Standard Chartered

Standard Chartered

Climate Change / Taskforce on Climate-related Financial Disclosures (TCFD) report

December 2019

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2019 Climate Change Disclosures

1. Introduction and Summary

Standard Chartered operates in 60 markets around the world. Many of those are economies where social and economic development is critically dependent on infrastructure and reliable power, and will face significant consequences if action is not taken to tackle climate change. Standard Chartered has a key role to play in facilitating investment into sustainable development in those markets.

Our focus on sustainability and climate change is not new. The renewed momentum from the 'Paris Agreement' on climate change, and the rapid rise of climate risk as a regulatory and financial stability matter has however given it additional emphasis.

In September 2018 we reinforced our initial support for the Paris Agreement by announcing two important steps.

First we committed to align our lending portfolio with the Paris goals of limiting global warming to significantly below 2 degrees, and to develop a methodology by which we could manage and ultimately reduce the emissions related not only to our own activities, but also those linked to our financing of clients.

Secondly we committed to cease financing any new coal fired power stations anywhere in the world, save where there was an existing commitment.

In May 2019, we highlighted some of the challenges we, and others, faced in determining and reducing climate impact, including the lack of consistent reporting by companies of their emissions. We called for banks to work more closely together to tackle this issue, raising the importance of reducing emissions with our respective clients.

We also published a white paper which outlined the methodology by which we would review and measure our emissions within our lending portfolio, working with 2 Degrees Investing Initiative and initially focussing on seven climate relevant sectors; upstream Oil & Gas, shipping operations, automotive, power generation, coal mining, steel and cement manufacturing.

In this report we are providing an update on:

- Our climate risk governance structure and climate risk plan
- Our strategy for reducing emissions
- The progress we have made in reviewing each sector portfolio, including total exposure and average emissions, and next steps

Given the significant emissions and climate impact of coal power, and the growing availability of a low carbon alternative in renewable power, we have prioritised taking actions with this portfolio. We have made two key decisions:

- That we will support our mining, power generation and commodity trader clients who are today dependent on thermal coal to transition their businesses, so that by 2030 we will not bank any clients who are more than 10% dependent^ on coal
- That we will not participate in any 'grandfathered' coal power projects

We believe the steps we have taken in 2019 demonstrate a comprehensive and practical approach to tackling climate change. We have not only taken action to understand and manage our climate related risk, but also to mobilise finance to support sustainable development in our markets.

We recognise that there is much work still to be done; we do not yet have a comprehensive understanding of our exposure to physical and transition climate risks across our geographies and businesses and we know that significantly more investment in sustainable finance is required to enable a just transition. But we are making strong progress, and we are helping to build industry capacity and standards along the way. Whatever context you are reading this in – client, investor, civil society or otherwise – we welcome your comments, your input and your support in this shared endeavour.

^ Defined as % EBITDA from thermal coal at parent group level

2019 Climate Change Disclosures

Aligning to the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD)

2. Who we are

We are a leading international banking group, with a presence in more than 60 of the world's most dynamic markets. Our purpose is to drive commerce and prosperity through our unique diversity, and our heritage and values are expressed in our brand promise, Here for good.

We provide a wide range of banking and financial products and services to personal and business clients, serving four client segments:

- **Corporate & Institutional Banking**
- **Commercial Banking**
- **Private Banking**
- **Retail Banking**

This is our second disclosure pursuant to the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD). It primarily focuses on our actions in the period December 2018 to November 2019.

We will continue to work to enhance our disclosures over time, and to support collaborative efforts to achieve this such as sector TCFD 'preparer forums'.

This document builds on our Climate Change Position Statement **https://www.sc.com/en/sustainability/position-statements/climate-change/**

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3. Climate Change and Standard Chartered

Climate change is one of the greatest challenges facing the world today, given its widespread and proven impacts on the physical environment, human health and its potential to adversely impact economic growth.

Our approach to climate change is structured around managing the ways in which we contribute to climate change, and our exposure to the risks arising from climate change:

1. **Accelerating sustainable finance** by supporting the low-carbon transition (e.g. renewable energy) and building resilience to physical climate risks (e.g. adaptation infrastructure), providing finance in the locations most vulnerable to, and least prepared for climate risk

2. **Reducing our direct and financed emissions** in alignment with the Paris Agreement goal to limit global warming to significantly below 2 degrees

3. **Managing the financial risk from climate change** by developing the ability to systematically identify and assess climate risk and building this into our mainstream risk management practices and governance

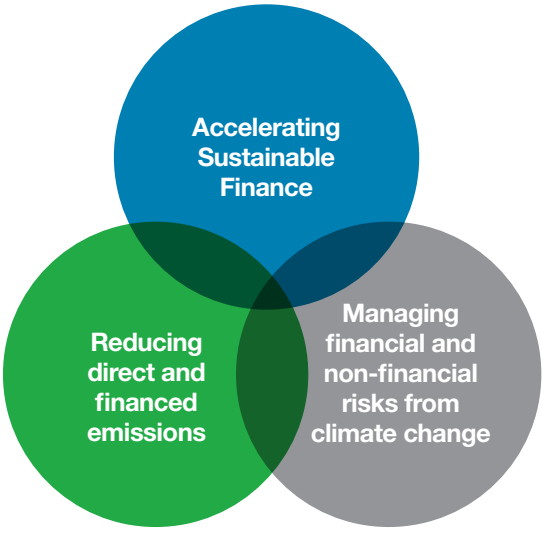


Figure 1: Our Approach to Climate Change

We have taken a range of actions over time consistent with this:

2007 Signed Corporate Leaders Group Communique on Climate Change and UNEP-FI Declaration on Climate Change

2007 Set Clinton Global Initiative target to mobilise 2007 USD8-10 billion toward renewable energy and clean technology 2007-12

2007 Formed Renewable Energy & Environmental Finance team

2008 Set long-term energy reduction targets for our own footprint, to reduce our climate impacts

2009 Developed Environment and Climate Change policy, bringing together our actions

2010 Published Climate Change Position Statement

2016 Updated Climate Change Position Statement, including a target to fund and facilitate USD4bn toward clean technology 2016-2020 and a commitment to end direct financing of coal mines

2017 Designated climate change as a Principal Uncertainty in our risk management framework, publicly supported TCFD recommendations

2018 Published commitment to end direct financing of new coal-fired power plants, and to work to measure and ultimately reduce the impact of emissions associated with our financing

2018 Formed new Sustainable Finance team, to help bring capital to sustainability and climate solutions where it matters most

2019 Created a comprehensive workplan to develop and implement a climate risk framework, and a new Climate Risk team formed within Enterprise Risk Management. Joined Coalition for Climate-resilient Investment and UN Collective Commitment on Climate Action. Published financed emissions 'white paper'. Announced approach to coal-dependent clients, and new $35bn renewable financing target 2019-2023

Climate change presents a mix of physical and transition risks and opportunities for countries, businesses and individuals. The financial sector has an important role to play in helping to deliver the 2015 Paris Agreement goals of holding the increase in the global average temperature to well below 2°C above preindustrial levels and pursuing efforts to limit temperature increase to 1.5°C, supporting climate adaptation, and directing finance flows toward a low carbon transition.

"Standard Chartered was the stand-out Emerging Markets-focused bank in Autonomous Research's 2019 benchmarking of the world's leading 45 banks, ranking in the top quintile."

Stuart Graham - Head of Banks Strategy, Autonomous

4. Governance Pillar

Recognising the impact and complexities of climate change, in 2017 we designated it as a Principal Uncertainty within our Enterprise Risk Management Framework (ERMF). We are integrating climate risk further into our ERMF, recognising its importance and relevance to our business model and the communities and clients we serve.

The Board approved a Climate Risk Appetite Statement in November 2019: *"The Group aims to measure and manage financial and non-financial risks from climate change, and reduce the emissions related to our own activities and those related to the financing of clients in alignment with the Paris Agreement".*

Under the PRA's Supervisory Statement 3/19 "Enhancing banks' and insurers' approaches to managing the financial risks from climate change",[1] we are required to assign responsibility for managing the risks arising from climate change to an appropriate Senior Management Function (SMF) under the Senior Managers Regime (SMR). We have assigned relevant SMF responsibilities to our Group Chief Risk Officer; this is consistent with responsibilities for other mainstream financial risks.

Our **Group Chief Risk Officer** is supported in his responsibilities as follows:

Global Head, Enterprise Risk Management (GH, ERM): centrally responsible for second line of defence activities for climate risk, which currently includes development and implementation of a Group-wide climate risk framework. The GH, ERM aids the Group Chief Risk Officer with day-to-day oversight of the risk and line management of the Climate Risk Team.

Climate Risk Team: We have built a central climate risk team within Enterprise Risk Management, with dedicated focus on climate risk management. Given the cross-cutting nature of climate risk and its far-reaching depth, the central team works very closely with various other risk specialists and business areas.

Climate Risk Management Forum: To support the Group Chief Risk Officer in discharging his SMF responsibility, we have established a Climate Risk Management Forum. The Forum consists of senior business, risk and strategy leaders and is tasked with overseeing the development and implementation of the climate risk framework.

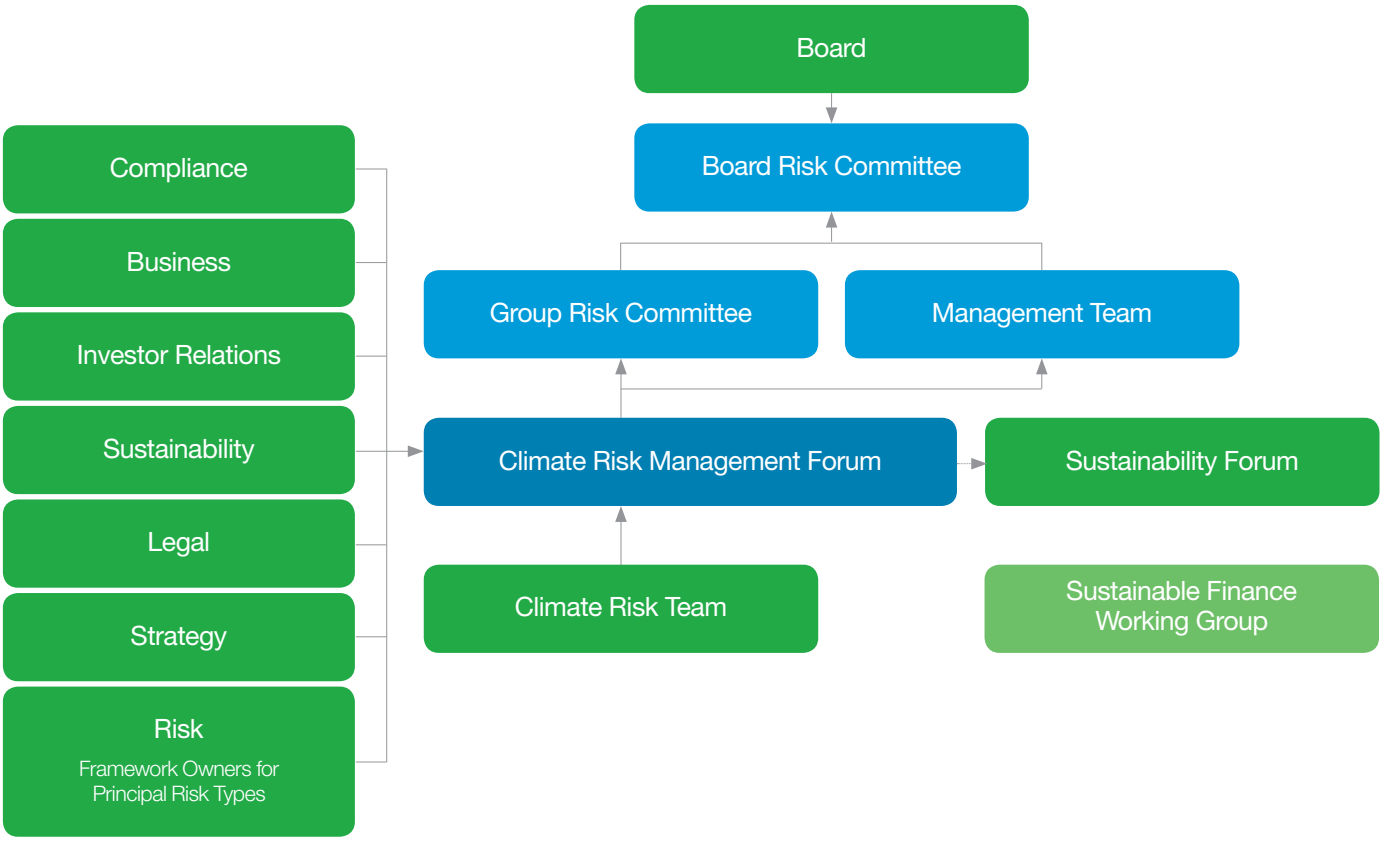


Figure 2: Climate Risk and Opportunity Governance Structure

1 https://www.bankofengland.co.uk/prudential-regulation/publication/2019/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-change-ss

The **Group Risk Committee** (GRC) receives quarterly updates on the Group's progress in climate risk management.

Our **Board** has a diverse range of experience and backgrounds, and Board members may have prior exposure to climate change and climate risk themes in other organisations.

The **Board Risk Committee** (BRC) receives biannual updates on climate risk.

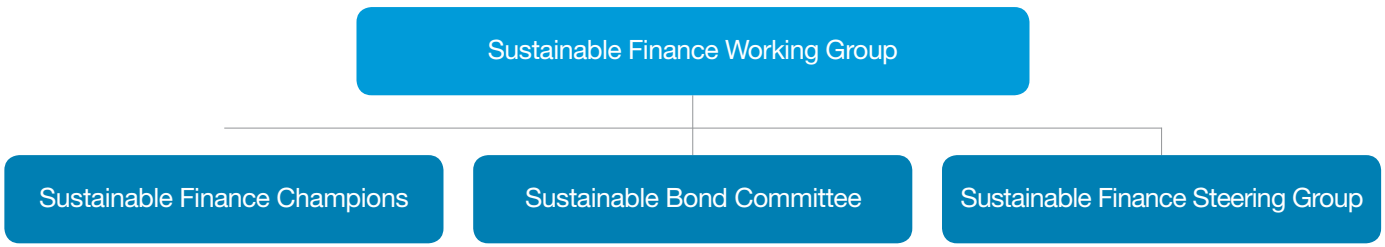
We are delivering dedicated training sessions to various business segments and functions across all three lines of defence, and initial training has been provided to the whole Board in September 2019. Our climate risk workplan was presented to the BRC and the Board as part of this training.

We periodically update our Committee Terms of Reference and will amend these in line with our treatment of climate risk in our Enterprise Risk Management Framework during the next update cycle.

"Standard Chartered has been one of the banks at the forefront of key UNEP FI initiatives on climate change and sustainable development in 2019. It has been one of the Founding Signatories of the Principles for Responsible Banking, joined the banking-industry's most far-reaching commitment to align with global climate goals and contributed significantly to UNEP FI's second TCFD pilot this year. Through its leadership, Standard Chartered has helped drive the change towards a sustainable banking industry, promote ambitious global standards and build capacity in many parts of the world."

Simone Dettling - Banking Team Lead, UNEP-FI

We also have a governance structure, based around our **Sustainable Finance Working Group**, which oversees our response to sustainable finance including climate finance opportunities:



4.1 Principal Uncertainty

Principal uncertainties refer to unpredictable and uncontrollable outcomes from certain events and circumstances which may have the potential to have a material impact on our business. We currently designate climate risk as a Principal uncertainty and are in the process of recognising its importance in the Enterprise Risk Management Framework itself. In our H1 2019 results, we described this as follows:

"The risk remains at similar levels as at the end of 2018

- *We are developing a climate risk framework to deliver a consistent group-wide approach to climate risk management. We are also a member of the Risk Management Working Group under the PRA and FCA's joint Climate Financial Risk Forum*
- *We have reduced our risk appetite to carbon-intensive sectors by introducing technical standards for coal-fired power plants, and restrictions on new coal mining clients and projects. In September 2018, we announced that we would no longer provide financing for new coal-fired power plants anywhere in the world. In February 2019, we communicated that we would no longer trade coal-based derivative products*
- *We achieved, two years ahead of schedule, our public target to fund and facilitate $4 billion toward clean technology between 2016 and 2020"*

4.2 Platforms and Initiatives:

Climate change is a shared global challenge. Whilst we have taken a wide range of actions in response, we also believe collaborative action is needed. We see collaboration with clients, peer banks, industry experts and regulators as key to overcoming the collective challenges in the approach to managing climate risks.

To support this, we are part of the following:

Platform	Objectives and progress
United Nations Environment Programme for Financial Institutions (UNEP-FI): TCFD Pilot	→ We participated in the 'Phase 1' TCFD pilot during 2017 and 2018, and contributed to the summary reports 'Extending our Horizons' on transition risk and 'Navigating a New Climate' on physical risk. → Since mid-2019, we have been participating in the 'Phase 2' TCFD pilot alongside a larger group of 29 banks. → In 2019 we used UNEP-FI's Asia Regional Roundtable in Beijing to raise awareness of our climate and emissions work. → We are a member of UNEP-FI's Climate Resilience Risks and Opportunities Coalition.
Katowice Commitment	→ In December 2018, we came together with four international banks to sign the Katowice Commitment, pledging to align lending portfolios with global climate goals → We have worked closely with Katowice Commitment signatory banks during 2019 and continue to do so. In September 2019 we hosted a meeting of the Katowice Commitment banks as part of New York Climate Week. → Our collaboration has aided our piloting of the 2 Degrees Investing Initiative' Paris Agreement Capital Transition Assessment (PACTA) tool.

Platform	Objectives and progress
Science Based Targets Initiative (SBTI)	→ In 2018, we set Science Based Targets for our own organisation footprint (Scope 1' and 'Scope 2). → Recognising that the emissions enabled by our financing are orders of magnitude greater than those from our own operations, we also joined the Financial Institutions' 'Expert Advisory Group'. → Through this, we have piloted two tools (PACTA, and the Sectoral Decarbonisation Approach) described in our May 2019 'white paper'. We have shared our experience in SBTI-hosted webinars, and at an in-person roadtesting workshop.
United Nations Environment Programme for Financial Institutions (UNEP-FI): Collective Commitment to Climate	→ Building on the commitments we had made in September 2018 to "measure, manage and ultimately reduce the emissions related to its activities and those related to the financing of its clients" and our participation in the Katowice Commitment, in September 2019 we signed the Collective Commitment to Climate Action. → This brings together 33 banks to further drive action.
Coalition for Climate Resilient Investment	→ In September 2019, we joined the Coalition. This seeks to bring together over 30 organisations across the investment value chain to address climate resilience challenges.
University of Cambridge Banking Environment Initiative (BEI) Bank 2030	→ Since 2018, we have been working with the BEI and a range of banks to produce a banking roadmap for how the sector can accelerate financing the low carbon transition and provide practice guidance for Chief Executives and professionals on banking that supports the transition to a low carbon economy.
Asia Sustainable Finance Initiative	→ We support the work of the Asia Sustainable Finance Initiative, and during June 2019 collaborated on a workshop in Singapore to share our experiences in developing our emissions white paper and 2018 TCFD report
Global Commission on Adaptation	→ During 2019, we were a Review Panel member for the Global Commission on Adaptation's report **'Driving Finance Today for the Climate Resilient Society of Tomorrow'**
PRA and FCA's joint Climate Financial Risk Forum: Risk Management Working Group	→ We are a member of the Risk Management Working Group, which is aiming to produce a practical handbook for climate risk management by Q1 2020.

Table 1: Platforms and Initiatives

We also work on climate-related topics as part of our involvement with banking sector trade associations. Key memberships include the Institute for International Finance (IIF), Association for Financial Markets in Europe (AFME) and European Banking Federation (EBF).

We are seeing, and contributing, to growing dialogue across our footprint on climate risk. During the past year we have participated in dialogue with a wide range of regulators and regulatory platforms. This included presenting at the Hong Kong Monetary Authority's inaugural 'HKMA and IFC Seminar on Greening Financial Institutions', contributed to the Monetary Authority of Singapore's survey of market practices, and presenting at Bank Negara Malaysia's Regional Conference on Climate Change. Key international regulatory platforms include the central banks and regulators' Network for Greening the Financial System (NGFS) and the International Organisation of Securities Commissions (IOSCO).

"We have been proud to partner with Standard Chartered and the four other Katowice Banks, who set a market-leading example in December 2018 by pledging to measure the Paris Agreement alignment of their lending portfolios and explore ways to contribute towards emissions reductions in the real economy. By working with us to road-test the Paris Agreement Capital Transition Assessment (PACTA) climate scenario analysis tool for lending portfolios, Standard Chartered is playing a key role in developing an industry-wide approach that can help to significantly boost transparency and collective efforts to fight against climate change."

Jakob Thomä - Managing Director, 2 Degrees Investing Initiative

Many of our investors engage us on the topic of climate change, either directly or through sustainability / ESG indices and analysts. In particular we appreciate Boston Common's feedback on our 2018 TCFD report and efforts to survey market practices via their 'Bank Climate Survey'. During 2019 we discussed climate change in a number of bilateral discussions with investors.

We also use the following sources to assess our response to climate change, and are working to identify other sources:

Source	Status
CDP Climate	→ 'C' rated in 2018. We are currently awaiting our 2019 score, and also welcome a finance-sector specific CDP questionnaire from 2020
Autonomous Research	→ 7th ranked firm from 43. "StanChart is the stand-out EM bank", "We were also positively surprised at how well StanChart (Outperform) screened in our analysis"
GARP[2]	→ One of the most advanced

Table 2: External assessment

2 https://www.garp.org/#!/garp-risk-institute/climate-risk-management-survey

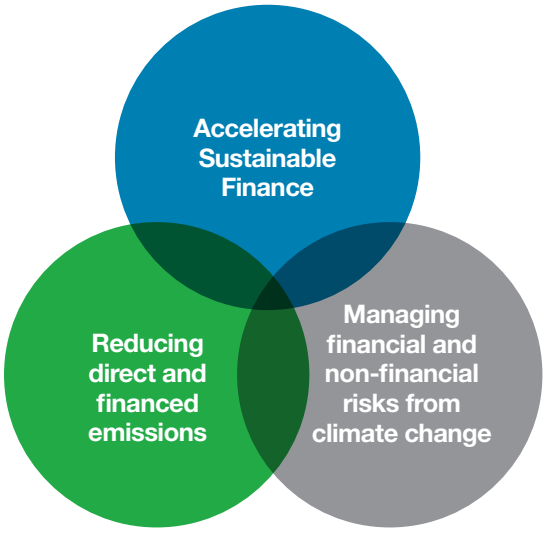
5. Strategy Pillar

Our Purpose is to drive commerce and prosperity through our unique diversity. We are committed to promoting economic and social development in the markets we serve, doing so sustainably and equitably in line with our Purpose. Our Sustainability Philosophy sets out how we integrate sustainability into our organisational decision-making.

We have an inherently diversified business model – drawing upon revenue from four client segments, over sixty markets, and serving all sectors of the economy. Whilst this reduces our vulnerability to any specific sub-set of climate risk and offers us a wide range of climate-related opportunities, it also increases the breadth of analysis and action we must take to respond to and enable the low carbon transition.

We believe our markets have a meaningful role to play in mitigating climate change, reflecting the concept of 'common but differentiated responsibilities'.[3] Our markets can be susceptible to physical impacts from climate change due to their lower levels of investment in adaptive capacity. This applies to government across our markets and the clients we serve across our segments.

In September 2018, we made a strategic commitment to "measure, manage and ultimately reduce" emissions related to our activities and those related to the financing of our clients, in support of the Paris Agreement goals to limit global warming to significantly below 2 degrees.[4]



To better serve our clients' sustainable finance needs and build on the significant experience we have gained to date including in relation to climate change, in October 2018 we created a Sustainable Finance team. The team has created a Bank-wide Sustainable Finance strategy, covering all four client segments and continues to develop new products and solutions, further incorporating environmental, social and governance considerations into banking decisions, and identifying sustainable finance opportunities for clients.

In 2019, we were awarded Best Bank for Sustainable Finance by Global Finance, Best Bank for Sustainable Finance in Africa by Euromoney, and Best Bank for Green Financing by Finance Asia. We were also recognized as the leading bank for Blended Finance – where development finance is blended with commercial capital for positive impact – by Convergence, the blended finance network.

We have engaged several hundred of our largest corporate and institutional clients on how we can support their transition to a low carbon economy and engaged more than 10,000 retail and private bank clients on ESG and impact finance. We have convened a number of industry roundtables on climate and sustainability including in shipping, metals and mining and Islamic finance. We are also developing a series of enhanced questionnaires to collect and collate emissions data from our clients via our Environmental and Social Risk Assessment (ESRA) templates. We expect to roll this out in 2020. In the private bank, we developed 'ESG Select', a proprietary in-house due diligence framework to more deeply curate ESG solutions from our open architecture platform. This is aimed at mitigating the risk of 'green or ESG washing'.

We are committed to growing renewable power as a viable alternative, especially in emerging markets. Having successfully achieved our USD 4bn financing target a year ahead of our 2020 goal, we finalised a new strategy that sees a significant step up in our ambition to finance and facilitate over USD 35bn in clean technology and renewables by 2025.

3 This concept reflects the different roles of individual states in contributing to historic emissions, and their capabilities to pay toward climate mitigation and adaptation
4 https://www.sc.com/en/media/press-release/weve-announced-further-steps-to-support-the-paris-agreement-on-climate-change/

We have also continued to innovate to find ways to mobilise new capital to where it matters most. We published a new Green and Sustainable Product Framework[5], externally verified by Sustainalytics. We issued our inaugural sustainability bond[6] linked to the UN Sustainable Development Goals and focused on impact within emerging markets. We also successfully launched the world's first sustainable deposit product[7] for both retail and corporate and institutional clients, which is now available in Hong Kong, London, New York and Singapore.

We have seen continued momentum in our green and sustainable financing for existing clients. We have executed more than USD 17bn in green and sustainable bond mandates, over a 60% increase on previous years and our green and sustainable loan activity has grown from USD 11bn to 29bn. Our support for microfinance institutions in Asia and Africa remains a core focus.

5.1 Remuneration

For calendar year 2019 we have had no direct linkage between our response to climate change, and our executive remuneration through our Group Scorecard. However, we are actively reviewing this in 2020.

Certain individuals with responsibility for managing climate risks and opportunities have responsibilities or performance objectives which link their remuneration to this theme. These include individuals in:

- Enterprise Risk Management and Climate Risk
- Sustainable Finance
- Group Sustainability
- Workplace (for our footprint emissions targets)

6. Risk Pillar

6.1 Climate scenarios

In our work to date, particularly through PACTA, we have worked with the following scenarios:

The Sustainable Development Scenario (SDS) (≈1.7-1.8°C in median temperature rise by 2100), which sets out a peak in energy-related CO_2 emissions before 2020 (then halved by 2040 and net-zero by 2070) and a share of renewables (in power generation) of 65% in 2040. Thanks to gains in energy efficiency, global final energy consumption stays flat despite the doubling in economic output. Prescribes carbon neutrality of the entire energy system by 2100.

The Beyond 2 Degree Scenario (B2DS) (50% chance of +≤1.75°C by 2100), which posits the wide deployment of already-available, most-efficient technology, notably Carbon Capture and Storage (CCS). Electricity becomes the largest final energy carrier: the share of fossil fuels in primary energy demand drops from 82% in 2014 to 35% in 2060. Prescribes carbon neutrality of the entire energy system by 2060. ("The gap between [the B2DS] and current efforts is immense and unlikely to be bridged without an unprecedented acceleration of action on a global level." - IEA ETP 2017, p.21)

The Current Policies Scenario (CPS)[8] is based solely on existing laws and regulations as of mid-2018, and therefore excludes the ambitions and targets that have been declared by governments around the world and provides a baseline for World Energy Outlook analysis.

The New Policies Scenario (NPS)[8] provides a measured assessment of where today's policy frameworks and ambitions, together with the continued evolution of known technologies, might take the energy sector in the coming decades. The policy ambitions include those that have been announced as of August 2018 and incorporates the commitments made in the Nationally Determined Contributions under the Paris Agreement, but does not speculate as to further evolution of these positions. Where commitments are aspirational, this scenario makes a judgement as to the likelihood of those commitments being met in full. It does not focus on achieving any particular outcome: it simply looks forward on the basis of announced policy ambitions."

5 https://av.sc.com/corp-en/others/green-sustainable-product-framework.pdf
6 https://www.sc.com/en/explore-our-world/first-sustainability-bond-focus-on-emerging-markets/
7 https://www.sc.com/en/explore-our-world/weve-launched-the-worlds-first-sustainable-deposit/
8 World Energy Outlook 2018, International Energy Agency www.iea.org

Our work with the UNEP-FI TCFD pilots has supported our dialogue with the scenario modelling community. We participated in a workshop in Paris with Potsdam Institute for Climate (PIK) and the International Energy Agency (IEA) in November 2018, and the January 2019 Bank of England event on 'Macroeconomic and Financial Stability Implications of Climate Change' which explored scenarios and climate models in detail.

As a result of this engagement and our work with scenarios to date, we are gaining a better understanding of the assumptions implicit in various scenarios. We endeavour to play a contributory role in the development of enhanced scenarios which meet the needs of the financial sector, and are in the process of appointing an academic advisor to assist us in this. We intend to develop complete scenario analysis capabilities in time for the 2021 Biennial Exploratory Scenario (BES) stress test.

Our approach to broader climate risk-related scenario analysis is aligned to the NGFS recommendations[9] in considering four broad categories of scenario:

Figure 3: Climate Risk-related Scenario Analysis

In our business planning, we consider 'short term' to be less than two years, 'medium term' to be two to five years, and long term to be beyond this. Parts of our climate change analysis use an outer time horizon of 2040, but 70 percent of our loans and advances to Corporate and Institutional and Commercial clients have a maturity of less than one year.

9 https://www.ngfs.net/en/first-comprehensive-report-call-action

6.2 Risk taxonomy and transmission channels

National governments have, through the UN Framework Convention on Climate Change (UNFCCC) process and Paris Agreement, made commitments to enact policies which support the transition to a lower-carbon economy, limiting global warming to less than 2°C and therefore mitigating the most severe physical effects of climate change. Such policies may however have significant impacts, for example, on energy infrastructure developed in our markets or in the automotive sector, and thus present 'transition' risks for our clients.

Conversely, if governments fail to enact policies which limit global warming, many of the Group's markets are particularly susceptible to 'physical' risks of climate change such as droughts, floods, sea level change and average temperature change. There is growing stakeholder interest in these risks, including from investors, regulators and civil society. We are working with external experts to assess climate-related risks and opportunities.

We are aligned with the UK Prudential Regulation Authority's (PRA) expectations on responding strategically, integrating climate risk into mainstream risk frameworks, policies and processes, and assessing longer-term risks and sensitivities arising from climate change. We have developed a climate risk plan, discussed within this document.

Following our Risk taxonomy defined by the Enterprise Risk Management Framework, Credit, Traded, Operational, Country, Capital and Liquidity, Compliance and Reputational are the Principal Risk Types (PRTs) identified as being most impacted by climate risk. We have a plan in place to update the relevant Risk Type Frameworks over the course of 2020.

Figure 4: Principal Risk Types (Blue = financial, Green = nonfinancial)

6.3 Capital

As noted in figure 4, we recognise the links between climate risk and capital adequacy for financial institutions, including the need to assess the impact of longer-term climate scenarios on business models. The Bank of England Exploratory Stress Tests will aid us in this work, but at present we have not identified any climate-related adverse impact, which is not already captured in our Pillar 1 and Pillar 2 assessments, on our capital adequacy in the short term.

6.4 Risk assessment tools

We are currently piloting two tools for physical risk assessments: Munich RE's Natural Hazards Assessment Network (NATHAN) tool for physical risk, widely used by reinsurance companies for hazard risk scoring; and 427mt's risk assessment tool. These pilots will inform our evaluation process for vendor solutions for a longer term strategic partnership.

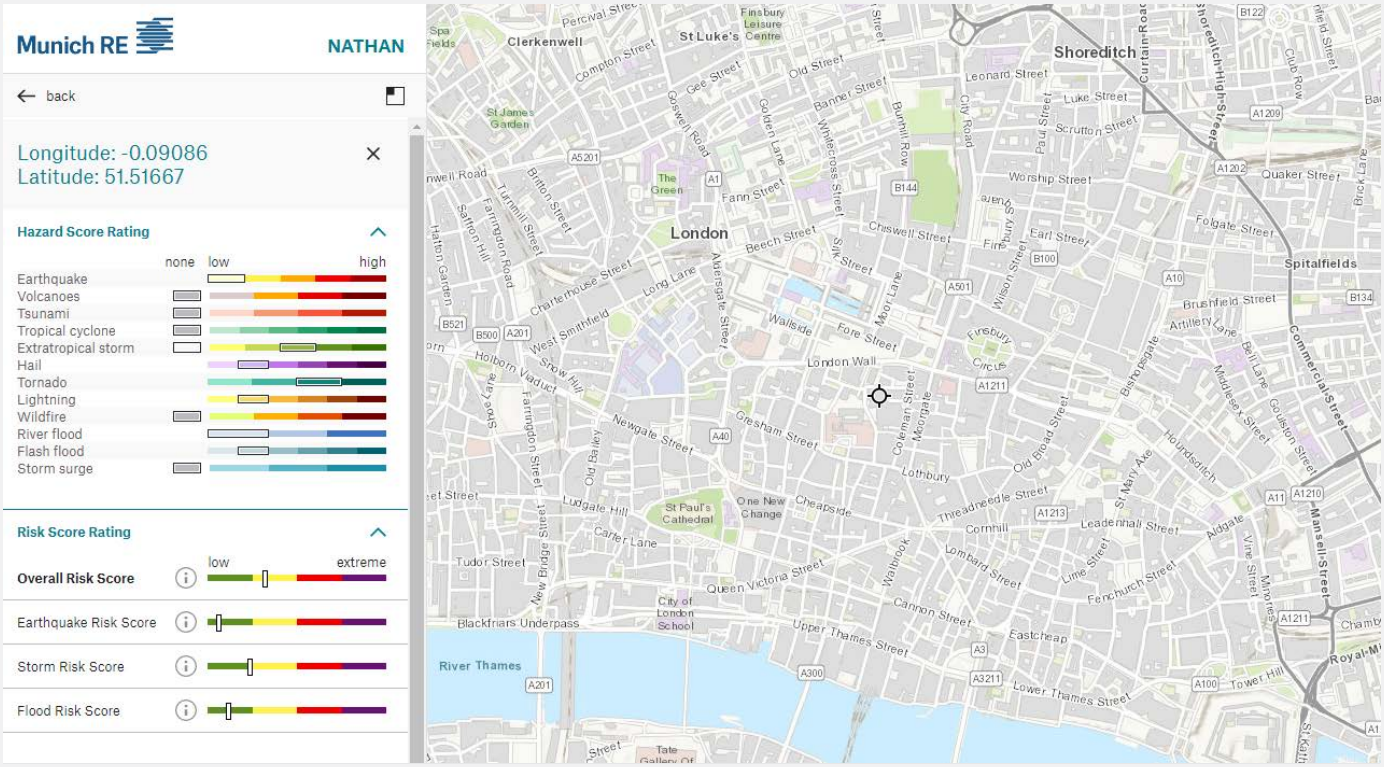


Figure 5: Munich RE's Natural Hazards Assessment Network tool

Physical climate risk assessment

1 Basinghall Avenue, London, GBR. Acitivty: Office

Climate Hazard	Risk Level
Floods	→ Low
Heat Stress	→ Low
Hurricanes & Typhoons	→ Low
Sea Level Rise	→ None
Water Stress	→ Medium

Figure 6: Assessment of our London office using 427mt's tool

We have also been involved in piloting the 2 Degrees Investing Initiative's Paris Agreement Capital Transition Assessment (PACTA) tool for banks on transition risks, which is discussed further below.

6.5 Identification of Climate Risks and Opportunities

Our capacity to identify climate risks is continually improving, and we are trialling a number of approaches to support this. We would categorise our early efforts in risk identification as 'top down', looking at carbon-intensive sectors and geographical concentrations of exposure. Over time we endeavour to develop 'bottom up' capabilities, utilising information on specific counterparties and exposures.

At present, our total loans and advances to the sectors deemed as high-transition risk is less than 10% of our total loans and advances, which provides comfort that our portfolio will be reasonably resilient to any short-term transition risks. The following points are important to understand table 3:

- Exposures are aggregated based on the International Standard Industrial Classification (ISIC) codes, and should not be assumed to be entirely attributable to high emissions or high transition risk. For example, our financing for renewable power projects for a client tagged to the Power generation ISIC code (4010) is included in the table below.
- As such, these exposure figures alone, or any trends in them, should not be read as the only measure to gauge transition risk or financed emissions.

As part of the development of the climate risk framework, we will continue to enhance how we define exposures, sectors or sub-sectors deemed to be 'high transition risk'.

We emphasise the critical role of information from our clients and counterparties to develop our capabilities. We will continue to be an active advocate for widespread and consistent TCFD disclosures from all sectors of the economy and in all our markets.

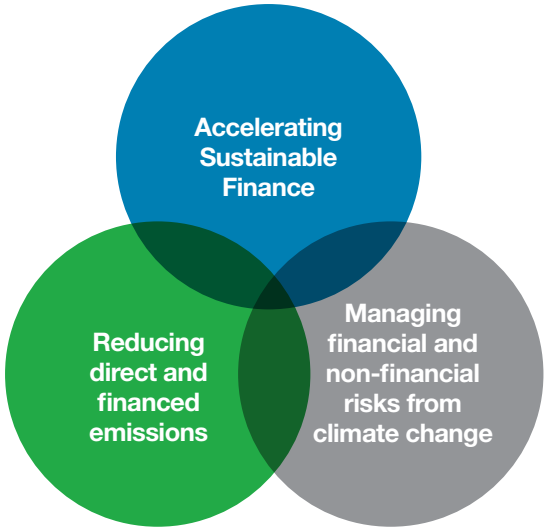
Sector	ISIC(s)	Exposure Dec'17	Exposure Dec'18	Exposure Sep'19	<1yr Maturity Sep'19	Value Chain Component
Automotive	3853	2,449	2,464	3,536	70.3%	Manufacturers
Cement	3640, 3650	1,324	1,094	1,096	52.2%	Production
Steel	3710	2,922	2,097	2,815	77.8%	Production
Fossil Fuels Coal	2100,	395	284	302	48.2%	Extraction
Oil & Gas	2200, 2201, 2202, 2203	6,055	5,509	4,376	29.9%	
Power	4010	4,164	4,128	4,092	28.2%	Generation
Shipping	Based on internal tagging	5,349	4,890	5,103	23.8%	Operation
Aviation	7131	2,338	2,620	2,388	22.5%	Operation

Table 3: Carbon-intensive sector exposures

We note the growing interest from some stakeholders on our non-lending activities with clients in climate-affected sectors – such as advisory transactions or bond issuance. At present we do not report such activities on a sector basis, and will explore this with stakeholders during 2020 with a view to enhancing our 2020 TCFD report.

7. Measuring our Climate Alignment

In September 2018,[10] we commenced work to allow us to measure, manage and ultimately reduce the emissions related to our financing of clients in support of the Paris Agreement. This includes our participation in the December 2018 Katowice Commitment, and the publication of our Emissions White Paper[11] in May 2019.



Our emissions measurement work has focussed primarily on piloting the 2 Degrees Investing Initiative (2dii) PACTA[12] tool for banks, which whilst still in development, focusses on seven industry sectors that significantly contribute to global carbon emissions, at different points in the value chain.

Piloting the PACTA tool has significantly advanced our understanding of our clients' emissions profiles, several climate scenarios and alignment measurement, whilst also shaping our wider approach to climate transition risk. Emissions produced or enabled by a sector are often seen as a primary indicator of high transition risk, although manifestation is dependent not only on sectoral considerations but also on geography, disruptive technological developments, shifting consumer preference and individual company action to mitigate transition risks, through strategy and business model adjustment.

We are also working with a number of financial institutions, think tanks and technology solution providers to support emissions measurement and climate alignment capability across our entire lending portfolio, although gathering consistent client level emissions data and matching a diverse banking portfolio to companies in the real economy remains a globally recognised challenge.

7.1 Emissions Measurement Approach

The PACTA tool provides a client-level view of emissions intensive industry sectors, namely Automotive, Power Generation, Fossil Fuels Extraction, Shipping, Aviation, Steel and Cement Manufacturing, which can then be compared against specific scenario benchmarks to measure alignment. This covers part of the value chain for each sector, as shown in this 2dii graphic:

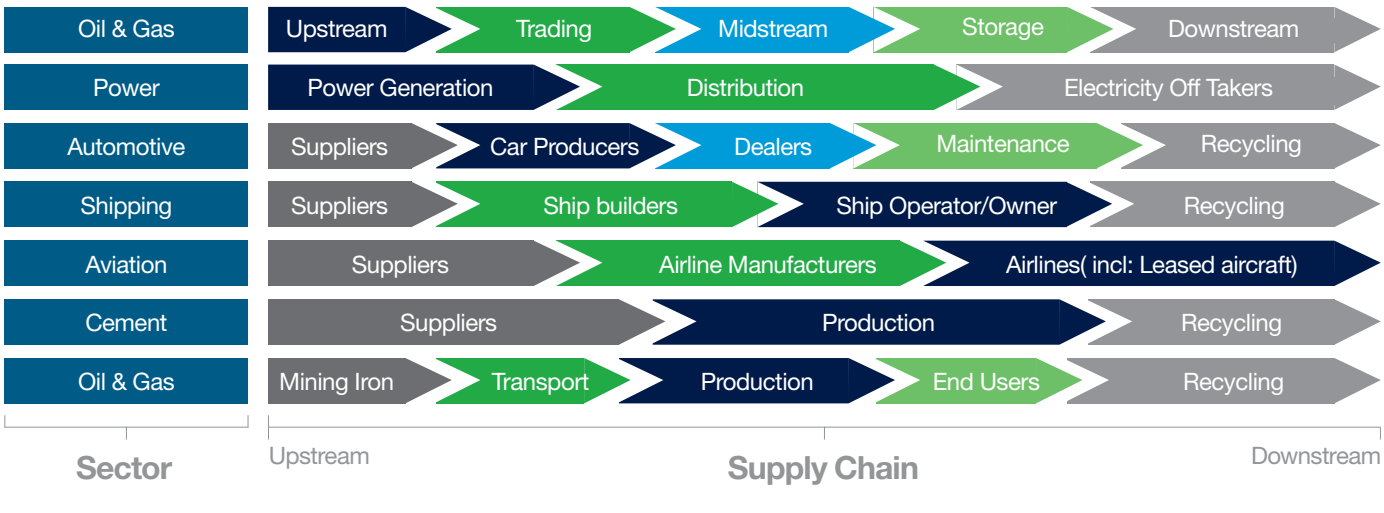


Figure 7: Carbon intensive sectors and value chain

10 https://www.sc.com/en/media/press-release/weve-announced-further-steps-to-support-the-paris-agreement-on-climate-change/
11 https://av.sc.com/corp-en/content/docs/emissions-whitepaper.pdf
12 https://2degrees-investing.org/pacta/

For some sectors, the methodology has gone a step further in providing emission intensity at a client-level, which is critical to understanding our financed emissions profile and enabling us to set targets.

A team including client relationship managers has reviewed the PACTA outputs and compared results against clients' public disclosures and our deep understanding of their business profile. Our initial findings suggest that further work is required around documentation of assumptions to enable validation of the PACTA outputs accurately. This is critical where data is gathered at a higher level of granularity (e.g. at a client entity level), and for forward-looking projections. We are working with 2dii and other Katowice banks to establish this, and to further engage with our clients to take this forward.

We recognise the PACTA methodology is a work in progress and is being enhanced with the pilot feedback from Standard Chartered and other participating banks. However, given the urgency around climate change and our longstanding commitment to transparency, we are disclosing for the first time our current financed emission intensities for the automotive and cement manufacturing portfolio, to help support dialogue with a range of stakeholders.

Sector	Status	Next Steps
Automotive	Emissions intensity metric provided at a client-level. Baseline metric calculated and weighted against corporate lending portfolio.	Further analysis comparing PACTA and client derived data. Forward looking projections work in progress, to support target setting.
Cement	Emissions intensity metric provided at a client-level. Baseline metric calculated and weighted against corporate lending portfolio.	Further analysis comparing PACTA and client derived data. Forward looking projections work in progress, to support target setting.
Steel	Emissions intensity metric provided at a client-level. Initial review performed with existing methodology.	Methodology requires further refinement. In collaboration with 2dii and Katowice banks for delivery.
Power	Distribution of installed capacity (in GW) across energy sources (oil, gas, coal, hydropower, nuclear energy and renewable energies) provided.	Explore application of emissions factors and assumptions to derive an accurate emission-intensity for the portfolio.
Fossil Fuels (Coal, Oil, Gas)	Energy/Technology Mix for the distribution of total converted energy (in GJ) across primary energies (oil, gas and coal).	Explore application of emissions factors and assumptions to derive an accurate emission-intensity for the portfolio.
Shipping	Existing methodology uses EVDI (Existing Vessel Design Index) to approximate a ship's theoretical emissions on peer group comparison, though a considerable portion of ship emissions is based on operations.	Methodology requires refinement. In collaboration with 2dii and Katowice banks for delivery.
Aviation	Methodology remains work in progress.	Methodology requires further refinement. In collaboration with 2dii and Katowice banks for delivery.

Table 4: Progress summary on sectors in PACTA scope

7.2 Why Auto and Cement Manufacturing?

As of December 2018, our total portfolio in scope for the PACTA pilot analysis was USD 20.9bn out of a total of USD 269bn, out of which the PACTA database provides information at either the entity or group level for over 80% of our portfolio. Automotive and cement manufacturing were two of the sectors with higher data availability, including client-level carbon emissions intensities. Given the pilot nature of PACTA equivalent data is not currently available across all seven sectors covered by the method.

We provide further detail on these two sectors in **Appendices 2 and 3** of this report:

- For **Automotive** the simple average emissions-intensity of our portfolio is 221.4 g CO_2/km, marginally below the global market average of 225.3 gCO_2/km (based on all companies in the PACTA database).
- For **Cement** the simple average emissions-intensity of our portfolio is 0.67 t CO_2/t cement, below the global market average at 0.70 t CO_2/t cement.

To determine the emissions enabled by our financing, it is necessary to match financing and emissions as far into the corporate structure as possible. Whilst we were able to match >80% of clients to the PACTA database, a considerable portion of these were at client 'group' level and further work is needed to refine matching down to subsidiary entity level.

7.3 Collaboration

We are also keen to help promote knowledge and practice across the banking sector, and have led a number of outreach events during 2019 in support. We are particularly pleased to see a wider group of 33 banks from across our footprint participate in the UNEP Collective Commitment on Climate Action, and believe we have a unique opportunity to help support climate alignment across Asia, Africa and the Middle East.

We continue to work with 2dii and the Katowice Commitment banks to support more information on the PACTA to be made publicly available in the coming months.We participated in an in-person workshop with 2dii in Paris in October 2019 and further workshops are planned for 2020. The goals of publishing more information are to enable enhanced stakeholder dialogue and improvement of the methodology, and to move toward a position where banks outside the pilot group can examine PACTA and understand how they may adopt it within their organisations.

7.4 Next Steps

With close collaboration with our key partners, we have made a good start, although there is significant work still to do. Of the seven sectors currently in scope, we have provided baselines for two and are continuing our work with a view to identifying emissions baselines and targets for the remainder. The PACTA tool for calculating our corporate lending portfolios financed emissions intensity is continually evolving, with ongoing development to improve and provide measurement for other carbon intensive sectors. Global company level emissions data consistency, and inclusion of supporting industries across the carbon-intensive supply chain is necessary to allow for more comprehensive measurement coverage across the corporate lending portfolio.

For automotive and cement, we are engaged in client conversations to validate the results of our assessment and help refine the methodology, which is critical to ensuring the methodology can be implemented into decision-making processes within banks. Our ultimate objective is to have a clear path to aligning our lending in these sectors to the long-term goals of the Paris Agreement, and to achieve this through supporting our clients with the capital they need as they transition their businesses and reduce their carbon emissions.

8. Focus on Risk Response: Coal Dependent Clients

In September 2018, we announced that, save where we had an existing commitment, we would cease providing financing for new coal-fired power plants anywhere in the world. This announcement followed detailed consultation with a range of stakeholders.

Since then, we have been working to review our approach to mining, power generation and commodity trader clients who are dependent on thermal coal.

We have taken the decision to only support group level clients who have reduced their exposure to thermal coal below 10% by 2030. To support our clients to transition their businesses ahead of this date, we have set interim targets as follows:

- By January 2021, we will have no group level clients who are 100% dependent on earnings from thermal coal
- By January 2025, we will extend this threshold to group level clients who are greater than 60% dependent on earnings from thermal coal
- By January 2027, we will extend this threshold to group level clients who are greater than 40% dependent on earnings from thermal coal
- By January 2030, we will extend this threshold to group level clients who are greater than 10% dependent on earnings from thermal coal

Through the above commitment, we are reducing our support for thermal coal at a faster rate than well-established Paris Agreement-aligned scenarios from the Internal Energy Agency (IEA) (please see section 6.1 for further detail on scenarios).

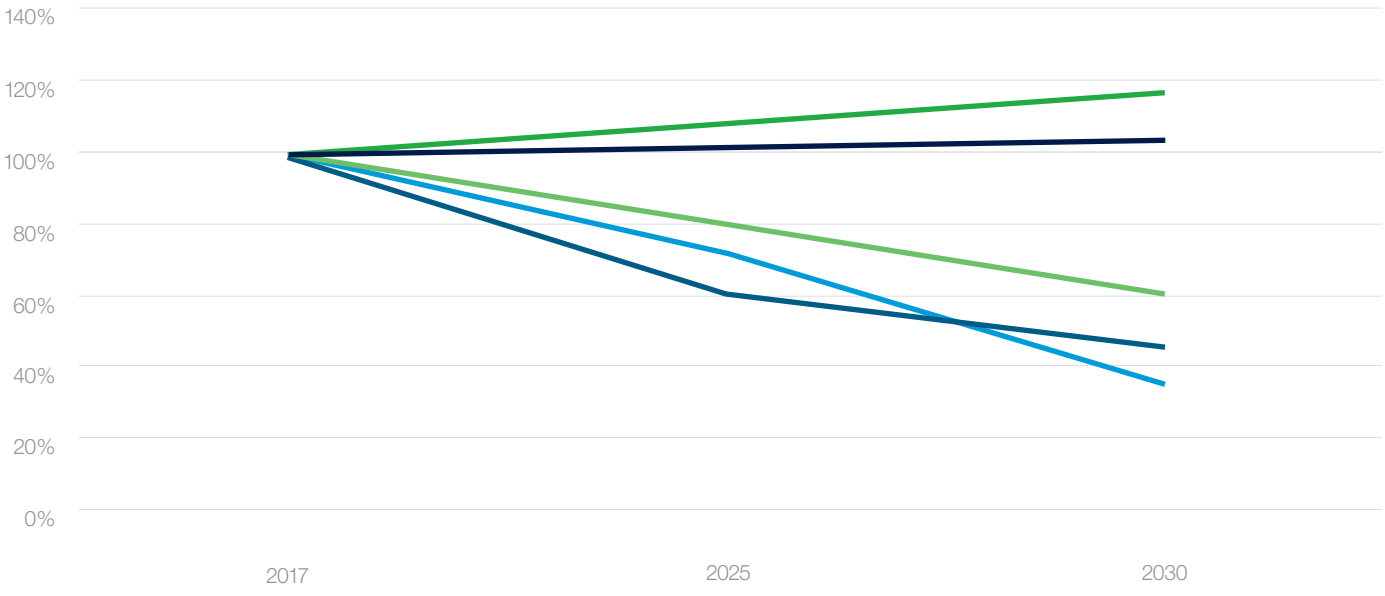


Figure 8: Our thermal coal position and Paris Agreement

Figure 8 is constructed using rate of reduction on thermal coal production / demand from various IEA scenarios, comparing against the rate of reduction for our clients' thermal coal dependency. Future projections of our portfolio are assuming constant exposure and clients' positioning in terms of thermal coal dependency. To illustrate the rate of reduction in figure 7, our current exposure-weighted average thermal coal dependency was taken as 100% on a relative basis to future projections. Given the uncertainty in precise percentage numbers, this was calculated using average thermal coal-dependency rates across multiple buckets, in line with our glide path above.

9. Focus on Risk Response: NDPE in the Agro-industries sector

Standard Chartered has longstanding Position Statement requirements applying to clients in the agro-industries sector including agribusiness, forestry and palm oil. We updated these requirements in 2018 to reflect the potential contribution of these sectors to climate change, and introduced prohibitions on clients who:

- Use fire in forestry or plantation operations including in the clearance and preparation of land for planting
- Develop new plantations by converting or degrading High Conservation Value (HCV) or High Carbon Stock (HCS) forests, legally protected areas, or peatlands
- Develop new palm oil plantations on fragile soils, including swamps and peat, regardless of depth

Collectively these prohibitions help us to ensure that we are controlling the potential climate impacts from land use, land use change and forestry (LULUCF) in this sector. Together with a 'no exploitation' requirement on respecting human rights, this approach is known as 'No Deforestation, No Peat and No Exploitation' or NDPE.

10. Metrics and Targets Pillar

We use the following metrics and targets to guide our approach:

- We have pledged to align our lending portfolio to the Paris Agreement goals. We are working internally and in collaboration with a range of actors to be able to measure this as described elsewhere in this report. We will communicate targets in due course
- Having achieved our target to mobilise USD4bn toward clean technology between 2016-2020 ahead of schedule (having achieved USD4.9bn between 2016-2018), we have set a new target to mobilise financing to create USD35bn in clean technology and renewable power between 2020-2025
- We have set time-bound thresholds for clients' exposure to thermal coal, as laid out on the preceding page
- We monitor the portion of our loans and advances to sectors deemed 'carbon-related' [percentage of exposures in sector table as portion of overall loans and advances to be added]

"GARP applauds SCB's commitment to climate risk management, as shown by its placing amongst the most advanced firms in the GARP Research Institute's recent global survey"

Jo Paisley - Co-President, GARP Risk Institute, Global Association of Risk Professionals

We report on our own greenhouse gas emissions annually in our Annual Report. Below we provide figures for 2018. 2019 emissions figures will be available from February 2020 at [**sc.com/annualreport**].

Indicator	2018	2017	Units
Scope 1 emissions (combustion of fuels)	8,584	7,922	tonnes CO_2eq / year
Scope 2 emissions (purchased electricity) – location-based method	139,366	180,014	tonnes CO_2eq / year
Total Scope 1 & 2 emissions	147,950	187,936	tonnes CO_2eq / year
Scope 3 emissions with distance uplift (air travel)	67,704	64,505	tonnes CO_2eq / year
Scope 3 emissions (outsourced data centre)	21,523	23,904	tonnes CO_2eq / year
Total Scope 1, 2 & 3 emissions	210,063	247,115	tonnes CO_2eq / year
Employees (FTE)	85,336	85,931	tonnes CO_2eq / year
Emissions per employee	2.46	2.87	tonnes CO_2eq / FTE

Table 5: Greenhouse Gas Emissions

In 2018, we set and communicated science based emissions reduction targets for our Scope 1 and Scope 2 emissions. These commit us to reduce annual greenhouse gas emissions by 90% to 18,000 tonnes by 2050 with interim targets of 36% to 121,000 tonnes by 2025 and 55% to 84,000 tonnes by 2030.

We are also reviewing the emissions which arise from our business travel, to determine what actions we can take to reduce these.

11. Approvals

This report was approved by the Group Chief Risk Officer, and the Group Head, Corporate Affairs, Brand & Marketing, Conduct, Financial Crime and Compliance. It was shared with the Group Management Team and Board prior to publication.

[Mark Smith's signature]
[Tracey McDermott's signature]

Appendix 1 – Glossary of terms

2 Degrees Investing Initiative (2dii) – Global think tank for developing climate and long-term risk metrics and related policy options in financial markets.

Paris Agreement Capital Transition Assessment (PACTA) – 2dii's pilot climate scenario analysis methodology to help banks measure alignment of their corporate lending portfolios with 2°C benchmarks.

UN Framework Convention on Climate Change (UNFCCC) – One of the three "Rio Conventions" that were adopted at the Rio Earth Summit. UNFCCC's ultimate objective is to prevent adverse human interference with the climate system.

Enterprise Risk Management Framework (ERMF) – Sets out the principles and standards for risk management across the branches and subsidiaries of Standard Chartered PLC.

Principal Risk Types (PRTs) – Principal risks that are inherent to SCB's strategy and business model. These are managed through distinct Risk Type Frameworks.

Prudential Regulation Authority's (PRA) – Part of the Bank of England and responsible for the prudential regulation and supervision of financial institutions.

Financial Conduct Authority (FCA) – A financial regulatory body in the United Kingdom operating independently of the UK Government.

Biennial Exploratory Scenario (BES) – A stress testing exercise set by the Bank of England, which seeks to understand how the UK banking system might evolve under a combination of unfavorable scenarios.

International Energy Agency (IEA) – An autonomous intergovernmental organisation established in the framework of the OECD that works with countries in gathering information on energy as well as shaping energy policies.

Current Policies Scenario (CPS) – The CPS is a baseline picture of how global energy markets would evolve if governments make no changes to their existing policies and measures

New Policies Scenario (NPS) – The NPS provides a detailed indication of the direction in which today's policy ambitions would take the energy sector.

Sustainable Development Scenario (SDS) – The IEA's SDS outlines a major transformation of the global energy system, showing how the world can change course to deliver on the three main energy-related SDGs simultaneously.

Beyond 2 Degree Scenario (B2DS) - The IEA's SDS outlines how the global energy sector should evolve to achieve a well below 2°C global median temperature rise.

Network for Greening the Financial System (NGFS) – A network of central banks and supervisory bodies that voluntarily share best practices and contribute to the development of environment and climate risk management in the financial sector.

International Standard Industrial Classification (ISIC) – An international reference classification designed to provide a set of activity categories that can be utilized for the collection and reporting of statistics according to such activities.

Appendix 2 – Automotive Methodology and Findings

Methodology

PACTA combines granular datasets about different car production models and emissions factors for each type of car, to compute a client-level emission-intensity level.

Emission-intensity metric

The metric used to measure emission-intensity for the automotive manufacturing sector is grams of CO_2 per kilometre driven (g CO_2/km).

Simple average and weighted average emission-intensities

The example below consists of a portfolio of two car companies, both producing three types of vehicle, each of which has an attributed emissions intensity based on its efficiency, engine type, and fuel type. A "Client Average Emission Intensity" can then be deduced from performing a weighted average calculation of each vehicle type against company level production. Using these client level emissions intensities, two measures can be calculated: 1) "Simple Average Emissions Intensity" which is a simple mean of both company level emissions, and 2) "Portfolio Average Emissions Intensity" derived from a weighted average calculation of the individual company level emissions against the corporate lending for each client in a given banks' portfolio, providing a more granular indication of to where the portfolio is aligned.

Client	Type	Segment	Engine Type	Fuel Type	Volume Prod-uction	Emission Intensity	Client Average Emission Intensity	Client Exposure	Simple Average Emissions	Portfolio Weighted Average Emissions
Client 1	Car	Exotic and Ultra luxury cars	Internal Combustion Engine	Petrol	8,950	330.1				
	Car	Typical Compact vehicle	Internal Combustion Engine	Diesel	41,480	141.9	180.4	10,000,000		
	Light Truck	Large cross-over	Internal Combustion Engine	Petrol	1,365	369.2			160.3	150.2
Client 2	Car	Subcompact cars	Electric	Electric	3,045	0				
	Car	Typical Compact vehicle	Hybrid	Petrol/ Electric	6,680	84.5	140.2	30,000,000		
	Car	Near Luxury or Large Car	Hybrid	Petrol/ Electric	26,432	170.4				

Table 6: Example of Automotive Client Emissions Measurement

Portfolio coverage

As at December 2018, our total loans and advances to clients in the automotive manufacturing sector was USD 2.43bn, of which we were able to match USD 2.39bn at client group level to produce an emissions intensity value for each client.

What did we learn?

The simple average emissions-intensity of our portfolio is 221.4 gCO_2/km, marginally below the global market average of 225.3 gCO_2/km (based on all companies in the PACTA database).

The weighted average metric is marginally lower at 219.8 gCO_2/km, indicating an evenly balanced portfolio with slightly larger loan exposures to clients with lower tailpipe emissions. Analysing the data further by looking at location of the parent group (while manufacturing plants may be geographically dispersed), we see:

- European clients, on average, have lower emissions intensities, achieved through more efficient fleets and technology even for non-electric cars
- For Asian clients, our weighted average emission intensities are lower than simple average, indicating higher exposure to lower emitters

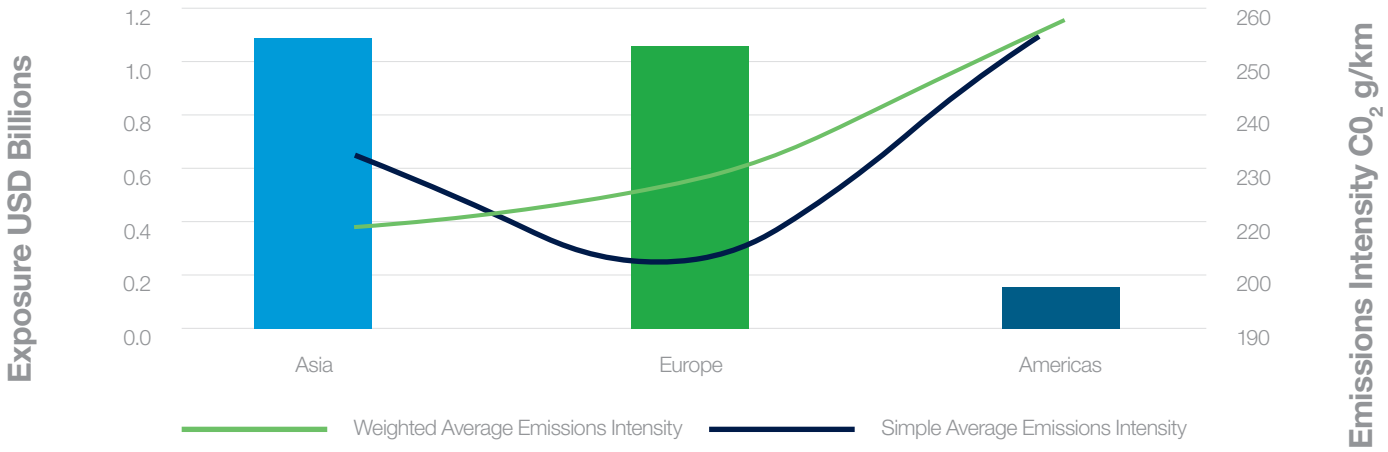


Figure 9: Auto portfolio emission-intensity distribution

What next for Automotive sector?

- Further analysis comparing PACTA and client derived data
- Forward-looking projections of emissions intensities are expected to be added to PACTA in 2020, which will help us understand clients' future alignment to various climate scenarios better
- In the meantime, we are engaging with clients to share our insights, understand their transition plans, and how we can help them transition. This data will enable Standard Chartered engage clients on an individual basis on their transition pathways as well as looking to convene industry wide discussions on potential approaches and solutions to decarbonise, especially where they are relevant to our footprint
- If the IEA's Beyond 2 Degrees Scenario (B2DS) is used to derive an emissions-intensity metric for the Automotive manufacturing industry, global average emission-intensities would need to fall to 59 gCO_2e/km by 2050
- In order to assess the full impact of our financing, emissions figures also need to include other climate-warming greenhouse gases

We are evaluating the assumptions underlying the B2DS scenario, including through client engagement, and working to be able to set and communicate targets.

Appendix 3 – Cement Methodology and Findings

Methodology

2dii combines granular datasets to compute a client-level emission-intensity level. For this sector, we have focussed on integrated cement manufacturing in the value chain process, which results in emissions from:

- The chemical process of 'calcination' by heating limestone (CaCO3) to produce clinker (CaO) as part of the Portland cement manufacturing process (the largest commercially viable technology in use in our footprint markets).
- The power source used for heating the limestone and grinding the clinker into cement. In many of our markets, this power source reflects the composition of power in the wider economy and is principally derived from fossil sources such as coal or gas.

Emission-intensity metric

The metric used to measure emission-intensity for the cement manufacturing sector is tonnes of CO_2 per tonne of cement (tCO_2e/ tcement).

Simple average and weighted average emission-intensities

The example below consists of two clients, to show how the portfolio emissions calculation works.

Client	Emission- Intensity	Production Volume tonnes of cement)	Client Exposure	Simple Average Emissions	Portfolio Weighted Average Emissions
Client A	0.75	35,500,234	3,000,000	0.70	0.73
Client B	0.65	27,345,987	1,000,000		

Table 7: Example of Cement Client Emissions Measurement

12.3.2 Portfolio Coverage

As at December 2018, our total loans and advances to clients in the cement manufacturing sector was USD 1.09bn, of which we were able to match USD 861m to produce an emissions intensity values for each client.

12.3.3 What did we learn?

As at 2018, the simple average emissions-intensity of our portfolio is 0.67 t CO_2e/t cement, below the global market average at 0.70 t CO_2e/t cement.

The weighted average metric is even lower at 0.65 t CO_2e/t cement, indicating a portfolio with larger loan exposures to clients with lower emissions than the global average.

Analysing the data further by looking at location of the parent group (while manufacturing plants may be geographically dispersed), we see:

- Overall, our exposure is more concentrated in the Africa and Middle East and ASEAN and South Asia regions, where the average emission-intensities are lower; our weighted average numbers are even lower suggesting higher lending to the lower emitters.
- Emission-intensities are higher in GCNA and EA, where we have less exposure to clients manufacturing cement.

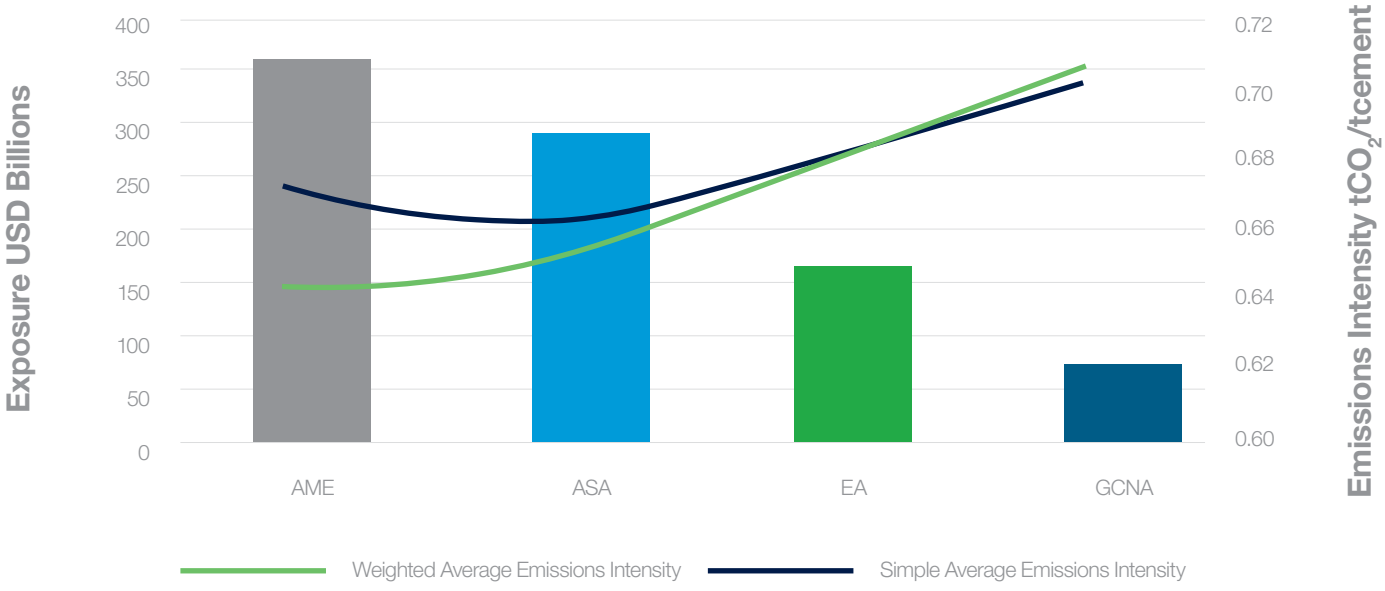


Figure 10: Cement portfolio emission-intensity distribution

What next for Cement sector?

- Further analysis comparing PACTA and client derived data
- Forward-looking projection of emissions intensities are expected to be added to PACTA in 2020, which will help us understand clients' alignment to various climate scenarios better
- In the meantime, we are engaging with clients to share our insights, understand their transition plans, and how we can help them transition through, for example, improved energy efficiency and use of alternative fuels and innovative technologies to reduce the clinker to cement ratio or integrate carbon capture into the manufacturing process
- In order to assess the full impact of our financing, emissions figures also need to include other climate-warming greenhouse gases

Target setting:

- If the IEA's Beyond 2 Degrees Scenario (B2DS) is used to derive an emissions-intensity metric for the Cement sector, global average emission-intensities would need to fall to 0.21 t CO_2e/t cement by 2050
- All integrated cement manufacturing facilities in our portfolio are producing carbon emissions within 17% of the highest emitter at 0.748 due to the level of emissions attributable to the underlying chemical process of creating cement
- Significant process changes will be required to meet a target of 0.21. We are aware of research on such process changes, and small-scale pilots. However, scaling these to global application and ensuring they are available in our footprint markets across Asia, Africa and the Middle East will be a major endeavour
- We are evaluating the assumptions underlying this scenario, and informed with the client engagement, and are working to be able to set and communicate targets