

Provide transition solutions

As we engage with our customers, we aim to understand and look for commercial opportunities to support their decarbonisation efforts such as those for energy efficiency measures and the adoption of low-carbon fuels and clinker substitutes.

We also expect to consider opportunities to support nascent technologies and early and growth stage pioneers in areas such as CCS, clean hydrogen, and alternative cement chemistries, through a range of propositions tailored to early and growth stage companies.

2 Embedding net zero into the way we operate

Manage our portfolio

We aim to actively manage our portfolio to achieve our 2030 financed emissions target for the cement sector, taking into account the actions our customers are taking to achieve emissions reductions. Our cement portfolio is relatively concentrated in customer numbers, and even where customers have set science-based targets, given the heavy reliance on nascent technologies there is still a risk of pledges not turning into the necessary emissions reductions if technologies do not scale in time. It will be important, therefore, to regularly review progress on technology scaling across the industry over the years ahead to 2030.

3 Partnering for systemic change

Partner for systemic change

Cement is produced for local markets, and local policy and regulation plays an important role in incentivising cement producers to decarbonise. The EU Taxonomy for Sustainable Activities requires cement companies to report how much of their production is aligned with minimum performance thresholds.[191] Other examples of supportive policy-measures include construction regulations, low-carbon concrete stock-taking, and public procurement to include CO_2 lifecycle performance to drive adoption of low-carbon cements and concrete.

We aim to continue working with partners, industry forums, and policymakers to help support the development and adoption of transition solutions for cement and concrete. Key partners in these efforts include the Mission Possible Platform and the Energy Transitions Commission.

Heavy industry – Chemicals

Sector transition overview

Pathways to net zero

Chemicals have a wide range of applications across automotive, agriculture, healthcare, electronics, and consumer goods. This makes them essential for use in low carbon technologies, for example in lightweight materials used in wind turbine blades and electric vehicles or sorbents used in CCS.[192] Approximately 95 per cent of manufactured products rely on chemicals, notably plastics and fertilisers.[193] Demand for chemical products is expected to grow in a low-carbon future, making decarbonisation of the sector critical (see chart to the right).

The chemicals sector accounts for around 10 per cent of global greenhouse gas emissions. Scope 3 emissions account for the greatest share of the sector's value chain because they include emissions from exploration and production of fossil fuels used as chemical feedstocks and from the incineration of waste plastics and use of fertilisers (see chart to the right).

Chemicals is a hard-to-abate sector. Currently, chemicals are produced almost entirely with fossil fuel feedstocks, accounting for 14 per cent of oil and 8 per cent of gas demand globally. Reducing emissions in the chemicals sector can be achieved through recycling, electro-cracking, using carbon capture and storage technology, and switching to alternative feedstocks.[194]

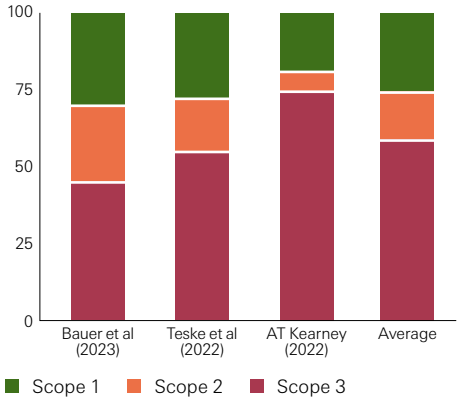
Circular economy
Significantly reducing the production of single-use materials – such as plastics, rubbers, solvents, batteries, and lubricants – and scaling up recycling to close material loops will be critical to decarbonising the chemicals sector. Recycling is less energy and emissions-intensive than production of virgin primary high-value chemicals (HVC) and it reduces emissions from end-of-life outcomes such as incineration. Most recycling today is mechanical; however, chemical recycling has the potential to vastly increase the streams of waste materials which can be recycled.[195]

Switch to clean energy
Conversion of hydrocarbons to high value primary chemicals is typically done via steam-cracking – a high temperature process that traditionally relies on fossil fuels. Emissions can be reduced by replacing fossil fuels with clean hydrogen or by using electrically heated crackers, although this technology is still early stage.[196]

Carbon capture
Around a third of emissions from chemicals arise from chemical reactions inherent in the production process. In many cases, these emissions cannot be addressed through switching fuels or feedstocks, which makes CCS a possible solution. CCS is particularly suited to the chemicals industry because waste CO_2 streams can be highly pure, reducing the cost of capture. The captured carbon dioxide can also be reused in the manufacturing of synthetic feedstock, reducing overall emissions.[197,198,199]

Alternative feedstocks
Fully decarbonising the chemicals value chain will ultimately require a move away from fossil fuel feedstocks. In the short term, sustainably sourced bio-based feedstocks such as agricultural residues, algae, and waste vegetable oils can be viable substitutes,[200] although there will be competition from other sectors for limited sustainable bioresources. In the longer term, the sector may look to synthetic feedstocks such as clean hydrogen and captured carbon dioxide. Green ammonia, converted from green hydrogen, can serve as an important substitute for fossil-based ammonia.[201]

Chemicals sector GHG emissions
% split by scope 1, 2 and 3



Source: Analysis deduced from Bauer et al (2023) Mapping GHG emissions and prospects for renewable energy in the chemical industry', Teske et al (2022), 1.5°C pathways for the Global Industry Classification (GICS) sectors chemicals, aluminium, and steel and AT Kearney (2022) How chemical companies can reduce scope 3 emissions now

Technology feasibility and timelines

It is estimated that a reduction in CO_2 emissions intensity of around 14 per cent is needed by 2030 from 2022 levels for the chemicals industry to stay on track for 1.5°C. Currently near-zero emissions primary chemicals production represents only 2 per cent of total global production, and hence step changes in the emissions intensity of chemical production are required to get this particularly hard-to-abate sector back on track to the 17 per cent required by 2030 in the IEA NZE 2023 pathway.[202,203] Some of the solutions which can deliver this are commercially and technically available now yet need stricter regulatory support and clearer demand signals from downstream users in order to boost adoption.

Plastics recycling needs to increase from around 5 per cent in 2021 to 10 per cent in 2030. Government mandates are needed to reduce production of single-use varieties, incentivise collection and processing, and reduce end-of-life incineration.[204] For fuel changing in the cracker, switching from coal to gas or co-firing with bioenergy will require coal phase-down targets and bioenergy blend mandates.

Similarly, clearer policies are needed to incentivise switching to alternative feedstocks such as bio-naphtha and bio-ethanol.[205]

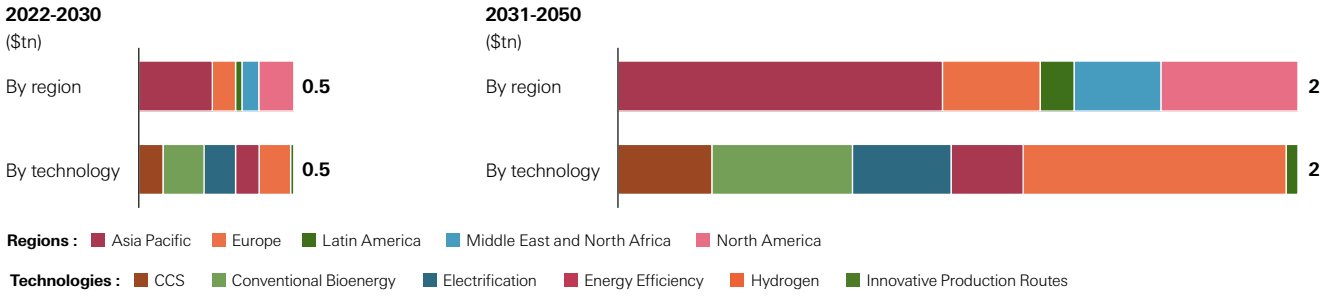
In the long run, the technologies required to fully decarbonise petrochemicals are currently early stage and will require significant policy support now to scale up and lower costs. Existing steam crackers need to be retrofitted with CCS,[206] or replaced with new electro-cracking, and seek to replace grey hydrogen with clean hydrogen in ammonia production.[207]

Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that nearly $0.5 trillion in new investment will be needed by 2030 for the chemicals sector to get on track for net zero by 2050 (see chart below). Between 2030 and 2050 that figure could be as high as $2 trillion. Asia will likely attract the largest share, followed by North America and Europe.[211]

Across regions, the split of investments into various decarbonisation technologies is likely to be relatively even. Investment is expected to ramp up further after 2030 with an increased focus on CCS, electro-cracking, and hydrogen.[212]

Estimated capital expenditure requirements: Chemicals[213]



Our sector approach

Our portfolio

Many of our clients in the chemicals sector have diverse businesses and activities that may span other sectors. A significant proportion of our on-balance sheet financing to the chemicals sector is in Asia, with the rest primarily in Europe and North America.[208] Across these regions, regulators require chemical companies to disclose information on the properties and impacts of their products to varying degrees. The EU and Canada have already introduced binding decarbonisation targets for chemicals companies.[209] In 2021, China announced that the chemicals sector will be covered by mandatory emissions reporting and a national carbon trading scheme by 2025.[210]

Targets

The chemicals sector is not currently in scope for financed emissions targets as defined by the NZBA. However, transitioning the chemicals sector will be important to reaching a net zero global economy, and we aim to support our customers in their plans to reduce emissions, including opportunities from circular economy solutions to fuel switching, and investment in decarbonisation technologies.

Our action plan

1 Supporting our customers

Engage our customers

We aim to engage with our customers to understand and help support their plans to reduce emissions, including through the adoption of low-carbon energy sources (e.g. clean hydrogen, renewables and sustainable biomass), energy efficiency measures, carbon capture technologies, and materials innovation or circularity solutions.

Provide transition solutions

We aim to provide financing solutions to help support our customers in the chemicals value chain, including chemical companies and recycling companies involved in the collection and processing of waste plastics.

As part of our broader efforts to support the scaling of new economy pioneer companies, we expect to consider early-stage financing for start-ups presenting innovative solutions for the chemicals sector, alongside providing advisory services to assist customers pursuing strategic acquisitions of new technologies and businesses.

2 Embedding net zero into the way we operate

Manage our portfolio

As with other sectors, we expect the transition of the chemicals sector to provide various opportunities to support our customers with business model innovation. We aim to look at how we can increase our focus on these opportunities.

3 Partnering for systemic change

We continue to engage on the development of a supportive enabling environment for the transition of hard-to-abate industries, including chemicals. This could include contributing to industry engagement and partnerships that help support circular solutions and recycling.

Heavy industry – Iron, steel and aluminium

Sector transition overview

Pathways to net zero

Energy use and industrial process emissions from the production of iron and steel, and aluminium, contribute 4-7 per cent and 1-2 per cent of global greenhouse gas emissions, respectively.[214] See breakdown of value chain emissions for each industry in the charts below.

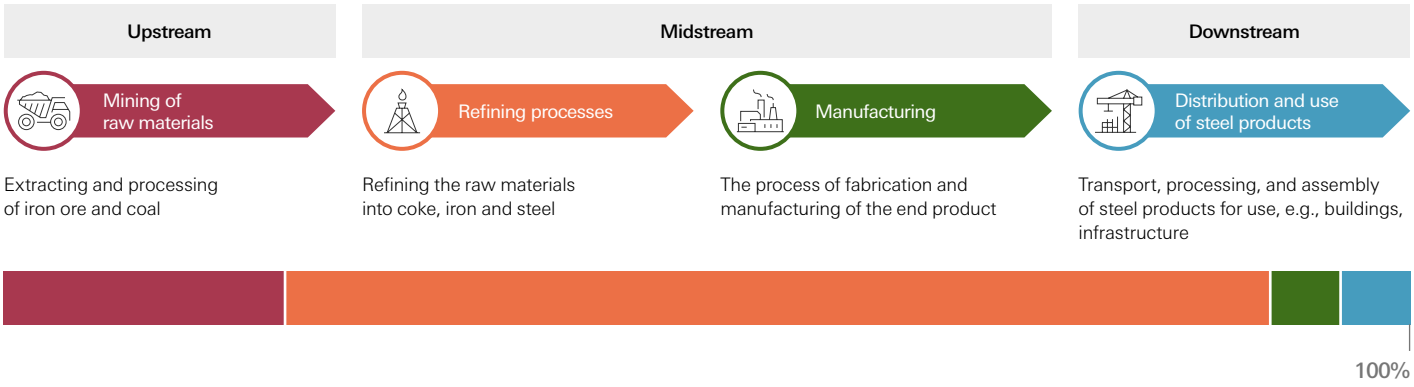
These metals are essential for building the infrastructure supporting low-carbon technologies such as wind, solar photovoltaic, EVs, and power grids. Scenarios consistent with a 1.5°C-aligned trajectory suggest demand may increase over the next three decades by up to 13-24 per cent for steel and 23-29 per cent for aluminium.[215]

There are two main processes for making steel today. Blast furnace-basic oxygen furnace (BF-BOF), 70 per cent of global steel production, is an integrated process of iron smelted in a coal-fired blast furnace and refined into steel in a basic oxygen furnace. Direct reduced iron to electric arc furnace (DRI-EAF), 8 per cent of primary steel production, directly reduces iron ore using either coal or natural gas and feeds it into an electric arc furnace.[216] The refining process makes up 70 per cent of steel value chain emissions (see steel & iron value chain chart below).

As shown in the aluminium value chain chart below, around three-quarters of aluminium emissions come from energy-intensive smelting that converts alumina to metal using electrolysis, and further emissions coming from the "Bayer Process" of bauxite ore refinement using gas or coal for heat.

Both steel and aluminium can be recycled extensively, resulting in significantly lower energy intensity of production. Increasing the use of recycled iron and steel scrap in both blast furnaces and electric arc furnaces, is one of the fastest ways to reduce emissions in the steel industry. However, since scrap inventory will be insufficient to cover total demand going forward, other decarbonisation levers will be needed to achieve emissions reduction goals. These include upgrading the quality of iron ore feedstock, retrofitting existing BF-BOF facilities with CCS, replacing coke with alternative reducing agents in the BF like hydrogen and biochar, using clean hydrogen instead of natural gas in direct reduced iron (DRI), electrifying where possible, and scaling pre-commercial technologies such as molten oxide electrolysis.[217]

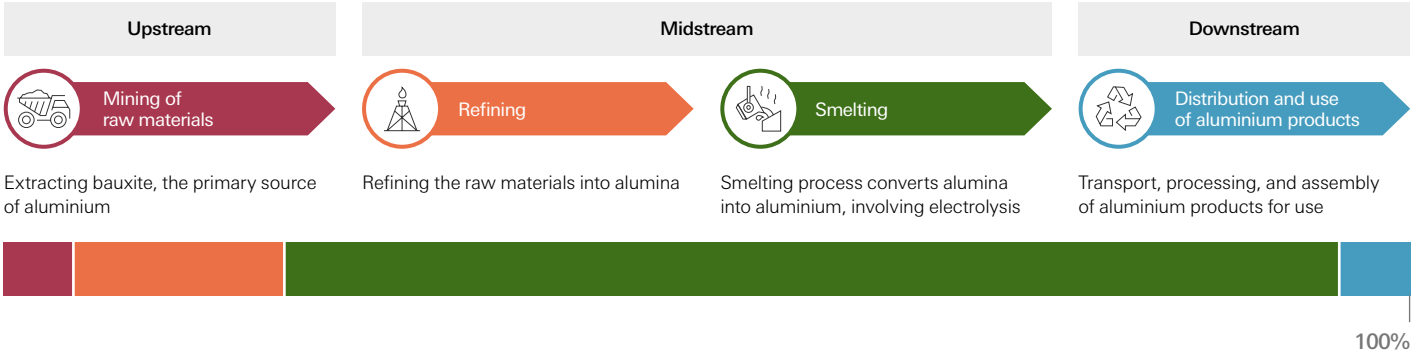
Steel & Iron value chain
Emissions sources (%)



Note: These are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.

Source: Analysis deduced from The World Steel Association (2017) Steel's Contribution to a Low Carbon Future, IEA (2020) Energy Technology Perspectives.

Aluminium value chain
Emissions sources (%)



Note: These are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.
Source: Analysis deduced from International Aluminium (2023) Greenhouse Gas Emissions – Aluminium Sector.

Aluminium is already recycled widely, but increasing the use of scrap in production is also one of the most effective ways to reduce emissions in the sector, given the metal can be re-melted and cast indefinitely with zero quality loss. Given the dominance of electricity in aluminium smelting, shifting to low-carbon electricity sources is another key route to lower emissions. Further levers include adopting clean hydrogen or sustainable bioenergy for heat in the Bayer Process, deploying CCS technology to conventional processes, and using inert anodes in electrolytic cells instead of carbon anodes.[223]

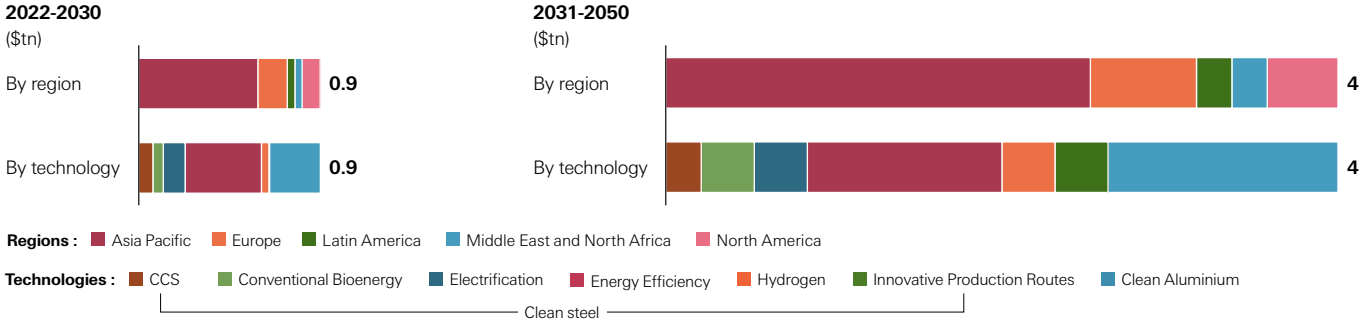
Technology feasibility and timelines

Meeting 1.5°C-aligned 2030 targets for iron, steel, and aluminium will be technologically challenging as this is a particularly hard-to-abate sector. Key approaches to get on track with a net zero-aligned trajectory by 2030 include increased recycling, with secondary production expected to reach 33-43 per cent by 2030, as well as transitioning to zero-emissions electricity to power electric arc furnaces. Long-term decarbonisation relies on step changes in early-stage technologies like CCS and clean hydrogen, and further nascent approaches like inert anodes and molten oxide electrolysis. At present only a handful of green steel and aluminium facilities exist, and many more will be needed. CCS in this sector has made little progress, but announced hydrogen DRI production projects have increased significantly between 2021-23.[218,219] Government incentives, including direct financial support, production standards, and carbon pricing will be essential, as will clear measures to increase demand such as public procurement mandates and commitments from buyers.[220]

Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that decarbonising steel and aluminium will require $0.9 trillion of new investment by 2030 and a further $4 trillion by 2050. Further details are shown below. Investments will mostly need to focus on energy efficiency and advanced production processes, clean electrification, bioenergy, and CCS, and be concentrated in Asia, given existing and anticipated production hubs.[221]

Estimated capital expenditure requirements: Steel and aluminium[222]



Our sector approach

Our portfolio

The majority of our on-balance sheet financed emissions for these sectors come from a concentrated group of customers. A large number of these customers are based in OECD or EU countries, followed by Asia.[227]

Targets

We have set a target to reduce the emissions intensity of our iron, steel, and aluminium portfolio to 1.05 tCO_2 per tonne of metal produced by 2030, which represents a 42 per cent reduction versus the 2019 baseline. This analysis includes scope 1 and 2 emissions for midstream material production. Due to the low materiality of the aluminium sector's financed emissions within our portfolio, we have combined this with iron and steel in our financed emissions measurement and target setting approach today. If aluminium becomes a more material part of our portfolio in the future, we may consider creating a separate target for aluminium production given the varied decarbonisation pathway for this metal.

Our iron, steel and aluminium target is based on the IEA NZE 2021 scenario which is a global 1.5°C-aligned pathway. Due to the challenges of decarbonising this hard-to-abate sector, on publication of our target we outlined the alternative reference scenario from the Mission Possible Partnership (MPP).

Although the MPP scenario is also 1.5°C-aligned, it models a delayed decarbonisation pathway for the sector that indicates a 21 per cent reduction to 2030 with steeper declines thereafter.[224] Recognising the sector's high dependency on nascent technologies and enabling policy, we may consider moving to a 2030 target range for the sector's financed emissions in the future.

As outlined in *Our approach to sector transitions* on page 14, we plan to update our targets following the periodic release of new 1.5°C-aligned scenarios to ensure they reflect the most up-to-date science and real economy developments. For example, we note that in the updated IEA NZE scenario released in 2023, the iron and steel sector emissions intensity reduction is lower by 2030 than in the 2021 release as a result of slower deployment of alternative lower carbon technologies, with more decarbonisation pushed into the 2030 period.[225,226]

Our action plan

1 Supporting our customers

Engage our customers

We aim to engage with our most material customers on their net zero targets and transition plans. Examples of engagement areas could include plans to reduce metallurgical coal use, to harness carbon abatement technologies, to improve re-use and recycling, and to lower emissions from high-temperature heat processes.

Provide transition solutions

As we engage with our customers, we aim to understand and look for commercial opportunities to support their plans to reduce emissions. This includes supporting them in scaling investment into nascent technologies, such as clean hydrogen and CCS, and with related strategic acquisitions. We expect to look for opportunities to support early-stage companies developing new technology solutions for this sector.

2 Embedding net zero into the way we operate

Manage our portfolio

We aim to actively manage our portfolio to achieve our 2030 financed emissions target for our iron, steel and aluminium portfolio, taking into account the actions our customers are taking to achieve emissions reductions.

As we move towards 2030, alongside standard risk return parameters, we expect to manage our portfolio taking into consideration our customers' transition plans and financed emissions implications.

3 Partnering for systemic change

Our network of cross-sector relationships positions us well to connect key stakeholders to encourage decarbonisation activity and boost recycling and secondary production. For example, we can look at how we might engage customers and governments to decarbonise industrial clusters and participate in projects like the UK CCS Infrastructure Fund, which provides opportunities to reduce risks and build capabilities to support market development. Our partnership with Breakthrough Energy Catalyst also has a key focus on financing first or second-of-a-kind demonstration projects for clean hydrogen and carbon removal technologies.

Heavy industry – Mining

Sector transition overview

Pathways to net zero

When discussing the mining sector, we refer mostly to coal, bulk ores including iron, bauxite, and limestone, and critical energy transition minerals including copper, nickel, lithium, and cobalt.[228]

Operating emissions from mining contribute 4-7 per cent of global greenhouse gas emissions. The majority of this is from fugitive emissions of coal mining, which represents 3-6 per cent of global emissions.[229] Refining and smelting are the most energy intensive, and therefore carbon-intensive, part of the mining value chain (see chart below). For integrated producers, these activities may fall under scope 1 and 2 emissions, while for pure upstream mines, they are considered scope 3. Using an integrated copper mine as an example (see chart below), refining contributes the majority of total operational emissions, with onsite haulage, excavation equipment, and concentrator and sorting equipment (fuelled by fossil fuels or fossil-powered electricity) being the next significant sources. Shipping and transport of mined materials also contribute significantly to emissions.[230]

More significant is the 28 per cent of global greenhouse gas emissions that come from use of products from the mining sector (not depicted in the value chain chart below), through activities such as coal combustion in power generation and metallurgical coal use in aluminium and steel production.

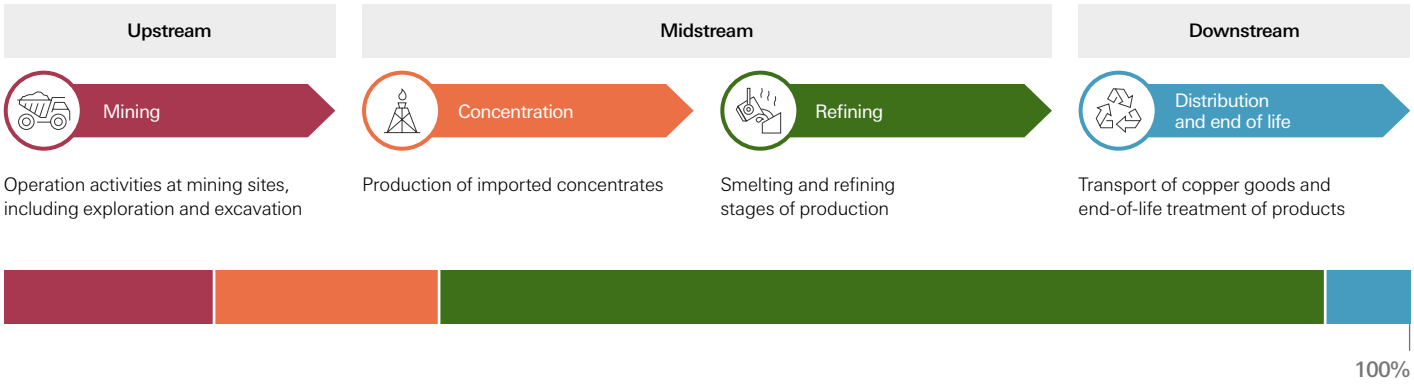
Decarbonisation strategies for mining sub-sectors will vary, but key levers include shifting away from coal production, asset electrification, deploying clean energy for mining operations, and enhancing energy efficiency while finding novel ways to beneficiate and upgrade product, and also addressing fugitive emissions (where relevant).[231,232]

For some mining companies, pivoting away from coal, and focusing on extracting raw materials needed for decarbonisation technologies will be crucial, particularly as both thermal and metallurgical coal use declines on the path to net zero (see *Energy supply* on page 21).[233]

Investment in metals and critical minerals supply is essential to achieve net zero. Demand for metals and critical minerals, such as lithium, copper, and cobalt, will grow exponentially over the coming decades with growth of low-carbon technologies, including renewable electrification, battery storage, hydrogen production, and carbon capture.[234]

For mining operations, key decarbonisation levers include switching to clean electricity, deploying on-site renewables, and electrifying on-site mobility. Improving energy efficiency of refining processes and addressing fugitive emissions (e.g. from coal) are also important factors in the decarbonisation process.[235]

Mining value chain
Emissions sources (%), example of copper mining



Note: These are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.
Source: Analysis deduced from Copper Alliance (2023) The Pathway to Net Zero.

Technology feasibility and timelines

Achieving near-term 1.5°C-aligned 2030 targets in the mining sector involves accelerating existing technologies like electric vehicles, battery and hydrogen-powered trucks, and on-site renewables. Battery-powered trucks could reach total cost of ownership (TCO) cost-parity with diesel vehicles in the next five years and major mining companies already have plans to pilot the technology.[236] Renewable energy and storage systems replacing diesel generators can also reduce cost and emissions for onsite stationary energy use.

However, substantial reductions in unabated coal-fired power and addressing coal use in heavy industry will be required to get the sector on track for 1.5°C from a Scope 3 perspective. To meet longer-term targets, coal miners need to diversify towards critical metals and minerals for the energy transition. The mining and refining of these critical minerals will also need to be made more sustainable while reducing emissions, with support from policy and regulation.[237]

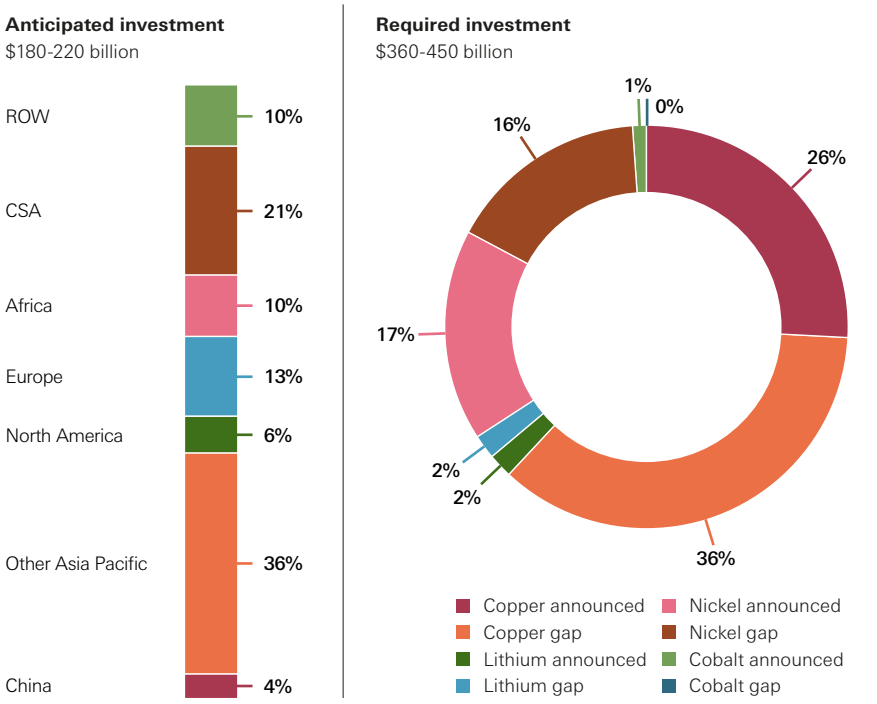
In terms of critical minerals required for the transition, the IEA report that despite recent significant increases in output, the currently announced critical mineral mining projects fall short of what is required to meet the large demand required for clean technologies in an IEA NZE 2023 scenario.[238]

Estimated capital expenditure requirements

The IEA estimates between $360 billion and $450 billion of investment in mining of critical minerals will be needed by 2030, with over 60 per cent of the capital requirements dedicated to copper for renewables, grid expansion, and other innovative technologies. Nickel accounts for around 33 per cent of the capital requirements, while cobalt and lithium combined represent around 5 per cent. Further capital will be needed to decarbonise mining operations, and phase down coal as part of a just transition. Investment is required globally, reflecting the location of relevant ores, with emerging markets across Asia, Africa and the Americas playing key roles.[240]

$360-$450bn
in mineral investments will be needed by 2030

Anticipated investment in mining of critical minerals by region/country and that is required to meet mineral demand over 2022-2030



Source: IEA analysis based on company feasibility studies; Bartholomeusz (2022); S&P Capital (2022); USGS (2022); S&P Global (2022c); S&P Global (2022d); S&P Global (2022e); European Commission (2020); Eurometaux (2022); Jervois (2020).

Our sector approach

Our portfolio

Our mining customers include diversified majors and mid-tier companies from across HSBC's markets. They include companies that specialise in energy transition metals such as lithium and copper or precious metals, to diversified miners including those with or without coal assets.

The portfolio is regionally diverse and includes a number of emerging economies that today are heavily reliant on thermal coal-fired power production infrastructure as they transition to a cleaner power mix.

Australia and Indonesia are the two largest coal exporters globally, with exports going mostly to other Asian countries.[239]

Our footprint necessitates a region-wide approach to the transition from coal to clean energy. Critical minerals expansion opportunities are also distributed across various regions, including Australasia, Africa, the Americas, and Europe, where we are working with our clients to build capacity to support the supply of critical energy transition raw materials in a sustainable manner.

Targets

The majority of our mining sector financed emissions relate to scope 3 emissions associated with coal mining. We have set a target to reduce absolute on-balance sheet financed emissions from our thermal coal mining portfolio by 70 per cent to 2030. The financed emissions target covers scope 1, 2, and 3 emissions from the sector and is aligned to the IEA NZE 2021 scenario. When calculating our financed emissions from thermal coal mining, we have focused on thermal coal extraction and processing companies, and diversified mining companies. We aim to measure and focus on our customers with the most material thermal-coal related emissions in order to help drive a meaningful impact in the real economy.

We have set a thermal coal financing target to reduce our drawn balance exposure by at least 25 per cent by 2025 and 50 per cent by 2030 and will phase out all financing of thermal coal mining by 2030 in the EU and OECD, and 2040 in the rest of the world. In 2022 we announced no new financing for clients for the specific purposes of new metallurgical coal mines. For further details see our thermal coal phase-out policy.[241]

For other types of mining, including for our diversified mining customers, we have not yet begun measuring our financed emissions or set a financed emissions target. As outlined in *Our approach to sector transitions*, we expect to continue to consider a range of approaches that help to support the transition of our customers and will look to revisit our approach to financed emissions measurement and target-setting as NZBA and ISSB disclosure requirements evolve.

Our action plan

1 Supporting our customers

Engage our customers

We expect to engage with our mining customers on their transition, for example, consideration of plans to phase down coal mining production, scale up capacity in critical transition minerals, and reduce emissions from operational activities. Our thermal coal phase-out policy further outlines how we aim to engage with customers with thermal coal mining assets on their transition plans, as well as the conditions under which we would not provide new financing or advisory services.

Provide transition solutions

We aim to identify commercial opportunities to support customers expanding the production of critical transition minerals. Additionally, we aim to provide finance to support emissions reductions from extraction and processing in our customers' own operations and to identify opportunities to coordinate with other players in the value chain. As part of developing some of the tools and pipelines we need for success, we bring together an internal group of multidisciplinary experts to discuss key technology solutions, such as batteries and energy storage, to help identify strategic growth areas for the net zero transition that match our strengths and key markets.

2 Embedding net zero into the way we operate

Manage our portfolio

We have published our thermal coal phase-out policy setting out our approach to phase out financing of thermal coal mining. This includes a commitment by HSBC not to provide new finance, or new advisory services, for the specific purposes of new thermal coal mines, new metallurgical coal mines, new captive thermal coal mines, or thermal coal expansion. We aim to engage with our mining customers to understand and help support their plans to produce the minerals and metals crucial for transition technologies and infrastructure.

3 Partnering for systemic change

As we seek to transition away from thermal coal, we will need to consider environmental goals alongside social and economic development needs in the markets we serve. This means helping to support communities affected by the transition through helping to unlock new economic and employment opportunities.

We expect to continue to collaborate with policymakers and participate in public-private partnerships such as the Just Energy Transition Partnerships (JETPs), which aim to finance a faster transition away from coal while redeploying capital to accelerate the roll-out of renewable energy infrastructure.

Real estate

Sector transition overview

Pathways to net zero

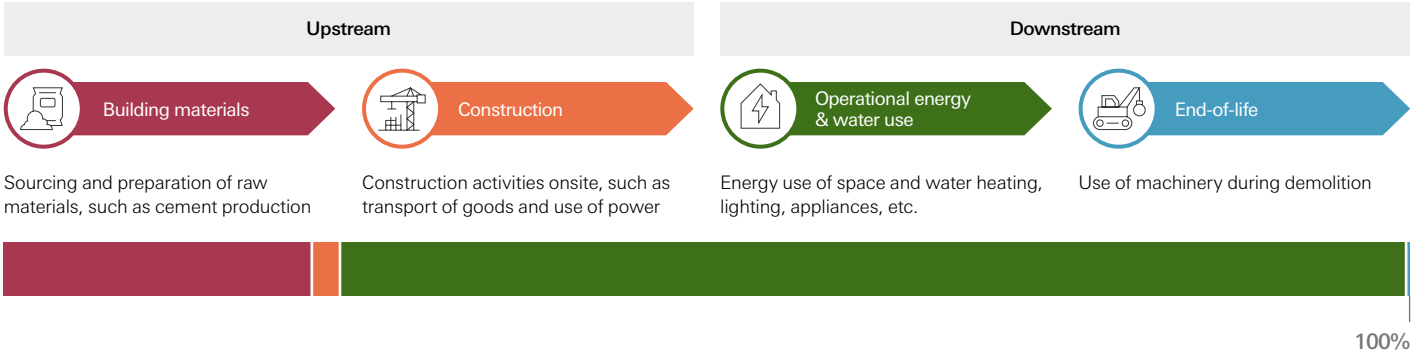
Energy use in buildings accounted for an estimated 18 per cent of global greenhouse gas emissions in 2020.[242] Operational energy use in buildings, including space and water heating and cooling, cooking and electricity for appliances, represents around three quarters of real estate value-chain emissions (see chart below).

Switching from gas and oil to heat pumps or direct electricity is key to reducing emissions from buildings. Retrofitting to improve energy efficiency of old building stock through better insulation, low-energy appliances, efficient cooling, and technologies that can help optimise energy use, such as smart thermostats, are also important. District heating is also likely to play an expanded role.[243]

To help decarbonise electricity use, building owners or operators can sign power purchase agreements (PPAs) for renewable electricity from the grid. This can be complemented with on-site generation and storage of renewable electricity through rooftop solar and batteries and thermal storage. Aggregated loads from EV charging, electric heating and cooling, and other smart devices can be aggregated to provide demand-side response and grid services.[244] Alongside these technologies, emerging business models such as Energy as a Service (EaaS) are also going to be important to optimise energy use and minimise cost volatility for consumers.[245]

Embodied emissions from materials, construction, renovation, and end of life of buildings account for the remainder of real estate value chain emissions. Materials manufacturing is the largest source, particularly cement and steel which account for two-thirds of embodied emissions. To tackle these in new construction, builders can use green concrete and green steel as well as sustainable wood, and recycled products. More efficient construction methods, materials transportation, demolition practices, and increasing the renovation and repurposing of existing building stock can also reduce emissions.[246]

Real estate value chain
Emissions sources (%)



Note: These are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.
Source: Analysis deduced from GlobalABC (2019) 2019 Global Status Report for Buildings and Construction, WorldGBC (2019) Bringing Embodied Carbon Upfront.

Technology feasibility and timelines

Technologies necessary to enable a 1.5°C-aligned pathway for the real estate sector – including energy efficiency, heat pumps, smart energy management systems, and efficient cooling and lighting technologies – are available and in many markets technologically mature, but require stronger regulatory measures to ensure adoption. Heat pumps are already widely deployed in many markets and used extensively for air conditioning in warmer climates. Sales are growing at around 11 per cent year on year worldwide and Europe is already tracking ahead of what's required under an IEA NZE 2023 scenario, having installed almost 3 million in 2022.[247,248] However, deployment worldwide needs to accelerate urgently to around 18 million per year on average to get on track for net zero this decade.[249]

To accelerate emissions reduction in buildings, new approaches are needed to reduce upfront costs, simplify consumer propositions, and develop supply chains. The role of government is particularly important for residential real estate where millions of individual homeowners are decision-makers, and where social and equity considerations are paramount.

Government support is critical to enabling the residential building stock to decarbonise in line with a net zero by 2050 trajectory. Examples of actions required include comparable energy performance ratings, net zero-aligned building standards, phase-out dates for fossil fuel heating systems, public procurement of green materials, and significantly strengthened financial and regulatory incentives for retrofitting.[250]

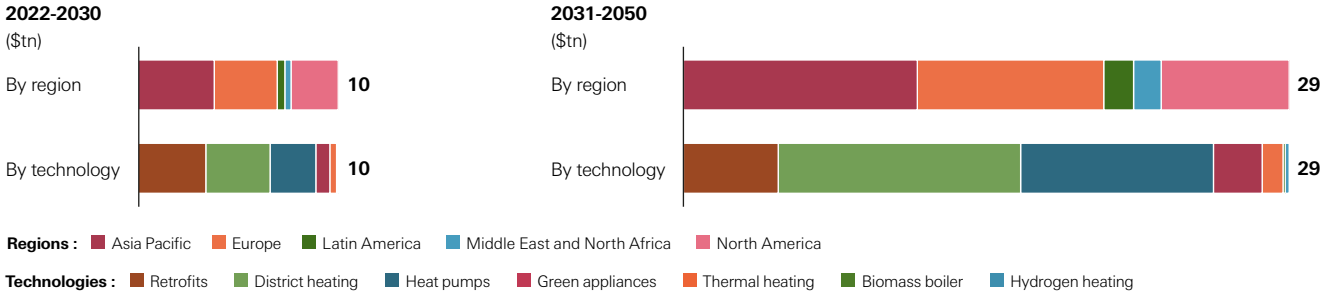
In the longer term, the real estate sector will need to tackle the embodied emissions in building materials. This will require decarbonisation of the steel, cement, glass, ceramics and plastics supply chain, as well as development and scaling of new sustainable materials. The key challenges in these areas are discussed in the relevant sector chapters.

Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that decarbonising residential and commercial real estate will require $29 trillion from now to 2050. Of this, $10 trillion needs to be invested before 2030 (see chart below).[251]

Major areas for investment are district heating and heat pumps. These technologies may require about $27 trillion to be applied across both residential and commercial real estate through 2050. The public sector may need to play a major role in investment, especially in district heating which requires new infrastructure. Retrofits will require about $8 trillion in capital expenditures investment.[252]

Estimated capital expenditure requirements: Real estate[253]



Our sector approach

Our portfolio

Real estate accounts for over 80 per cent of lending to our personal customers, and 20 per cent of lending to wholesale customers.[254] Our residential real estate exposure is composed primarily of mortgages issued to personal customers in the UK and Hong Kong. Our commercial real estate lending portfolio is more concentrated in terms of customer numbers and is similarly geographically dispersed though weighted primarily towards Hong Kong, with the UK also being a key market.

Different regional building stocks, ownership models, and fiscal and regulatory contexts mean we may need to adapt our real estate-oriented solutions so that we can help support real emission reductions in different geographies, particularly in the markets where we have the largest role. In advanced economies, a key challenge will be supporting the financing of net zero-aligned retrofits. In emerging economies, net zero-aligned construction and real estate development will play a more significant role, given the substantial growth in infrastructure expected in many of these markets.

Targets

We are in the process of data collection, evaluation and analysis to inform calculations of our commercial and residential real estate financed emissions. We intend to take a top-down approach driven by materiality, initially focusing on the largest markets in our financing portfolio, recognising industry-wide data quality issues. Due to limitations in asset level data for real estate, financed emissions are often based on proxies in lieu of more precise measures such as meter readings or actual energy consumption data. We plan to continue applying the PCAF Standard to develop proxy calculations and will indicate a data quality score consistent with the PCAF quality hierarchy. We intend to build portfolio coverage as data availability and quality improve.

Decarbonisation in the real estate sector is highly dependent on government and regulatory action (e.g. planning and building regulations, retrofit programmes, embodied carbon requirements) as well as overall energy grid decarbonisation. This limits the role a bank can directly play to materially influence emission reductions. As such we intend to look at a more holistic approach to measuring our progress in supporting the decarbonisation of real estate.

For residential real estate, where our customers are consumers not corporates, our approach needs to consider financial inclusivity and our ability to provide customers with access to suitable mortgages in addition to decarbonisation aims. We expect to measure and report our residential real estate financed emissions in future disclosures. We continue to consider our approach to setting an appropriate target to measure our contribution to helping the sector transition.

For commercial real estate, we will plan to continue to work towards outlining a baseline and a net zero-aligned 2030 financed emissions ambition or ambition range, starting with our major markets. Given that decarbonisation of the local electricity grid is a key determinant of real estate decarbonisation, it will be important to monitor 1.5°C-aligned scenarios that emerge with regional disaggregation to help better reflect trajectories relevant to our business context.

As data continues to improve, we expect to consider widening our financed emissions measurement coverage, where possible, and to review our approach periodically in line with evolving data, methodologies, scenarios and progress in the real economy.

Our action plan

1 Supporting our customers

Engage our customers

We plan to use a combination of approaches to help achieve emissions reduction in the real economy and to help transition our portfolio of real estate exposures to net zero.

For our personal customers, we plan to engage homeowners with insights on energy efficiency improvements. We have identified various points where we can play an enabling role for customers planning to make improvements. Currently our sustainability hubs, which are live in 12 markets, build awareness of energy efficiency solutions.

For our commercial customers, we want to understand and support their approach to decarbonisation. Engagement led approaches that consider whole life carbon (embodied and operational) for real estate will be important. For example, engaging with corporate clients who provide building materials (e.g. cement, steel), or engaging real estate developers that construct, contract or manage properties on low carbon procurement requirements, and design circularity and optimisation.

Engagement on climate resilience to help manage the physical risks of climate impacts will also be important – including implications on loss and damage, business interruption, future insurability, and asset value.

See *Supporting our customers* on page 52 for more details.

Provide transition solutions

We aim to provide finance and investment to support three key transition outcomes:

1. Reduce energy demand, including by scaling the use of net zero-aligned technologies and supporting changes in occupier behaviour.
2. Support decarbonisation of energy supply with a focus on clean electrification of building heating and cooling, and scaling the use of buildings as an energy generation and storage asset.
3. Encourage smarter building construction and renovation through material use reduction, the use of lower-carbon materials and resilience measures.

For residential customers, we continue to develop lending products to help strengthen homeowner incentives for retrofitting and upgrading the energy efficiency of homes, generating renewable energy, and deploying charging infrastructure for electric vehicles (see *Supporting our customers* on page 52).

For our commercial customers, we aim to deploy finance to support decarbonising the building stock. This could include, for example, project finance for building retrofits or sustainability-linked facilities with KPIs related to reducing energy usage and greenhouse gas emissions.

We are taking action to help support businesses of all sizes, including, for example, small businesses through our Green SME Fund in the UK. Among other things, the fund can help finance the retrofit of commercial properties to meet sustainability standards. We have also joined a pilot with CFP Green Buildings to develop our HSBC Green Buildings Tool, which will allow customers to assess energy efficiency based on details about their properties.

2 Embedding net zero into the way we operate

Manage our portfolio

As we work to transition our portfolio of real estate exposures, we plan to focus on initiatives that offer the potential to deliver energy efficient commercial and residential building stock over time. We expect this may include financing of energy efficient properties' construction, preferential green mortgages to their buyers (currently available in eight markets) and financing solutions to improve existing lower energy efficiency properties.

3 Partnering for systemic change

Our ability to help our real estate clients' net zero transition is heavily dependent on regulatory and legislative action in our markets.

We aim to engage with governments in key jurisdictions to advocate for strengthened incentives for decarbonising real estate, including by advocating for regulation and policies that incentivise lower whole life carbon in buildings, broadening the current focus from operational carbon. By bringing a perspective that covers both commercial and residential real estate, and which can enable learning from experience in different geographies, we believe we can add value to policy and regulatory development in our key markets.

We also aim to support change across the buildings value chain. For example, by looking beyond operational emissions to embodied emissions. This could include supporting businesses focused on key solutions such as innovative low carbon construction materials and processes (e.g. zero carbon cement, modular construction methods, and 3D printing).

For residential real estate, mortgage lenders will need to work with governments and regulators to ensure decarbonisation aims are considered alongside the need to provide access to suitable mortgages for customers. Unintended consequences may otherwise arise if lending to energy inefficient properties is disincentivised by financial emissions targets or emerging regulatory expectations.

Food, forests and other land use

Sector transition overview

Pathways to net zero

Direct emissions from agriculture, forest, and other land use accounts for around 15 per cent of global greenhouse gas emissions.[255] Emissions largely stem from supply-side production activities such as livestock, fertiliser application, and land conversion, including deforestation. Demand-side activities associated with the trading, processing, retail, consumption, and disposal of agricultural products in the food, wood, pulp and paper, and textiles industries account for around 10 per cent of global emissions.[256]

Solutions to decarbonise this sector broadly sit across three interconnecting themes: sustainable agricultural production, reduced waste and dietary shifts, and nature conservation and restoration (see chart below).

Sustainable agricultural production
Transforming how we farm can reduce emissions by 2.3 billion tonnes of CO_2 by 2050, and change is already underway.[257]

Adopting regenerative agriculture practices can reduce the carbon intensity of crops, while also enhancing yields and resilience. Non-fossil-based fertilisers offer similar benefits. Optimising animal feed and additives can reduce emissions from livestock, and fuel switching and electrification in farm machinery and production processes can reduce emissions from energy use.[258]

The combination of digitalisation and decarbonisation, sometimes called the fourth agricultural revolution, is ushering in innovations in precision farming, agro-genomics, digital traceability systems, and large-scale platforms for alternative protein and algae production.[259]

Reduced waste and dietary shift
Changing what society consumes and reducing waste could result in emissions reduction of around 4.6 billion tonnes of CO_2 by 2050.[260]

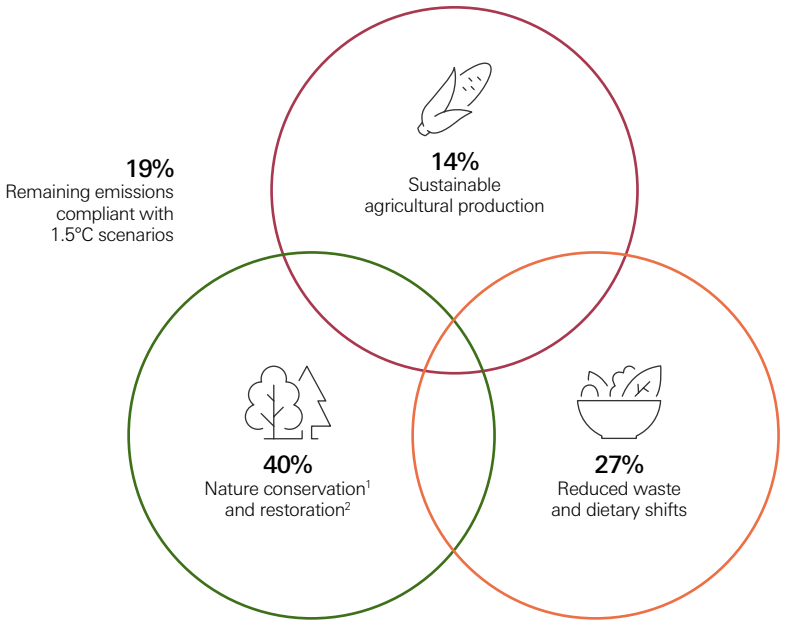
Approximately one-third of global agricultural produce is lost or wasted contributing to 8 to 10 per cent of global greenhouse gas emissions.[261,262] There are significant opportunities for demand-side activities to reduce food waste.

Shifting consumer demand from high-emission food sources, such as beef, lamb, and dairy, could also play an important role in reducing emissions.

Innovations in protein, dairy, and natural fibre alternatives, have led to alternatives that are around 69 to 92 per cent lower in carbon emissions.[263]

Nature conservation and restoration
Conserving existing ecosystems and restoring those that have been destroyed has the potential to increase carbon sequestration by the equivalent of up to 6.7 billion tonnes of CO_2 annually by 2050.[264] In addition to the emissions benefits, conservation and restoration also ensures lasting access to other ecosystem services, like water provision and flood management. This makes preventing deforestation and ecosystem conversion, particularly in the tropics, an important concern for the net zero transition.

Share of available emissions reduction to meet 1.5°C target by 2050



[1] Includes conservation of forests, grasslands and peatlands
[2] Includes forest restoration, agroforestry, regenerative agriculture and peatland restoration
Note: These are illustrative for the sector, as emissions from each source can vary depending on a wide range of factors.
Source: McKinsey (2023) The agricultural transition: Building a sustainable future.

Technology feasibility and timelines

In the near-term, there are already technologies and practices that are commercially available and can be accelerated to help the agricultural sector decarbonise. Feed supplements that reduce emissions from the digestive systems of ruminant animals are already on the market and can reduce methane emissions by 30 to 45 per cent. Precision agriculture and perennial crops that can increase farm productivity and resilience while using less land, fertiliser and water are already commercialised.[265] Food processing facilities and some farm machinery can be electrified and powered by renewable electricity.

However, uptake is not happening fast enough or equally around the world. Farmers in Europe and the US lead AgTech adoption, whereas those in emerging markets, often smaller farmers, are generally slower to adopt. For a 1.5°C-aligned pathway to be viable, government and regulatory policy will play a critical role in accelerating action. Required measures to drive decarbonisation will include reforming agricultural and land-use subsidies and introducing decarbonisation incentives particularly for smaller-scale producers.

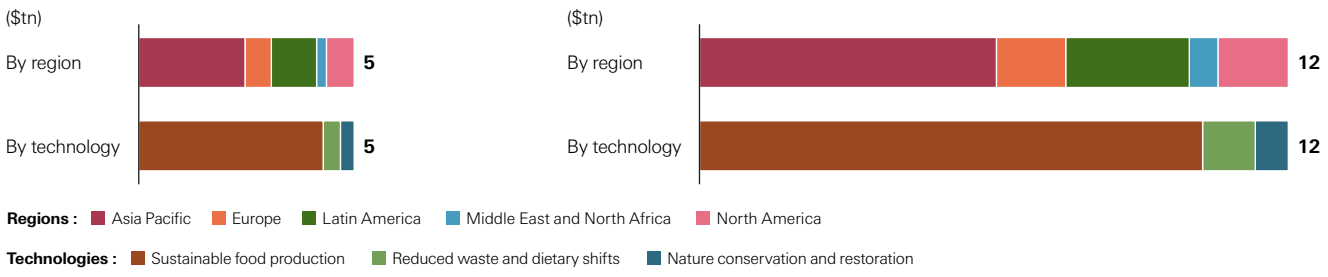
Food culture also varies greatly across regions, so changes in consumer demand and food waste reduction will take time. Public education campaigns and other measures will be needed to accelerate awareness amongst consumers.

Looking further ahead, deep decarbonisation of this sector will require the scaling and commercialisation of newer technologies – green fertilisers made from clean ammonia, biopesticides that are less hazardous and lower emissions, gene editing, and next generation alternative proteins made from animal cells.[266] These require additional funding, policy, and regulatory support to drive innovation and cost reduction for early-stage technologies[267].

Estimated capital expenditure requirements

Third-party analysis of publicly available 1.5°C-aligned scenarios estimates that to transition food, forests and land use to a net zero trajectory will require $5 trillion by 2030, and an additional $12 trillion by 2050 (see chart below). Asia could attract half of all capital investment opportunities and nearly 80 per cent is required to reduce emissions from crops.[268]

Estimated capital expenditure requirements: Food, forests and other land use[269]



Our sector approach

Our portfolio

Our customers span across food and forest value chains, including a meaningful portion in the UK and the rest spread across other markets.[270] Agricultural commodities are the raw materials for many processes and products, including packaging, food and beverages, pharmaceuticals, chemicals, and apparel. Our exposure to downstream customers on the demand-side is global and diverse.

Targets

In October 2022 we published our Statement on Nature[272] which sets out our approach to nature loss and nature-based initiatives including through our existing Forestry Policy, Agricultural Commodities Policy (covering palm oil, soy, cattle ranching, and rubberwood), and our World Heritage and Ramsar Wetlands Policy. As part of our net zero ambition, we are reviewing our current policy protections in this area.

We continue to consider our approach to financed emissions for our agriculture portfolio bearing in mind data quality, constraints on carbon accounting methodologies, and emissions materiality considerations of our related customer population. Our initial efforts in 2023 focused on upstream, farm-related emissions where data coverage and methodology were expected to be most developed. However, data discovery efforts have shown that there are data coverage and quality gaps, with a high degree of estimation required, and present data quality for this segment is too poor for target setting purposes.

Downstream emissions in the agricultural value chain (i.e., the food and beverage segment) are likely to be more material from an emissions perspective. In addition, by focusing downstream we believe we can more effectively work with corporates to help enable supply-chain decarbonisation, while continuing to support farms in meeting their decarbonisation goals. However, the emissions accounting methodology to measure and manage financed emissions for food production and related downstream activities is not yet developed. We have therefore delayed our target setting efforts for this sector.

Moving forwards we intend to focus on gathering data to allow us to measure financed emissions including using decision-useful proxies and plan to continue working with third-party data providers to improve coverage of data across our portfolio.

Our action plan

1 Supporting our customers

Engage our customers

For our agriculture customers across the value chain, we aim to understand their transition strategies and look at ways to help support them. This includes engaging with our material customers on their progress. In the UK, where a significant share of our agriculture lending takes place, we have agriculture specialist managers who help bring sustainability into business discussions and engage on solutions to support our customers in their transition.

We already see consumer-goods companies and agricultural commodity traders increasingly setting net zero targets for all scopes of emissions. Companies are also increasingly engaged in tackling deforestation; almost 60 per cent of The Forest 500 have made some form of commitment by February 2023.[271]

Provide transition solutions

Some examples of how we might assist our customers in transition include:

- Deploy banking services to support customers as they transition to sustainable farming practices, for example, through our Green SME Fund in the UK, and the Greater Bay Area Sustainability Fund.
- Help demand-side companies through sustainable supply chain finance programmes which help incentivise suppliers to meet sustainability targets set by buyers.
- We also expect to consider opportunities to support nascent technologies and early and growth stage pioneers in critical areas for the decarbonisation of food systems and land use, where commercially viable, through a range of propositions tailored to early and growth stage companies.
- Scale up nature-related finance and investment through initiatives such as Climate Asset Management, a joint venture between HSBC Asset Management and Pollination.

2 Embedding net zero into the way we operate

Manage our portfolio

Our Forestry and Agricultural Commodities policies require customers involved with major deforestation risk commodities to obtain independent certification of sustainable business operations, such as the requirement for palm oil customers to commit to 'No Deforestation, No Peat and No Exploitation'.

We seek to work with our customers to help support their alignment with our policies, and we have withdrawn banking services from customers who have not engaged, for example, in meeting our certification requirements.

3 Partnering for systemic change

Demand for agricultural production is expected to increase with projected population and per capita food consumption growth. Emissions reductions in the sector remain heavily dependent on timely and impactful government and regulatory interventions for technology development and implementation, and a shift in consumer behaviour. We therefore aim to engage in partnerships that help support sustainable agriculture and land use.

Examples of these partnerships and collaborations include:

- Partnering with GFANZ and the Taskforce on Nature-related Financial Disclosures (TNFD) on nature-related risk.
- Facilitating engagement on nature through the Sustainable Market Initiative Financial Services Task Force, including mitigating deforestation risk, and financing nature-based solutions.
- Creating a Nature Based Solutions Accelerator as part of our five-year partnership with WWF and WRI.
- Supporting the Asia Sustainable Palm Oil Links (ASPOL) programme which seeks to halt deforestation from palm oil supply chains in Asia with a focus on sustainable trade, consumption, and production. Led by WWF, it spans five countries (China, Indonesia, Malaysia, Singapore, India).
- Becoming signatory to Business for Nature's Call to Action, and through HSBC Asset Management as a signatory to the Finance for Biodiversity Pledge.
- Partnering with the Sustainable Markets Initiative to build the Terra Carta Accelerator Fund with the aim of bringing natural capital projects, with climate co-benefits, to scale in emerging markets.

Implementation plan

Supporting our customers

Our customers are at the heart of our net zero ambition

Our ability to achieve our net zero by 2050 ambition relies on the success of our customers' transitions. We support our corporate, public sector, institutional and personal and private banking customers with relevant transition solutions that include finance, risk management solutions, and broader research, insights and tools to help their transition. This is where we can seek to make a material impact on reducing emissions in the real economy, while capturing commercial opportunities.

This chapter sets out how we engage with our customers and how we are mobilising sustainable finance and investment to provide transition solutions. Not all products and services mentioned are currently available in all HSBC markets.

Our customers need significant support to overcome barriers to reaching net zero. These include: nascent technologies with high capital expenditure requirements; uncertain policies and regulation; under-developed supply chains; lack of data and insights; and constrained resources – particularly for small and medium-sized enterprises (SMEs) and in emerging markets.

We want to continue to scale and innovate in our sustainable finance and investment products and services to provide capital for climate technologies and other solutions to support our customers' transitions, including in high-emitting sectors that are key to decarbonising the global economy.

Our customers

Corporates
For our 50,000+ large and mid-market corporate customers we deliver transition financing and advisory solutions. For our one million plus SME customers, we help address gaps in financing and capabilities.

Public sector
We help public sector customers in over 80 countries and territories to access sustainable banking services to finance country, regional, or city-level transitions, including access to capital markets.

Institutional
We deliver investment solutions that help our institutional customers allocate capital toward a more sustainable economy, and finance their transition.

Personal and private banking
For our 40 million personal and private customers, we design banking solutions that help them lead a more sustainable lifestyle and offer sustainable investing options for their wealth management needs.

Our approach to supporting their transition

Engage our customers
We seek to take a multifaceted approach to engaging with customers, understanding their transition maturity and needs to become their trusted transition partner:

- Assess customer transition plans, where relevant (see page 54), with a focus on evaluating transition maturity to inform our ongoing engagement and financing solutions
- Self-service tools with tailored insight, where appropriate, for SMEs and personal customers to inform sustainable decision-making
- Tailored 1-1 engagement with certain corporate and institutional customers, as relevant, to understand their individual transition needs and support their transition pathway
- Thought leadership, research and events to engage customers on sustainable investment opportunities or provide customers with market insights

Provide transition solutions
We offer financing, investment and advisory services tailored to the specific needs of our customers to enable their net zero journey:

- Help to finance the transition, via on-balance sheet lending and related services
- Seek to facilitate capital where it is needed by connecting investors and issuers (bonds and equity) and providing ESG insights
- Help customers to invest in the net zero transition
- Helping to generate financial innovation to provide solutions for hard-to-finance projects that are critical for transition
- Provide deal advisory solutions (e.g., M&A)
- Deliver enabling solutions, including foreign exchange, risk management (e.g., hedging) and cash management

Engaging our customers

Corporates
We work with corporates of all sizes and complexity, including large multinationals, state-owned enterprises and SMEs. Each will play an important role in the transition as they decarbonise their operations, supply chains, and products and services.

Large and mid-tier corporates
Our large and mid-tier corporate customers have a range of transition financing needs. Some access direct financing for their transition objectives. Others utilise the capital markets to secure investment. Many also require advisory solutions to acquire or divest assets or risk management solutions such as currency hedges for international initiatives. We deliver a range of solutions to meet these varied needs. We describe on page 54 how we are engaging our corporate customers on transition plans as a way to understand their transition risks and readiness and inform how we work with them.

Small and medium-sized enterprises
SMEs form the backbone of the global economy. They play a significant role in emissions from global supply chains, which on average are more than 10 times greater than operational emissions.[273] Many SMEs lack the time, financial resources, and capacity to act on the transition, despite seeing growing requirements from their customers, investors, or regulators.

Our relationship managers and local sustainability teams help SME customers access a network of specialists who offer local and international assistance. We aim to support them to develop their own approach to decarbonisation.

As well as frontline support, we offer digital engagement tools to our SME customers in many markets, providing resources and information designed to help them accelerate their transition. We also provide online insights and capability-building opportunities. For example, we launched an ESG Academy programme in Hong Kong to host events for SMEs. We have also partnered with University College London's Institute of Sustainable Resources to share science-led insights and guidance on our website for sector-specific pathways.

New economy companies
New economy customers – from early- to growth-stage companies – are climate tech companies that are pioneering the technologies and business models that could play an important role in decarbonising industries and markets. They need dedicated support to innovate and demonstrate technology feasibility, to scale and accelerate commercial adoption, and to grow internationally. From leveraging our HSBC Innovation Banking experience supporting the start-up ecosystem, to pioneering new financing solutions from venture debt capital to broader commercial banking support, we are developing a range of solutions to meet their needs.

Public sector
We are a trusted partner to public sector customers in more than 80 countries and territories, helping develop solutions to deliver their climate ambitions and transition their economies and communities.

Governments set the climate ambition that determines how national, regional, and local economies transition and adapt to climate change, as well as shaping industrial and development priorities. Alongside developing policy and setting regulations and standards, public sector institutions also help drive markets forward through direct investment and public-private partnerships to support climate mitigation and adaptation projects, including development finance institutions who are increasingly focused on partnerships to crowd in private capital in emerging markets.

We support public sector customers with access to capital and advisory services to help them implement national or jurisdictional climate and broader sustainable development targets and strategies, from facilitating financing through capital markets, to providing sustainable loans, trade finance and sustainable infrastructure financing. We work closely with them to understand how our solutions can help to deliver their ambition, with a focus on those that can support large-scale change.

Institutional
Our institutional customers – including banks, insurers, asset managers, hedge funds, reserve managers, sovereign wealth funds and financial sponsors – play a crucial role in the transition as capital allocators. Many, including the hundreds of financial institutions that are part of GFANZ, have their own board-led, science-based commitments to support the transition to net zero. These institutional customers can engage portfolio companies to drive greater levels of ambition and performance around the transition, make decisions to shift their portfolios towards net zero alignment and invest in key climate solutions including climate technologies, sustainable infrastructure, climate resilience and natural capital.

Our institutional customers have varied needs, shaped by differences in scale, risk appetites, geographic focus, and transition maturity. Net zero is a key strategic priority for many of these customers, with evolving commercial, regulatory and reputation drivers.

We use engagement to understand how we can best identify solutions to support these needs and aim to encourage thought leadership around sustainability trends and developments. For example, over the past two years, we hosted around 140 sustainability-related events covering topics including corporate climate governance, green bonds, energy security and climate technologies in hard-to-abate sectors. Our institutional research on climate and sustainability has been recognised with consistently high rankings in the Institutional Investor and Euromoney surveys. Through these thematic and multi-asset reports, handbooks, and company-specific analysis, we aim to help our customers to make informed decisions about climate and relevant ESG issues.

Personal and private banking
Individuals have an important role to play in the net zero transition both as consumers and investors. We continue to innovate our personal and private banking products and services to offer individuals insights and solutions to help them to make informed sustainable choices for lifestyle, banking and investing decisions. This includes identifying and scaling new products to incentivise sustainable choices (e.g., electric vehicle or home retrofit loans) through to harnessing technology for customer education, understanding sustainability impact and for new product innovation.

We have begun helping our personal customers to build awareness of sustainable options and choices, including through online educational sustainability hubs across 12 markets. We have launched self-service tools, including an ESG Hub within our Mobile Banking app in Hong Kong, to create a portal that connects our customers to our sustainable banking and investing products, as well as sustainability education content and ESG investment insight publications. Some markets, such as Hong Kong and Singapore, also conduct marketing campaigns to engage our customers on sustainable finance and lifestyle topics.

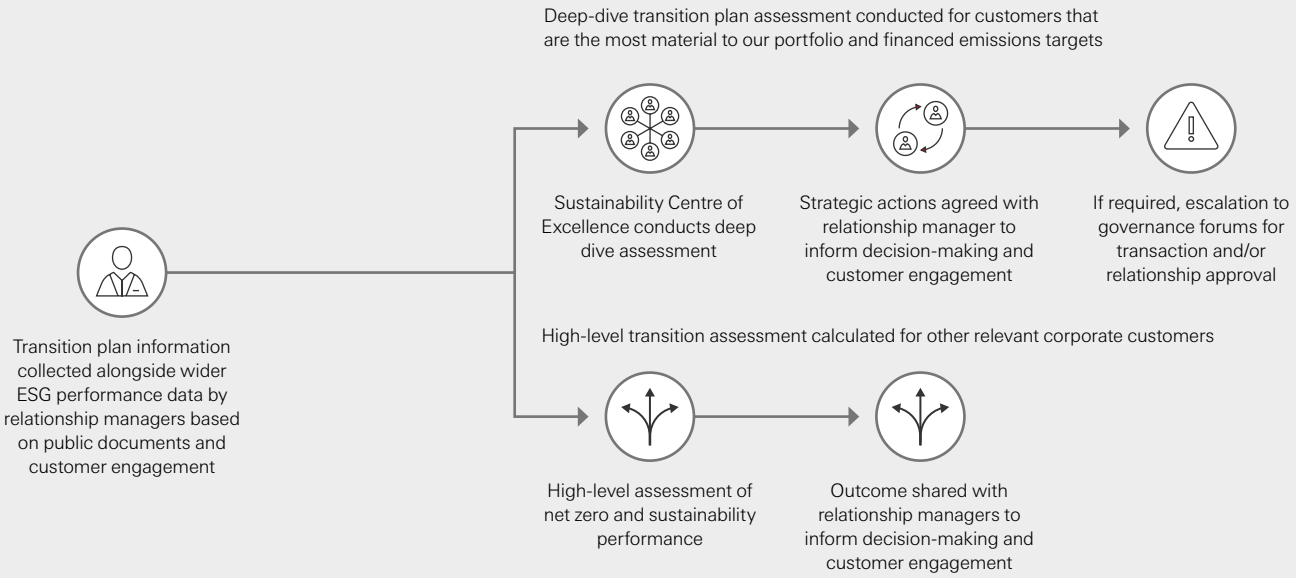
Where appropriate and available in relevant markets, we consider sustainable investing options within customer engagement. Where we do this, our relationship managers and investment counsellors work with customers to understand their priorities and offer relevant sustainable investing solutions through sustainability preference questionnaires. We are also continuing to innovate our sustainable wealth products and are building out digital analytical and reporting capabilities to provide transparency on the sustainability-related performance of customers' holdings. For example, customers in Asia can view the classification of sustainable investing products and MSCI ESG Score and Rating for their investment portfolio via our online banking platform.

Assessing our corporate customers' transitions to net zero

In 2022, we began work to design and implement a differentiated approach to understanding and assessing our corporate customers' (including state-owned enterprises) transition risks and plans. This aims to help us identify opportunities, manage climate risks and define areas to drive strategic engagement with each corporate customer (see diagram below). Once completed, these assessments can be used to support business decisions in relation to our financed emissions portfolio management and alignment, and our climate risk management efforts. We aim to review these assessments annually, where relevant, to keep up to date with the progress our customers make.

We are still at the start of rolling out this process across our corporate customers. We are working to expand roll out of these assessments across our customers that are most material in terms of financed emissions contribution, financing exposures and transition risk.

Our differentiated approach to assessing our corporate customers' transitions:



Information collected

For those customers where we have already started collecting information on their transition plans, we have defined criteria across five categories, shown to the right, to assess their exposure to transition and physical risks, and the maturity of their transition plans. The criteria consider factors that are generally relevant to customers, in addition to indicators that are sector specific. The level of detail collected also varies based on factors such as the size and materiality of the customer. We consulted with external partners and climate experts in developing our approach and will continue to develop and adapt this process, taking learnings from external partners and from our own experiences.

This step in the process is led by relationship managers, who gather information from our customers' sustainability reports and climate disclosures. This is supplemented by discussions with the customer. We request information on:

Emissions trend
Requests the customer's current and historic scope 1, 2, and 3 greenhouse gas emissions, including the completeness of the company's emissions reporting and whether it has been validated by a third party.

Ambition of plan
Indicates whether the customer has announced a commitment to net zero and set interim targets to reduce emissions over the short, medium, or long term and across relevant emission scopes.

Credibility of plan
Identifies details of the customer's plans to achieve its ambition, including the specificity of these plans (for example, the investment required) in the context of its business activities, current source of emissions, and operating context.

Credibility of action
Requests evidence of actions that the customer has taken to implement its plan and reduce emissions. This may include how the customer is engaging stakeholders to deliver its plan and the actions it is taking to support a just transition and protect natural capital and biodiversity.

Climate risk
Considers physical and transition risks to which the customer may be exposed (see *Managing risk in transition to net zero* on page 64).

Deep-dive transition plan assessment
We aim to undertake a detailed review of the transition plans of our customers that are the most material to our portfolios and financed emissions targets (see chart to the right).

These reviews are conducted by the specialists from our Sustainability Centre of Excellence with input from our relationship managers. Where additional oversight is required, we also present completed assessments to an internal advisory panel of senior representatives from across relevant business lines and functions (see *Aligning responsibilities and incentives* on page 77).

This process is designed to provide insights specific to each customer and their circumstances. Our assessment rates each of the categories described above and provides a composite rating to indicate the overall confidence in the customer's plan. We want to help our customers navigate and take advantage of the opportunities presented by the transition, supporting them through our engagement and providing finance to develop new capabilities, technology and infrastructure. This process allows us to identify specific opportunities to support our customers and helps highlight areas where further development of the plan may be needed, which we build into our ongoing engagement with the customer.

We recognise that, today, many of our corporate customers are not likely to have comprehensive transition plans in place or plans that are yet consistent with our own targets and ambitions. Given this, we aim to engage with and support our customers over time as they develop their corporate strategies to transition.

At a portfolio-level we periodically assess whether an in-scope customer's transition plan can be accommodated within sectoral 2030 portfolio-level financed emissions targets. For customers in scope of our thermal coal phase-out and energy policies (See *Using policies to drive change* on page 71), our requests for transition plans will have deadlines.

High-level transition assessment
For other relevant corporate customers outside of the boundaries of our deep-dive transition plan assessment we have started to carry out a high-level transition plan assessment. This review draws on publicly available information, supplemented where relevant with information collected directly from customers.

We look to use representative proxy data to extend our assessment to areas of our business where collecting information on individual customers is currently not feasible. This allows us to identify how we can support a wider base of our customers exposed to the net zero transition and helps us to identify risks in our portfolio that require enhanced monitoring and action.

Proportion of our high emitting sector financed emissions to be covered by deep-dive transition plan assessments

Deep-dive transition plan assessments being conducted for corporate customers who are the most material to our sector portfolios and associated financed emissions targets

Additional considerations and next steps

Engaging our corporate customers will be an ongoing effort (see *Partnering for systemic change* on page 90). More work is needed to continue to embed this process across our organisation. In the assessments we have completed so far, we saw large variations among our corporate customers in the maturity of their plans and alignment with a net zero transition. We aim to take these factors into account in how we continue to engage our customers in their transition. We are also working to strengthen our capacity to support customer-facing teams in their customer engagements with additional resources and subject matter expertise.

In support of our financed emissions targets, we plan to expand coverage of our assessment of customers' transition plans to include additional sectors and a broader scope of customers, where relevant.

Progress to date	◆ Completed most assessments for customers in scope of our thermal coal phase-out policy, including reviewing and updating, as appropriate, the assessments completed in 2022. ◆ Completed most assessments for major oil and gas and power and utilities customers globally, as well as other customers in EU and OECD markets in scope of our energy policy. ◆ Assessed climate transition risks for our portfolio of customers managed by HSBC Continental Europe (HBCE), as required by the European Central Bank.
Next steps for 2024 and beyond	◆ Commence roll-out of assessments for our most material customers in other material sectors where we have set 2030 targets. ◆ Complete assessments for customers in scope of our energy policy and thermal coal phase-out policy in all markets. ◆ Continue to review and update, as appropriate, assessments completed to date.

Transition solutions

Corporate, public sector and institutional clients
We offer a range of transition solutions for our corporate, public sector, and institutional customers, a selection of which are outlined below.

Green and sustainability-linked loans
Green loans are similar to corporate loans, but the proceeds can only be utilised for eligible green projects with environmental benefits, such as green buildings that meet recognised standards. Sustainability-linked loans are made available to facilitate and encourage environmentally and socially sustainable economic activities and growth. They can be used for general purposes, with the borrower's cost of capital linked to related sustainability key performance indicators such as science-based emissions reduction targets. Green and sustainability-linked loans can play an important role in financing the transition, however, we recognise the financial industry needs to continue to improve the robustness of these products. We are working both internally and with relevant industry bodies and standard setters to support this.

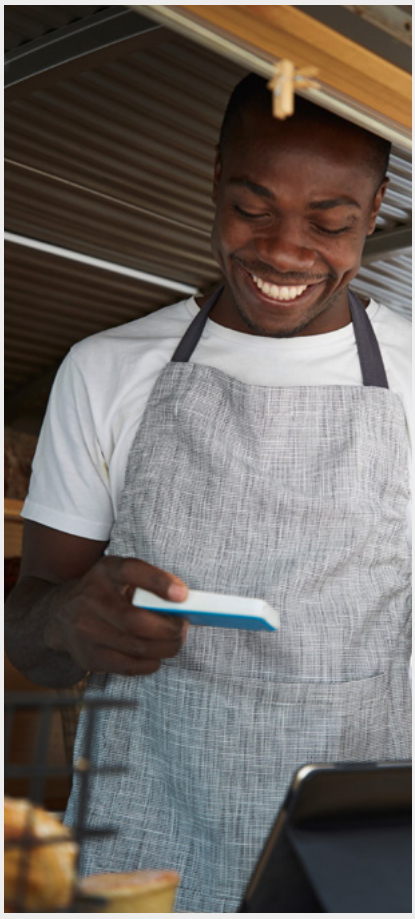
In 2022, we increased sustainable lending transactions by over 50 per cent, deploying more of our balance sheet to finance sustainable projects and incentivise borrowers to achieve sustainability targets by tying the cost of capital to their delivery. In 2022 we acted as sole sustainability coordinator for a GBP103.7 million green loan to JDR Cable Systems to construct a manufacturing facility to produce the next generation of high voltage subsea power cables for offshore wind farms. We also acted as sole global coordinator and joint sustainability structuring bank on a $400 million sustainable club loan to Geely Automobile in 2022 to support R&D into electric and hybrid vehicles, helping the company in its ambition of carbon neutrality by 2045.

Solutions for SMEs
Sustainable lending provides the financing SMEs need to invest in renewable energy supply or to make sustainable improvements to their production processes, but SMEs have historically faced challenges in accessing this funding. We have established region-specific funds to support our SME customers' transitions, with lending tied to financial incentives to make sustainable action commercially feasible.

- **UK Green SME Fund:** At COP26, we announced a GPB500 million Green SME Fund, offering financial incentives for investments in critical transition initiatives such as renewable energy and energy efficiency. In 2022, Panthera Group, a family-run construction company, benefited from a loan from the UK Green SME Fund to finance and grow EnviroHoard™, the UK's first construction hoarding system to be verified as net zero.
- **Greater Bay Area (GBA) Sustainability Fund:** In 2022, we launched a $9 billion sustainable finance allocation to support businesses' transitions to low-carbon operations in China's Greater Bay Area. Successful applicants also benefit from additional support including training and subsidised third-party assessments. In 2023, we extended a $8 million green term loan to Ampd Energy to finance the deployment of giant batteries at construction sites. In the *Innovation to deliver transition solutions* section in this chapter, we also outline our venture lending solutions for early-stage climate technology.

We also provide a range of tools – including through partnerships with third parties – to give our smaller corporate customers the information and resources to help to accelerate their own transitions with science-based and data-driven insights. While these solutions do not directly reduce greenhouse gas emissions, the scale of SMEs globally and their share of greenhouse gas emissions mean we can have a material impact, supporting them through their net zero journeys by:

- **Understanding and acting:** Our digital HSBC Sustainability Tracker helps our Business Banking customers self-assess how sustainable their business is today and see how they compare to similar businesses. It provides tailored, cost-effective, and tangible recommendations to support customers to decarbonise.
- **Tracking and reporting:** We support SMEs to measure, track and report their ESG performance through partnerships with third party providers.



Project finance

Project finance is essential to the net zero transition – from helping to transition energy systems to investing in the new technologies and infrastructure critical to decarbonising demand-side sectors such as real estate, transport, and heavy industries. Our project financing expertise supports our customers in structuring complex long-term sovereign, corporate, and limited and non-recourse financing solutions.

We have supported a number of landmark transactions in this space. For example, we acted as mandated lead arranger on the GBP2 billion financing to support the construction and operation of the 882MW Moray West offshore wind farm in the UK, and acted as structuring bank and mandated lead arranger on the green project finance facility towards refinancing of existing debt for a 300MW operational solar project owned by ReNew Power in Rajasthan, India. Alongside two government funds and a consortium of financial institutions, we contributed to the $8.4 billion facility for the world's largest green hydrogen-based ammonia production plant.

We are also exploring new business models to address the challenges that large infrastructure projects face to secure financing.

Green, sustainable and sustainability-linked bonds

Green bonds finance specific green activities such as renewables or electric transport. We have helped facilitate these solutions in numerous markets with significant transition challenges, including in Asia and the Middle East. For example, in April 2023, we were joint bookrunner and joint lead manager for Pertamina Geothermal Energy's $400 million green bond. Use of proceeds are for geothermal projects (development phase), which are a key part of the Pertamina Group's efforts to decarbonise the energy sector, as well as supporting energy security across Indonesia. In 2022, we also acted as joint global coordinator on Sweihan PV Power's $701 million issuance.

For our public sector clients, we help to structure innovative bond solutions to mobilise financing from the capital markets for national climate priorities, nature related targets and sustainable infrastructure projects. In 2022 alone we were mandated to act on 12 sustainability-related government bonds. For example, we jointly structured the UK Government's first ever green bond, with proceeds from the landmark GBP10 billion issuance being used to finance green projects, and acted as sustainability structuring agent on Uruguay's October 2022 $1.5 billion inaugural sustainability-linked bond issuance. We also helped support the Government of the Hong Kong Special Administrative Region's ESG journey, supporting on multiple sustainable financing initiatives, including the first tokenised green bond issued by a government globally, and institutional and retail green bonds exceeding $14 billion in 2023.

Sustainability-linked bonds (SLBs) are a relatively new, evolving instrument that form part of our broader strategy, along with green finance, to unlock capital for the transition and incentivise companies to progress their transition journeys, particularly in hard-to-abate sectors. SLBs typically do not earmark proceeds for specific green activities. Instead, companies publish specific climate and wider sustainability targets, such as greenhouse gas emissions targets. The interest cost on their borrowing changes based on whether they meet these targets.

We recognise the financial industry needs to continue to improve the robustness of these products and we are working both internally and with relevant industry bodies, such as the International Capital Markets Association, as they develop product standards and frameworks to govern SLBs. We are increasingly using scientific and independent second-party institutions, when available, to review and validate targets. We expect that SLBs will increasingly provide transparency in issuer performance against science-based transition pathways and other sustainability goals.

Markets solutions

Our corporate customers rely on our treasury solutions – from foreign exchange to cash management and hedging – to support their operations. While these solutions do not often drive direct decarbonisation, they can smooth the flow of capital and mitigate risks in sustainable transactions. Our suite of sustainability-linked solutions includes hedges, FX swaps, and repurchase agreements. For example, we designed a $50 million sustainability-linked loan for Archirodon, an international EPC contractor with significant presence in the Middle East, North Africa, part of central Asia and Europe. We also provided an ESG KPI-linked Vanilla Interest Rate Swap to hedge the client's EUR debt from rising interest rate risk. The structure embedded Renewable Capacity targets and requires retrofitting part of their diesel-operated engines with emission control systems to reduce hazardous material.

Financial advisory

Many of our large and mid-tier corporates will advance their transition through capital markets financing, M&A, acquisition finance, and issuer services. These solutions help to finance decarbonisation, support sustainable growth strategies and can help incubate innovative climate solutions.

An important part of our support is helping customers to articulate how their transition approach and sustainability credentials support their equity story.

M&A is key to corporate transitions and scaling climate tech innovation. As an example, we acted as joint financial adviser and corporate broker to Biffa, a leading waste management company for over 100 years, in their GBP2.1 billion enterprise value acquisition by energy transition investor Energy Capital Partners (ECP).

Solutions for our institutional customers

We offer a full range of investable solutions for our institutional clients. We provide primary market access to institutional investors for green, social, sustainable, and sustainability-linked bonds, as well as liquidity on the secondary market. We offer derivatives on ESG indices, ETFs, and funds, and build bespoke solutions such as thematic indices. We also offer ESG and sustainable securities financing and hedging solutions that embed sustainability-linked performance mechanisms.

The financing solutions available to our corporate and public sector customers, including sustainability-linked lending, financial advisory, and capital markets solutions, are also utilised by our institutional customers.

In 2020, we launched ESG portfolio reporting services for our Securities Services customers, helping them to track the ESG ratings of their large holdings and meet the increasing demand for greater transparency in this area.

Sustainable trade finance solutions

Green trade finance, sustainable trade instruments, sustainable supply chain finance and sustainability-linked lending provide the working capital that customers need for sustainable trade. As one of the world's largest trade banks, we have significant reach to support our customers' transitions by incorporating sustainability principles into our trade finance propositions.

We offer use of proceeds solutions, such as the first green trade financing facility for sustainable cocoa sourcing, for Guan Chong Cocoa Manufacturer Sdn Bhd., to support the client group's ambition to achieve 100 per cent traceable and sustainable cocoa[274] from GCB direct cocoa bean sourcing network[275] by 2030, and the sustainability-linked lending for a trade facility for an Asian garments manufacturer to support them to meet their energy and water usage performance targets.

Personal and private banking customers

For personal customers, we are beginning to develop solutions that are focused on supporting their transitions in four core areas: where they live, how they travel, what they buy and where they invest. We are early in our journey. Our long-term vision is to help accelerate the uptake of sustainable solutions, allowing customers to understand, access and control their sustainable banking and lifestyle solutions in one place.

Sustainable homes

We offer green mortgages in eight markets, providing preferential commercial terms for properties that have been awarded internationally or regionally recognised certified green building status (such as BEAM Plus in Hong Kong). We also provide energy efficiency loans in 8 markets aimed at improving the energy efficiency of homes. We aim to develop partnerships in future, seeking to help customers understand the environmental and financial benefits of energy efficient homes and connect them to partners who can provide cost-effective technology and installations.

Sustainable mobility

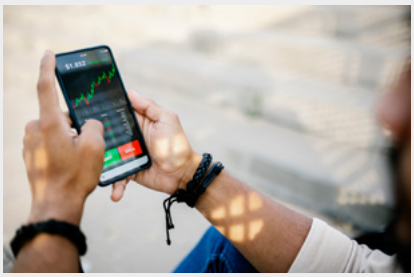
We offer electric vehicle (EV) loans in ten markets – including Hong Kong and Mexico – to finance the purchase of battery electric or plug-in hybrid vehicles at preferential commercial terms compared to other standard loan products. The EV Hub on our UK website provides educational material and a cost calculator to help customers make the transition to an EV. In addition to EV lending products for vehicle ownership, we plan to deliver products focused on vehicle use, including leasing products, following customer demand for more flexibility around ownership.

Sustainable consumption

Making more sustainable consumption choices will help catalyse emissions reduction. We use 85 per cent recycled plastic to issue new and replacement payment cards in several markets and are partnering with Mastercard to pilot card recycling units. Customers have the option to convert their rewards points towards a donation to sustainable causes, such as supporting reforestation projects managed by our global partner, One Tree Planted, for customers across several markets including the UK, Hong Kong and Singapore. We are adding more solutions from merchant partners to our credit card reward programmes. Our Home & Away credit card offers a platform to encourage sustainable consumption choices.

Sustainable investing

Our Asset Management business is working to embed sustainability across most asset classes. Our Private Banking and Insurance businesses distribute internal and third-party sustainable investment solutions to individual customers, enabling them to build a more sustainable portfolio. We also have differentiated offers for select ultra-high net worth customers, such as private equity funds with co-investment opportunities in private markets. In 2023, the natural capital strategy managed by Climate Asset Management, a joint venture between HSBC Asset Management and Pollination, was offered to our ultra-high net worth customers for them to access nature-based assets. In 2022, we launched a Global Biodiversity Discretionary Strategy for Global Private Banking customers in Asia, which covers eight related themes such as sustainable food systems, water solutions and biomaterials.



Focus: Innovation to deliver transition solutions

Many solutions that will enable the world to reach net zero face barriers to investment. Clean energy projects may fall outside banks' typical risk appetite. Nascent climate technologies need capital to prove their commercial viability. Nature needs innovative financing to protect biodiversity while accelerating the transition to net zero. And complex supply chains require coordinated action to effect real change.

We are helping to advance innovative business models, financing new partnerships, and encouraging collaboration to overcome these barriers and catalyse action.

Innovation is helping us deliver transition solutions to our customers across four key areas:

1. **Financing sustainable infrastructure** Overcoming challenges to financing and investment in sustainable infrastructure to help decarbonise energy systems and hard-to-abate demand-side sectors, such as steel or cement.
2. **Scaling new economy companies** Scaling the new economy, including funding companies developing the climate technology solutions that can accelerate systemic change.
3. **Ecosystem collaboration for supply chain decarbonisation** Collaborating across ecosystems with large corporate customers, their suppliers, and other stakeholders to help decarbonise supply chains.
4. **Establishing natural capital as an asset class** Enabling positive outcomes for nature and mainstreaming nature-regenerative action by developing natural capital as an asset class.

1 Financing sustainable infrastructure

New sustainable infrastructure is essential to transition the energy system and decarbonise demand-side sectors. However, infrastructure projects often face longer timelines or increased risk. To help overcome this, alongside our project financing, we participate in new financing mechanisms and blended finance partnerships with public sector and institutional customers. Blended finance is a structuring approach that allows financing organisations with different objectives to invest or lend alongside each other. It entails the strategic use of catalytic capital from public or philanthropic sources to crowd in private sector investment for development impact.

- Pentagreen Capital: We launched an innovative financing vehicle developed in partnership with Temasek with a combined $150 million of seed capital committed by the founding partners. This aims to help accelerate the development of sustainable infrastructure in Southeast Asia and aims to provide more than $1 billion of loans over the next five years from launch, primarily focused on clean transport, renewable energy and energy storage, and water and waste management.
- Just Energy Transition Partnerships (JETPs): JETPs are multilateral financial agreements aimed at ramping up renewable energy and accelerating the phasing down of fossil fuels, alongside investment in transition-aligned jobs and industries of the future. Public and private sector partners come together to structure innovative financing solutions tailored to a country's specific needs. We are supporting JETPs in Indonesia and Vietnam, helping identify barriers to private investment, and looking to support the facilitation of private sector financing of at least $10 billion for Indonesia and $7.8 billion for Vietnam, over the next three to five years.
- FAST-Infra: We are a key partner of the FAST-Infra initiative, in collaboration with the IFC, OECD, the World Bank's Global Infrastructure Facility, and the Climate Policy Initiative, under the auspices of the One Planet Summit and helped to launch the Sustainable Infrastructure (SI) Label, a globally applicable labelling system for sustainable infrastructure assets.

2 Scaling new economy companies

We want to be the bank of choice for climate tech pioneers to support them in growth and internationalisation. Our presence across regions with the largest climate tech start-up networks – the UK and Europe, United States, Asia, and the Middle East – means we are well positioned to help these early-stage businesses and developers of nascent technologies to scale. For example, Univers, one of our Asian-based customers headquartered in Singapore which owns the world's leading decarbonisation platform, have trusted us as their main banking partner. We supported their international expansion and are partnering to help our corporate customers develop effective carbon abatement strategies supported by Univers's energy optimisation and carbon management software.

We are working to identify and scale critical climate solutions, providing a holistic offering to support innovation. We do this in a number of ways, including through:

- HSBC Innovation Banking: Following our acquisition of Silicon Valley Bank's (SVB) UK arm, in June 2023, we announced HSBC Innovation Banking as our new global, specialised banking proposition for businesses in cutting-edge sectors, including climate technology, and their investors. We are combining the innovation expertise and bespoke financial services of SVB UK, which is now known as HSBC Innovation Bank Ltd, with newly assembled HSBC innovation teams in the US, Israel, and Hong Kong to support climate tech customers' global growth goals.
- Climate tech venture debt capital: We have a $1 billion climate tech focused allocation to provide access to flexible venture debt capital to support climate tech companies with ambitious growth objectives. We focus on long-term banking relationships that can be trusted throughout all stages of maturity to maintain cash flow and assist agile investments.
- HSBC Asset Management Climate Technology Venture Capital Fund: We anchored and are seeking to raise up to $200 million for an equity capital fund to support fast-growing technology companies focused on the energy transition, transport electrification, supply chain sustainability, and climate adaptation at series A and B stages. The fund aims to mobilise institutional capital into climate tech that can be deployed at scale.

- HSBC New Economy Fund: Two existing financing schemes have been combined to form an upsized $3 billion HSBC New Economy Fund, launched in 2023. The fund supports start-ups and technology-led businesses in healthcare, life sciences, climate tech, industrials, and consumer sectors in Hong Kong and mainland China.
- Breakthrough Energy Catalyst: We are investing $100 million as an anchor partner in the programme to support the decarbonisation of high-carbon sectors through five technologies: clean hydrogen, long-duration energy storage, sustainable aviation fuel, direct air capture, and manufacturing.
- Networking and connections: As well as providing financing solutions, we support the new economy by facilitating networks and connections amongst our wider customer base. This includes connecting capital providers seeking investment opportunities in the new economy with innovative customers in need of financing.

3 Ecosystem collaboration for supply chain decarbonisation

Our aim is to develop financial services solutions that work for the entire ecosystem of companies. Decarbonising trade and global supply chains is critical because the supply chain emissions of many corporates are often over 10 times their total emissions.[276]

We can help drive significant impact by working across the full value chain ecosystem. Building on our global presence and customer relationships in both developed and emerging markets, we are implementing and exploring different solutions that help bring these stakeholders together for action:

- Sustainable supply chain finance: We are developing new ways of working with corporate customers, supporting the decarbonisation of their supply chains by encouraging suppliers that demonstrate strong sustainability performance with improved financing terms. We collaborated with US retailer Walmart in 2019 as one of the first banks to adopt this approach, rolling out a finance programme that pegs their supplier's financing rate to sustainable outcomes.
- Third-party partnerships: To connect our customers to transition solutions that support their supply chain transparency, traceability, certification, and disclosure, we are exploring partnerships with third-party providers. For example, we partner with EcoVadis, which provides ratings to help companies manage sustainability practices within their supply chain.
- Convening ecosystem stakeholders: We help to convene key stakeholders – including customers, industry associations and technology partners – to collaborate, co-invest, and support the innovation and collective action required to support change across ecosystems. For example, we are a participant in the working group for the International Chamber of Commerce (ICC) Standards for Sustainable Trade and Sustainable Trade Finance.

4 Establishing natural capital as an emerging asset class

Supporting the protection of the natural environment requires the acceleration of the emergence of natural capital as an asset class. Climate Asset Management, a joint venture between HSBC Asset Management and Pollination, aims to offer investment solutions that help enhance ecosystems, protect biodiversity, and accelerate the transition to net zero while generating returns for investors. In December 2022, it announced it had received commitments of over $650 million for its two strategies:

- Natural Capital Strategy: Invests in agriculture, forestry, and environmental assets to deliver impact at scale alongside long-term financial returns.
- Nature-Based Carbon Strategy: Targets nature restoration and conservation projects in developing economies, prioritising community benefits while generating high-quality carbon credits.

One of Climate Asset Management's first investments was the Restore Africa Programme, in partnership with the Global EverGreening Alliance, announced in November 2021. This is the world's largest community-based land restoration project, aimed at benefiting 1.5 million smallholder farmers and their communities by restoring up to 2 million hectares of degraded land across six sub-Saharan countries. The programme is currently in full implementation in three countries, Kenya, Uganda and Malawi.

In 2023, Climate Asset Management announced that it will manage a novel natural capital investment vehicle for Apple. The new vehicle is an expansion of Apple's Restore Fund. For Apple suppliers that become partners in the fund, it will offer a new way for them to incorporate nature-based carbon removal projects as they decarbonise.

Focus: HSBC Asset Management

HSBC Asset Management aims to build sustainable investing solutions that help facilitate the flow of capital from the world's leading investors to the businesses and projects driving the transition to a sustainable economy. We are increasingly incorporating environmental, social and governance considerations into our investment processes because they are relevant to managing risks and opportunities for our clients' investments. We have seen significant growth in our assets managed under sustainable investment strategies.

We are working to transition our portfolio to net zero by 2050 or sooner, as part of the Net Zero Asset Managers Initiative, and have published 2030 interim targets. To help meet this ambition, we have developed our own HSBC Asset Management policy on thermal coal, and recently launched our own energy policy. In line with our fiduciary obligations (including regulatory requirements) to act in the investment interests of our investors, these policies are independent but aligned with the Group's sustainability objectives, ambitions and timelines (see *Using policies to drive change* on page 70).

Our sustainable investment strategy
We focus on climate and biodiversity in our core investing solutions and processes, with an additional focus on Asia and alternatives. Our sustainability-focused product range includes equities, fixed income, liquidity, multi-asset, and ETFs.

Our alternatives business provides sustainable investments focused on climate technologies and energy transition infrastructure, to support investors seeking sustainable investments through direct and active asset ownership.

We recently collaborated with the global fintech platform iCapital to broaden access to our Climate Tech strategy to wholesale customers across Europe, the Middle East, and Asia. Climate Asset Management, a joint venture between HSBC Asset Management and Pollination, has developed nature-based impact solutions as shown below.

HSBC Asset Management has a range of targeted strategies and solutions, with some examples highlighted below:

Core fixed income	◆ Global credit bond ESG: Seeks a higher ESG rating and a lower carbon intensity compared to benchmark	**Core equity**	◆ Global emerging market equity: Broad regional exposure; Seeking to provide improved ESG score and lower carbon emissions relative to benchmark
Carbon	◆ Lower-Carbon bond and Equity strategies: Invest in companies seeking to lead in lower-carbon activities to achieve significant overall carbon reduction of the portfolio compared to benchmark	**Biodiversity**	◆ Biodiversity-screened exchange trade fund (ETF): HSBC developed the first biodiversity screened equity index family and Asset Management launched the ETF tracking the index in 2022. This is the first investable solution to allow nature considerations in an investment portfolio. It screens companies for several factors, such as higher Corporate Biodiversity Footprint scores (Iceberg Data Lab)
Net zero themes	◆ Paris Aligned Benchmark ETFs: Deliver portfolios aligned to 1.5°C global temperature rises ◆ Sustainable passive strategies: Support lower exposure to climate risks	**Sustainable themes**	◆ Circular economy: Invests in companies leading circular economy innovation ◆ Green transition: Invests in companies driving transition across EU ◆ Sustainable Healthcare: Invests in sustainable healthcare themes and products
Climate	◆ Renewable energy infrastructure in Asia: To help drive Asia's energy transition, we added energy transition infrastructure expertise capabilities to our Asia Alternatives team ◆ Climate Technology Venture Capital Fund: Provides opportunities to invest in tech start-ups that address global climate change challenges	**Natural capital**	◆ Climate Asset Management: Invests in activities that preserve, protect and enhance nature-based assets and carbon sinks. We have received commitments of over $650 million for the two strategies: Natural Capital Strategy and Nature Based Carbon Strategy

We also offer bespoke mandates for our institutional customers. We engage to understand their net zero implementation journey and design investing solutions that help to support their decarbonisation goals while meeting investment guidelines. For example, we were one of five asset managers awarded a mandate from one of Asia's largest pension managers to run Asia's first climate-change-focused fund, managing $460 million in assets.

Deep investment expertise
We have deepened our climate and sustainability expertise to support the transition of our portfolio to net zero:

- We set up virtual sector teams in 2021. These comprise over 120 investment professionals globally. Their role is to define and assess sector and industry-specific ESG materiality frameworks to help us capture the most financially relevant ESG criteria.
- We are increasingly embedding ESG considerations and sustainability measures that reflect the UN Sustainable Development Goals as part of our investment process and will continue to expand the number of portfolios to which they are applied.
- Given regulations are rapidly evolving, we have developed internal investment standards, including further developing our ESG and sustainable investing framework.[277]
- We have expertise in the transition in our asset class and Responsible Investment teams, and will be adding further data science expertise to support sustainability through the creation of a sustainability investment solutions lab.

Catalysing broader impact
Our role in the transition includes working with our stakeholders to help catalyse broader impact. This includes the investee companies we engage with and industry collaborations that we contribute to (see *Partnering for systemic change* on page 90).

- As responsible investors, we seek to take an active stewardship role to help drive positive change in the companies on our priority list that we invest in. We believe that good corporate governance and sustainable practices help ensure that companies are managed in line with the investment interests of our clients.
- Our insights on trends, regulatory changes, and corporate behaviours are shared with the public as thought leadership, including research on topics including just transition, biodiversity, and the circular economy.

Next steps
We continue to develop our climate capability with additional data sources, proprietary research and transition expertise, to help us provide customers with innovative solutions and enhanced climate reporting.

Focus: HSBC Insurance

HSBC Insurance provides a range of products that aim to meet the protection, health, savings, investment, retirement and legacy planning needs of our personal, commercial, corporate, institutional and private banking customers globally.[278]

We are a signatory to the UN Environment Programme Finance Initiative's (UNEP-FI) Principles for Sustainable Insurance (PSI), which is a global framework for the insurance industry to address ESG risks and opportunities; and we publish our annual progress updates against the PSI on hsbc.com and the UNEP-FI website.

We also co-sponsored and co-led the first ESG underwriting guide for the life and health insurance sector, which was published by UNEP-FI PSI in June 2022. This guide provides a framework for insurers to evaluate a range of ESG risks and factors on the mortality, morbidity, longevity and hospitalisation risks when underwriting; with risk mitigation strategies alongside best practice for insurers to consider as well.

Sustainable investments and customer propositions

As an asset owner, we are working to transition our investment portfolio to net zero by 2050, to align with the Group's net zero ambition. We adopt a responsible investment approach, looking out for potential ESG opportunities and risks when investing our shareholder and policyholders' funds.

We continue to increase sustainable investments across all our manufacturing entities. For example, during 2022, our insurance businesses in Hong Kong, Singapore and France diversified their sustainable investment allocation via investments through Climate Asset Management, a joint venture between HSBC Asset Management and Pollination (see page 61).

We are working to incorporate ESG principles into our investment governance and this includes restricting activities that have a high adverse impact on the environment and society, in line with our sustainability risk policies. For example, we have an internal policy to support the phase out of thermal coal-fired power and thermal coal mining in line with the Group's 2030 and 2040 phase out timelines (for further detail see *Using policies to drive change* on page 70). Our internal policies are reviewed annually, to take into account updates to the Group's sustainability objectives, ambitions and timelines.

As an insurer, we are working to explore opportunities to support our customers who are increasingly keen to create a positive impact with their investments, by making ESG funds available in investment linked products. For example, during 2023, eight new ESG funds have been introduced across Hong Kong, France and Singapore covering a range of investment themes including circular economy, sustainable energy and the environment. As of the end of 2023, ten markets, namely Hong Kong, Singapore, Taiwan, Philippines, Indonesia, United Arab Emirates, Qatar, UK, France, and Mexico, offer ESG fund options to customers through investment linked products.

Next steps

Sustainability is a key aspect of our insurance long-term business strategy. We are continuing to embed sustainable insurance principles across our business, including in the products we design, the investments we make, key risk considerations and responding to regulatory changes. We also continue to embed net zero into our own operations in support of the Group ambition to be net zero in our own operations by 2030. This is part of HSBC Insurance's wider sustainable operations initiative, which includes improving energy efficiency, reducing business travel-related carbon emissions, investing in digitisation to reduce paper consumption and collaborating with our suppliers.

Managing risk in transition to net zero

Our approach to managing climate risk

The primary role of risk management is to protect our customers, business, colleagues, shareholders, and the communities we serve, while executing our strategy and delivering sustainable growth. We have designed our overarching group-wide risk management framework to help manage our most material financial and non-financial risks.

We recognise that the physical impacts of climate change and the transition to a net zero economy can create significant financial risks for companies, investors and the financial system. HSBC may be affected by climate risks either directly or indirectly through our relationships with our customers and through macro-impacts on the economies we serve, which could result in both financial and non-financial impacts.

To manage climate risks we have developed a climate risk approach which is tailored to our business strategy and business model.

Our climate risk approach aims to effectively manage the material climate risks that could impact the bank's operations, financial performance and stability and reputation. It is informed by the evolving expectations of our regulators.

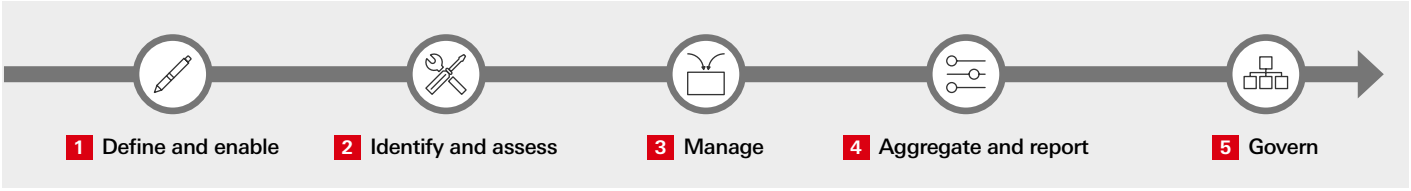
We are following a materiality-based approach in developing our climate risk capabilities across our businesses by prioritising sectors, portfolios, and counterparties with the highest impacts.

We continue to make progress in enhancing our climate risk capabilities, and recognise it is a long-term iterative process.

We aim to regularly review our approach to increase coverage, incorporate maturing data, climate analytics capabilities, frameworks and tools, and respond to emerging industry best practice and climate risk regulations. This also includes updating our approach to reflect how the risks associated with climate change continue to evolve in the real world, and maturing how we embed climate risk factors into strategic planning, transactions and decision-making across our businesses.

Climate risk is managed in line with the five stages of our group-wide risk management framework, as shown below. For further detail on our risk management framework, see our Annual Report and Accounts 2022 (page 132) and subsequent Annual Report and Accounts.

Our group-wide risk management framework



1. Define and enable

Defining climate risk
Our climate risk approach is aligned to the framework outlined by the TCFD which identifies two primary risk drivers of climate risk:

- **Physical risk –** risk arising from increased frequency and severity of extreme weather events such as hurricanes and floods (acute risk), or chronic gradual shifts in weather patterns or sea level rise (chronic risk).
- **Transition risk –** risk arising from the process of moving to a net zero economy, including changes in government policy and legislation, technology, market demand, and reputational implications triggered by a change in stakeholder expectations, action, or inaction.

In addition, we have identified the following ***thematic issues*** related to climate risk which are most likely to materialise in the form of reputational, regulatory compliance and litigation risks:

- **Net zero alignment risk** which arises from the risk of HSBC failing to meet net zero commitments or failing to meet external expectations related to net zero, because of inadequate ambition and/or plans, poor execution, or inability to adapt to changes in external environment.
- **The risk of greenwashing** which arises from the act of knowingly or unknowingly making inaccurate, unclear, misleading, or unsubstantiated claims regarding sustainability to stakeholders.

Incorporating climate risk into our risk appetite
Our Group-wide Risk Appetite Statement (RAS) defines the types and level of risks we are willing to take and supports the oversight and management of the financial and non-financial risks. Our climate risk appetite supplements this and supports the business in delivering our climate and net zero ambitions effectively and sustainably. This includes:

- The transition and physical risks that impact our financial position under current and future climate scenarios.
- The risks associated with not delivering our net zero ambitions, including our 2030 targets.

Our climate RAS is approved and overseen by the HSBC Holdings Board. It is supported by risk appetite metrics and tolerance thresholds. We have defined additional Key Management Information (KMI) metrics. Both RAS and KMI metrics are used to support the assessment of our alignment with our net zero ambition. They are reported on a quarterly basis for oversight by the Group Risk Committee. An overview of our RAS and KMI metrics can be found in the *Aggregate and report* section on page 68.

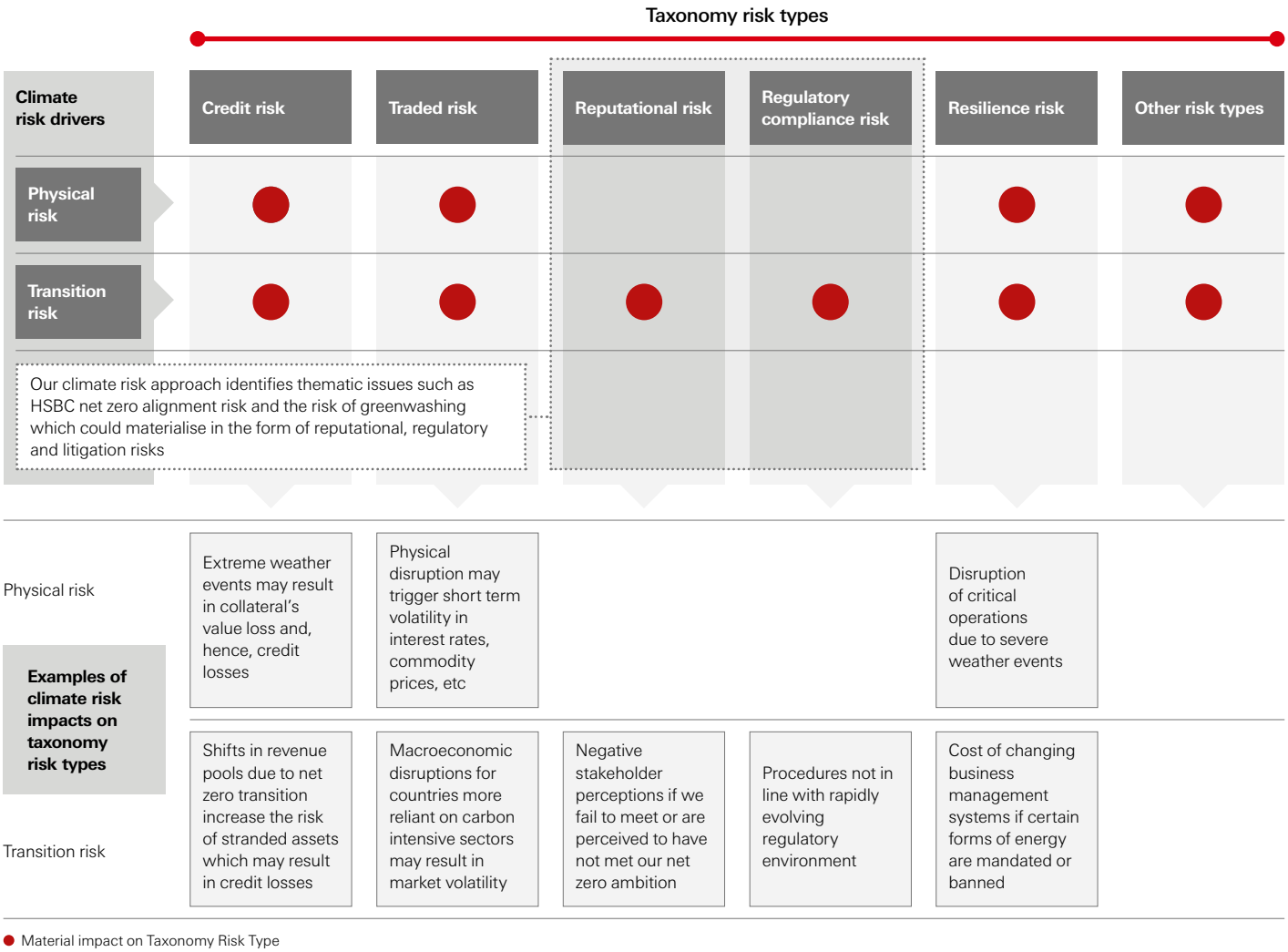
Incorporating climate risk in our sustainability risk policies
We have integrated climate risk into our existing risk taxonomy and incorporated it within the risk management framework through the policies and controls for existing risks, where appropriate. Our sustainability risk policies help define the boundaries of our business activities and are a key lever to help manage climate risks at portfolio and customer-level, and progress towards our financed emissions targets. These sustainability risk policies focus on mitigating reputational and credit risk related to our customers' environmental and social impacts (see *Using policies to drive change* on page 70).

For further detail on our climate risk approach, see our Annual Report and Accounts 2022 (pages 221-225) and subsequent Annual Report and Accounts.

Climate risk impact on principal risk taxonomy

We monitor the potential impacts of both primary climate risk drivers and thematic issues as part of our Group-wide risk management efforts. The figure below provides a summary overview of how climate risk might impact a sample of our principal risks.

Overview of how climate risk might impact a sample of HSBC's principal risks



Next steps

As we track our progress in implementing our net zero ambition and managing climate risks, we plan to regularly review and assess the coverage and effectiveness of our climate RAS and risk policies, including our sustainability risk policies. In doing this, we expect to take into account evolving regulatory expectations, industry practices, scientific guidance, and progress in real world decarbonisation.

Our approach to nature risk

According to the World Economic Forum, over half of global GDP, $44 trillion of value, is either moderately or highly dependent on nature. Given the close link between climate change and nature, it is important for us to understand our exposure to nature-driven physical and transition risks.

Governments and regulators are beginning to ask companies for disclosure of nature-related financial risks. The G7 endorsed the establishment of the Taskforce on Nature-related Financial Disclosures (TNFD), with some countries such as the UK announcing they will consider how the TNFD recommendations can be incorporated into national regulation and legislation. In the EU, the Corporate Sustainability Reporting Directive (CSRD) will also require disclosure of material nature-related risks such as water scarcity and biodiversity loss.

We have started to assess our potential risks and dependencies on nature, for example we have conducted a pilot to understand the potential impact of water stress on specific aspects of our financing portfolio. In addition, we are undertaking a pilot materiality assessment to identify and assess nature-related risks of our portfolio in Continental Europe. We plan to explore options on how nature risk might be managed through our risk management framework.

2. Identify and assess

Tools for climate risk management
Our climate risk assessment tools identify physical and transition risk exposures and opportunities to support customers in delivering their own net zero transition plans.

Our key tools include:

- **Transition plan assessments** for relevant corporate customers (see *Supporting our customers* on page 52).
- **Climate risk and ESG scores** derived from our qualitative and quantitative datasets (see roadmap on pg. 67).
- **Climate scenario analysis** (see below).
- **Nature scenario analysis pilot** (see above).

We intend to enhance and expand these tools and further integrate them into decision-making at the portfolio and counterparty levels.

Next steps

We will aim to further refine our climate and ESG risk scoring methodologies.

A medium-term ambition is to track our customers' emission trajectories at a counterparty level and monitor the overall pathways of our portfolios – at sectoral and aggregate levels – for the most plausible and relevant scenarios. However, outputs of our models, processed data, and methodologies can be affected by underlying data quality, and we expect industry guidance, market practice, and regulations in this field to continue to evolve.

Climate risk assessment tools support the identification of climate risk exposures and opportunities

Climate scenario analysis and stress tests
We use climate scenario analysis as a forward-looking tool to assess the potential impacts of climate risk on our operations, credit portfolio, and capital. This includes Group-wide regulatory stress tests, as well as regional climate scenario analyses required for our subsidiaries, for example by the Bank of England (BoE) in the UK, the European Central Bank (ECB) in Europe, the Central Bank of the United Arab Emirates in the UAE, the Monetary Authority of Singapore in Singapore, and the Hong Kong Monetary Authority (HKMA) in Hong Kong.

Our scenario analysis draws on a wide range of external science-based scenarios, including from the International Energy Agency (IEA) and the Network for Greening the Financial System (NGFS). The analysis simulates potential impacts on customers' financials and collateral and provides insight on the range of long-term effects climate risks can have on our wholesale portfolio.

In 2022 we ran a sector-specific scenario analysis to assess the impact of climate risks under a range of future scenarios:

- Net zero scenario, which seeks to limit global warming to 1.5ºC above pre-industrial levels by 2100 in line with the Paris Agreement. This scenario is equivalent to a net zero by 2050 ambition.
- Current commitments scenario, which assumes that climate actions are limited to the existing governmental commitments leading to an increase of 2.4ºC in global warming by 2100.
- Downside transition risk scenario, which assumes that climate action is delayed until 2030 but still limits global warming to 1.5ºC by 2100.

The potential impacts were measured by reviewing the modelled effect on our expected credit losses (ECL) for our corporate customers and comparing these to a counterfactual scenario without climate change. The analysis was focused on the 11 wholesale sectors most exposed to climate change, which altogether accounted for 27 per cent of our wholesale lending portfolio as at December 2021 (see chart below). For further detail on our 2022 internal climate scenario analysis exercise, modelling approach and results, see our Annual Report and Accounts 2022 (pages 226-230).

This climate scenario analysis exercise helps us identify and understand the materiality of a range of climate risks to different segments of our loan portfolio. However, the use of these models in the industry is still in its infancy and risk capture is partial and complex due to inherent modelling and data challenges.

For example, we have started to consider balance sheet growth and the impact of our clients' transition plans in our projections but to develop further our methodology, we continue to be dependent on data availability and data assurance.

Effect of climate change on expected credit losses from corporate customers
Relative size of exposures at default and increase in peak ECL under each scenario compared with the counterfactual scenario (expressed as a multiple)

Sector level	Exposure at default	Net zero	Downside Transition Risk	Current Commitments
Conglomerates and industrials	◆	<5x	>5x	<1.5x
Power and utilities	◆	<3x	<3x	<1.5x
Construction and building materials	◆	<3x	<3x	<1.25x
Oil and gas	◆	<1.5x	<1.5x	<1.25x
Chemicals	◆	<4x	<4x	<1.5x
Automotive	◆	<3x	<3x	<1.25x
Land transport and logistics	◆	<5x	>5x	<1.5x
Aviation	◆	<2x	<3x	<1.25x
Agriculture and soft commodities	◆	<5x	<4x	<1.5x
Marine	◆	<2x	<3x	<1.25x
Metals and mining	◆	<5x	>5x	<1.5x

Source: HSBC Annual Report and Accounts 2022

Next steps

We plan to continue to improve our climate scenario analysis capabilities, including data, coverage (portfolio and risk type), and embedding into strategic and business decision-making, and financial forecasting (for example, annual planning) as we work towards our net zero targets.

For wholesale, we are developing our emissions pathway modelling and working to improve the way we incorporate customer transition plans into our modelling.

For retail, we are developing a new approach for transition risk modelling in residential real estate and continue to update our physical risk methodology, including scenario analysis capability across different perils.

Alongside this, we intend to continue enhancing our use of climate scenario analysis to:

- improve our RAS metrics,
- inform our strategy by using a range of scenario analysis outcomes, and
- support our customers by identifying the climate opportunities and risks.

3. Manage

Embedding climate risk in our processes
We have started embedding climate risk considerations into our day-to-day decision-making by leveraging our climate risk metrics, tools, scenario analysis, and policies.

Our Credit Risk Management policy and climate risk assessment tools support credit reviews and new financing requests for wholesale customers. This provides our relationship managers and credit approvers with insight on corporate customers' exposure to climate risk in order to help inform decisions.

We also include climate risk considerations in our Global Mortgage Policy for personal banking customers. This helps us to identify properties that are at risk of a climate-related event and monitor and report any associated exposure.

In the UK, where we hold our largest personal mortgage portfolio, we have begun to integrate climate risk data into our decision-making as part of the mortgage origination process. Our website provides information for UK customers on the potential impact of physical risk and home energy efficiency ratings on mortgage applications. We have also started integrating climate risk into other Group-wide risk management policies, such as resilience risk policies, and are developing a climate framework for Traded Risk. For more detail on incorporation of climate risk in wholesale credit risk, retail credit risk and other risk types, see our Annual Report and Accounts 2022 (pages 223-226) and subsequent Annual Report and Accounts.

We aim to maintain Group climate risk exposures within our risk appetite, and aim for our deal selection to take this into account as outlined in *Integrating net zero into transaction and portfolio decision-making* on page 73.

A key enabler for this is having the right levels of knowledge, skills, and experience. For more detail on our training and education see *Strengthening our culture and capabilities* on page 79.

Next steps

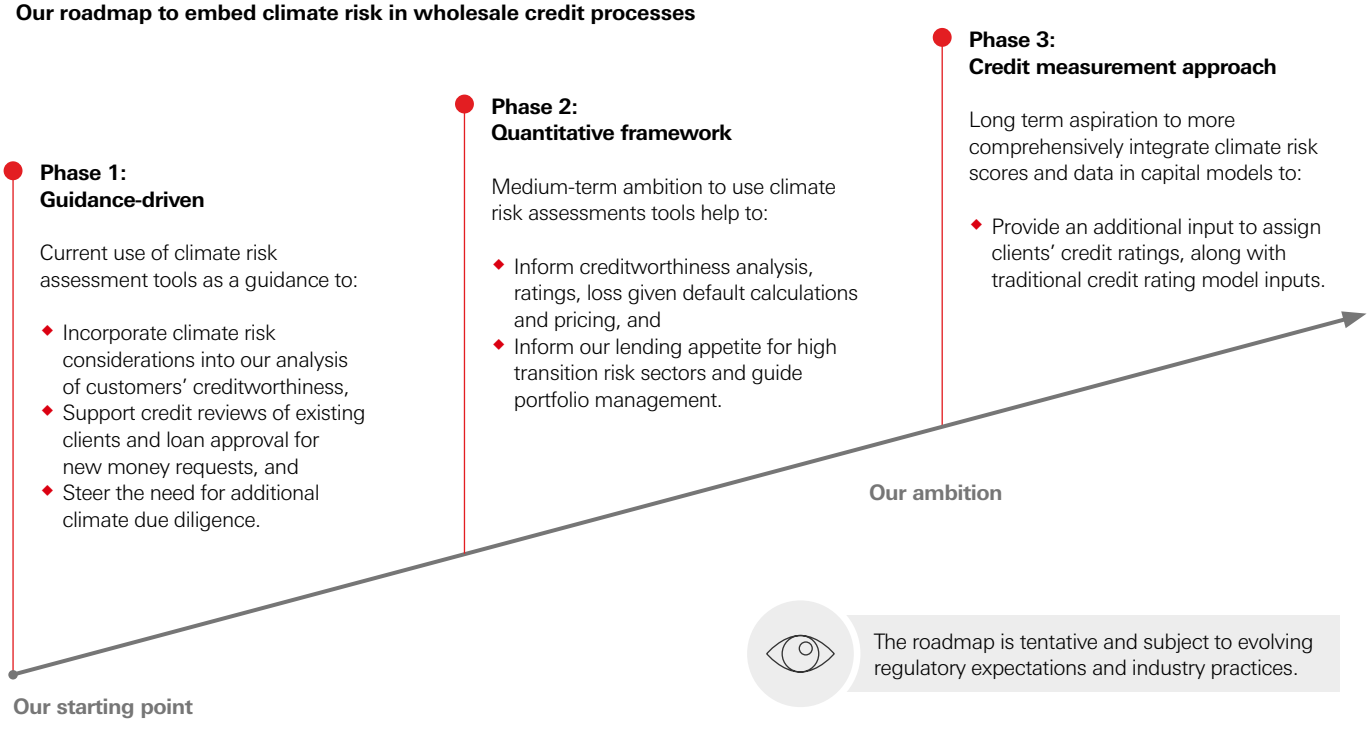
We aim to further embed climate risks into our risk management policies and strengthen the link between client and transaction-level business decision-making and portfolio management. We plan to revise our policies, processes, and controls iteratively. Developing a climate-adjusted credit process will be a critical part of this evolution.

We have begun work on a multi-year process to further integrate climate risk into our wholesale credit processes (see chart below).

This roadmap is tentative and subject to evolving regulatory expectations and industry practices. Our ambition for quantitative integration into our capital models is contingent upon the necessary model regulatory approvals.

For our personal customers, we continue to explore approaches to further integrate climate in credit decision-making in line with evolving industry practices and regulatory expectations.

Our roadmap to embed climate risk in wholesale credit processes



The roadmap is tentative and subject to evolving regulatory expectations and industry practices.

4. Aggregate and report

Monitoring exposure to climate risk
Our risk reporting covers RAS and KMI metrics related to our material climate risks, emerging issues, and potential risk appetite breaches to enable oversight and mitigation of climate risks. Both RAS and KMI are reported on a quarterly basis to various risk management, Executive and Board level risk governance forums (see *Aligning responsibilities and incentives* on page 77).

Our risk metrics are focused on our priority principal risk types, including our exposure to high transition risk sectors for customers in our wholesale portfolio and to climate risk in our retail portfolio. Recent enhancements include the addition of RAS metrics for our on-balance sheet financed emissions in key carbon intensive sector portfolios, to track our progress towards our 2030 financed emissions targets.

RAS metrics

What we report	Current metrics	Metrics in development
 **Exposure to high transition risk sectors** Sectors requiring significant transformation efforts to align their business model to the net zero transition may become unable to meet financial obligations and expose us to possible credit losses on our loan portfolio.	◆ Exposure to high transition risk sectors as a percentage of total wholesale corporate exposure	
 **Financed emissions for our lending activities** Failure to meet our targets in terms of financed emissions could result in net zero alignment risk and consequently have a reputational impact.	◆ On-balance sheet financed emissions for key carbon-intensive sectors with 2030 targets	◆ On-balance sheet financed emissions for any additional, relevant key carbon-intensive sectors, where 2030 targets have been set
 **Exposure to physical risk in our retail portfolio** Properties located in areas at high risk of extreme weather events may expose our portfolio to physical risks in the medium term.	◆ UK properties at high physical risk ◆ Properties at high physical risk in Hong Kong and Singapore	◆ Properties at high physical risk for other key mortgage markets
 **Energy and travel emissions from our own operations** Failure to meet our targets in terms of own operations emissions for Energy and Travel could result in net zero alignment risk and consequently have a reputational impact.	◆ Our own operations – Energy & Travel emissions reductions vs 2019 baseline	

KMI metrics complement our risk appetite metrics and provide additional information to allow for effective climate risk management:

Key Management Information metrics (Selected non-exhaustive)

1. **Exposure to**
UK properties which cannot be upgraded to EPC C or better

2. **Sustainable finance balances**
(for example, sustainable finance as a percentage of high transition risk sector balances)

3. **Number of climate related incidents to HSBC premises**
(e.g. storms or floods quarterly)

Next steps

We plan to explore options to enhance the granularity and forward-looking nature of our RAS and KMI metrics. Such improvements will be subject to the availability and maturity of data.

As such, we will seek to improve the overall accuracy and coverage of our metrics through enhancements in data gathering and quality control measures (see *Strengthening our culture and capabilities* on page 79).

We also aim to consider the impact of nature-related risks in line with emerging regulatory requirements.

As we set new ambitions, we will explore additional RAS and KMI metrics.

5. Govern

Governing climate risk to guide the transition

Climate risk is considered throughout the Group's governance structure (see *Aligning responsibilities and incentives* on page 77 which includes Board and Executive risk governance, and specialist risk governance for climate risks).

In addition to these governance bodies, our climate risk governance is deployed at a regional level, with global businesses and legal entities' Chief Risk Officers responsible for ensuring regional climate risk oversight.

The climate risk approach is aligned to our three lines of defence (LOD) model, which defines and assigns climate risk accountabilities across key stakeholders. The global businesses, Digital Business Services, finance, strategy and Sustainability Centre of Excellence are designated climate risk owners as first LOD. The group and regional climate risk teams, risk stewards and Chief Risk Officers provide second LOD risk oversight. Risk stewards are responsible for horizon scanning, and providing challenge and advice to the first LOD on policy effectiveness and climate risk management.

Next steps

We plan to regularly review and assess our governance structures to allow for appropriate oversight of climate risk, including net zero alignment risk.

Using policies to drive change

The role of policy

Our sustainability risk policies help to set out our appetite for financing and advisory activities in certain sectors. Our policies are important mechanisms for delivering our net zero ambition, as well as for managing risks (see *Managing risk in transition to net zero* on page 64).

Historically, our broader sustainability risk policies have focused on mitigating the negative impact of specific sectors on people and the environment, and targeted geographies where we have a high concentration of customers in these sectors facing credit and reputational risk.

Now, in the context of our ambition to transition to net zero, we are aiming for our policies to be more forward looking, providing clear signals to our customers on how our appetite and expectations for different activities are changing, as well as how we will consider their plans for the future.

Our policy development process includes agenda-setting, policy formulation, implementation and annual review of our policies. We take input from leading scientific organisations to help align our policies with science-based analysis and relevant transition pathways. We also engage with a number of our customers, investors, wider industry bodies, NGOs, regulators and governments to both inform our approach and better understand the impact of our policies, including commercial impact, regional variations, and environmental and social impacts.

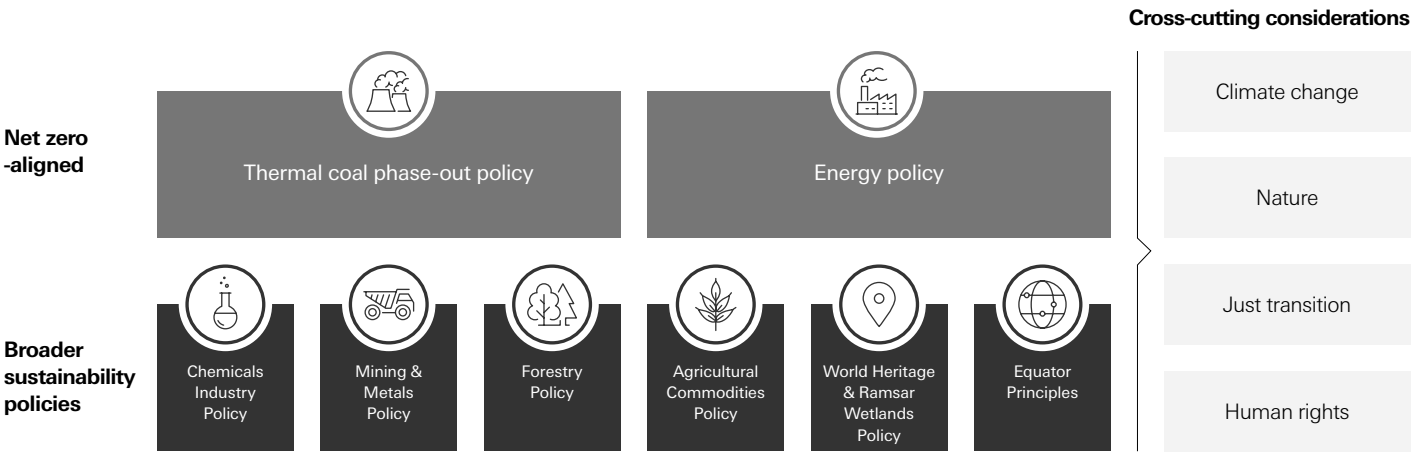
Our net zero-aligned sustainability risk policies aim to:

1. **Identify sectoral shifts** that are required to achieve net zero, prioritising those sectors that contribute most to our financed and facilitated emissions.
2. **Align with a science-based approach** by reflecting recent input from scientific and international bodies on transition pathways.
3. **Focus customer engagement in support of their net zero transition** and help deliver our financed emissions targets and manage climate risks while considering just transition principles.
4. **Consider materiality** to drive meaningful change. We take a risk-based approach when identifying in-scope transactions and clients.

Our sustainability risk policies

Our sustainability risk policies are comprised of our core net zero-aligned policies and broader sustainability policies. They consider cross cutting issues such as climate change, nature, just transition and human rights (see diagram below).

We determine whether a new sustainability risk policy needs to be introduced, or an existing policy needs to be updated, based on factors such as: the materiality of risk to our business; our exposure to the sector; the adverse environmental, climate or social impacts related to the sector's business practices and outputs; evolving scientific guidance; updated 1.5°C-aligned scenarios; policy and regulatory requirements; and evolving industry practices. In 2021 we published a net zero-aligned, Group thermal coal phase-out policy, and in 2022 we published an updated, net zero-aligned Group energy policy. On page 72 we set out the aligned approach we are looking to take across our businesses, including HSBC Asset Management.



To see our full list of sustainability risk policies, click here

Thermal coal phase-out policy

Thermal coal-fired power stations contribute roughly a fifth of global carbon emissions.[279] Eliminating thermal coal-fired power emissions is one of the most important milestones along the road to net zero. This needs to be achieved while meeting the energy demands of emerging economies as they transition from coal to clean energy.

Our thermal coal phase-out policy aims to drive thermal coal phase-out aligned to science-based timeframes, recognising the different pace between advanced and emerging economies. In turn, our policy supports our progress towards our financed emissions targets for the power and utilities and thermal coal mining sectors.

We are engaging with relevant thermal coal mining and power production customers and coal to gas/liquids customers on their transition plans. If no transition plan is produced, or, if after repeated engagement a customer transition plan is not consistent with our targets and commitments, we will formally assess whether we will provide new financing or new advisory services and whether we continue to provide existing financing or advisory services for that customer.

Reducing coal mining emissions in line with 1.5°C means no new coal mines, recognising that both thermal and metallurgical coal contribute substantially to global GHG emissions. Following the annual review, in December 2022 we updated the policy to prohibit finance for new metallurgical coal mines and to include a 2030 target for absolute on-balance sheet financed emissions for thermal coal mining. A further update was released in January 2024 which includes clarification that HSBC takes a risk-based approach when identifying the transactions and clients to which this policy applies.

To read the full and most up-to-date policy, click here

Our phase-out timeline

2025

- Aim to reduce thermal coal financing drawn balance exposure by at least 25%

2030

- Aim to phase out the financing of thermal coal-fired power and thermal coal mining in EU and OECD markets
- Aim to reduce thermal coal financing drawn balance exposure by 50%

2040

- Aim to phase out the financing of thermal coal-fired power and thermal coal mining in other markets

Energy policy

Our energy policy covers the broader energy system, including upstream oil and gas, fossil fuel power generation, hydrogen, renewables and hydropower, nuclear, biomass and waste-to-energy sectors. An update to the policy was released in January 2024 which includes clarification that HSBC takes a risk-based approach when the identifying transactions and clients to which this policy applies.

The policy seeks to balance three objectives:

- Driving down global greenhouse gas emissions.
- Enabling an orderly transition that builds resilience in the long term.
- Supporting a just and affordable transition.

The policy aims to support the phasing down of fossil fuel sources with the highest emissions intensity and high local environmental risks. This includes direct financing restrictions for the most emissions-intensive oil assets and energy-related activities in environmentally and socially critical areas, as well as projects pertaining to new oil and gas fields and related infrastructure whose primary use is in conjunction with new fields. Our policy also seeks to drive decarbonisation through the adoption of stringent methane standards.

Regular engagement with our energy customers on their transition plans is key to our approach (see *Energy Supply* on page 25 and *Supporting our Customers* on page 54 for further details on transition plan assessments). If after repeated engagement a customer transition plan is not compatible with our targets and commitments, we will formally assess whether we continue to provide financing or advisory services for that customer taking into consideration their transition plan and holistic risks, including strategic considerations.

Guidance from international energy and scientific bodies highlights that an orderly transition requires continued financing and investment in existing oil and gas fields. We will therefore continue financing for customers actively engaged in the energy transition, to maintain supplies in line with current and future projected declining global oil and gas demand, while accelerating our activities to support clean energy deployment and progressing towards our sector-level 2030 financed emissions targets.

To read the full and most up-to-date policy, click here

Deforestation in our existing sustainability risk policies

Our forestry policy and agricultural commodities policy, which have been in place since 2014 and 2018 respectively, focus specifically on deforestation impacts. These policies cover the four key agricultural commodities – palm oil, timber, soy and cattle products – which drive the majority of tropical deforestation-related GHG emissions globally. Our policies require customers involved in the production of these key agricultural commodities to operate in accordance with sustainable business principles. Specifically, we require customers involved in palm oil production to obtain certification and commit to 'no deforestation, no peat and no exploitation'. Customers involved with timber (including pulp and paper) in countries with the highest risk of non-sustainable practices are also required to obtain relevant certifications. We perform due diligence on customers involved with soy and cattle production where sustainability risks are high.

Our sustainability risk policies on forestry and agricultural commodities also specifically refer to human rights considerations. They include issues such as: land rights; harmful or exploitative child labour or forced labour; the rights of indigenous and local communities, including the principle of free, prior and informed consent where their interests are affected by business activities; community relations and workers' rights; and the health and safety of communities.

Our approach to nature is summarised in *Our vision and strategic approach* on page 12. See also *Food, forests and other land use* on page 48 for our approach to the transition in this sector.

To read the full and most up-to-date policies, click here

Focus: Applying HSBC Group policies across our businesses

We have been making progress in applying our Group policies across the business. For example, in September 2022 HSBC Asset Management published its own policy on thermal coal and, in November 2023, its own energy policy. As an asset manager it is subject to separate regulatory and legal obligations to deliver customers' investment interests and deliver fair outcomes.

Under its thermal coal policy, HSBC Asset Management will not hold listed securities of issuers with more than de minimis revenue exposure to thermal coal in its actively managed funds beyond 2030 for EU/OECD markets and globally by 2040. The policy also includes enhanced due diligence on the transition plans of investee companies with thermal coal exposure. Companies held in investment portfolios that do not develop credible plans to transition away from thermal coal could face voting sanctions and ultimately a divestment of holdings.

Under its energy policy, HSBC Asset Management will engage with and assess the transition plans of oil and gas and power and utilities companies held in its portfolios. It will also introduce, for its active fundamental sustainable named funds, an exclusion of listed issuers whose overall operations are substantially in unconventional oil and gas, subject to data availability, and with the level and scope of exclusions to be set out in fund prospectuses. In its alternatives business, it will not undertake new direct investments in projects associated with the energy-related activities identified as excluded from new finance or advisory services under the Group energy policy. HSBC Asset Management's policy work will continue to support the Group's sustainability objectives and the commitment made under the Net Zero Asset Managers initiative to support investing aligned with net zero by 2050.

In addition, our Global Private Banking and Wealth business, as well as HSBC Insurance, have internal policies that support the phase out of thermal coal-fired power and thermal coal mining within the Group's 2030 and 2040 timelines. This group-wide alignment will continue to be reviewed as part of our policy approach. See hsbc.com for our full list of policies.[280]

Policy implementation

Our policies help to define our appetite for business in these sectors and seek to encourage customers to meet good international standards of practice. For customers in scope of our sustainability risk policies, we will look to take actions as outlined in our policies, which may include applying financing restrictions or enhanced due diligence. Such instances may require additional review and approval by our sustainability risk specialists and risk committees.

Our Group risk and compliance function has specialists who review, implement and manage our sustainability risk policies (see *Managing risk in transition to net zero* on page 64). Our relationship managers are primarily responsible for assessing whether our customers meet applicable policies, with input from technical experts in our Sustainability Centre of Excellence and second line review and challenge from risk colleagues.

Building capabilities across the enterprise is key to implementation. Relevant employees are provided with training on our sustainability risk policies and we provide supporting materials on an internal microsite. Data requirements are also being fed into our ESG data utility build and internal metrics will be important to assess progress and outcomes.

We continue to review policy implementation as we apply our policies in practice, engage customers on their transition plans and consider how we can support them. We take a risk-based approach when identifying transactions and clients to which our energy and thermal coal phase-out policies apply, and reporting on relevant exposures, adopting approaches proportionate to risk and materiality. This helps us to focus our efforts on areas where we believe we can help drive meaningful change, while taking into account experience from policy implementation over time.

Just transition and local contexts

Our sustainability risk policies are designed to take into consideration local contexts and principles of just transition, reflecting our guiding principle to be just and inclusive (see *Our vision and strategic approach* on page 13 for further detail on our approach to a just transition).

Under our thermal coal phase-out and energy policies, we seek to consider (where relevant) how principles of just transition have been addressed in our customers' transition plan assessments. We also outline a number of common but differentiated policy parameters for customers outside of the EU and OECD countries to take into account the differing local context. We also seek to apply the Equator Principles to assess and manage the environmental and social risks of projects we finance.

The Equator Principles are underpinned by the International Finance Corporation's Performance Standards on human rights, labour rights and the rights and freedoms of Indigenous Peoples and communities.

Integrating net zero into transaction and portfolio decision-making

Our work to embed net zero into our business model, as described in previous chapters, flows through to our decisions on financing transactions for our corporate customers and how we manage our financing portfolios. This chapter describes further our approach to integrating net zero considerations into these activities within our business.

Deciding the transactions we pursue

Since setting our net zero ambition, we have also begun to embed net zero factors alongside standard risk-return and other considerations when evaluating specific individual deals.

We take a top-down view of where to do this, prioritising sectors and deals with high climate risk (transition, physical, reputational) and climate impact (i.e. financed emissions contribution). Our relationship managers, risk colleagues, sustainability specialists and wider functional experts all play a role.

How we do this will continue to evolve as data and approaches mature, and as science evolves. Today, when we assess relevant transactions, we look at the following net zero considerations: adherence with our sustainability risk policies; climate-related credit risk; customer transition plan assessment outcomes (where relevant); reputational risk considerations; and financed and facilitated emissions implications (where transactions are in scope of our financed emissions disclosures and 2030 targets). We have dedicated governance for sustainability-labelled products, with escalation pathways for deals deemed high risk.

We are also considering how we can effectively finance the new technologies and business models that are key to net zero and are establishing specialist teams within our businesses and risk teams to help support transactions related to climate solutions, advised by subject matter experts from our Sustainability Centre of Excellence.

For our retail banking customers, sales of sustainable products are guided by a clear set of standards. For example, properties must meet defined green building standards, if available, or otherwise meet a high standard of energy rating or have recognised third-party green certification.

Next steps

We plan to continue to evolve how we integrate net zero considerations into our transaction processes and controls.

We are testing and developing an analytics capability that, where relevant, will provide management and front-line business teams with:

- an up-to-date view of our financed emissions profile of our portfolios,
- our position relative to pathways in line with our 2030 targets, and
- an indication of the financed emissions impact of a transaction, where material and relevant, to consider alongside risk-return metrics.

We expect this to help to guide our activities towards progressive alignment of our portfolios with our 2030 financed and facilitated emissions targets.

Deciding transactions – customer case study 1

An emerging markets national power producer customer was seeking additional financing from us. As part of our approval process, we evaluated compliance with the Group's thermal coal phase-out and energy policies, considered the customer's transition plan and looked at the financed emissions implications relative to our agreed portfolio risk appetite metrics. The deal was discussed extensively at regional and group level, and we agreed to support the client on its energy transition subject to the client re-confirming no thermal coal expansion, accelerating their thermal coal phase-down timeline and increasing targets for renewables expansion. The finance was also ring-fenced from thermal coal-related projects. Our team continues to engage regularly with the management on their transition plans and is actively pursuing financing support for early retirement of coal assets and renewables build-out. This is supported by a formal annual evaluation of progress against expectations.

Deciding transactions – customer case study 2

We acted as financial advisor to a leading emerging markets power and utilities company to support the transition of their portfolio to low carbon energy generating assets. Through engaging with the company on their desired portfolio positioning and how to address their remaining high carbon energy assets, we were able to identify a buyer of the one of the company's remaining assets. Through the transaction the company was able to release capital trapped in the high-carbon assets which could then be used for investments into renewable energy assets, aligned with the company's 2030 strategy. Further to this the transaction was structured such that the buyer was strongly incentivised to improve and enhance the emissions performance of the asset.

Managing our portfolios

Our financing portfolios provide an indication of how our capital is allocated across customer groups, industry sectors and geographies. Integrating net zero considerations into portfolio management requires new capabilities, processes and controls.

Our sectoral financed emissions targets introduce an additional constraint to be managed in our portfolios alongside traditional parameters such as credit risk liquidity and financial performance. We have started to build the capability to provide an up-to-date view of our financed emissions and our portfolio trajectory to help inform forward-looking portfolio management decisions based on commercial, risk, strategic and climate considerations.

Our financing portfolios change constantly as we originate new loans and as customers repay existing loans. We selectively sell loans in our portfolios – which are assets on our balance sheet – to institutional investors to manage our risk exposures and recycle capital for new lending (see below).

Scaling green and transition finance while meeting capital and commercial requirements, along with the increasing investor demand for these assets, will increase the need for us to scale our originate-to-distribute capability. Likewise, changes in investor appetite may affect our ability over time to distribute high transition risk assets from our balance sheet, presenting additional risk if our exposures to these assets are not adequately managed.

Next steps

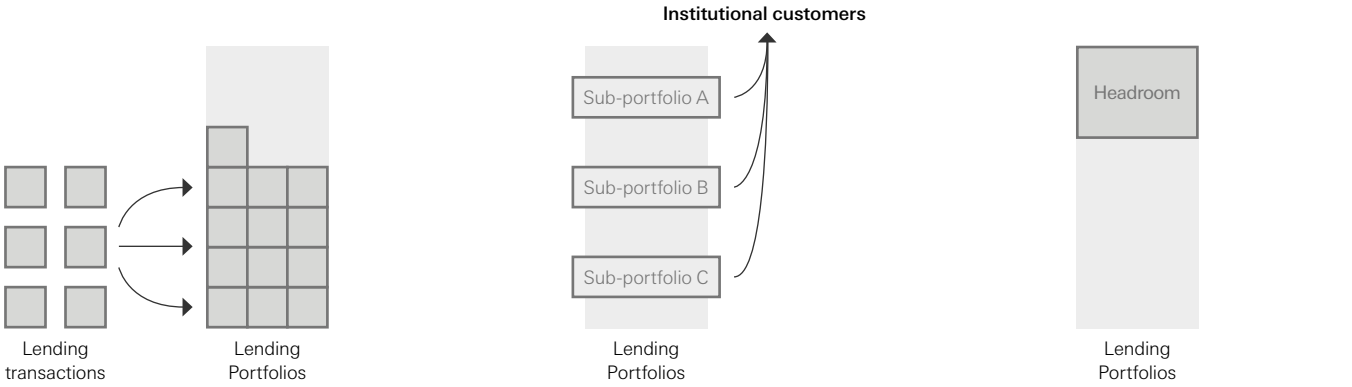
We are working to develop portfolio modelling capabilities that integrate risk, profitability and financed emissions to inform decision-making and determine how to best steer our portfolios to meet our financed emissions targets and commercial and strategic ambitions.

We also expect to undertake periodic forward-looking portfolio reviews covering our most material customers – considering our business strategy, commercial metrics, and net zero considerations. This is to proactively manage our climate risk and opportunities and inform longer-term changes to our balance sheet.

We plan to integrate customer-level information, such as transition plan assessments for the most material customers as inputs into our portfolio-level models (see *Strengthening our culture and net zero capabilities* on page 79).

We expect to further embed net zero in our approach to redistributing assets from our balance sheet to investors, for example by constructing sub-portfolios of green or transition assets.

How we manage our lending portfolios over time



1

Originate individual transactions, forming our lending portfolios

2

Manage lending portfolios, considering risk, financial, and net zero constraints, with select sub-portfolios packaged and distributed to institutional customers

3

Align portfolios with financed emissions targets, while creating headroom for origination of additional transactions

Achieving net zero in our own operations

Our own operations

Emissions from our own operations and supply chain are small relative to our financed emissions. However, reducing them is a critical part of becoming a net zero bank.

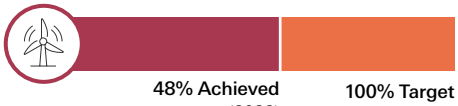
We aim to achieve net zero by 2030 in our own operations and supply chain, including 100 per cent renewable electricity across our operations and minimising our direct impact on nature.

This means mobilising our entire organisation to cut our emissions across our energy consumption, travel and supply chain.

Our approach is to focus first on reducing emissions or replacing them with low-carbon alternatives. We will only use high-quality carbon removal or offsets to remove any residual emissions from our own operations that cannot otherwise be reduced from 2030 onwards.

Emissions in our operations and supply chain are subject to third-party limited assurance (see our ESG reporting centre[281]).

Percentage of electricity from renewable sources across our own operations



48% Achieved (2022) **100% Target** (2030)

Greenhouse gas emissions from our own operations

Energy and travel greenhouse gas emissions in tonnes CO_2e

	Year-on-year changes	2022	2021	Baseline year 2019
Scope 1[h]	▼	**19,000**	22,000	22,000
Scope 2[h]	▼	**224,000**	307,000	392,000
Scope 3 (category 6) business travel[h]	▲	**42,000**	12,000	272,000
Total	▼	**285,000**	341,000	686,000
Included energy UK	▼	**9,000**	10,000	10,400

Energy and travel greenhouse gas emissions in tonnes CO_2e per FTE

		2022	2021	2019
Total	▼	**1.30**	1.52	2.93

Energy consumption in kWh in 000s

		2022	2021	2019
Total Group	▼	**797,000**	833,000	1,050,000
UK only	▼	**222,000**	227,000	281,000

Supply chain greenhouse gas emissions in tonnes CO_2e

		2022	2021	2019
Category 1 – Purchased goods + services	▼	**866,000**	869,000	830,000
Category 1 – Capital Goods	▲	**144,000**	127,000	38,000

[h] Data is subject to PwC's limited assurance report in accordance with International Standard on Assurance engagements 3410 (Assurance Engagements on Greenhouse Gas Statements). For further details, see GHG Reporting Guideline 2022 and third-party limited assurance report at www.hsbc.com/our-approach/esg-information/esg-reporting-and-policies.

HSBC today

As a bank, our scope 1 emissions are small relative to the rest of our footprint (see table above). Although our scope 2 emissions make up 25 per cent of our 2019 operational emissions baseline, most of our remaining emissions in 2030 and beyond will come from our upstream value chain, specifically our suppliers and our business travel. Reporting methodologies continue to evolve, in line with industry guidance and standards, and may result in the restatement of emissions and baselines.

Energy and travel emissions
In 2022, we exceeded targeted reductions by reducing energy and travel emissions by 58.5 per cent from 2019. This is the result of three important efforts:

1. We had a 24 per cent reduction in energy consumption through optimising the use of our buildings and a strategic reduction in our office space and data centres.
2. We purchased 48 per cent of our energy from renewable sources by identifying renewable tariffs and engaging with our landlords.
3. We reduced our business travel by 85 per cent, in part due to Covid-19-related international travel restrictions.

By 2030, we are targeting a 50 per cent reduction in our energy consumption.

Supply chain emissions
We disclosed our supply chain emissions for the first time in our Annual Report and Accounts 2022. We saw an increase of 16 per cent since 2019, due to increased total supplier spend. We are encouraging our largest suppliers to make their own net zero commitments, and to disclose their emissions via the CDP (formerly the Carbon Disclosure Project) supply chain programme. In 2022, we also revised our supplier code of conduct, including requiring suppliers to have a clear ambition statement on their emissions reduction.

Working with our suppliers

Around 20 per cent of our 2022 supply chain emissions stem from our real estate which makes collaboration with our real estate service partners key.

For example, we identified with our partners ways to reduce the embodied carbon emissions of a new project. Using Bubbledeck solutions and CEM 3 concrete has reduced the embodied carbon emissions in the construction phase by an estimated 39 per cent compared to the initial design, and recycled concrete from the project was made available for use elsewhere.

Next steps

Energy and travel emissions
Our ambition is to reduce our scope 2 emissions to zero by 2030. Since 2019, we have already reduced our office real estate footprint by 37 per cent, in addition to a 21 per cent reduction in branches. We are using new technology and working with strategic partners to further improve the efficiency of our data centres.

We continue to look for opportunities to procure green energy in each of our markets. We follow RE100 principles to focus on creating additional renewable capacity through power purchase agreements, where possible. Challenges include the availability of green tariffs in some of our emerging markets and dependency on our landlords to purchase and report the use of renewable energy.

We closely manage travel activity through internal reporting and review of emissions, and through the introduction of internal carbon budgets. We have reduced the number of vehicles in our fleet by 24 per cent since 2019. We are now aiming for new vehicles to be fully electric or hybrid where possible.

Supply chain emissions
We have over 20,000 suppliers, at different stages in their sustainability journey. We aim to support their transition while navigating external factors and challenges and considering just transition principles. We will aim to use procurement as a lever to reduce our supply chain emissions, being mindful of the business criticality of certain goods and services.

Having made a start in 2023 with high-emitting categories, we are continuing to develop decarbonisation-focused category plans to engage suppliers and help deliver alignment with our net zero ambitions. We will look for opportunities to use our own capabilities and relationships to help suppliers decarbonise their operations.

> We are targeting the purchase of 100 per cent renewable electricity by 2030, and an interim target of 90 per cent by 2025.

Focus: Nature and our own operations

Alongside our net zero operations ambition, we aim to be a responsible consumer of natural resources. As a global organisation, our branches, offices and data centres may be located in or near areas of water stress or protected areas of biodiversity.

We have introduced a green leasing programme so that new premises help support natural resource management and decarbonisation. In addition, we look to achieve LEED or equivalent certification for our construction projects in key premises.

Approximately 58.5 per cent of our global offices, branches and data centres are located in areas identified as being subject to high and very high water stress, accounting for 39.7 per cent of our annual water consumption. These are predominantly urban or city centre locations with large, concentrated populations.

Although our industry is a low user of potable water, we have implemented measures to further reduce water consumption through the installation of flow restrictors, auto-taps, low or zero flush sanitary fittings and, where applicable, the use of rainwater or grey water for flushing purposes.

In addition, 1.6 per cent of our global office, branch and data centre portfolio are in protected areas. We aim to ensure that, where possible, our premises do not adversely affect the environment or natural resources in these areas through our leasing, design, construction and operational standards.

Our approach to carbon offsetting

Use of carbon credits for residual emissions from our own operations
Our primary focus in our own operations and supply chain is reducing our emissions. We plan to remove any remaining emissions in our own operations that cannot be reduced or replaced by procuring high-integrity carbon credits, that have undergone third-party verification, at a later stage.

We are already working on our carbon credits strategy by engaging with a range of market participants. This includes exploring what high-integrity means and potential opportunities for partnerships to support the development of carbon removal credits.

Supporting a credible carbon markets system
We are supporting initiatives to help accelerate and build a thriving and credible carbon markets system. We are members of HKEX's International Carbon Market Council and we are actively engaged with the Integrity Council for the Voluntary Carbon Market and the Voluntary Carbon Market Integrity Initiative. Climate Asset Management, a joint venture between HSBC Asset Management and Pollination, is also already building a pipeline of carbon credits from high-quality carbon removals (see *Supporting our customers* on page 62). To support the training and upskilling of bank employees in 2023, we also launched learning modules on the carbon markets as part of the Sustainability Learning Academy.

We do not plan to use carbon offsets to meet our net zero by 2050 portfolio financed emissions target or related interim 2030 sectoral financed emissions targets. We will also regularly review emerging guidance, including from standard setters such as the Greenhouse Gas Protocol and Science Based Targets Initiative (SBTi), to determine how best to assess and factor in customers' use of carbon credits into our customer transition plan assessment process.

Aligning responsibilities and incentives

The role of responsibilities and incentives

Our Group structure is centred around globally managed businesses and functions, which operate within the regional legal entities that are a key part of the execution of our net zero strategy.

We have established governance mechanisms to help us consider a range of perspectives – including from the regions, global businesses and functions – in the development of our approach to net zero, as well as to drive consistency in implementation. Incentives are used to help drive accountability of performance towards our net zero ambition and key outcomes.

We expect this governance structure and approach to incentives to allow us to respond to the expectations of our internal and external stakeholders, including regulators. We plan to continue to review and adapt our governance and incentives as appropriate to respond to changing requirements.

Our climate governance

In developing our climate governance, we are seeking to address three key priorities:

- First, to provide greater clarity regarding roles and accountabilities to deliver on our sustainability strategy, including policies, commercial ambition, climate risk management, data and technology infrastructure, disclosures and our ambition to support our customers' transitions to net zero. This includes executive accountabilities for each of these areas.
- Second, we look to provide strong oversight of delivery against our ambitions and continue to enhance reporting on our progress.
- Finally, we aim to strengthen connectivity and consistency across our global businesses and functions including, where relevant, on external reporting and disclosures.

Our climate governance activities are managed through a combination of existing senior governance forums that are supplemented by specific ESG-related forums.

Net zero in our Board-level governance
We have integrated climate into existing governance at the highest levels of the organisation. This gives our leaders and decision-makers oversight, responsibility and executive ownership for achieving our net zero ambition. The Board has overall oversight and accountability for our sustainability and wider ESG strategy and overseeing its delivery.

We have chosen to embed ESG matters, including climate, as a standing item in each Board agenda instead of having a separate Board sub-committee. Therefore, progress against execution of our net zero ambitions and key outcomes is reviewed regularly by Board members. The topics discussed in 2022 and 2023 included financed emissions targets, net zero policies, design and delivery of our sustainability operating model, ESG (including net zero) KPIs and tracking, ESG governance, customer transition plan assessments, business sustainability commercialisation strategies, net zero financing and investing opportunities and enablers, carbon markets, and ESG and climate disclosures.

Board members also receive training on the net zero transition as part of their ongoing development and actively engage to build their skills and experience in this area (see *Strengthening our culture and net zero capabilities* on page 79).

Executive-level governance for climate
Under the sponsorship of the Board, our executive management is accountable for developing our approach and sustainability strategy, leading implementation and reporting on progress. This work is supported by executive-level committees that have ownership of specific topics for sustainability.

In particular, the Group executive-level ESG Committee has oversight, coordination and management of the delivery of the Group's ESG strategy, including the transition to net zero. It focuses on key policies, material commitments, stakeholder expectations (including regulators, investors, NGOs, legal and customers), and external reporting requirements. The Group ESG Committee is co-chaired by the Group Chief Financial Officer and the Group Chief Sustainability Officer.

A separate, recently established Sustainability Execution Committee also at the Group executive level oversees delivery of the Group's sustainability execution programme – a multi-year transformation focused on our net zero ambitions and regulatory requirements. Priorities for the sustainability execution programme include financed emissions measurement and embedding, advancing sustainable financing and investing, design and implementation of new business initiatives and business models, execution of the climate risk programme and policies, ESG data and infrastructure build and disclosures, sustainability capability and culture, and financial planning and monitoring.

Both forums report to our Group Executive Committee with a clear escalation path to the Board, who receive regular periodic updates on progress towards fulfilment of our net zero ambitions.

The Group Risk Management Meeting also receives regular updates on our climate risk profile against appetite, progress made towards building robust climate risk capabilities, and development and execution of our sustainability risk policies.

Climate-related management governance
We have established additional specialist sustainability governance forums to support our executive-level forums with their oversight of delivery against our net zero ambitions. These aim to support agile decision-making, with input from senior colleagues across business lines and functions who have the relevant expertise required to accelerate progress on key topics.

For example, the Environmental Risk Oversight Forum oversees risk activities relating to environmental risk management, including physical and transition risks, and the development and oversight of the net zero, just transition and nature-related aspects of the Group's sustainability risk policies. Equivalent forums are established at a principal subsidiary level. These forums have an escalation pathway to the Group Risk Management Meeting.

Our climate governance has overseen the development of this transition plan. It will continue to oversee future updates, as well as its implementation. The transition plan was approved by the Group Executive Committee and the Group Holdings Board, and was not subject to shareholder approval.

Our governance approach facilitates oversight and decision-making and helps prepare us to respond to the opportunities and challenges associated with our transition to net zero.

In addition to the climate-related governance described above, we also seek external perspectives to inform decision-making through our Climate Advisory Panel. The Climate Advisory Panel was established in collaboration with several NGOs, and it comprises a mixture of industry leaders and experts from across international and scientific organisations. The panel is tasked with providing independent advice and challenge related to our sustainability strategy.

Our climate-linked performance management and remuneration

Investors are increasingly expecting to see ESG measures within executive pay structures, with clear links to ongoing climate strategy. Regulators are also focused on the use of ESG, including climate-related metrics, within incentive plans.

To help us achieve our sustainability ambitions, a variety of objectives linked to our priorities have been included in the long-term incentive scorecards of the Group Chief Executive, Group Chief Financial Officer, and members of the Group Executive Committee. For example, our long-term incentive award set out in 2023 includes a 25 per cent weighting for objectives related to our net zero ambition. This is assessed over a three-year performance period and considers carbon reduction in our own emissions and the cumulative amount of sustainable finance and investing relative to our $750 billion to $1 trillion by 2030 ambition, both delivered by December 2025.

Our approach also considers use of sustainability measures in performance assessment. Annual objectives held by members of executive management are cascaded to their direct reports in senior management and further down in the organisation, as appropriate.

The measures incorporated to drive accountability for both executive management and the wider workforce are kept under review each year, and will continue to evolve over time, to keep pace with our priorities and requirements.

A current measure for relevant Business and Regional CEOs and the Group Chief Sustainability Officer (CSO) is the proportion of financed emissions relating to key sectors – oil and gas – that have a completed assessment of their customer transition plans. Also, for example, sales colleagues in Markets and Securities Services have objectives relating to growing revenue from sustainability-related business.

Similarly, senior leadership in Commercial Banking have objectives to upskill and mobilise customer-facing teams to drive sustainability-related customer engagement and business development. In Risk, managers (including the Group Chief Risk and Compliance Officer) with climate risk responsibilities have an objective relating to climate risk identification and management, including developing policy and controls in support of our net zero ambition. In Asset Management, objectives for senior management include, subject to duties owed to clients, mobilising their teams to deliver on net zero targets and investing to help customers with their transition to net zero.

Focus: Embedding net zero into our strategy and financial planning

Corporate strategy
Our first step toward embedding net zero into our business was making the transition to net zero one of the four pillars of our corporate strategy in 2020. This put our ambition to play an important role in the transition at the heart of our organisation. It means net zero becomes a key part of our top-line oversight structures, our culture, and our key performance indicators that measure how we are delivering on our corporate strategy and that it is linked to executive performance scorecards and management reporting.

Each of our business lines and key functions have defined strategic plans to integrate climate and sustainability into their business-line and functional strategies. We continue to embed net zero into our regional strategies, including considering how different transition maturities and local development priorities across our geographic footprint are taken into account, for example, affordable energy access in emerging markets. We are exploring the use of climate scenarios to inform our business strategy.

Financial planning
We have started to integrate net zero considerations, and taking into account the bank's business risks, into our annual and medium-term financial planning processes. This includes incorporation of certain aspects of financed emissions and assessment of climate stress-testing results as part of the financial planning process.

Strengthening our culture and net zero capabilities

Embedding net zero into who we are

We are working to scale and evolve our net zero capabilities to meet emerging customer needs, while adapting to an ever-evolving landscape of scientific evidence, technological change, regulations and reporting requirements. This capability is key to our ability to support our customers' transitions and help partner for systemic change.

In 2022, we commenced a bank-wide sustainability operating model transformation to help embed our net zero strategy across the business. Our focus was to design and develop the capabilities and ways of working to help fulfil our net zero ambition, realise the commercial opportunity linked to the transition and meet anticipated regulatory requirements. We have now established the foundations of this transformation across four dimensions, which we continue to build.

1

Growing our sustainability capabilities
Developing climate and nature expertise by hiring and upskilling. Building functional capabilities to meet regulatory expectations, such as climate risk management practices.

2

Building technical capabilities
Including new data assets, analytics, tools and taxonomies to support decision-making on net zero.

3

Enhancing ways of working
Enhancing cross-functional collaboration to solve transition challenges and integrating climate and nature considerations into our commercial processes.

4

Embedding net zero into our culture
Developing a culture with the ability to respond to the evolving transition demands and scientific evidence. Ensuring colleagues understand the role they can play in supporting the transition.

Next steps

Recognising the scale and complexity of the transformation, we have established a three-year sustainability execution programme. This is a Group-wide programme to enable the delivery of our sustainability agenda, led by the Group Executive Committee. It involves significant investment in people – upskilling and increasing capacity – as well as customer propositions, business processes and controls, and data and technology infrastructure. We have increased spend on sustainability across the Group and expect it to continue to be a key area of investment over the years ahead.

Our Sustainability Centre of Excellence

We have established a new global sustainability Centre of Excellence which is supporting this transformation across each of the four dimensions above. The Centre of Excellence is a team of sustainability specialists with deep expertise on sector transitions, new technologies, climate data and analytics, and sustainable finance, policies and regulations. It has a global footprint, so it aims to work effectively and on-demand with our global businesses and functions, and the regional and country teams serving our customers. Support provided includes:

Market-facing
Supporting our global businesses to activate commercial opportunities and develop financing solutions to support our customers' transitions. Our climate transition experts – for example in energy, heavy industry or technologies such as carbon removal, clean power systems and hydrogen – advise frontline bankers and customers on emerging sector trends, new technologies and transition pathways.

Regional engagement and partnerships
Supporting our regional CEOs on engagement with governments, regulators, customers and partners to help drive systemic change. The Centre of Excellence also inputs to regional climate risk processes and supports sustainable finance product governance.

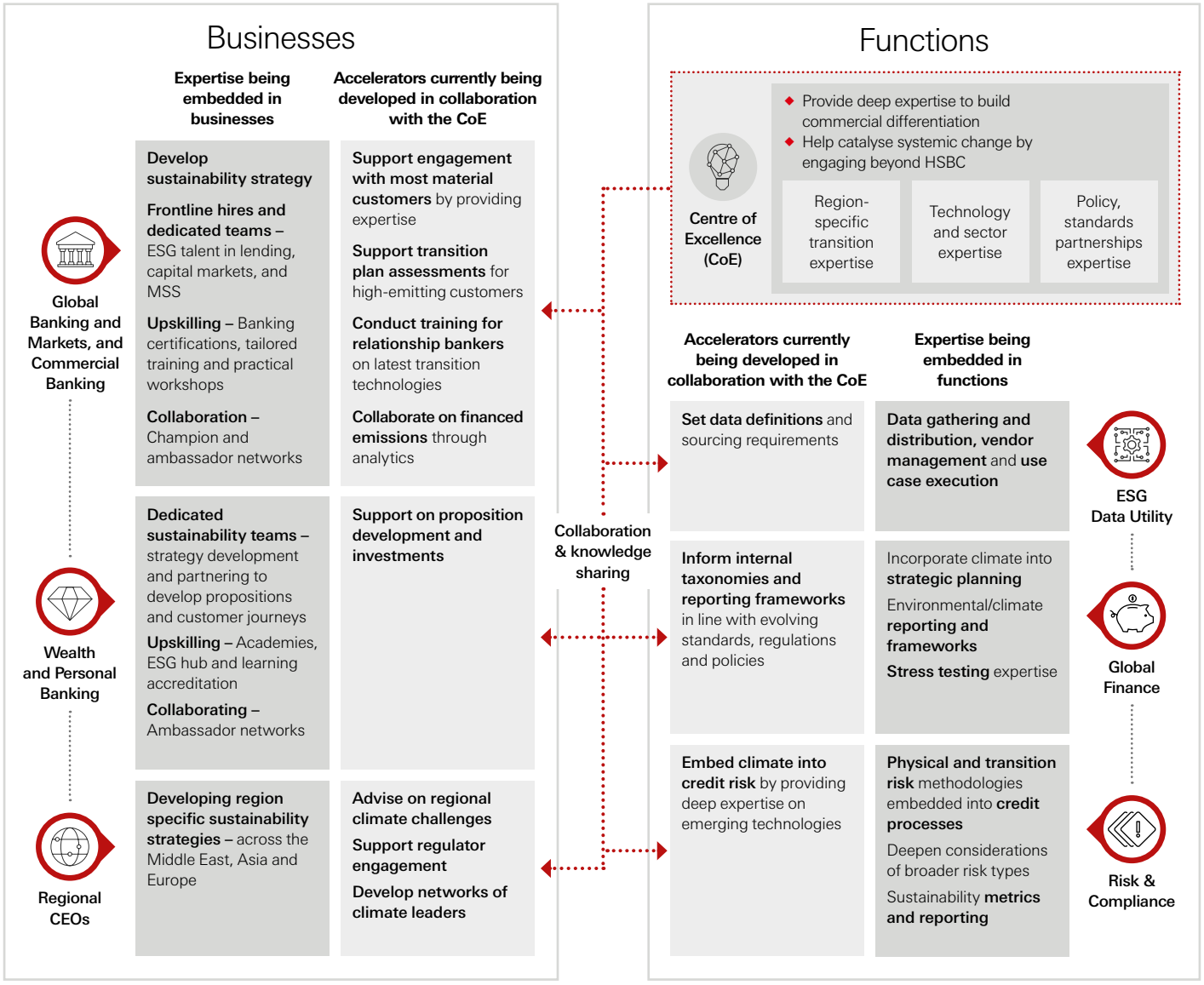
Oversight
Supporting the development and execution of our sustainability strategy, net zero targets and policies, and informing science-based sustainability definitions.

Climate data and analytics
Modelling our financed emissions, overseeing customer transition plan assessments and engaging in risk management (including stress testing and credit risk).

Upskilling
Supporting the development of sustainability upskilling programmes.

The expertise in our Centre of Excellence complements the ongoing capability build within the businesses and functions (see next page).

How the sustainability Centre of Excellence supports the global businesses and functions



How we are embedding net zero in our culture and capabilities

1 Growing our sustainability capabilities

We want our employees to feel confident articulating and helping to deliver our transition to net zero. This includes understanding why net zero is important for our customers, communities and wider stakeholders, and the role that we can play.

Boosting expertise

As described above, we have hired external experts to bring specialist industry, sector and technology expertise into key parts of the business, as well as in the Centre of Excellence.

We have made progress across the organisation, successfully recruiting senior sustainability roles. In 2021, we appointed our inaugural Group Chief Sustainability Officer into the Group Executive Committee. We have strengthened climate leadership expertise in our regional leadership teams and appointed sustainability leads in each of the global businesses and functions. Our businesses and functions have also made frontline hires and created dedicated sustainability teams.

These teams provide focus and capability to develop our transition solutions in support of customer needs and to respond to regulatory requirements. For example:

- Global Banking and Markets (GBM): GBM has appointed global and regional sustainability leads and has embedded sustainability talent into frontline roles to structure sustainable bonds, sustainable loans and real asset finance. A dedicated sustainability team in Markets and Securities Services (MSS) supports proposition development and employee upskilling and engagement. There is also a dedicated ESG Solutions team which provides advice, expertise and financing ideas to clients and works closely with sector experts in natural resources, chemicals, transport and other sectors.
- Commercial Banking (CMB): CMB has an established leadership team with sustainability heads appointed across regions. CMB has also formed dedicated sustainable finance origination teams and is building out venture debt coverage.
- Wealth and Personal Banking (WPB): WPB has established a sustainability team to coordinate and catalyse proposition development in retail, private banking and insurance. HSBC Asset Management has virtual sector teams that define and assess ESG materiality frameworks.
- Risk and Compliance: Dedicated climate and sustainability teams are well established which develop and integrate policies, processes, methodologies and tools to meet evolving business and regulatory needs.
- Global Finance: This team has expertise in climate stress-testing and ESG reporting.
- Digital Business Services (DBS): DBS has set up teams to oversee the development and establishment of our ESG data utility and the delivery of our net zero operations programme.

Net Zero in Practice

In 2023, we introduced a new series called Net Zero in Practice, which involves live briefings from Centre of Excellence experts for colleagues across the Group.

The briefings primarily cover the new technologies that our employees need expertise in as part of our role in financing the transition. Topics have included clean electrification, carbon removal, utilisation and storage, and hydrogen in the net zero economy.

Next steps

In the short term, we plan to continue to hire from industry and beyond to deepen our bank-wide specialist capabilities. Hiring continues to be a challenge with high competition from peers and industry, particularly in our emerging markets.

Upskilling
We need to continue to increase the capabilities of our people as we embed net zero and sustainability considerations into our core business. We do this through online training, practical workshops, leadership development and sharing on-the-ground experience from deals and customer interactions.

Board members receive climate-related education during their induction and net zero is a key part of Non-Executive Director summits and Board deep-dive sessions. Our most senior leaders attend an ongoing Enterprise Leaders Programme, with sessions on core transition topics.

To help drive bank-wide upskilling, we launched the HSBC Sustainability Academy in 2022. This currently offers over 200 comprehensive modules on net zero policies, nature restoration and preservation, climate science, new technologies and sustainable finance. We routinely assess evolving learning needs to help ensure that our training materials are up to date. For example, on nature, we added topics such as regenerative agriculture. We also run regular online sessions, such as the Net Zero in Practice series (see box above).

We are also introducing additional ways of learning, such as bespoke interactive workshops, to help colleagues perform in their specific roles, such as:

- Industry transition: Sector and technology-focused workshops for coverage bankers working with high transition risk customers. We have started hosting panel discussions with customers to share their challenges and opportunities. There are business-specific modules for sectors and technical areas.
- Sustainable finance and investing: Regular teach-in sessions with industry experts – including a Sustainable Investment Academy and Sustainable Banking Academy. We support colleagues to obtain external certifications and accreditations, such as the CFA Institute Certificate in ESG Investing and the Fitch Learning Certificate on ESG Fundamentals.
- Climate risk: Targeted upskilling content on climate risk for traders and risk managers in MSS. We are building climate and sustainability risk into bank-wide training offerings. Risk colleagues across select regions are offered climate and sustainability risk certifications, including the Global Association of Risk Professionals' Sustainability and Climate Risk Certificate.

We use practical experience in customer engagement and proposition development to support upskilling. Frontline teams present customer solutions via internal webinars to discuss their experiences and best practices, joined by sustainability specialists.

62%

In addition to mandatory sustainability training, **62 per cent** of employees completed specific sustainability-related learning in 2022, increasing from 17 per cent in 2021. For example, over **98,000** unique learners undertook climate risk modules.

72%

of colleagues felt equipped to help HSBC reach its sustainability goals according to our **2022 annual employee survey**.

Tailored climate learning pathways

	Develop Understanding Foundational	**Deepen Knowledge** On-demand modules	**Build Capability** Sustainability in practice
"I'm a data specialist with little knowledge of sustainable reporting or taxonomies"	**HSBC Delivering a Net Zero Future** e-Learn Modules to introduce core net zero concepts and HSBC's role	**Technical series** Relevant technical concepts for data management and disclosures e.g., sustainability and ESG reporting, stress testing	**Virtual classroom workshops** Supports application of technical modules e.g., case study on the risk of greenwashing
"I'm a senior executive who wants to deepen my expertise on the most critical climate topics"	**HSBC Climate Risk e-Learn Modules** Insight on critical risk topics for HSBC and its customers to inform decision-making	**Sustainability concepts series** Emerging sustainability concepts e.g., natural capital, just transition, to ensure latest knowledge **Net Zero in Practice series** Sector insights to shape customer conversations and leadership agenda	**Sustainability Leadership Programme** Extended course for leaders, including capstone project and certificate of completion at the end **Climate Leadership Summit** Flagship onsite seminars available to senior leaders
"I'm a banker who needs sector-specific information to help the customers I support transition"	**Global Research subscription** Insights from HSBC Global Research on key investment themes and trends **GB Sustainable Finance Hub** Includes reports, research and case studies	**Net Zero in Practice series** Sectors relevant to customer portfolio, e.g., Oil and Gas with insights including transition journeys **Sustainability finance series** HSBC's sustainable finance and investment products, e.g., case studies	**Virtual classroom workshops** Helps advance bankers' knowledge and apply insights e.g., expert masterclasses **Live workshops** Case-study driven workshops focused on application e.g., role play on product advisory and structuring

Next steps

Initiatives to strengthen upskilling in 2024 and beyond include:

- Mapped learning pathways, with content specific to roles and targeted communications on upskilling.
- Ongoing collaboration with external and internal experts to develop leading educational content.
- Providing additional sector and technical content to keep pace with technological developments.
- Enhancing frontline customer relationship management tools to embed customer transition plan and ESG risk insights.
- Scaling best practice through learning by doing.

2 Strengthening technical capabilities: transforming our ESG data

Data that is high quality, comparable, consistent and easily accessible is key for business decision-making, as well as measuring and disclosing our progress towards net zero. We are in the process of implementing a robust data strategy, which includes re-architecting technology and processes. Current ESG data challenges include:

Lack of standardised industry definitions –
making it hard to source consistent data to compare customers' net zero and wider ESG performance, and impact on nature.

Diverse data sources and structures –
complicating data collection, consolidation and vendor selection.

Data gaps internally and throughout industry, and growing use of models and proxy data to close these –
leading to increased uncertainty and lack of transparency in results.

We are a global bank that operates across over 60 jurisdictions –
resulting in a complex mix of evolving regulatory requirements to navigate.

Building an ESG data utility
We are investing to develop our wider ESG data and analytics capabilities.

We are building an ESG data utility to provide a centralised, trusted source of reusable data assets that can be provisioned across our businesses, functions and Centre of Excellence to support sustainability initiatives.

The ESG data utility will build data assets, dashboards, analytics and applications to deliver key requirements. This includes financed emissions, climate scenario analysis and stress tests, sustainable finance disclosures, policy implementation, climate and wider ESG risk management, and frontline business enablement (for example, customer transition assessments and ESG scores) as well as portfolio decision-making and optimisation.

Next steps

Short term	We plan to continue to enhance our ESG data and platform capabilities to meet internal needs, while meeting future mandatory disclosure requirements. Our short-term focus is on resolution of priority data gaps and enhancing our controls environment, as we continue delivering on required data use cases. For example, we aim to make re-usable climate data easily consumable through self-serve ESG dashboards and marketplaces.
Medium term	We aim to consider new requirements – for example in nature or emerging jurisdictional sustainable finance taxonomies – as we continue to enhance our data utility. We plan to continue to invest in systems infrastructure to address data gaps, reduce cost of delivery and increase the consistency of ESG data. This will include identifying the right data vendors to contribute to re-usable datasets for bank-wide use. We plan to develop data assets that support the wider portfolio management and sector financed emissions scenario analysis.
Long term	We are focused on automating our processes and scaling the ESG data utility to keep pace with evolving requirements.

3 Enhancing ways of working

Supporting effective collaboration and bringing together a range of perspectives and expertise helps effective decision-making to better support our customers' transitions and accelerate innovation.

Examples of cross-enterprise collaboration underway to embed net zero considerations into strategic and commercial processes include:

- Policy review and development: experts from the Centre of Excellence, risk, legal, global businesses, regional teams and investor relations team input to shaping our sustainability risk policies.
- Credit risk: our risk teams work with frontline bankers and the Centre of Excellence to assess climate-related customer risk exposures and credit terms for relevant new deals in high transition risk sectors. They also look at conditions for nascent net zero technologies and new climate tech businesses.
- Transition plan assessments: where additional oversight is required of the completed assessments, a panel made up of senior representatives from the Centre of Excellence, global businesses, legal and risk teams consider transition risk, policy compliance, reputational risk and financed emissions impact.
- Financed emissions: a cross-business and function committee with representation from our regions steers our climate aligned finance work, including implementation requirements for financed emissions data, targets and portfolio alignment.

We have also established initiatives to share sustainability best practice among our employees. This includes global ambassador and champion networks across our businesses. These networks include sustainability specialists who can help to drive the sustainability agenda in their regions and teams. For example, in GBM and CMB the ambassador networks act as a sounding board for new climate products and initiatives. The CMB Sustainable Finance Ambassador network in the UK has over 1,000 members and the ESG Ambassador Programme in our private banking and wealth business has over 160 ambassadors across 20 markets.

Next steps

We are focused on scaling, deepening and extending our enhanced ways of working. Our recently launched Sustainability Execution Programme is working to embed ownership and collaboration on net zero across the Group.

We are also establishing working groups of multidisciplinary experts focused on new climate technologies such as batteries and clean hydrogen. These combine wholesale banking expertise, technology experts from the Centre of Excellence and experienced risk stewards who look at how we can match our strengths with opportunities to scale financing.

4 Embedding net zero into our culture

We aim to strengthen our existing culture so that our colleagues understand and are motivated by their role in our transition journey. This requires commitment, a step change in learning, collaboration and innovation, the confidence to work with new technologies and business models, and the ability to respond flexibly to evolving market realities and scientific evidence.

Our culture is defined by the shared attitudes, beliefs, values, and norms that shape our behaviour. Our aim is to integrate a net zero mind-set through employee touchpoints to support colleagues to adopt the behaviours and practices that will transform our culture.

Our strategy, purpose and values are helping us to embed our net zero ambition. Our values are: we value difference, we succeed together, we take responsibility, and we get it done. These values include our conviction that what we do impacts people's lives, communities and the planet. We take this responsibility seriously. We believe that our success requires us to collaborate, set bold ambitions and remove barriers.

We promote diversity of thought to support constructive challenge and debate among colleagues. Alongside this, we prioritise a speak-up culture that allows colleagues to raise concerns through appropriate channels, including HSBC Confidential, if they feel our values or processes are not being followed. These key tenets of good conduct are equally important in delivering on our net zero ambition.

Part of strengthening our culture is harnessing our colleagues' passion and energy by empowering them to learn and embrace new opportunities with our customers and partners. For example, our employee-led global Climate Action Network held the second Climate Action Festival in 2022 to raise awareness, through talks and Q&A sessions, of our net zero strategy and how employees can contribute. In total 3,500 employees attended, with 86 per cent reporting an increased understanding of our ambition.

Next steps

We will continue to develop our net zero aligned culture, including through the implementation of evolved sustainability metrics, employee incentives, performance management and education.

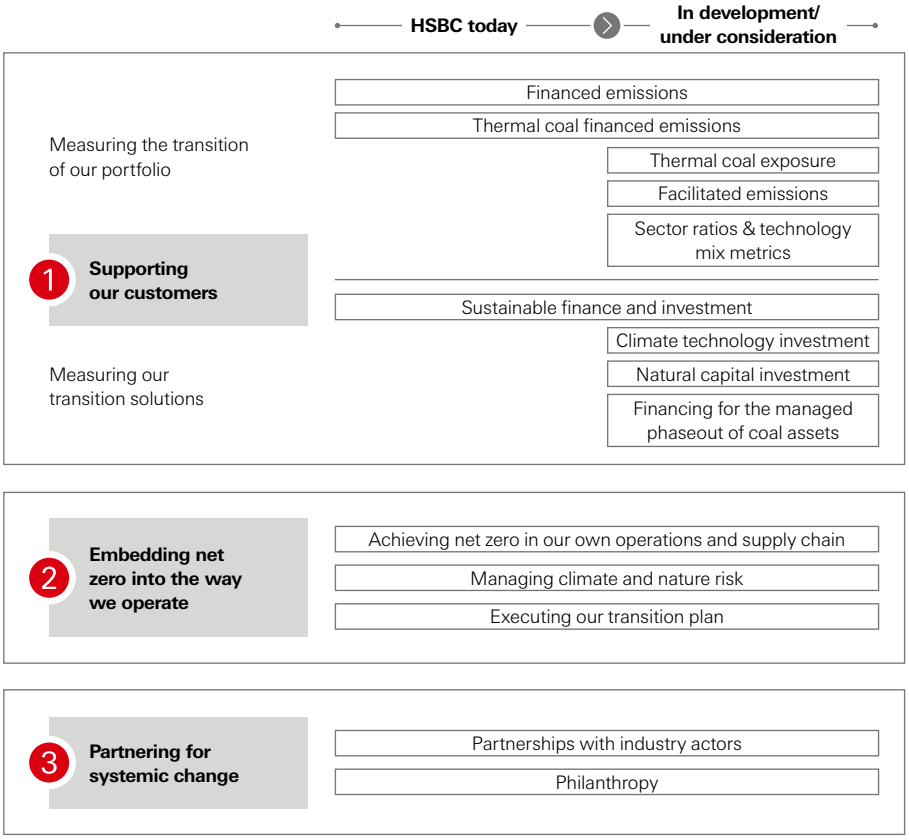
Measuring progress

Developing our metrics

Measuring progress towards achieving our net zero ambition is a key part of the principle of transparency and accountability that we want to apply to our transition planning. The figure to the right provides an overview of the metrics we are currently using and considering for future use to track progress against our net zero implementation.

We aim to be transparent on the metrics we use, our progress against them, and any data and methodological challenges that exist. We recognise there is more to do. This chapter highlights metrics we disclose publicly today, the internal metrics that help inform decision-making and the metrics we are exploring for use in the future.

Our metrics for the transition to net zero



An evolving process

We aim to evolve our metrics and refine our methodology in line with regulatory changes, disclosure rules and industry practice and standards. We currently report against metrics informed by standards including from the Greenhouse Gas Protocol (GHG), the Partnership for Carbon Accounting Financials (PCAF), the World Economic Forum's (WEF) and the Sustainability Accounting Standards Board (SASB). We aim to adopt the IFRS sustainability disclosure standards which are based on the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD), as and when adopted by relevant jurisdictions.

We are establishing an ESG data utility to help streamline and support data needs across the organisation, from regulatory reporting through to business use cases. Where appropriate, we work with data providers and scientific organisations to gather data and use forward-looking scenarios as we seek to improve our analysis. We also depend on climate-related data from customers and vendors, including emissions data, targets and transition plans. Currently this is a major challenge as data is incomplete, given limited disclosures, and can be inconsistent.

The methodology and data to assess financed emissions and set targets continues to evolve. We expect industry guidance will change. As part of our net zero principle to be science-based, we plan to continue to engage with regulators, greenhouse gas accounting and disclosure standard setters and industry bodies to help shape our approach to measuring financed emissions and managing portfolio alignment to net zero.

As detailed in *Our approach to sector transitions* on page 14, we expect that the scenarios we use in our analysis will be updated periodically. We plan to refine our own analysis of financed emissions as scenarios, data, methodologies and the progress of our clients more broadly evolve in the years ahead.

Metrics, taxonomies and practices for sustainable finance are continuing to emerge and evolve across the jurisdictions in which we operate. As we consider evolving industry standards and as regulatory guidance evolves, our methodologies, disclosures and targets may need to change.

Nature is perhaps the most nascent area where requirements for how we assess and manage risk will evolve. We have participated in different pilots ahead of the launch of the Taskforce for Nature-related Financial Disclosures (TNFD), have started collecting data on customers' actions to protect natural capital and biodiversity in transition plan assessments, and are measuring the impact of our own operations on nature.

Assurance of our data and disclosures

We seek enhanced verification and assurance on data and reporting processes used for key aspects of our annual disclosures, where considered appropriate. In addition to internal controls and assurance reviews, PwC provided independent limited assurance reports on the following recent environmental related disclosures and metrics:

- Green Bonds Report 2022
- On-balance sheet financed emissions disclosures in our Annual Report and Accounts 2022.
- Asset management financed emissions baseline published in 2022 (using 2019 data) and covering 38 per cent of assets under management.
- Sustainable finance and investing volumes related to our aim to provide $750 billion to $1 trillion in the decade to 2030 in our Annual Report and Accounts 2022.
- Emissions data related to our operational scope 1, 2, and 3 (business travel) greenhouse gas emissions and supply chain emissions data in our Annual Report and Accounts 2022.

1. Supporting our customers

A. Measuring the transition of our portfolio

Financed emissions

Financed emissions is the key metric that we use to measure the transition of our portfolio. Our ambition to become a net zero bank means working to align our portfolio financed emissions to net zero by 2050. In 2021, as part of our Net-Zero Banking Alliance (NZBA) commitment, we agreed to set 2030 on-balance sheet financed emissions targets aligned to a 1.5°C-aligned transition pathway for key carbon-intensive sectors where data and methodologies allow.[282] Financed emissions link the financing we provide to our customers with their activities in the real economy to indicate the greenhouse gas emissions associated with those activities. Our approach for financed emissions accounting does not rely on purchasing offsets to achieve any financed emissions targets we set.

In our Annual Report and Accounts 2021, we started measuring our on-balance sheet financed emissions for two carbon-intensive sectors: oil and gas; and power and utilities. In our Annual Report and Accounts 2022, we disclosed financed emissions for four additional sectors: cement; iron, steel, and aluminium; aviation; and automotives (see table below). We disclose annual progress towards our targets as part of our annual financial reporting. Going forward, we are working on assessing financed emissions for our real estate sectors and agriculture, however these sectors are particularly challenging from a data availability and quality perspective.

The financed emissions baselines and targets we have set to date consider on-balance sheet financing, including project finance and direct lending. Our methodology is based on the PCAF Global GHG Accounting and Reporting Standard, with the recognition that the methodology and data quality and availability continue to evolve (see our Annual Report and Accounts 2022 for more detail).

For financed emissions target setting we have focused on the sectors in our portfolio that we consider the most material in terms of carbon emissions. For each sector we have selected the part of the value chain we consider to be responsible for most emissions and where companies can have the biggest influence on that sector's decarbonisation. For example, focusing on vehicle manufacturing rather than car part suppliers in the automotive sector. The primary activity of our customer determines their sector classification (e.g. vehicle manufacturing) and therefore whether they are covered by a sector financed emissions target. Companies whose primary activity does not fall within the part of the value chain covered are excluded from the analysis. This is done at the level of the parent company rather than subsidiary due to the way that companies report their financials and ESG metrics.

Where company-specific data is unavailable, we seek to apply industry averages in our analysis, particularly for the economic value used in our estimates, production data for some sectors, and calculating project-specific emissions for project finance. As data improves, we expect that estimates will be replaced with reported figures. Meeting our 2030 financed emissions targets will require strong policy support across our markets, as well as the immediate and significant deployment of public and private capital. Further external dependencies include a significant increase in global renewable power generation, energy efficiency improvements and the faster scaling of low-carbon solutions for heavy industry, shipping, aviation and buildings. Without this, the global demand for fossil fuels will not shift at the required speed and scale (see *Sector transitions* from page 20).

For further details on our methodology, assumptions, data quality scores and the relevant science on which our financed emissions targets are based, please see our ESG Data Pack.[283] We have set out in the table below our baseline, progress and defined targets for the on-balance sheet financed emissions for the following sectors: oil and gas; power and utilities; cement; iron, steel and aluminium; aviation; and automotive, as published in our Annual Report and Accounts 2022. We expect some of these numbers to be updated in our Annual Report and Accounts 2023.

Our financed emissions

Sector	2019 baseline	2020 progress	2030 target	Unit[284]	Target type
Oil and gas	33	30.1	(34) per cent	Mt CO_2e	Absolute
Power and utilities[285]	589.9	509.6	138	tCO_2/GWh	Intensity
Cement	0.64	0.64	0.46	tCO_2/t cement	Intensity
Iron, steel and aluminium[286]	1.8	2	1.05 (1.43)	tCO_2/t metal	Intensity
Aviation	84	103.9	63	tCO_2/million rpk	Intensity
Automotive	191.5	176.2	66	tCO_2/million vkm	Intensity

When assessing the changes from 2019 to 2020, it is important to emphasise the long-term commitment that is needed to meet our 2030 interim targets and how changes to exposure and market fluctuations impact yearly updates. Movement from one year to the next may not reflect future trends for the financed emissions of our portfolio. As we are at the beginning of our journey to track and measure progress, we believe it would be premature to infer future trends from the 2019 to 2020 progress at this stage. In addition, the Covid-19 pandemic led to anomalies in our portfolio's financed emissions for 2020. For some sectors, our financed emissions baseline will be different from the IEA NZE 2021 reference scenario baseline. Where we have applied an absolute reduction target such as for the oil and gas sector, and the target is defined as a percentage reduction from the baseline, they will be the same. Similarly, when the sector portfolio intensity is very similar to that of the global average, the baselines may be the same.

We plan to report financed emissions and progress against our targets annually and to be transparent in our disclosures about the methodologies applied. However, financed emissions figures may not be reconcilable or comparable year on year, and targets may require recalibration as data, methodologies and reference scenarios develop.

Thermal coal financed emissions and financing exposures

In 2022, we set separate targets to reduce on-balance sheet financed emissions for thermal coal-fired power and thermal coal mining in relation to our thermal coal phase-out policy. However, upon further review, we have confirmed that the majority of thermal coal-fired power entities in scope are included in the power and utilities target referenced above. To avoid duplication, we have therefore decided to discontinue tracking and reporting thermal coal-fired power financed emissions separately from our power and utilities sector. We have also set targets to reduce our thermal coal financing drawn balance exposure, as set out in our thermal coal phase-out policy (see *Using policies to drive change* on page 71).

We had reported on thermal coal exposures in earlier disclosures, but as part of our Annual Report and Accounts 2022 we acknowledged that our processes, systems, controls and governance were not yet designed to fully identify and disclose thermal coal exposures, particularly for exposures within broader conglomerates. We continue to assess the reliability of our data and review our basis of preparation with the aim of reporting relevant thermal coal exposures aligned to our thermal coal policy in future disclosures.

Reducing financed emissions in our assets under management

In July 2021, HSBC Asset Management signed up to the Net Zero Asset Managers initiative which encourages investment firms to commit to manage assets in line with net zero emissions by 2050.

In November 2022, we announced our ambition of reducing scope 1 and 2 emissions by 58 per cent to 2030, covering 38 per cent of total assets under management, amounting to $193.9 billion as of 31 December 2019, and consisting of listed equity and corporate fixed income.[287]

We chose the baseline year of 2019 for our calculations as it offered a more representative indication of the level of emissions intensity than the years affected by the global pandemic. The emissions intensity of our portfolio as of 2019 was 131 tonnes of carbon dioxide equivalent per $million invested ($tCO_2e/M$), which is calculated using scope 1 and 2 emissions of companies in our portfolio.

We will work to increase the proportion of assets under management covered over time to reach fuller coverage.

For the methodology, PwC's limited assurance report and details on HSBC Asset Management's net zero ambition, see www.assetmanagement.hsbc.com/net-zero.

Next steps

Financed emissions

The methodology and data used for financed emissions is evolving and we expect industry guidance, market practice, data availability, scenarios and regulatory disclosure requirements to continue to change, along with the shape of our own business. We expect to periodically review and, if required, update our methodologies, baselines, scenarios, and targets to reflect real economy decarbonisation and evolving guidance and data (see *Our approach to sector transitions* on page 14). We also intend to refresh our sectoral targets periodically as new scenarios are released in order to reflect, as appropriate, updated pathway(s) to net zero by 2050. We continue to work to improve our data collection and management processes.

Facilitated emissions

Facilitated emissions are off-balance sheet emissions that relate to services that we provide when we support customers to issue debt and equity to investors. The financial institutions and/or investors that provide the capital and hold these instruments will count the associated financed emissions in their Scope 3 GHG accounting.

As an intermediary in these transactions we believe it is appropriate to disclose the fact we have had an involvement in these facilitated emissions and set a target for these using a standard-setter backed methodology. We also believe that an approach to do so should recognise that these are emissions linked to services that we provide, and therefore fundamentally different in nature to lending where we are providing finance on our balance sheet for many years. We aim to publish our measurement of facilitated emissions and related target-setting following the recent publication of the PCAF Global GHG Accounting and Reporting Standard for Capital Markets.

Sector ratios and technology metrics

We are exploring forward-looking indicators to help monitor changes in our portfolios over time (see GFANZ 2022 report on Financial Institution Net-zero Transition Plans – Fundamentals, Recommendations, and Guidance – for example metrics).

We may consider using these metrics initially for internal reporting and decision-making processes, with the potential to include them in our annual disclosures over time. Tracking these metrics accurately for all sectors poses significant data challenges and we expect our approach to be informed by data availability and reliability.

B. Measuring our transition solutions

Sustainable finance and investment
One of the most significant contributions we can make to the net zero transition is mobilising finance to support our customers in their transition and a sustainable future.

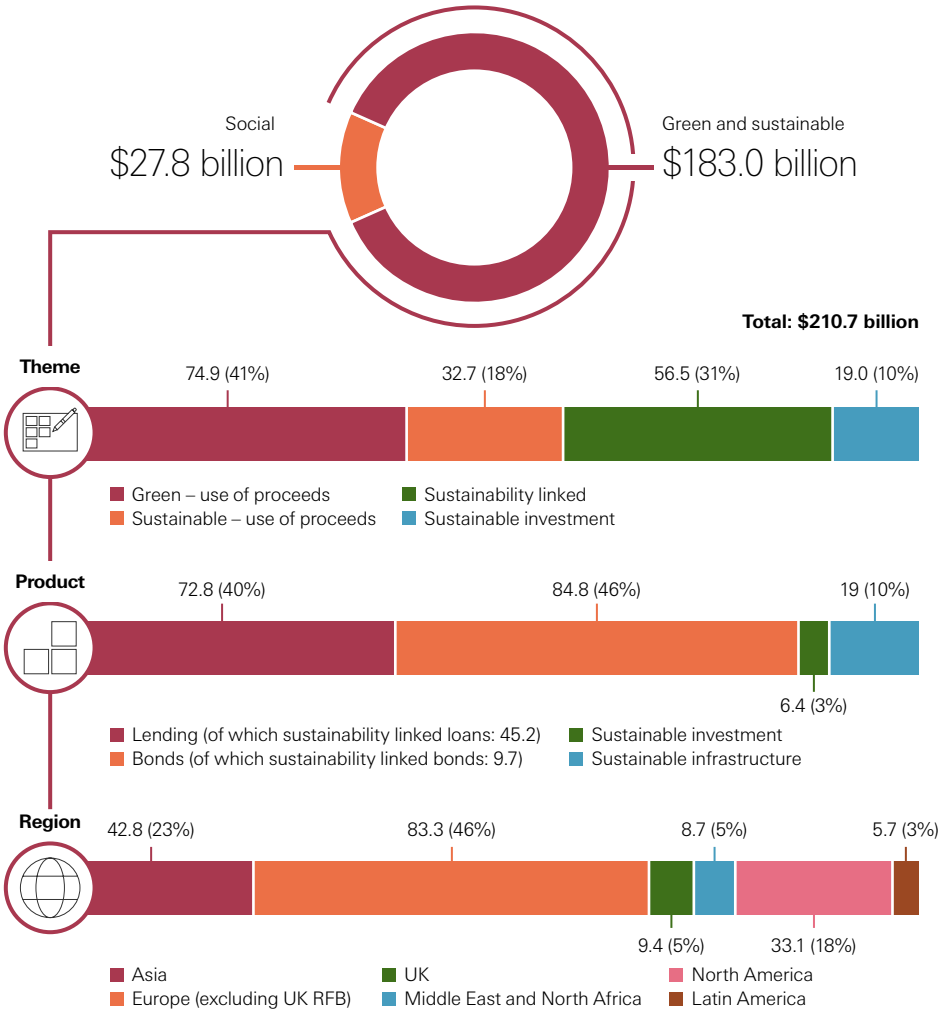
In 2020, we set out an ambition to provide and facilitate $750 billion to $1 trillion of sustainable finance and investment by 2030. Since 2020, we have achieved $210.7 billion of this ambition, which supports both environmental (green) and social-related activities (see chart to the right). Of our progress to 2022, $183.0 billion relates to green and sustainable activities.

We define sustainable finance and investment as any form of financial service that integrates environmental, social and/or governance criteria into business or investment decisions. This includes financing, investing and advisory activities that support the achievement of the UN Sustainable Development Goals and the Paris Agreement.

We apply market standards for identifying and reporting sustainable financing and investing products. For example, we follow the Green Loan and Sustainability-Linked Loan Principles developed by the Loan Market Association, and equivalent industry bodies in Asia and the US, to guide the labelling of our lending products and activities.

We detail the scope and definitions we use in our Sustainable Finance & Investments Data Dictionary ('data dictionary'), published with our annual disclosures. We consider industry practice in reviewing eligibility criteria. Products which are excluded from the data dictionary as part of our annual review are removed from the cumulative total reporting, including their contribution reflected in prior year values. Further detail on our data dictionary and governance approach is available online at www.hsbc.com/esg.

Cumulative sustainable finance and investment, 2020-2022 ($bn)



Green Financing Framework

We intend to publish a new Green Financing Framework (the Framework) to replace our existing Green Bond Framework (2015). The Framework is intended to represent a further step in helping to support investors meet their objectives, while supporting customers to realise opportunities in the fast developing low-carbon economy.

Under the Framework, certain proceeds raised through particular instruments or transactions issued or entered into by us are intended to be allocated against lending made by us towards businesses and projects which meet certain eligibility criteria, including renewable energy, energy efficiency, clean transportation and green buildings.

We intend to align the Framework with the ICMA Green Bond Principles (GBP) 2021 (ICMA Principles) and consider ongoing developments in market practices and standards, helping to strengthen accuracy and transparency in disclosures on qualifying assets, processes and impact.

Next steps

Sustainable finance and investment
We expect that green, sustainable and sustainability-linked solutions will become increasingly meaningful to create transparency in how customers are performing against science-based transition pathways and other sustainability goals. There is currently limited international alignment on green and transition finance taxonomies.

Our data dictionary defining our sustainable finance and investments continues to evolve, and is reviewed annually to take into account the evolving standards, taxonomies and practices we deem appropriate.

Over time, we also aim to increase transparency across the different types of green and transition finance and investing categories.

Climate technology investment
By providing or facilitating financing to innovative companies and investors driving real economy impact, we aim to help scale climate solutions and support sustainable growth.

We have started to track related metrics, such as our support to climate technology companies through our venture debt platform or investing $100 million as an anchor partner in Breakthrough Energy Catalyst. However, reporting the funding we provide to specific climate solutions is a longer-term aspiration. We currently face challenges such as the lack of available and consistent data and methodological issues. We are exploring how to measure climate solutions consistently and verifiably, leveraging initiatives such as the IEA's ETP Clean Energy Technology Guide and the Climate Bond Initiative's Climate Bonds Taxonomy.

Financing the managed phase-out of coal assets
In addition to tracking our phase-out commitment for thermal coal financing through overall financing exposures and financed emissions metrics, we are reviewing approaches to finance early coal-plant retirements.

Transitioning the energy system will require the early retirement of high-emitting assets, such as thermal coal-fired power plants, which also present a financial risk in the future as stranded assets. Financing the managed phase-out of thermal coal plants provides an alternative to withdrawing financing from these assets, which risks prolonging lifetimes as other financiers step in. This is particularly important in Asia-Pacific, where thermal coal remains a dominant source of power production and most coal-fired power plants are young assets.

As we explore new financial mechanisms to support managed phase-out, working through GFANZ and with development partners, robust due diligence will be needed for credible climate impact alongside financial feasibility and just transition outcomes.

Industry methodologies for tracking and measuring financing for managed phase-out are still evolving (e.g. the GFANZ workstream on portfolio alignment management), and we intend to consider industry guidance as it is developed as appropriate. Examples of metrics include volume of financing for the early retirement of coal assets or the greenhouse gas emissions related to assets with a managed phase-out plan. These may be used initially for internal reporting and decision-making processes, with the potential to include them in our annual disclosures over time.

2. Embedding net zero into the way that we operate

Achieving net zero in our own operations and supply chain
As part of our net zero ambition, we aim to achieve net zero emissions in our operations and supply chain by 2030 or sooner. We currently track metrics across energy and travel and our supply chain.

We also track the impact of our own operations on nature (see *Achieving net zero in our own operations* on page 75). We include in our reporting the number of sites – whether owned, leased or managed – that are in or adjacent to protected areas (approximately 1.6 per cent), and the number of sites located in areas subject to high and very high water stress (approximately 58.5 per cent).

Further details on our methodology and relevant environmental key facts are available in our ESG Data Pack.[288]

We are targeting the purchase of

100%

renewable energy by 2030 and an interim target of 90 per cent by 2025.

Next steps

For any emissions remaining in our own operations from 2030 onwards, we aim to remove them by procuring high-integrity carbon credits. We expect to report the use of carbon credits, as and when we use them, in line with industry standards and regulations. We also aim to continue exploring metrics and developing our understanding of the impact of our own operations on nature.

Managing climate and nature risk
Measuring our physical and transition risk is important for defining the boundaries within which we operate and supporting the execution of our net zero ambition.

'Aggregate and report' is one of five key stages in our Group-wide Risk Management Framework. Our risk reporting covers RAS and KMI metrics related to material risks, emerging issues and potential risk appetite breaches to support oversight and mitigation of climate risks (see *Managing risk in transition to net zero* on page 64).

We recognise that addressing the climate crisis is fundamentally entwined with acting on nature-related impacts, dependencies, risks and opportunities. Various regulatory and legislative authorities are establishing measurement and disclosure requirements around nature impacts, risks and opportunities, including in Europe.

We support the development of an internationally harmonised nature disclosure framework and will continue to invest in our internal capabilities. However, we recognise the significant data and implementation challenges for banks given the multi-dimensional aspects of nature risks and challenges around data availability and quality for identified potential disclosure metrics, which may result in delays in our readiness for external disclosures.

Next steps

We plan to explore options to enhance the granularity of our RAS and KMI metrics over time. As we set new climate-related ambitions, we also expect to explore additional related RAS and KMI metrics.

We aim to consider the impact of nature-related risks in line with emerging regulatory requirements.

Executing our transition plan
We use internal metrics to help track progress in executing our net zero transition ambitions and plans. The Sustainability Execution Committee is responsible for overseeing KPIs related to the sustainability execution programme. A selection of these KPIs is also reported to the Holdings Board monthly (see *Aligning responsibilities and incentives* on page 77).

We have started to track our progress in assessing our corporate customers' transition plans (see *Supporting our customers* on page 54). This includes the number of assessments made and the resulting portfolio coverage.

We also track metrics related to our sustainability risk policies. This includes the implementation of our existing sustainability risk policies, such as annual review of the policies and progress against delivery plans, as well as the publication of new policies, where required.

Achieving our net zero ambition also requires enhanced capabilities, including governance, processes, systems and controls. We also need new sources of data, some of which may be difficult to assure using traditional verification techniques. We use internal metrics to track progress and review whether we are building the right capabilities to execute our plan (see *Aligning responsibilities and incentives* on page 77 and *Strengthening our culture and net zero capabilities* on page 79).

Next steps

As we review this transition plan periodically, we aim to ensure our metrics help support the delivery of our plan. For example, we expect to continue measuring and tracking our capability building to help ensure that our customer-facing colleagues have the appropriate knowledge to support customers' changing needs in the transition.

We continue to work to embed transition plan assessments into commercial strategy, portfolio risk management and optimisation, and credit decisions.

72%

Colleagues who **feel equipped to help HSBC reach its sustainability goals**, according to our 2022 annual employee survey

80%

Number of Board meetings that included an **agenda item related to sustainability** in 2022

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3. Partnering for change

Partnerships with industry actors
Above we noted our longer-term aspiration to disclose the funding we provide for the new solutions, technologies and business models required to support the transition to net zero. In lieu of being able to disclose these figures, while we work to improve data and methodologies, we disclose the funding that we are providing to a number of partnerships which are focused on accelerating and scaling innovative climate solutions. At present this includes our support to initiatives such as Breakthrough Energy Catalyst and the Just Energy Transitions Partnerships.

We also play a role in a number of industry initiatives, focused on supporting change across the financial sector but also across the real economy. This includes our involvement in GFANZ, NZBA, NZAM, SMI and other initiatives.

Philanthropy
We report progress towards meeting our target to spend $100 million over five years through our Climate Solutions Partnership, which aims to identify and remove barriers to scaling climate change solutions. Through the Climate Solutions Partnership we support a range of NGOs focused on piloting and scaling nature-based solutions, cutting edge technologies and renewable energy projects in emerging economies.

Next steps

Going forward we are exploring opportunities to collaborate with new and existing partners to support the global transition to net zero, in areas such as developing climate solutions, mobilising finance, and creating a more supportive enabling environment.

This includes considering how we can better align our philanthropy funding more closely to the net zero agenda. We expect to report on the outcomes of our partnerships and our philanthropic spend in future disclosures.

Partnering for systemic change

Supporting systemic change to deliver net zero

Collective action across the private and public sectors and civil society is critical for the world to reach net zero. We aim to use our global reach and convening ability to engage and collaborate with a range of partners to help:

1

Support the development of an enabling environment for climate action and investment by working with the public sector, industry, civil society and peers to help shape effective policies, regulations and standards, and to help develop insights and learning.

2

Mobilise market actors including our customers, investee companies, delivery partners and the wider financial sector to help finance the transition and build inclusion and resilience.

3

Transform ourselves by engaging our employees, suppliers, and investors to help ensure that we are fit for a net zero future.

Our approach seeks to reflect the varying pace and shape of the transition across sectors and geographies, as well as the size and scope of our presence in local markets (see below).

Examples of how we partner

Supporting an enabling environment

Public sector
We work with governments and regulators to support the development of effective climate policy, and partner with public financial institutions to help to accelerate the development of finance solutions.

Industry
We collaborate with financial sector and industry partners to share good practice, help drive consistent standards, and create new opportunities to finance the transition.

Civil society
We partner with civil society to understand the impact of actions and generate thought leadership in support of a science-based, just and inclusive transition.

Mobilising market participants

Our customers
We seek to finance our customers' transition journeys and support them in making sustainable choices.

Our investee companies
We engage on net zero with companies we invest in through our asset management business.

Our delivery partners help accelerate and scale transition solutions
We partner with industry-leading players that bring new capabilities to help accelerate and scale transition solutions.

Transforming ourselves

Our employees
We equip and empower employees across our organisation to execute our net zero strategy.

Our suppliers
We work with our suppliers and set clear expectations to help us transform our own operations.

Our investors
We transparently engage with investors to build understanding of our approach and model good practice.

Supporting an enabling environment

Public sector

Governments and regulators

Policy can be a powerful force for change, creating incentives for action and shifting the fundamental economics of financing and investment for financial institutions and their customers (both businesses and individuals). Clear and effective policies and regulation, and consistent and predictable policy pathways, are key to scaling the technologies and unlocking the capital needed to enable the net zero-aligned sector transitions outlined in *Sector transitions* from page 20.

> For example, the US Inflation Reduction Act (IRA) of 2022 includes significant fiscal subsidies, incentives, funding and regulatory changes that are expected to unlock trillions in private finance for renewable infrastructure and critical climate technologies, creating new green jobs in the process.

We engage with governments, regulators and industry bodies such as UK Finance, to support the development and implementation of policies and regulations and to share good practice. Our Statement on Public Policy Engagement[289] outlines our approach to such engagement, including the systems and processes we have established to help manage the risks associated with engaging with these actors (for example, in instances where our positions on what is required to deliver the net zero transition may not be in alignment).

Financial regulators and central banks around the world are establishing regulations and guidance for financial institutions to assess and manage climate risks. This includes evolving work on climate scenario analysis, stress testing, climate and sustainable finance disclosures, and prudential risk management and capital treatment. We work closely with regulators on these and related topics across our jurisdictions. For example, we are members of the Green Finance Industry Taskforce convened by the Monetary Authority of Singapore (MAS), we are working with the Hong Kong Monetary Authority (HKMA) to support the development of Hong Kong as a leading sustainable finance market, and we are members of The Dubai Financial Services Authority's (DFSA) Task Force on Sustainable Finance. We support globally consistent approaches to climate-related financial regulation where possible, to minimise fragmentation and align change across the global financial system.

We also work directly with governments on national net zero strategies and financing priorities. For example, in the UK we are engaging with the Net Zero Council – a cross government-business partnership established in 2023 – to help address market barriers to net zero in the UK. In Egypt, Vietnam and Indonesia we are working with the government and their development partners to help facilitate, develop and finance country-led project pipelines for key national transition priorities. In Egypt, we are doing this through the government's Nexus of Food, Water and Energy (NFWE) programme; and in Vietnam and Indonesia through Just Energy Transition Partnerships (JETPs), in collaboration with GFANZ.

Public financial institutions

Public financial institutions (PFIs) – such as multilateral and bilateral development banks and wider development finance institutions such as infrastructure banks and export credit agencies – are key to de-risking sustainable infrastructure financing and investments in markets with a high cost of capital. Examples of the de-risking instruments they can offer include guarantees, first-loss structures, and concessional finance. In the absence of PFI support to address the cost of capital of these projects, banks and other private financial institutions are unable to deliver the scale of finance needed at current risk-return profiles.

We engage and partner with PFIs to identify, develop and fund catalytic solutions to challenges holding back capital needed for the transition. For example, we work with PFIs to provide blended finance products and services (see *Supporting our customers* on page 52) and jointly work with other partners to find solutions to complex issues such as financing the early retirement of thermal coal assets in emerging economies. In 2023, we became a member of the newly-launched World Bank Private Sector Investment Lab which seeks to identify new financing structures and make recommendations to support the World Bank Group's capital mobilisation objectives for emerging and developing markets, with an emphasis on transition finance.

REGIO emerging markets green bond fund

HSBC Asset Management launched the Real Economy Green Investment Opportunity (REGIO) Fund in 2019, as an anchor investor with the World Bank's International Finance Corporation (IFC). REGIO was the first global green bond fund targeting real economy issuers in emerging markets. Through our partnership, a complementary Technical Assistance Facility managed by the IFC was also established to stimulate the supply of these bonds. Its role was to encourage and facilitate first-time green bond issuances, share country and industry-specific market intelligence, and provide training on Green Bond Principles and best practices in impact reporting

Industry

We participate in cross-industry alliances and initiatives to help shape and inform the development of standards, regulation, partnerships and policy to support the transition to net zero. For further details on our group memberships please see our ESG reporting centre.

Standard setters

We engage with standard setters to support the development of transparent and consistent climate-related industry standards in areas such as product labelling, sustainability disclosures, sustainable finance taxonomy and emissions accounting.

Voluntary industry initiatives can also help shape action and collaboration, and often form the basis of future climate policy and regulation. For example, we supported the TCFD, which is now referenced in climate disclosure rules around the world and is incorporated into the inaugural ISSB Standards – IFRS S1 and S2.

Financial sector

A key aim of our financial sector partnerships is to help drive greater consistency in global financial standards and regulations, while ensuring they can be implemented across a range of markets. For example, through our GFANZ membership we have supported the development of tools and we have collaborated on new public-private partnerships with governments and development banks, such as through the JETPs and wider country-led programmes.

Cross-sector

We engage with actors across the real economy to understand the opportunities and challenges they are facing and how we can support them in the transition to net zero. We do this through sector-specific and cross-sector platforms outlined in the diagram on the following page. Our participation in these sector-focused initiatives gives us a good vantage point to identify potential synergies and how we can leverage our capabilities, especially across some of the hard-to-abate sectors.

Examples of our work with the financial sector, other industry sectors and standard setters

We have supported the development of the Taskforce for Nature-related Financial Disclosures (TNFD) pilot framework, providing feedback ahead of its September 2023 release.

We support the work of the Energy Transitions Commission (ETC) to drive transformation of the energy system for net zero, publishing leading research and transition roadmaps. In hard-to-abate sectors, we support their work through the Mission Possible Platform, an initiative established by the ETC and the World Economic Forum.

We are a co-founder of the FAST-Infra initiative to establish a consistent, globally applicable labelling system for sustainable infrastructure assets.

We are a signatory of the Finance for Biodiversity Pledge through HSBC Asset Management.

We are a co-founding signatory of the UN Net-Zero Banking Alliance and member of the Principal and Steering groups for the Glasgow Financial Alliance for Net Zero.

We were involved in the original drafting and development of the UNEP-FI Principles for Sustainable Insurance.

We chair the Financial Services Taskforce for the Sustainable Markets Initiative.

We have been part of the Partnership for Carbon Accounting Financials (PCAF) since 2021.

Civil society

Civil society plays an important role in raising awareness of the most pressing issues facing society, influencing public policy, advocating for just and inclusive outcomes, and holding public and private actors to account for their actions. We engage and partner with a range of civil society organisations including NGOs, think tanks, academic and research institutions, and philanthropic foundations. Our partnerships take a variety of forms from engaging civil society in an advisory capacity to working collaboratively with them to help catalyse climate action on the ground. For example, our Climate Advisory Panel is comprised of industry leaders, scientists and experts from civil society, who bring diverse views and perspectives and offer independent support and challenge on our net zero ambition and plans for achieving net zero (see *Aligning responsibilities and incentives* on page 77).

Philanthropy

Philanthropy plays a significant role in addressing climate change. Philanthropy contributes to climate change efforts through the provision of funding for research, innovation, capacity building and the piloting, scaling and de-risking of climate action. Since 2020 we have directed our philanthropy funding to NGO partners supporting projects with the potential to make significant impacts towards achieving a net zero, resilient and sustainable future. We work with both global and local NGOs and seek to target specific challenges and opportunities to help unlock finance at scale.

Our Climate Solutions Partnership, launched in 2020 is a five-year, $100 million philanthropic initiative that aims to identify and remove barriers to scale for climate change solutions. We deliver this in partnership with WRI, WWF, and local partners. Our partnership focuses on piloting and scaling nature-based solutions, supporting climate innovation, and testing and rolling out renewable energy initiatives in Asia.

NGOs and think tanks

Our partnerships with NGOs and think tanks seek to leverage our collective strengths to advance research and innovation to help unlock climate action. Through these partnerships we seek to accelerate the design and delivery of climate solutions – with a focus on delivering new solutions for our customers and beyond.

For example, in 2021 we worked with the Apparel Impact Institute (Aii) and Fashion for Good to determine the scale of investment required across the sector in the *Unlocking the Trillion Dollar Fashion Decarbonisation Opportunity* report.

We regularly engage with a range of NGOs, from those that have specific industry-focus such as the Carbon Disclosure Project and CERES, to global and local environmental NGOs, so that we are aware of emerging climate issues and priorities and to share our perspectives and priority actions.

Academia and Research Institutions

Through our work with academic and research institutions we fund analysis and insights on science-based transition pathways and scenarios, nascent technologies and emerging solutions to test with our customers and strategic partners. We disseminate the findings and learnings across our internal and external networks. For example:

- We partnered with Imperial College Business School on their report which examined corporate sustainability initiatives to assess how companies have addressed biodiversity over the last two decades.
- We are a founding funder of the Just Transition Finance Lab, hosted at LSE's Grantham Research Institute, which aims to accelerate solutions for a just transition.
- We supported research by Earth Security into the value of financing cloud forests as a nature-based solution.
- We worked with the Cambridge Institute for Sustainability Leadership on a pilot to evaluate the impact of water shortages on a sample of our heavy industry customer portfolio in east Asia.

Communities

Locally, we seek to meet the needs of the communities we serve, promote equity and build resilience. Support for a just and inclusive transition is one of the core principles of our net zero approach as described in *Our vision and strategic approach* on page 13. Examples of our work with communities include:

- A partnership with the British Council to provide green skills to marginalised young people to support the energy transition in Vietnam, Indonesia, India, Mexico, and Brazil.
- A partnership with the Society for Development Alternatives to provide an assured source of clean energy (solar) to rural businesses in India by empowering women to manage power distribution.
- A nature-based solutions project in Hong Kong, the Powering Our Wetlands project with WWF-HK, which aims to explore sustainable management strategies to enhance the carbon sequestration capability of the Mai Po mangroves and the surrounding wetlands, while balancing the need for maintaining habitat diversity for migratory birds.

Mobilising market actors

Our customers and delivery partners

We engage with our customers and strive to be their trusted net zero transition partner (see *Supporting our customers* on page 52). Similarly, we work with our delivery partners to help broaden the range of solutions we can offer. We are also working in partnership with a range of public and private actors to help scale the innovative solutions, technologies and business models required to catalyse the new economy. (See the *Innovation to deliver transition solutions* focus box on pages 60-61).

Our investee companies

As responsible investors, we seek to take an active stewardship role in our asset management business to help drive positive change in the companies on our priority list that we invest in on behalf of our customers. We aim to enhance investment outcomes by driving growth, managing risks, improving transparency and disclosure, and delivering positive environmental impact, while acting in line with our legal and regulatory duties.

Climate change and nature are key features in our engagement approach. We consider our investee companies' approaches to climate change and nature when using our voting rights on management and shareholder proposals (for example, on climate transition plans), board member re-elections and executive remuneration (see our Responsible Investment Review[290] and Global Voting Guidelines[291]).

Our approach is guided by our belief that we can drive better outcomes by engaging as an investor rather than divesting. However, we may need to consider divestment as a last resort where engagement has not been successful over an extended period of time.

Investee engagement in practice: Multinational natural resource trading and mining company

An investee company's emissions targets were misaligned with a Paris trajectory. HSBC Asset Management engaged with management on concerns on their scenario analysis and transition plan, and co-filed a shareholder proposal asking for improved disclosure on management's plans for Paris alignment.

In November 2022, the company committed to withdraw applications for approval of a new greenfield coal mine and pledged to a just transition approach as part of their transition strategy. The company enhanced its medium-term emissions reduction target and planned phase down in coal assets, and stated its intention to leave the World Coal Association.

Transforming ourselves

Our employees and suppliers

We partner with our colleagues and suppliers to help meet our net zero ambition. This means mobilising our organisation to cut our emissions across our energy consumption, travel and supply chain (see *Strengthening our culture and net zero capabilities* on page 79).

Our investors

Transparent, proactive, and regular engagement with investors is a key part of our approach to net zero and our wider ESG activities. We engage with investors, ESG rating agencies and buy-side analysts to better understand their net zero and ESG impact and expectations and to update them on our progress. We engage with our investors through ongoing dialogue, bilateral meetings, roundtables, conferences, investor events and presentations, and our Annual General Meeting.

Next steps

Partnerships play an integral role not only in our net zero journey, but also in supporting systemic change for our customers and local communities. The breadth and depth of these partnerships helps us to leverage our skills, expertise and resources to deliver impact across the real economy and to help shape the financial architecture needed to underpin the net zero transition.

Looking forward we aim to further align our partnerships with our net zero agenda, as well as continuing to consider how our partnerships activities can help deliver meaningful progress on cross-cutting and inter-related issues such as nature and the just transition.

Additional Information

Cautionary statement

Cautionary statement regarding ESG data, metrics and forward-looking statements

Our transition plan contains a number of forward-looking statements (as defined below) with respect to HSBC's ESG targets, commitments, ambitions, climate-related pathways, processes and plans, and the methodologies and scenarios we use, or intend to use, to assess our progress in relation to these ('ESG-related forward-looking statements').

Statements that are not historical facts, including statements about HSBC's beliefs and expectations, are forward-looking statements. Words such as 'may', 'will', 'should', 'expects', 'targets', 'anticipates', 'intends', 'plans', 'believes', 'seeks', 'estimates', 'potential' and 'reasonably possible', or the negative thereof, other variations thereon or similar expressions are intended to identify forward-looking statements. These statements are based on current plans, information, data, estimates and projections, and therefore undue reliance should not be placed on them. Forward-looking statements speak only as of the date they are made.

In developing our transition plan, we have utilised a number of external sources and scenarios. Our plan also includes contextual sector information including figures, charts and graphs, some of which have been prepared by third parties or which draw on third party data.

Our plan has been informed by a range of inputs, including on the estimated sizing of future transition financing and capital expenditure requirements by McKinsey's Transition Finance Model (as at June 2023), which applies publicly available 1.5ºC-aligned scenarios (including IEA Net Zero Economy (2021) and the Network for Greening the Financial System (NGFS) Net Zero 2050 from the NGFS 2.0 release). This model involves the use of estimates and assumptions in formulating its projections.

The models, data sources, figures, charts and graphs used were prepared at various points prior to the date of publication of this plan and may become outdated over time. We also recognise that the models and some of the other data sources we have used in preparing our plan may not be fully mature and will continue to evolve as methodologies and data develop. All such information is provided for information purposes only. Such information has not been independently verified. It does not constitute advice and is not to be relied upon for any purpose. HSBC expressly disclaims any obligation to revise or update any such models, data sources, figures, charts, graphs or contextual information.

To help inform our approach to our net zero transition, we look to engage with a broad range of stakeholders, including governments, regulators, non-governmental organisations, industry partners and external organisations and alliances. We act independently and voluntarily in our decision making, based on our own business interests, priorities and objectives.

In preparing the ESG-related information contained in our transition plan, HSBC has made a number of key judgements, estimations and assumptions, and the processes and issues involved are complex. The ESG (including climate) data, models and methodologies used are often relatively new, are rapidly evolving and are not of the same standard as those available in the context of other financial information, nor are they subject to the same or equivalent disclosure standards, historical reference points, benchmarks or globally accepted accounting principles. In particular, it is not possible to rely on historical data as a strong indicator of future trajectories in the case of climate change and its evolution (see below re data availability, accuracy, verifiability and data gaps). Outputs of models, processed data and methodologies are also likely to be affected by underlying data quality, which can be hard to assess and we expect industry guidance, market practice, and regulations in this field to continue to change. There are also challenges faced in relation to the ability to access data on a timely basis, the lack of consistency and comparability between data that is available and our ability to collect and process relevant data. This means the ESG-related forward-looking statements and ESG metrics discussed in this document carry an additional degree of inherent risk and uncertainty.

In light of uncertainty as to the nature of future policy and market response to ESG related issues, including between regions, and the effectiveness of any such response, HSBC may have to re-evaluate its progress towards its ESG ambitions, commitments and targets in the future, update the methodologies it uses or alter its approach to ESG (including climate) analysis and may be required to amend, update and recalculate its ESG disclosures and assessments in the future, as market practice and data quality and availability develops.

No assurance can be given by or on behalf of HSBC as to the likelihood of the achievement or reasonableness of any projections, estimates, forecasts, targets, commitments, ambitions, prospects or returns contained herein. Readers are cautioned that a number of factors, both external and those specific to HSBC, could cause actual achievements, results, performance or other future events or conditions to differ, in some cases materially, from those stated, implied and/or reflected in any ESG-related forward-looking statements or metrics due to a variety of risks, uncertainties and other factors (including without limitation those referred to below):

- ESG projection risk: ESG metrics are complex and still subject to development. In addition, the scenarios employed in relation to them, and the models that analyse them have limitations that are sensitive to key assumptions and parameters, which are themselves subject to some uncertainty, and cannot fully capture all of the potential effects of climate, policy and technology driven outcomes;
- Changes in the ESG regulatory landscape: this involves changes in government approach and regulatory treatment in relation to ESG disclosures, reporting and other requirements and the current lack of a single standardised regulatory approach to ESG data across all sectors and markets;
- Variation in standards: ESG reporting standards and standards in relation to transition plans are still developing and are not standardised or comparable across all sectors and markets, new standards in relation to different ESG metrics and transition plans are still emerging;
- Data availability, accuracy, verifiability and data gaps: our transition plan and disclosures in relation to it are limited by the availability of high-quality data in some areas and our own ability to collect and process such relevant data as required. Where data is not available for all sectors or consistently year on year, there may be an impact to our data quality scores. While we expect our data quality scores to improve over time as companies continue to expand their disclosures to meet growing regulatory and stakeholder expectations there may be unexpected fluctuations within sectors year on year, and/or differences between the data quality scores between sectors. Any such changes in the availability and quality of data over time, or our ability to collect and process such data, could result in revisions to reported data going forward, including on financed emissions, meaning that such data may not be reconcilable or comparable year on year;
- Developing methodologies and scenarios: the methodologies and scenarios HSBC uses to assess financed emissions and set ESG-related targets may develop over time in line with market practice, regulation and/or developments in science, where applicable. Such developments could result in revisions to reported data, including on financed emissions or the classification of sustainable finance and investments, and lack of reconcilability or comparability; and

- Risk management capabilities: global actions may not be effective in transitioning to net zero and in managing relevant ESG risks, including in particular climate, nature-related and human rights risks. In particular:
  - we may not achieve our ESG targets, commitments and ambitions (including with respect to the positions set forth in our thermal coal phase-out policy and our energy policy, and our targets to reduce our on-balance sheet financed emissions in our portfolio of selected high-emitting sectors), which may result in our failure to achieve some or all of the expected benefits of our strategic priorities; and
  - we may not be able to develop sustainable finance and ESG-related products consistent with the evolving expectations of our regulators, and our capacity to measure the environmental and social impact from our financing activity may diminish (including as a result of data and model limitations and changes in methodologies), which may affect our ability to achieve our net zero ambition, our targets to reduce our on-balance sheet financed emissions in our portfolio of selected high-emitting sectors and the positions set forth in our thermal coal phase-out policy and energy policy, and increase the risk of greenwashing.

For further detail, please refer to the risks and uncertainties we identify in our *Annual Report and Accounts* filed with the Securities and Exchange Commission ("SEC") on Form 20-F and interim reports and earnings releases furnished to the SEC on Form 6-K from time to time.

Our metrics pertaining to our on-balance sheet financed emissions continue to evolve, and are reviewed annually to take into account the evolving standards, taxonomies and practices we deem appropriate. Data on these metrics contained in this transition plan is taken from our Annual Report and Accounts 2022 and was subject to independent limited assurance as at February 2023 by PwC in accordance with ISAE 3000/ ISAE 3410. We anticipate that some of our financed emissions calculations may be restated in future disclosures due to evolving methodologies. For further details, see our Financed Emissions Methodology and PwC's limited assurance report, which are available at www.hsbc.com/who-we-are/esg-and-responsible-business/esg-reporting-centre.

Any forward-looking statements made by or on behalf of HSBC speak only as of the date they are made. HSBC expressly disclaims any obligation to publicly revise or update these ESG forward-looking statements, other than as expressly required by applicable law.

Written and/or oral ESG-related forward-looking statements may also be made in our periodic reports to the US Securities and Exchange Commission, summary financial statements to shareholders, proxy statements, offering circulars and prospectuses, press releases and other written materials, and in oral statements made by HSBC's Directors, officers or employees to third parties, including financial analysts.

Our transition plan contains a number of images, graphics, infographics, text boxes and illustrative case studies and credentials which aim to give a high-level overview of certain elements of this transition plan and to improve accessibility for readers. These images, graphics, infographics, text boxes and illustrative case studies and credentials are designed to be read within the context of the transition plan as a whole.

Our data dictionaries and methodologies for preparing our ESG-related metrics and third-party limited assurance reports in relation to certain disclosures can be found on: www.hsbc.com/who-we-are/esg-and-responsible-business/esg-reporting-centre.

Endnotes

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278 Our insurance business has life insurance manufacturing subsidiaries in eight markets Hong Kong, China, Singapore, France, UK, Malta, Mexico, and Argentina. There is also a life insurance manufacturing associate in India. Where we do not have the risk appetite or operational scale to be an effective insurance manufacturer, we engage with a small number of leading external insurance companies in order to provide insurance products to our customers. These arrangements are generally structured with our exclusive strategic partners and earn the Group a combination of commissions, fees and a share of profits. We distribute insurance products in all of our geographical regions.
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285 Our power and utilities target units have been revised from our 2021 analysis, and the target has been revised from 0.14 Mt CO_2e/TWh to 138 tCO_2/GWh due to rounding. The target value remains unchanged.
286 For our current targets we have chosen the Net Zero Emissions by 2050 (NZE) scenario from the IEA. It is 1.5°C aligned with limited overshoot and is also a recommended scenario from the NZBA. While the iron, steel, and aluminium 2030 target is aligned with the IEA Net Zero Emissions by 2050 scenario, we also reference the Mission Possible Partnership Technology Moratorium scenario, whose 2030 reference range is shown in parentheses. For further details, see GHG Reporting Guideline 2022 and third-party limited assurance report at www.hsbc.com/our-approach/esg-information/esg-reporting-and-policies
287 Implementation of our net zero targets remains subject to consultation with our stakeholders including investors, fund boards and regulators.
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Further details on our climate strategy can be found at
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