Standard Chartered
Net Zero Methodological White Paper
Second Edition
2024

standard chartered

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Foreword

I am very pleased to present Standard Chartered's latest Whitepaper which provides the underlying technical details of our sectoral decarbonisation programme in an open-source format. We have completed the baseline and target setting for our 12 highest-emitting sectors and are actively working with our clients to deliver on our mutual net zero ambition. We recognise there is only one global carbon balance sheet, therefore it is critical to be in alignment with our clients on their decarbonisation journeys in order to realise on our own.

Since the Paris Agreement was reached at COP21 in 2015, its signatories have wrestled with putting the pursuit of net zero into action. In the time since, those committed to achieving this objective have been tackling such challenges as common standards, data access, measurement, target setting, disclosures and operationalisation to help steer a clear path to this critical goal. Progress toward the goal requires engagement, participation and collaboration with and amongst core stakeholders.

We believe therefore that if the finance and corporate sector can transparently share their processes, methodologies and what has worked, we can coalesce around common best practice and give confidence to others to join us on the journey.

In this paper, we are pleased to provide the detail of our processes and methodologies which we hope will be useful to our stakeholders.

For instance, for Agriculture, a notoriously difficult industry to map particularly in the emerging markets, our use of an implied temperature rise methodology provides an elegant solution to this highly fragmented sector filled with data challenges.

As a financial institution we have an important role to play, in supporting our clients, sectors and markets to deliver net zero, but to do so in a manner that supports livelihoods and promotes sustainable economic growth. More recently, this has also included a heightened focus on the security and resilience of our markets as they respond to greater climate change induced uncertainty. Our global footprint consists of both developed and emerging market economies. This blend provides us with a specific responsibility to support a just transition to net zero and encouraging change in the real-world economy, while enabling the economic and social development of all markets.

This White Paper provides further clarity on our net zero journey. It outlines where we are today and where we need to be, on an interim basis, by 2030 in order to be on track. It provides transparency on how, through our commitment to sector-specific science-based pathways, we plan to measure and manage our progress. Achieving the transition net zero will continue to be challenging and will require sustained effort. We have much to do, but we're clear on our roadmap and unwavering in our focus to get there.

Our journey continues and we look forward to continuing to partner with those vested in helping us achieve individually and collectively the ambition enshrined in the Paris Agreement.

Marisa Drew

Chief Sustainability Officer
Standard Chartered

Introduction

In this 2024 White Paper, we share our methodology to support the accuracy of our reported financed and facilitated emission calculations and disclosures because we recognise this is critical to raising awareness and building stakeholder trust.

We aim to reach our net zero in our financed emissions by 2050 through continuing to measure, manage and reduce the emissions associated with our financing and facilitation activities. Our approach relies on science-based and sector-agreed practices regarding our most GHG intensive sectors.

As a financial institution, we know that we have a unique and key role to play in achieving a just transition to net zero across our markets.

Background

There are three primary additions to this White Paper from our First Edition published in 2022; the first is our Agriculture sector baseline and target. Agriculture has been an extremely difficult sector to set a target for, noting the lack of robust data at the commodity level and extensive value chain that stretches from fertiliser to food traders, processors and wholesalers. We have considered these challenges and have set a baseline and target that we believe can have an impact, considers food security and has adequate data coverage. Second, we have included our facilitated emission baseline and target for the Oil and Gas sector, which is the most material sector in our debt capital markets business. This has been set on an absolute basis and mirrors our financed emissions. Third, we have provided detail on the aviation sector we finance following the sale of our leasing portfolio and a large portion of the lending portfolio in 2023.

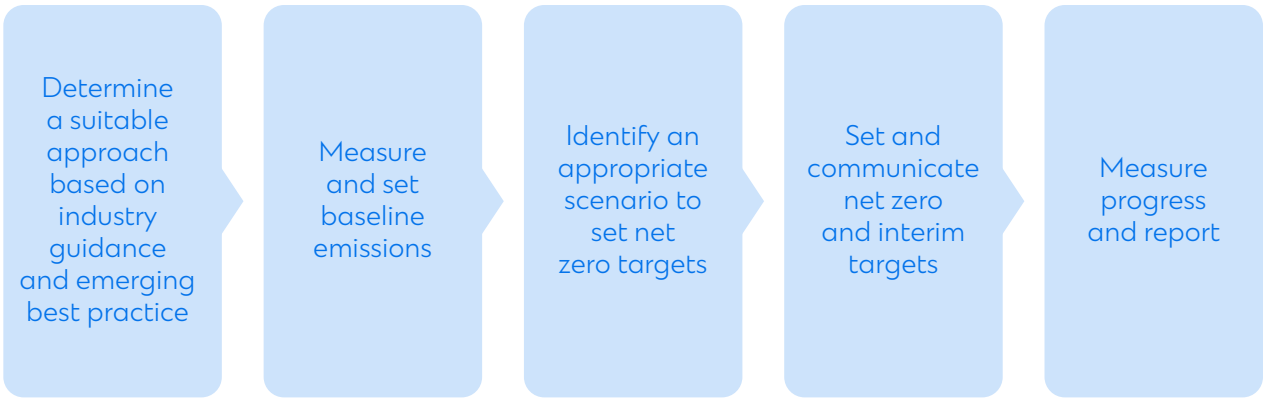
Methodology

We have adopted science-based and sector-agreed methodologies to measure the transition of our in-scope loan book to net zero. We apply globally recognised standards, including the Partnership for Carbon Accounting Financials (**PCAF**). Additionally, we refer to scientific and industrial climate guidance from the Intergovernmental Panel on Climate Change (**IPCC**), the International Energy Agency (**IEA**), the Rocky Mountain Institute (**RMI**), Poseidon Principles, Global Cement and Concrete Association (**GCCA**), Transition Pathway Initiative (**TPI**), Carbon Disclosure Project (**CDP**) and Mission Possible Partnership (**MPP**).

Approach

We employ a five-step approach in setting and reporting the Group's interim net zero targets.

Figure 1: Net Zero Five-step Approach



EY has performed a limited assurance engagement procedure on our baseline financed and facilitated emissions disclosures[1]. Information related to the first three steps is included in this paper for each high-emitting sector for which there is a baseline and a target.

Our financed emissions sector-by-sector progress (as against the relevant target) to date is set out in the Sustainability Review section of our 2024 Annual Report.

[1] Except for the following sectors - Oil & Gas, Coal and Aviation

Financed Emissions Calculation

There are two components to the financed emissions calculation: (i) the attribution factor; and (ii) the emissions calculation (explored below).

Attribution Factor

The share of total annual GHG emissions of a borrower or investee that is allocated to the corresponding loan or investment (PCAF, 2022) is known as the Attribution Factor.

Emissions Calculation

We use four types of emission metrics in our financed emissions calculations:

I. **Absolute Financed Emissions**

These are calculated based on the total GHG emissions of the client or portfolio. Absolute emissions effectively create a GHG emissions cap for sectors with absolute targets set against them such as O&G and thermal coal mining. This is because the route to decarbonising these sectors is to use less of the commodity for generating energy, rather than using the commodity more efficiently.

II. **Physical/ Production Emission Intensity**

This metric measures the emissions efficiency of a portfolio in terms of total GHG emissions per unit of a common output. For example, absolute emissions divided by a value of physical activity or output, expressed as tCO_2e/tonne product produced (PCAF, 2022). This can also include the emissions per distance travelled, or emissions per square metre of an occupied building that we finance. This metric is most appropriate in sectors that not only need to decarbonise their operations but also require a growth in the sector throughout the transition to Net Zero.

III. **Alignment Delta (AD)**

AD is a variant on the physical emissions intensity approach. It measures the coefficient of alignment against a particular reference scenario i.e., expressed in percentage terms, how much a particular portfolio is above or below the Net Zero reference scenario. This metric is best for heterogeneous sectors where emission generating assets need to be compared on a like for like basis but have differing production units.

IV. **Implied Temperature Rise (ITR) - see Agriculture Methodology Section**

Data Inputs

We use three types of data in the financed emissions calculations as follows:

1. financial data
2. emissions data
3. physical activity data or production data

Data sourcing follows the approach outlined in the sub-sections below (unless otherwise stated) in the sector specific methodologies.

Client Exposure

This is defined as the drawn amount of the debt that is still outstanding (i.e., disbursed debt minus any repayments) at year-end. The amount is measured in $USD, and the approach is consistent with PCAF guidance. The client exposure data is homogenous and sourced from internal accounting record systems. The outstanding amount at year-end is the numerator in the attribution calculation.

Client Company Value

Company value is the sum of a company's (lending counterparty) total debt plus equity. For public companies, this is the sum of the market capitalisation of ordinary shares at fiscal year end, the market capitalisation of preferred shares at fiscal year-end, and the book values of total debt and minorities' interests, otherwise known as 'EVIC'. For private companies, company value is the sum of total equity plus debt. The client company value is the denominator in the attribution factor calculation.

In general, client company value is sourced from the following:

1. externally via data aggregators (such as S&P)
2. manually from annual reports
3. internally through our risk systems and client credit assessments

If a client's company value is unavailable, then the client is excluded from the financed emission calculation population.

Client Asset Value

For CRE, residential mortgages and shipping the asset value is used as the denominator in the attribution factor calculation. If the asset value is unavailable, then the asset is excluded from the financed emission calculation population.

Client Emissions

Client emissions data includes Scope 1, Scope 2 and Scope 3 GHG emissions (where appropriate). In general, client emissions data is sourced from the following:

1. externally via third party data aggregators (such as S&P)
2. manually from annual reports/ sustainability reports
3. calculated using client production data multiplied by an appropriate emissions factor
4. estimated using internal or public datasets

Currently, PCAF call for financial institutions to report Scope 3 emissions for all sectors. Our inclusion of Scope 3 is limited to sectors where we consider these emissions to be significant to the total emission profile of the industry, and where data quality is sufficient.

Emission factors

Emission factors are the emissions per unit of production, distance travelled, or square meter of property that are linked to the client's primary business activity. Emission factors are sourced and calculated using reputable industry bodies such as the IEA. For specific emission factors please refer to the sector methodologies.

Client Production/ Physical Factor

Client production data includes quantity of produced product linked to their primary business activity, such as tonnes of cement or steel. This can be the actual production of the client or derived from the capacity their facilities allow them to produce on an annual basis. Physical factors include distance travelled, and square meterage of property financed. In general, client production/ physical data is sourced from the following:

1. third party data aggregators (such as Wood Mackenzie)
2. manually from annual reports
3. internally through our risk systems and client credit assessments
4. estimated using internal or public datasets

Scope of Financial Products

The following products are included in our financed emissions calculations:

- corporate bonds
- corporate lending
- project finance loans
- commercial real estate investment loans
- residential mortgages
- asset-backed lending

Lending to financial institutions and private banking (except for residential mortgages) is excluded.

Traded products, including derivative balances and unsettled trades, amongst others, are excluded as these products are typically not classified as loans and advances within the Standard Chartered banking book. Product exclusions are consistently applied across each sector prior to the financed emissions calculations, the product filtering relies on product flags held on our internal accounting system.

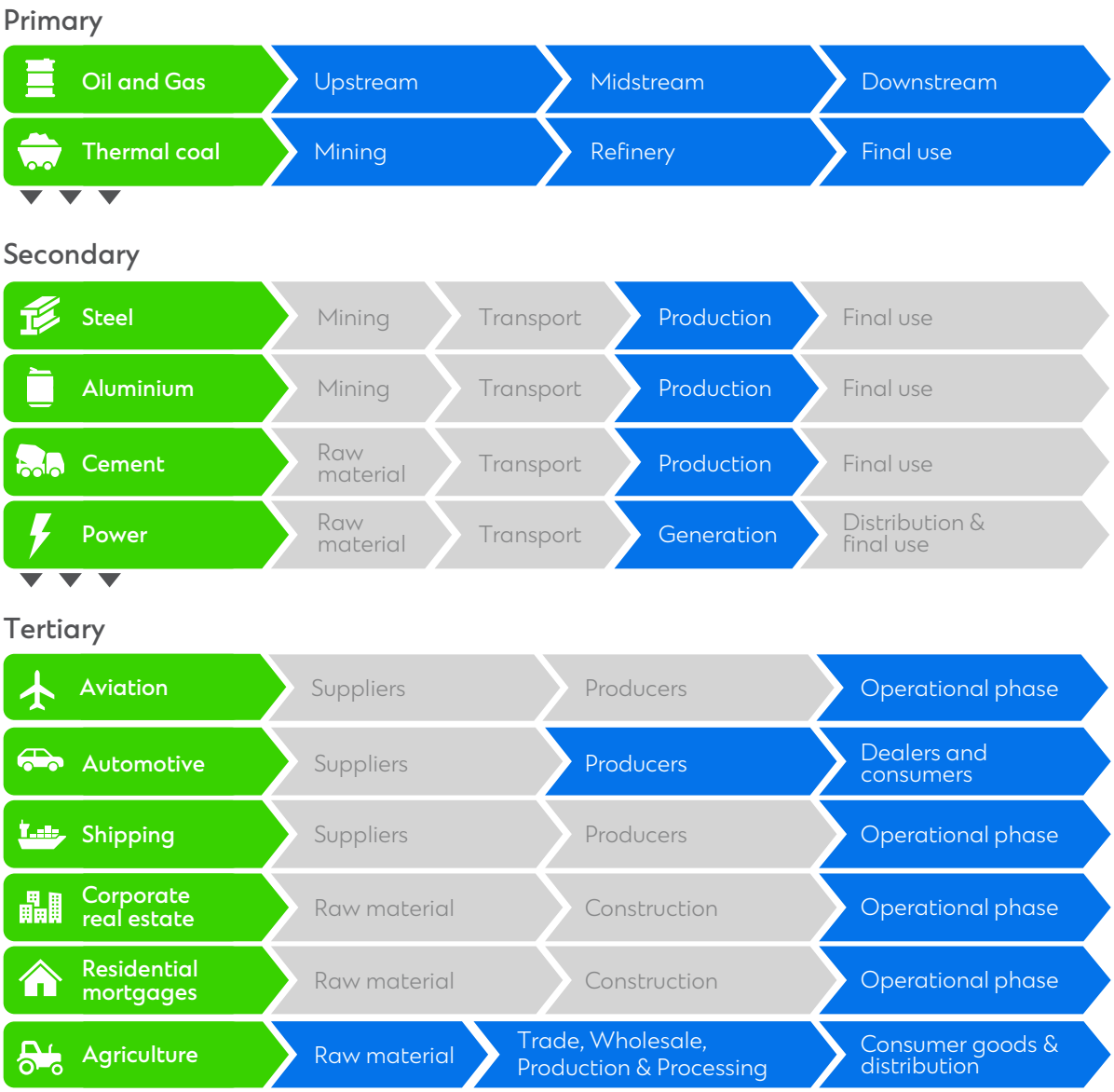
Sector Value Chain

We measure and set targets against the most emission intensive segment of the value chain within each sector. This is determined by several considerations, some of which include:

- the portion of the value chain included in the reference scenario we have selected to set targets
- the materiality of emissions and importance of decarbonising that part of the value chain
- the data availability for that section of the value chain

We also consider the risk of double counting across value chain when scoping. The parts of the value chain covered in our sector targets are outlined below.

Figure 2: Sectoral Value-chain Scoping Overview



Data Quality and Limitations and Restatements

Data Quality

We measure emission data quality by using PCAF scoring on a client basis, and this is aggregated at a portfolio level.

The PCAF Standard for financed emissions recommends applying a data quality scoring methodology to help assess data quality challenges and recognise areas for improvement. PCAF's ratings assign directly collected client emissions data a better score while estimated or extrapolated data achieves lower scoring. A PCAF score of 1 is typically considered to have more certainty for estimation of financed emissions, while a PCAF score of 5 is considered to have more uncertainty. Please refer to PCAF's Global GHG Accounting and Reporting Standard Part A – Financed emissions 2nd edition (2022) and Part B – Facilitated emissions 1st edition (2023) for data quality scoring by each asset class.

We recognise that while the market improves its reporting around GHG emissions the data used in estimating GHG emissions can vary in quality. To ensure transparency, we disclose a PCAF score for each sector which sets out the relative accuracy of the data. Our PCAF scores for 2022, 2023 and 2024 are disclosed in the Sustainability Review section of our 2024 Annual Report.

Changes in Estimates, Methodologies, and Errors

The events or circumstances where we would consider recalculating or updating base year emissions together are included below. Our approach is aligned with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standards (2011).

Table 1: Restatement Approach

Scenario	Approach	
Errors in data or methodology	Restatement	Comparative years are retrospectively restated to reflect the correct emissions value.
Changes to methodology or data sources used to calculate emissions	Re-baseline	Emissions figures will be updated from the current reporting year. The prior year reported figure will be updated to reflect the new methodology and considered the new baseline year.
Structural changes in reporting entity		Emissions figures will be updated from the current reporting year. The prior year reported figure will be updated to reflect the new reporting boundary and considered the new baseline year.
Updates to client or supplier data from timing lags and improved sources of information	Captured in following year	The impact of the update will be recorded in the current year reported emissions.

Portfolio Balance Sheet

We focus on the high-emitting sectors as defined by the NZBA to calculate the GHG emissions related to our financed emissions. We also measure sectors falling outside of this list and report on these in our 'others' category.

Table 2: Portfolio Balance Sheet

Sector	Emission metric	Scenario	Value chain	Scope of emissions	Baseline year
Corporate & Investment Banking (CIB)					
Automotive Manufacturers	Physical intensity	IEA APS and NZE	Automotive manufacturers	1, 2, 3[2]	2021
Agriculture	Implied Temperature Rise	IPCC scenarios (1.5°C-2°C)	See agriculture section		2023
Steel	Production intensity	MPP TM MPP TM Regional	Steel producers	1, 2	2021
Power	Production intensity	IEA APS and NZE	Electricity Generation	1, 2	2021
Aviation	Physical intensity	MPP PRU	Aviation carriers	See aviation section	2021
Shipping	Alignment delta	IMO rev. min. IMO striving	Shipping lessors and companies	See shipping section	2021
Aluminium	Production intensity	MPP STS	Aluminium producers	1, 2	2021
Commercial Real Estate	Physical intensity	IEA APS and NZE	Real estate leasing	1, 2	2021
Cement	Production intensity	IEA NZE	Clinker and cement manufacturing	1, 2	2021
Oil and Gas	Absolute emissions	IEA NZE	Upstream, midstream, and downstream	1, 2, 3	2020
Thermal Coal Mining	Absolute emissions	IEA NZE	Thermal coal extraction	1, 2, 3	2020
Others	Absolute emissions	n/a	Other sectors	1, 2	n/a
Wealth & Retail Banking (WRB)					
Residential Mortgages	Physical intensity	CRREM	Residential households	1, 2	2021
Corporate & Investment Banking (CIB)					
Facilitated Emissions	Absolute emissions	IEA NZE	Oil and Gas	1, 2, 3	2019 - 2021

[2] Scope 3 excludes 'well-to-tank' emissions

Sector Specific Methodology

Agriculture

The Agriculture value chain significantly contributes to emissions within global agrifood systems. In 2021, these emissions reached 16 billion tonnes of carbon dioxide equivalent (Gt CO_2e), marking a 14 percent rise since 2001. This accounted for approximately 20 percent of the total anthropogenic carbon emissions along with approximately half of global methane emissions, generally from ruminant farming (FAO, 2023).

Furthermore, the agriculture sector represents the third largest source of emissions in Southeast Asia (SEA), with 48% attributable to rice cultivation (Bain, 2023). Transitioning agriculture will be critical given the region's economic reliance and workforce dependence on Agriculture and Food, noting –

- ~10% of SEA's GDP contribution from agriculture, forestry and fishing (vs ~4% globally)
- ~29% of SEA's total labour force is employed in agriculture, forestry and fishing
- ~45% of SEA's gross production value comes from rice and palm oil

As a Group with significant presence in emerging/dynamic markets, and in conjunction with our Position Statements on Agribusiness, we aim to assist our clients on their shift towards a lower-carbon Agriculture value chain, sustainable sourcing and product development and minimising the environmental impact of their operations.

The Group has further in setting a target for Agriculture that has impact, been acutely aware of the lack of robust data at a commodity level and the need to balance food security with the carbon impact of producing that food. This is especially relevant noting the Group's footprint markets. It is noted that the Group does not have any material exposure to ruminant farming and the methane impact of that agriculture.

This approach supports our ongoing engagement with clients, as those that set commitments and targets (including for the suppliers) score well (i.e., 1.5-1.8°C). This allows our financing book to maintain current levels and grow, protects food security and allows the Group to work with those multinational clients who share our long-term net zero ambition. We further will actively engage with those clients who have not set commitments or targets to start and develop their transition journey.

Value Chain Boundary

The Group has chosen the full Agriculture value chain as in scope. This is from pre-farm production (fertiliser) to post-farm processing (food traders, processors and wholesales). Notably, the largest proportion of group's financing activities are allocated within the downstream section of the value chain, which includes trade and wholesale activities, production and processing operations, as well as consumer goods distribution (as shown in the graphic below).

This decision has been made to provide the most comprehensive coverage of the Agriculture portfolio and especially in downstream, where the greatest lending occurs, and where the Group believes the greatest impact can be achieved. Further, on a global basis commodity level emission data is not yet available in a robust or complete manner for the extensive portfolio covered[3].

Figure 3: Representation of the full agricultural value chain (illustrative). Adapted from (Tubiello, 2022)

Emissions Boundary

For Agriculture, where clients are within the value chain (as illustrated below) we have incorporated the emissions reported by the client under Scope 1, Scope 2, and Scope 3 categories[4] (as shown in Figure 2).

The Group has chosen an ITR temperature rating target. ITR utilised temperature scores is a scoring methodology which translates diverse GHG reduction targets into an intuitive metric expressed as projected warming by 2100. This methodology can be employed to compare the ambition of different companies' decarbonisation goals, as articulated in their public GHG emissions reduction targets. Also referred as the CDP–WWF Temperature Scoring Methodology[5], it is an open-source methodology to translate the ambition of corporate greenhouse gas emission reductions into temperature scores for corporate value-chains and investment portfolios.

[3] A systematic scoping process was conducted to determine the inclusion or exclusion of a counterparty within the agricultural value chain. For example, supermarkets are excluded because their business activities extend beyond these segments of the agricultural value chain, making it difficult to establish a baseline and target where food and beverages constitute only a small portion of the retailer's overall value chain. Additionally, in cases where companies have operations outside the agricultural value chain, the Group will assess these based on revenue to decide whether they should be included or excluded.
[4] The total reported Scope 3 emissions of the client are utilised, without differentiation between Scope 3 categories for each segment of the value chain
[5] CDP (formerly Carbon Disclosure Project) is a global non-profit that runs the world's environmental disclosure system for companies, cities, states and regions. It is fully TCFD aligned and holds the largest environmental database in the world. WWF (World Wildlife Fund) is an independent conservation organization, with over 30 million followers and a global network active in nearly 100 countries. First version of methodology can be accessed here; and second version of methodology can be accessed here.

The optimal score assigned to a client's climate ambition according to the CDP–WWF Temperature Scoring Methodology is 1.5°C which signifies the lower bound of feasible outcomes within the most optimistic climate scenarios. Whilst clients with no commitments or ambition score a default temperature rating as chosen by CDP which reflect the upper bound of temperature outcomes [6].

The adoption of ITR as an indicator for covering CIB clients aligns with beneficial societal outcomes such as ensuring food security and permits portfolio expansion. This approach emphasises the largest clients with commitments and aspirations, extending to their upstream suppliers (scope 3). Therefore, considering ITR inclusive of scope 3 is where the Group aims to have the greatest impact, achieved through the decarbonisation efforts of large-scale food traders, processors, and wholesalers including their supply chains.

Figure 4: The placement of activity-specific emissions within client emissions reports for different stakeholders in the Agriculture value chain[7]. Adapted from World Resources Institute and WBCSD and B4ICA analysis. Source: (B4ICA, 2024)

	Input provider	Farmer	Trader	Processor	Retailer
Fertilizer production	Scope 1	Scope 3 purchased goods	Scope 3 purchased goods	Scope 3 purchased goods	Scope 3 purchased goods
On farm (enteric fermentation, fertilizer application)	Scope 3 use of sold product[8]	Scope 1	Scope 3 purchased goods	Scope 3 purchased goods	Scope 3 purchased goods
Deforestation / other land-use change		Scope1	Scope 3 purchased goods	Scope 3 purchased goods	Scope 3 purchased goods
Shipping		Scope 3 transport	Scope 1	Scope 3 purchased goods	Scope 3 purchased goods
Processing		Scope 3 processing	Scope 3 processing	Scope 1	Scope 3 purchased goods
Retail		Scope 3 retail	Scope 3 retail	Scope 3 retail	Scope 1
Consumption		Scope 3 use of sold product	Scope 3 use of sold product	Scope 3 use of sold product	Scope 3 use of sold product
Company's energy use[9]	Scope 2	Scope 2	Scope 2	Scope 2	Scope 2

Value chain of each actor is shown vertically

Scope 1 | Scope 2 | Scope 3

[6] Default score utilised is the latest available in CDP Net-Zero Alignment Dataset
[7] Although these are the most significant Scope 3 categories for each segment of the value chain, in our model calculation, we utilise the total reported client Scope 3 data.
[8] Fertiliser application only
[9] A client's own energy use is Scope 2; the energy use of other players in the value chain is Scope 3

GHG Boundary[10]

Client's GHG emissions are considered in CO_2e.

Data Sources

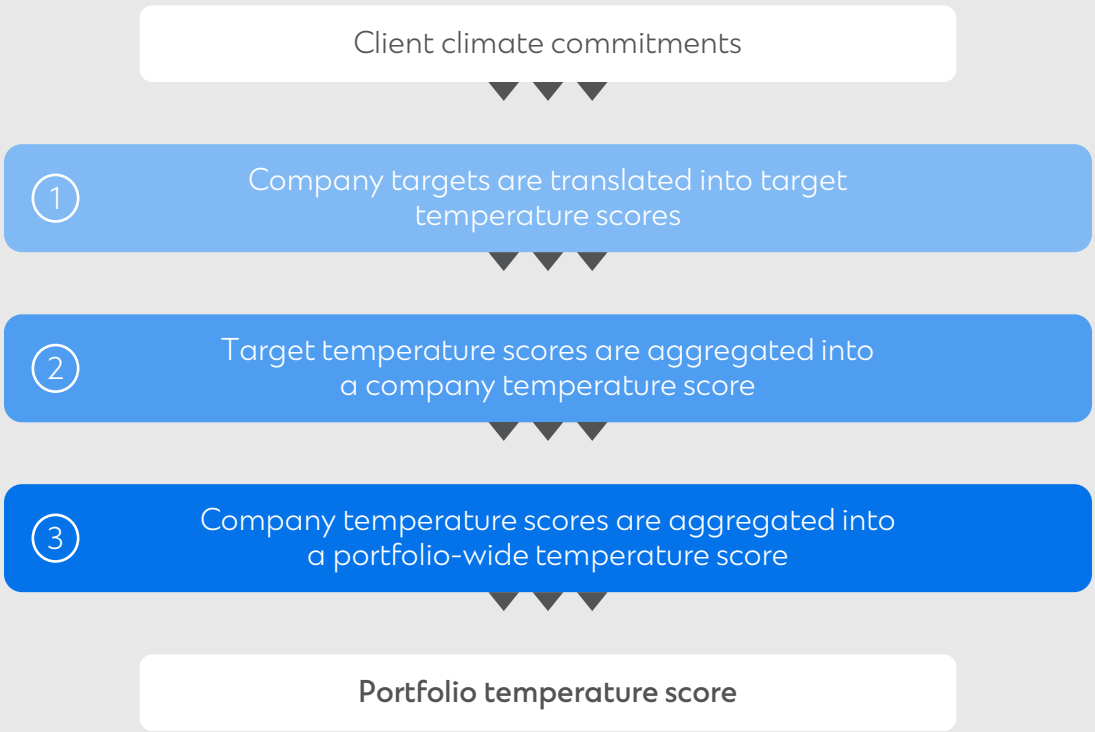
Clients' climate commitment and emissions is sourced primarily from CDP Net-Zero Alignment dataset. Clients without target ambition would result in default temperature score of 3.1°C aligned with CDP-WWF temperature scoring methodology version 1.0 from October 2020 and the CDP Net-Zero Alignment Dataset - Technical Annex - November 2023 Dataset version 3.0.

Calculation methodology

Implied Temperature Rise approach

Approximately 90% of our Agriculture portfolio consists of large multinational corporations that predominantly operate downstream from farms and are diversified across a broad spectrum of commodities. This composition serves as the foundation for establishing our emissions baseline and target for the Agriculture portfolio.

Figure 5: Agriculture Methodology Process



[10] Refer to our thinking on Agriculture Scope 3 here.

$$\sum_{n}^{i}\left\{\left(\frac{\frac{\text{investment value}_i}{\text{company value}}\times\text{company emissions}}{\text{total portfolio financed emissions}}\right)\times TSi\right\}$$

Where TS = Client ITR.

The temperature score of our portfolio is calculated using the Enterprise Value and Cash Emissions Weighted Temperature Score (ECOTS). In this method, temperature scores are assigned based on an enterprise value plus a cash and equivalents ownership approach:

Example

Table 3: Agriculture Example Inputs

	Company A	Company B	Company C
Client exposure	$0.1bn	$0.3bn	$0.2bn
Company value	$10bn	$50bn	$100bn
Attribution factor	0.01	0.006	0.002
Client's Scope 1, 2 & 3	30 $MtCO_2e$	50 $MtCO_2e$	100 $MtCO_2e$
Client ITR	3.1°C	2.1°C	1.8°C

$$\text{Portfolio ITR} = \frac{(0.01\times 30\ MtCO_2e\times 3.1°C)+(0.006\times 50\ MtCO_2e\times 2.1°C)+(0.002\times 100\ MtCO_2e\times 1.8°C)}{(0.01\times 30\ MtCO_2e)+(0.006\times 50\ MtCO_2e)+(0.002\times 100\ MtCO_2e)} = 2.4°C$$

Reference pathway

The target range (1.5-2°C by 2040) has been established based on a 2023 baseline of 2.72°C to encourage the Group to aspire for 1.5°C while ensuring a minimum achievement of well-below 2°C which is Paris aligned and therefore based in science. This equates to a temperature range of 2.3 to 2.5°C as interim 2030 target. This approach maintains scientific validity whilst offering the necessary flexibility for the Group's significant Asian footprint and allowing clients adequate time to formulate credible commitments and targets.

Aluminium

The production of aluminium is emissions intensive and is responsible for roughly 1% of global CO_2e emissions per year (IEA, 2024). The aluminium sector relies heavily on electricity from the local grid. Over 60% of the sector's CO_2e emissions are attributable to the electricity consumed during smelting for the electrolytic reduction process. We have identified three overarching technological levers (IAI, 2021) for decarbonising aluminium production as follows:

- Promoting electricity decarbonisation – transitioning to low-emission power offers the most significant opportunity to reduce emissions. We will engage with clients who have smelting facilities to incentivise the uptake of reliable PPAs[11]
- Reducing direct emissions – electrification, fuel switching, and CCUS offer the most credible decarbonisation pathways along with low-emission anode production
- Incentivising recycling and resource efficiency – recycled aluminium has a significantly lower GHG footprint than primary aluminium production, therefore, increasing scrap collection rates would reduce the use for primary aluminium

Without efforts to curtail production and consumption, annual emissions in the sector could grow by as much as 90% by 2050 (MPP, 2023) because of population growth and economic development.

Sustainable Aluminium Finance Framework ('SAFF')

SAFF is an open-source reporting framework for financial institutions to assess and disclose their lending portfolios performance against a 1.5°C pathway (SAFF, 2023). SAFF is a voluntary reporting framework, it was developed by RMI and the working group banks in consultation with industry experts, Non-governmental Organisations (NGOs), and other stakeholders. Ultimately, SAFF aims to enable standardised comparisons between clients, portfolios, and to catalyse further collaboration between Standard Chartered and our clients on their transition to a low-emission future.

Value Chain Boundary

The majority of GHG emissions from the aluminium sector relate to the production process, specifically alumina refining, anode/paste production, and smelting. We report our aluminium financed emissions with reference to the 'Fixed System Boundary' set out by the SAFF. As such, all emissions resulting from primary and recycled production of aluminium are within scope[12].

Emissions Boundary

Scope 1 and Scope 2 emissions are calculated for aluminium producers. We aim to accurately report Scope 3 emissions associated to the sector in the future as data quality and availability improves.

GHG Boundary

Standard Chartered reports its financed emissions in CO_2e, the measurement is consistent with the SAFF methodology and our clients.

[11] Please refer to power section of the whitepaper for an overview of power generation decarbonisation levers.
[12] We have opted to exclude semi-fabrication clients from our portfolio due lack of available data.

Data Sources

The data sources and hierarchy for aluminium follows the rules laid out in the generic data section above.

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have measured our aluminium portfolio emissions with an intensity metric (tCO_2e/t aluminium). This intensity metric is commonly used by stakeholders in the sector and is a useful comparison against peers. Additionally, the metric incorporates an Attribution Factor to derive Standard Chartered's share of real-world emissions in the aluminium sector.

Worked Example

Inputs:

- $0.1 billion general lending
- company value of $20 billion
- total asset production of 2 Mt aluminium
- total asset emissions of 25 Mt CO_2e

$$\text{Financed Emissions } (tCO_2e) = \sum_{\text{All Clients}} \left(\frac{\text{Client Exposure } (\$)}{\text{Company Value } (\$)} \right) \times \text{Client Emissions } (tCO_2e)$$

$$\text{Financed Production (t Al)} = \sum_{\text{All Clients}} \left(\frac{\text{Client Exposure } (\$)}{\text{Company Value } (\$)} \right) \times \text{Client Production (t Al)}$$

$$\text{Portfolio Intensity } (tCO_2e/\text{t Al}) = \frac{\text{Financed Emissions } (tCO_2e)}{\text{Financed Production (t Al)}}$$

$$\text{Financed Emissions} = \left(\frac{\$0.1 \text{ billion}}{\$20 \text{ billion}} \right) \times 25 \text{ Mt}CO_2e = 0.125 \text{ Mt}CO_2e$$

$$\text{Financed Production} = \left(\frac{\$0.1 \text{ billion}}{\$20 \text{ billion}} \right) \times 2 \text{ Mt Al} = 0.01 \text{ Mt Al}$$

Production–based Intensity = 12.5 tCO_2e/t Al

Reference Pathway

We have set our aluminium sector targets with reference to the Mission Possible Partnership aluminium Sector Transition Strategy (MPP STS). The MPP STS is a bottom-up model which covers primary aluminium production, we have adapted the scenario to include recycled aluminium.

Automotive

The automotive sector continues to be central for global mobility systems, and it is a key sector for international supply chains and the economy. However, it is also a significant contributor to climate change, annually, the exhaust emissions from passenger cars account for 8% of global CO_2 emissions (IEA WEO, 2024).

Transitioning to low and zero emission vehicles is crucial to reach net zero by 2050. Automotive original equipment manufacturers (OEMs) have the greatest impact on design choices of vehicles that emit emissions when in use (IEA WEO, 2024) and as such, the decarbonisation levers focus on automotive OEMs. Decarbonising the automotive sector may be achieved through the following overarching levers:

- Encouraging fuel-switch and improving fuel-efficiency as a first step
- Maximising the electrification production rate
- Minimising virgin material usage in the manufacturing process

Value Chain Boundary

When measuring the automotive sector emissions, the boundary covers OEMs of newly manufactured light duty vehicles (LDV)[13].

Emissions Boundary

We include Scope 1, Scope 2 and Scope 3 emissions (excluding well-to-tank emissions) in our financed emissions calculation. For Scope 3 we include the lifetime tailpipe emissions of the vehicles sold during the reporting cycle and a factor derived from supply chain emissions of the OEM.

GHG Boundary

For the automotive sector, we measure emissions intensity as a function of emissions, measured as grams of CO_2.

Data Sources

In addition to the generic data sources outlined in the 'Data Input' section above, our client emissions data is sourced from the TPI carbon performance assessment of automobile manufacturers. Following the industry's progress in adopting a test procedure that better reflects driving conditions in the real world, TPI uses a Worldwide Harmonised Light Duty Driving Test Procedure (WLTP) as the common basis against which all global manufacturers are evaluated.

[13] LDVs are defined as 'passenger cars and light commercial vehicles (gross vehicle weight <3.5 tonnes)' per the IEA 2023 WEO.

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have measured our automotive portfolio emissions in grams of CO_2 per vehicle kilometre travelled (gCO_2/v.km). The portfolio is aggregated on an exposure-weighted approach, the emission intensity is calculated by multiplying the physical intensity of each OEM with the percentage exposure to OEM in the portfolio.

Where:

- exposure = client's drawn exposure at year-end
- client intensity = inclusive of OEM's Scope 1, Scope 2 and Scope 3 'supply chain' and 'use of sold products' for passenger vehicles sold

$$\text{Exposure-weighted Emission Intensity } (gCO_2/\text{ v.km}) = \sum_{\text{Client}} \frac{\text{Client Exposure (\$)}}{\text{Total Portfolio Exposure (\$)}} \times \text{Client Emission Intensity } (gCO_2/\text{ v.km})$$

Worked Example (portfolio level)

Inputs:

- client $_a$ exposure = $0.2 billion
- client $_b$ exposure = $0.3 billion
- total portfolio exposure = $0.5 billion
- client $_a$ emission intensity = 150 gCO_2/v.km
- client $_b$ emission intensity = 170 gCO_2/v.km

$$\text{Emission Intensity}_{\text{ client } a} = \frac{\$0.2 \text{ billion}}{\$0.5 \text{ billion}} \times 150\ gCO_2/\text{ v.km}$$

$$\text{Emission Intensity}_{\text{ client } b} = \frac{\$0.3 \text{ billion}}{\$0.5 \text{ billion}} \times 170\ gCO_2/\text{ v.km}$$

$$\text{Portfolio Physical-based Intensity} = 162\ gCO_2/\text{ v.km}$$

Reference Pathway

We have set a range target using the IEA Net Zero Emissions (NZE) scenario as the lower-bound range and the IEA Announced Pledges Scenario (APS) scenario as the upper bound-range. Both scenarios are consistent with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

[14] The APS is an exploratory scenario, the latest scenario modelling predicts the global temperature rise to 1.70°C (50% probability) (IEA, 2024).

Aviation

Aviation is key to facilitating global trade and travel, with the sector estimated to contribute 2% of total global CO_2 (IEA, 2024). Total GHG emissions attributable to aviation are set to increase significantly in the coming decades due to increasing demand for air travel. The sectoral emissions predominantly come from upstream fuel-refining and the combustion of fuel in aircraft engines, such that the primary levers for decarbonising the sector is through accelerating the uptake and development of Sustainable Aviation Fuels (SAF) and retrofit/upgrade of aircraft equipment to new low-carbon aircraft models.

Pegasus Guidelines

Standard Chartered was part of the working group that supported the development of the Pegasus Guidelines (PG), a climate-aligned framework to help financial institutions measure and disclose emissions intensity and/or climate alignment of their aviation lending portfolios. By referring to PG, Standard Chartered intends to calculate our aviation financed emissions with reference to the PG 1.5°C-aligned standardised assessment and methodology.

The PG references decarbonisation roadmaps to follow, as developed by MPP, which include detailed emissions and traffic forecasts that map a pathway for the aviation sector to reach net zero emissions by 2050. Standard Chartered set a target based on the MPP PRU trajectory in 2024, which relies on technologies that either are already available or will enter the market over the coming decades, according to industry consensus.

Table 4: Aviation MPP PRU Decarbonisation Trajectory

	Emissions boundary	gCO_2e / RTK			Net zero by 2050
		2030	2040	2050	
MPP PRU trajectory	WTW CO_2e	773	305	0	Yes

Value chain boundary

Standard Chartered references PG methodology for the aviation sector. The methodology calculates portfolio-level emissions intensity for commercial aviation, excluding military aviation, corporate and business jets, helicopters, and general civilian aviation. The scope for measuring financed emissions includes aircraft operators, aircraft owners and aircraft leasing companies.

Data Sources

In addition to the general data sources outlined above, the aviation sector utilises asset valuations from IBA Group and emissions data from Platform for Analysing Carbon Emissions (PACE).

Emissions boundary

In line with the PG, our aviation emissions are full lifecycle emissions ("well-to-wake" or WTW). Airport building emissions, aircraft manufacturing emissions, and ground handling emissions are not included. WTW emissions allow for direct life-cycle accounting for SAF and are consistent with NZBA guidance. As such, Scope 1 and Scope 3 emissions are calculated.

GHG boundary

We report our Aviation sector financed emissions in CO_2e.

Calculation Methodology

In setting our emissions baseline and target, we have measured the climate intensity of our aviation portfolios with reference to the PG technical guidance. In calculating emissions intensity of the Asset-Backed Lending (ABL) portfolio, we use emissions from the exact aircraft. Emissions intensity is a physical intensity measure for every aircraft or airline financed on distance travelled, fuel consumed and aircraft payload type. Revenue-tonne Kilometres (RTK) allows for passenger and dedicated cargo traffic to be incorporated into the one metric, whereas RPK only incorporates passenger. Our portfolio includes both cargo and passenger traffic such that RTK is the more appropriate metric.

$$\text{Financed Emissions} = \frac{\text{Total Aircraft Emissions } (gCO_2e)}{\text{Aircraft RTKs}}$$

$$\text{Portfolio Intensity Emissions} = \frac{\text{Sumproduct } (\text{Client or Asset Exposure} * \text{intensity})}{\text{Total In-scope exposure}}$$

Where:

$$\text{RTK} = \frac{\text{total revenue}}{\text{paying load (passengers and cargo)}} * \text{distance flown (kms across calendar year)}$$

Worked Example (portfolio level)

Client $_a$ exposure = $1.5bn

Client $_b$ exposure = $0.5bn

Portfolio exposure = $2bn

Client emission intensity$_a$ = 960 gCO_2e/ RTK

Client emission intensity$_b$ = 750 gCO_2e / RTK

$$\text{Emission intensity}_a = \frac{\$1.5\text{bn}}{\$2\text{bn}} * \frac{960\ \text{gCO2e}}{\text{RTK}} = 720\ \text{gCO2e/RTK}$$

$$\text{Emission intensity}_b = \frac{\$0.5\text{bn}}{\$2\text{bn}} * \frac{750\ \text{gCO2e}}{\text{RTK}} = 188\ \text{gCO2e/RTK}$$

Portfolio intensity = 720 + 188 = 908 gCO_2e/RTK

Reference Pathway

The Group has set an Aviation target with reference to the Mission Possible Partnership Prudent (MPP PRU) (2022). MPP PRU uses bottom-up modelling and the introduces decarbonisation levers to showcase how the aviation sector could achieve net zero GHG emissions by 2050 in line with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Cement

The cement sector contributes approximately 6% towards global GHG emissions (IEA, 2024). The primary source of the emissions occurs during the production process where a chemical reaction takes place between limestone and heat. By incorporating sustainable practices into cement production, such as increasing energy efficiency and utilising alternative fuels, the sector can contribute to a more environmentally friendly future by reducing its ecological footprint.

The main challenge for the cement sector is to reduce CO_2 emissions while meeting global demand. The infrastructural needs of developing economies necessitate the global development and implementation of new emission reduction technologies in the sector.

The following sections briefly describe the key design choices in calculating cement sectors' emission intensity baseline and 2030 target.

Value Chain Boundary

The majority of GHG emissions from the cement sector occur from the:

- heated limestone in clinker and cement manufacturing (~60%); and
- combustion of the fuels used in the cement kiln and other plant processes (~40%)

Therefore, the technical boundary for emissions calculation covers midstream processes where the majority of the sector emissions are concentrated.

Emission Boundary

As we are measuring the emissions from the production of cement the emissions boundary considered is the direct emissions (Scope 1) and indirect energy emissions (Scope 2). In some cases where it is not possible to disaggregate direct and energy indirect emissions, we classify these as Scope 1, and Scope 2.

GHG Boundary

Due to data availability and materiality, we have chosen to report only on CO_2. The uplift from CO_2 to CO_2e in cement is less than 1% and, as such, is considered not material to the calculation (UK Department for Energy Security and Net Zero, 2023).

Data Sources

The cement sector financed emissions calculation utilises the same data sources as outlined above in the general data input section. However, due to our value-chain scoping we prioritise annual reports and sustainability reports over S&P.

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have measured our cement sector portfolio emissions with a production-based emissions intensity metric of tonnes CO_2 per tonnes of cementitious material[15] (tCO_2/t cement). This intensity metric is commonly used by stakeholders - such as the GCCA and is a useful comparison against peers. Additionally, the metric incorporates an Attribution Factor to derive Standard Chartered's share of real-world emissions in the cement sector. Generally, our selection of a production-based emissions intensity metric for the cement sector is motivated by the need to balance the rising demand for cementitious materials in emerging economies with the pressing requirement to decarbonise the cementitious material production process.

$$\text{Financed Emissions } (tCO_2) = \sum_{\text{Parent}} \left(\frac{\text{Parent Exposure (\$)}}{\text{Company Value (\$)}} \right) \times \text{Client Emissions } (tCO_2)$$

$$\text{Financed Production (t cement)} = \sum_{\text{Parent}} \left(\frac{\text{Parent Exposure (\$)}}{\text{Company Value (\$)}} \right) \times \text{Client Production (t cement)}$$

$$\text{Production-based Intensity } (tCO_2/t \text{ cement}) = \frac{\text{Financed Emisisons}}{\text{Financed Production}}$$

Worked Example

Inputs:

- cementitious material producing company
- $0.1 billion general lending
- company value of $10 billion
- total cementitious material production aggregated at parent level of 20 Mt
- total Scope 1 and Scope 2 emissions aggregated at parent level of 12 Mt CO_2

$$\text{Financed Emissions} = \left(\frac{\$0.1 \text{ billion}}{\$10 \text{ billion}} \right) \times 12 \text{ Mt}CO_2 = 0.1 \text{ Mt}CO_2$$

$$\text{Financed Production} = \left(\frac{\$100 \text{ million}}{\$10 \text{ billion}} \right) \times 20 \text{ Mt cement} = 2 \text{ Mt cement}$$

$$\text{Production-based Intensity} = \left(\frac{12 \text{ Mt}CO_2}{20 \text{ Mt cement}} \right) = 0.6 \ tCO_2/t \text{ cement}$$

Reference Pathway

We have set our cement sector targets with reference to IEA NZE. The IEA NZE is consistent with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

[15] For completeness, we take the higher of the cement or clinker production number.

Commercial Real Estate (CRE)

The CRE sector contributed 7% towards global emissions in 2023 (IEA, 2024). Emissions primarily arise from two sources from:

- the operation of the building; and
- embodied emissions which are emissions related to the construction, maintenance, and disposal of real estate assets

Key determinants of the GHG emissions of the CRE portfolio include the size and type of the building which impact the buildings energy needs as well as the energy mix of the electricity grid in the region in which the building is located.

Value Chain Boundary

We only measure emissions on the operation of buildings. We consider the embodied emissions to be largely captured in the steel and cement sectors.

Product Scoping

We consider the following financial products in CRE:

- Investment Loans (IL) where the proceeds are utilised to purchase and/or refinance a building are included
- Property Development Loans (PDL) are excluded as there are no operational emissions
- due to data limitations, General Lending (GL) is excluded as presently our lending cannot be accurately linked back to a client's property assets

Emissions Boundary

As we are measuring the emissions from the operation of buildings the emissions boundary considered is the Scope 1 and Scope 2 emissions of the buildings being financed.

GHG Boundary

All GHG emissions are considered with a CO_2e value measured and reported.

Data Sources

In addition to the generic data sources outlined in the 'Data Input' section above, our client emissions and net floor area[16] data for the CRE sector is sourced from the following sources:

- Morgan Stanley Capital International (MSCI) Real Capital data is used where actual floor area is not available
- emissions factors from Carbon Risk Real Estate Monitor (CRREM) are also used when building report and MSCI emissions are unavailable

[16] Net floor area is defined as the actual occupied area of a floor, not including accessory unoccupied areas or the thickness of walls. (International Building Code, 2018)

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we use an emissions intensity of $kgCO_2e/m^2$ to measure the progress of our portfolio towards Net Zero by 2050. This is to more accurately reflect the decarbonisation progress made by any company over time as it factors in investment into green buildings which would not be captured through absolute emissions. Additionally, it also allows for better comparisons with peers.

$$\text{Financed emissions } (kgCO_2e) = \sum_{\text{Client}} \times \frac{\text{Building Exposure (\$)}}{\text{Building Value (\$)}} \times \text{Building Emissions } (kgCO_2e)$$

$$\text{Financed Physical Area (sqm)} = \sum_{\text{Client}} \times \frac{\text{Building Exposure (\$)}}{\text{Building Value (\$)}} \times \text{Building Floor Area (sqm)}$$

$$\text{Physical-based Intensity } (kgCO_2e/sqm) = \frac{\text{Financed Emissions } (kgCO_2e)}{\text{Financed Physical Area (sqm)}}$$

Worked example

Inputs:

- $8 million investment loan
- building value of $10 million
- floor area of 300 sqm
- emissions of 16,000 $kgCO_2e$

$$\text{Financed emissions} = \frac{\$8 \text{ million}}{\$10 \text{ million}} \times 16{,}000\ kgCO_2e = 12{,}800\ kgCO_2e$$

$$\text{Financed Physical Area} = \frac{\$8 \text{ million}}{\$10 \text{ million}} \times 300 = 240 \text{ sqm}$$

$$\text{Physical-based Intensity} = \frac{12{,}800\ kgCO_2e}{240 \text{ sqm}} = 53.3\ kgCO_2e/\text{ sqm}$$

Reference Pathway

We have set a range target using the IEA NZE scenario as the lower-bound range and the IEA APS scenario as the upper bound-range. Both scenarios are consistent with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Oil & Gas

The O&G sector's production emissions (i.e., operations) and consumption emissions (i.e., use of fuel products) account for approximately 15%, and 36% (IEA WEO, 2024) of global energy-related emissions respectively. As such, the decarbonisation of the O&G sector is crucial for achieving global Net Zero.

Over half of the O&G sector's emissions originate in Asia, Africa, and the Middle East (IEA, 2024), these are the geographical regions where Standard Chartered has the largest financial footprint. The O&G sector is the largest contributor to our absolute financed emissions, comprising approximately 10 million tonnes of CO_2e per annum. As such, we have set an absolute emissions target against the O&G sector.

Fossil fuel assets are deeply entrenched in the global economy, hence, transitioning, phasing-down and phasing-out of unabated fossil-fuel production assets in the O&G sector is one of the most substantial challenges towards realising Net Zero. The transition requires the development and scaling of new technologies and business models to drastically reduce production (supply) and alter consumption (demand) patterns.

In addition, the global scale-up of clean energy must consider a just transition by simultaneously ensuring a secure, equitable, and sustainable future (World Energy Council, 2023). The added complexity of embedding the 'Energy Trilemma' considerations into clean energy investment decisions is ongoing, and our frameworks are reviewed and updated regularly to reflect the latest industry knowledge from reputable institutions, like the IEA.

Beyond the Net Zero baseline and target, we have also communicated our Extractive Industries position statement. Our position statement reflects the criteria we assess our clients against when considering the provision of financial services to extractives activities in the O&G sector. For further information please refer to our extractive industries position statement.

We have identified the following overarching strategies to decarbonise the O&G sector in the table below.

Table 5: O&G Strategic Levers and Options

Strategic Levers	Strategic Options
Reduce O&G production emissions (Scope 1, and Scope 2)	• Improve the operational efficiency of O&G production; reduce methane leakages, venting, and flaring • Integrate renewables and low-emission electricity into upstream and liquefied natural gas (**LNG**) developments • Abate emissions at source[17] through deployment of carbon capture and storage technologies (**CCS, CCUS**)
Develop non-oil and gas businesses	• Transition to non-fossil fuel energy businesses: low-emission electricity generation, synthetic fuels, advanced biofuel, power-to-x, etc. • Transition to non-energy businesses: electricity distribution, Electric Vehicle (**EV**) battery charging, energy efficiency, distributed battery/energy storage

[17] By implementing CCUS, emissions can be reduced directly at source by preventing CO_2 from entering the atmosphere; however, the overall effectiveness depends on factors such as the efficient of capture technologies, the extent of utilisation and the long-term storage of captured CO_2.

Reducing production emissions is an important aspect for all O&G companies, this strategic lever is considered most achievable in the short-term on a global basis as the technology and knowledge to reduce production-related emissions are generally proven and cost-effective.

However, the reduction of consumption emissions and the development of non-O&G businesses will vary across companies due to:

- geographical considerations
- value-chain operations
- degree of vertical integration
- rate of new technology adoption
- local legislation
- government mandates

Therefore, the implementation and timing of the second lever is more variable and assessed on a regional and asset basis.

Value Chain Boundary

Our value chain boundary is set out in the table below and adapted from the IEA's The O&G sector in Net Zero Transitions report (2023b).

Table 6: Oil and Gas Activities and Companies

		Companies	
	Activities	**Pure players**	**Integrated O&G and NOCs**
Upstream[18]	Exploration & production	E&P pure players	Integrated oil companies Integrated LNG companies National oil companies
		Services companies	
Midstream[19]	Pipeline and land transportation	Natural gas transporters Oil products transporters	
	Floating Production Storage and Offloading (FPSO)		
	Midstream services	Service companies	
Downstream[20]	Refineries and LNG facilities	Refining pure players	

[18] Defined as entities that explore for, extract, or produce energy products such as crude oil and natural gas. Companies in the sector that develop conventional and unconventional O&G reserves; these include, but are not limited to, shale oil and/or gas reserves, oil sands, and gas hydrates (IEA, 2023b).
[19] This consists of companies that are involved in the transportation, storage, and processing of natural gas, crude oil, and refined petroleum products (IEA, 2023b).
[20] Entities that refine petroleum products (IEA, 2023b)

Emissions Boundary

- The Scope 1 and Scope 2 emissions across upstream, midstream and downstream counterparties
- Scope 3 emissions are solely the end use of product (i.e., combustion). This is attributed to counterparties with production activities

GHG Boundary

We report our O&G sector financed emissions in CO_2e covering Scope 1, Scope 2 and Scope 3.

Data Sources

In addition to the generic data sources outlined in the 'Data Input' section above, our clients' production data is downloaded from the Wood Mackenzie data analytics 'Lens' platform. The production figure is multiplied by a barrel of oil and gas equivalent emission factor to calculate the Scope 3 'use of sold product' emissions.

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have measured our O&G sector portfolio emissions on an absolute emissions basis.

$$\text{Financed Emissions } (tCO_2e) = \sum_{\text{Client}} \left(\frac{\text{Client Exposure } (\$)}{\text{Company Value } (\$)} \right) \times \text{Client Emissions } (tCO_2e)$$

Worked example

Inputs:

- $0.5 billion in-scope lending
- company value of $150 billion
- total Scope 1 and Scope 2 emissions: 30 $MtCO_2e$
- total Scope 3 emissions: 300 $MtCO_2e$

$$\text{Financed Emissions}_{\text{ Scope 1 and 2}} = \left(\frac{\$0.5 \text{ billion}}{\$150 \text{ billion}} \right) \times 30 \text{ } MtCO_2e = 0.10 \text{ } MtCO_2e$$

$$\text{Financed Emissions}_{\text{ Scope 3}} = \left(\frac{\$0.5 \text{ billion}}{\$150 \text{ billion}} \right) \times 300 \text{ } MtCO_2e = 1.00 \text{ } MtCO_2e$$

$$\text{Financed Emissions}_{\text{ Total}} = 1.10 \text{ } MtCO_2e$$

Reference Pathway

Our O&G sector target aligns with the IEA NZE scenario. This science-based scenario is consistent with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Power

The electricity and heat sector contributed 40% towards global GHG emissions in 2022 (IEA, 2024). It is projected that global electricity demand will continue to rise especially in emerging markets and developing economies. This is because as population growth continues, urbanisation accelerates, and socio-economic development drives an increase in consumption. As such, fossil fuel electricity generation makes up a disproportionately larger share in many of the regions in which we operate. We aim to direct capital to promote the uptake of renewable energy technologies in tandem with providing transition finance to our clients in emerging markets to empower their equitable journey to Net Zero.

Value Chain Boundary

The majority of GHG emissions from the power sector are emitted at the point of combustion where fossil fuels or biomass are used to generate electricity and heat. We solely consider power generation for electricity as in-scope within the value chain and we exclude steam, heating, cooling producers and transmission & distribution (T&D) entities from our financed emissions calculation. We consider the following power generation types (non-exhaustive) to be in-scope: gas turbines, steam turbines, diesel engines, supercritical pulverised coal, hydro, geothermal, wind, solar, nuclear, tidal, concentrated solar, and waste-to-energy.

Emissions Boundary

We primarily consider the Scope 1 emissions associated with power generation and the combustion of fossil fuels. In some cases, we use our clients' Scope 1 and Scope 2 emissions when the emissions data is not disaggregated.

Scope 3 emissions in the Power sector typically include a combination of upstream emissions from fossil fuel extraction (which is included in Scope 3 in the O&G sector), emissions from purchased electricity generated by upstream providers, and downstream emissions from end use of power supply delivered to customers, such as for aluminium producers, residential and commercial heating.

Downstream Scope 3 emissions from power supply are recorded and considered as Scope 1 (gas burnt for heating) and Scope 2 (electricity consumed) emissions by end users.

GHG Boundary

We have chosen to report on CO_2 emissions due to data availability and materiality. The CO_2 to CO_2e uplift is less than 1% for fuels used in power generation and not considered to be material to the calculation (UK Department for Energy Security and Net Zero, 2023).

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have measured our power portfolio emissions with an intensity metric (tCO_2/MWh). Financed emissions calculated in the power sector can be generalised based on generation type, but the emissions factors utilised to calculate the clients' emissions will vary based on the type of lending and nature of the project.

Client Production

Power sector client production data in order of preference:

- reported generation from:
  - annual reports/ sustainability reports
  - internally via our risk systems and client credit assessments
- estimated production from reported or estimated capacity leveraging:
  - Enerdata[21] , Emberdata and average utilisation factors by region and technology

Client Emissions

- Power sector client emissions data in order of preference:
- reported emissions from
  - externally via third party data aggregators (e.g., S&P)
  - annual reports/ sustainability reports
- estimated emissions derived from reported production or capacity leveraging:
  - The emission factors used for each technology is the average of the regions in the lending portfolio

$$\text{Financed Emissions } (tCO_2) = \sum_{\text{All Clients}} \left(\frac{\text{Client exposure } (\$)}{\text{Company value } (\$)} \right) \times \text{Client Emissions } (tCO_2)$$

$$\text{Financed Production (MWh)} = \sum_{\text{All Clients}} \left(\frac{\text{Client exposure } (\$)}{\text{Company value } (\$)} \right) \times \text{Generation (MWh)}$$

$$\text{Emission Intensity } (tCO_2/MWh) = \frac{\text{Financed Emissions } (tCO_2)}{\text{Financed Production (MWh)}}$$

Worked example (project finance)

Inputs:

- project finance (or specified general lending) for Combined Cycle Gas Turbine (CCGT) plant
- emission factor for CCGT (EIB, 2023) = 0.35 tCO_2/MWh
- $0.1 billion lending with project value of $3 billion
- total asset generation of 30,000,000 MWh (100% CCGT)
- total asset emissions of 10.5 Mt CO_2

Emissions Produced= 30,000,000 MWh x 0.35 tCO_2/MWh=10,500,000 tCO_2

$$\text{Financed Emissions} = \left(\frac{\$0.1 \text{ billion}}{\$3 \text{ billion}} \right) \times 10{,}500{,}000\ tCO_2 = 350{,}000\ tCO_2$$

$$\text{Financed Generation} = \left(\frac{\$0.1 \text{ billion}}{\$3 \text{ billion}} \right) \times 30{,}000{,}000 \text{ MWh} = 900{,}000 \text{ MWh}$$

$$\text{Production-based Intensity} = \frac{350{,}000\ tCO_2}{900{,}000 \text{ MWh}} = 0.39\ tCO_2/MWh$$

[21] Enerdata is an independent research company that specialises in the analysis and forecasting of energy and climate issues

Reference Pathway

We have set a range target using the IEA NZE scenario as the lower-bound range and the IEA APS scenario as the upper bound-range. Both scenarios are consistent with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Residential Mortgages

Residential housing contributed 5% towards global emissions in 2022 (IEA, 2024). Similar to the CRE sector, the residential housing sector emissions are primarily from two sources:

- the operation of the building
- embodied emissions which are emissions related to the construction, maintenance, and disposal of real estate assets

We omit embodied emissions in our financed emissions calculation (refer to value chain boundary below for the rationale). As such, the key determinants of operational emissions are the energy efficiency of the residence being funded (demand) as well as the emission intensity of the grid that is providing the house with electricity (supply).

The levers available to decarbonise the portfolio are:

- increase lending to clients to improve unit or building energy efficiency through retrofitting and improvement of insulation, ventilation, and energy management
- through engaging with clients to decarbonise their electricity supply, for instance, through the direct purchase of green electricity, or green certificates

Standard Chartered issues residential mortgages in Asia, Africa, the Middle East, and Europe, however the majority of the residential mortgage balance is concentrated in South Korea, Hong Kong, Taiwan, and Singapore. Therefore, these markets have been considered for our Residential Mortgages financed emissions.

Value chain boundary

For residential mortgages, the value chain only includes financing towards residential use of housing. Emissions calculated are based on residential activities occurred in the occupying space. This means that the loans are only in scope when:

- it is for new purchase or re-financing of the property
- when the property is completed, and
- the property is used only for residential purpose

As such, buildings under construction, equity loans, and properties with full or partial commercial usage are excluded from the calculation. Additionally, embodied emissions through the construction of buildings are not included as these emissions are considered to be accounted for in steel and cement manufacturing.

Emissions Boundary

As we are measuring the emissions from the operation of residential buildings, the emissions boundary considered are the Scope 1 and Scope 2 emissions of the building area being financed.

GHG Boundary

All GHG emissions are considered with a CO_2e value measured.

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have used national energy consumption data (differentiated by property type and region, where available) for each in scope market to estimate our financed emissions and emission intensity. We use an emissions intensity of $kgCO_2e/sqm$ to measure the progress of our residential mortgage portfolio towards Net Zero in 2050.

$$\text{Financed Emissions } (kgCO_2e) = \sum_{\text{Client}} \left(\frac{\text{Residential Unit Exposure } (\$)}{\text{Residential Unit Value } (\$)} \right) \times \text{Residential Unit Emissions } (kgCO_2e)$$

$$\text{Financed Physical Area (sqm)} = \sum_{\text{Client}} \left(\frac{\text{Residential Unit Exposure } (\$)}{\text{Residential Unit Value } (\$)} \right) \times \text{Residential Unit Floor Area (sqm)}$$

$$\text{Physical-based Intensity } (kgCO_2e/sqm) = \frac{\text{Financed Emissions } (kgCO_2e)}{\text{Financed Physical Area (sqm)}}$$

Worked Example

Inputs:

- $100,000 residential mortgage loan
- $121,000 residential unit value
- floor area 28 sqm
- annual emissions 1,500 $kgCO_2e$

$$\text{Financed Emissions} = \frac{\$100{,}000}{\$121{,}000} \times 1{,}500\ kgCO_2e = 1{,}240\ kgCO_2e$$

$$\text{Financed Physical Area} = \frac{\$100{,}000}{\$121{,}000} \times 28\ sqm = 23\ sqm$$

$$\text{Physical-based Intensity } (kgCO_2e/sqm) = \frac{1240\ kgCO_2e}{23\ sqm} = 54\ kgCO_2e/sqm$$

Reference Pathway

Standard Chartered, as a UK headquartered Group with its residential mortgage portfolios predominately in Asia, is one of the first banks to set a target on its residential mortgage portfolio across multiple countries. As such, we have used multiple country specific CRREM scenarios to benchmark our portfolios in each market. While we have a set a single group-level target, the very nature of the residential real estate market means all decarbonization actions will take place at the local level.

We have set our target range at the most ambitious end of the public commitments made by governments and power companies in the countries where we operate. This currently sits above the global CRREM pathway to 2030. We will consider readjusting our reduction pathway in line with increases in the level of ambition of those external commitments.

Shipping

Shipping is key to facilitating global trade, the sector is estimated to contribute 2% of total global CO_2 (IEA, 2024). The sectoral emissions predominantly arise from the combustion of fuel in ships' engines. The primary lever for decarbonising the shipping sector is through accelerating the uptake and technological development of low and zero-emission alternative fuels.

Poseidon Principles

Standard Chartered is a signatory of the Poseidon Principles (PP), a global framework for financial institutions to assess and report the climate alignment of their financed shipping portfolio. Targeting a 0% alignment delta means that Standard Chartered intends to reduce its shipping financed emissions according to a PP trajectory by 2050. The PP determine the decarbonisation pathways to follow, including forward looking trajectory scenarios, as developed by the International Maritime Authority (IMO). For further details please refer to PP Technical Guidance Version 5.1 (2024).

Table 7: IMO trajectories

		Reduction Ambition compared to base year 2008			
PP Trajectory	Emission Boundary	2030	2040	2050	Net Zero by 2050
IMO Revised Strategy (minimum)	WTW CO_2e	20%	70%	100%	Yes
IMO Revised Strategy (striving)	WTW CO_2e	30%	80%	100%	Yes

Value Chain Boundary

Standard Chartered applies PP methodology for the shipping sector. The scope for measuring financed emissions includes ship operators and ship owners with vessels that fall under the purview of the IMO (e.g. vessels 5,000 gross tonnage and above which have an established PP trajectory whereby the emissions intensity can be measured with IMO Data Collection System (DCS) data). (Poseidon Principles, 2024). For clarification of classification of ship types or individual ships, please refer to:

- StatCode Ship Type Coding System document, and
- IMO Global Integrated Shipping Information System

Emissions Boundary

In line with the PP Technical Guidance Version 5.1 (2024) our shipping emissions were updated from operational emissions ("tank-to-wake") to full lifecycle emissions ("well-to-wake"). As such, Scope 1 and Scope 3 emissions are calculated.

GHG Boundary

We previously reported our financed emissions from the shipping sector in CO_2, now in line with the latest technical update from the PP (2024) we report our emissions in CO_2e.

Calculation Methodology

Standard Chartered measures the climate alignment of its shipping portfolios with reference to the PP technical guidance.

Annual Efficiency Ratio (AER)

AER is a physical intensity measure for every ship financed by Standard Chartered that meets the IMO criteria based on distance travelled, fuel consumed and its deadweight tonnage. For further details refer to PP Technical Guidance Version 5.1 (Poseidon Principles, 2024).

$$AER_{Vessel} = \frac{\Sigma_i C_i}{\Sigma_i \ dwt\, D_i}$$

Where:

- AER is reported in unit gram of CO_2e per tonne-mile (gCO_2e/dwt-nm) for all voyages performed over a calendar year
- C_i is the GHG emissions for voyage = fuel consumption x emission factor of each fuel type
- dwt = deadweight at maximum summer draught of the vessel
- D_i = the distance travelled in voyage i

Alignment Delta (AD)

AD is a variant on the physical emissions intensity approach, it was developed by PP for measuring heterogenous shipping portfolios. The AD per ship is calculated by comparing the difference between a ship's measured AER and the AER prescribed by the relevant PP decarbonisation trajectory by ship type and weight. If a ship's AD is zero or negative that means it contributes to meeting PP and IMO decarbonisation goal, and vice versa if the AD is positive. The portfolio AD is the average sum of the individual comparisons across the portfolio, weighting by exposure to each client.

$$AD_{Vessel} = \left(\frac{AER_{Vessel} - Required\ AER_{Vessel}}{Required\ AER_{Vessel}} \right)$$

$$AD_{Portfolio} = \sum (AD_{Vessel} \times \frac{Exposure\ to\ vessel}{Total\ portfolio\ exposure})$$

Where:

- required AER of vessel is based on type and size to determine the relevant reference pathway
- exposure in this sector is asset-backed and specifically only the amount lent against the vessel and not the client as a whole

Please refer to the PP Technical Guidance Version 5.1 (2024) for a worked example.

Reference Pathway

Refer to Table 7 above for details of the reference pathway.

Steel

Steel is a critical material. It is essential to the functioning of the global economy from the production of the world's vehicles and household appliances to buildings and infrastructure. As such, the steel sector is the largest source of industrial CO_2 emissions and accounts for roughly 7% of global CO_2 emissions (IEA, 2024). This is largely due to the sector's reliance on metallurgical coal as the primary fuel source for ironmaking via blast furnaces. We have identified four overarching technological levers for decarbonising steel production these are:

- scrap-based Electric Arc Furnace (EAF)
- Natural Gas-based Direct Reduction Plant and EAF (NG-DRI EAF)
- Hydrogen Direct Reduction Plant and EAF (H-DRI EAF)
- Blast Furnaces for reducing iron ore / Basic Oxygen Furnaces for smelting with post-combustion Carbon Capture and Storage (BF-BOF-CCS)

The implementation and timing of the levers varies on an asset-by-asset basis. Assessing local conditions is a crucial starting point towards understanding the most likely decarbonisation pathway. With global demand projected to grow 30% by 2050, decarbonizing the steel sector is simultaneously one of the greatest challenges and opportunities between now and 2050.

Sustainable STEEL Principles (SSP)

This framework was developed by a group of five international banks and facilitated by the Centre for Climate-Aligned Finance at RMI, in consultation with over 80 representatives from industry, NGOs and other institutions. It represents a crucial step towards standardised reporting in CO_2 for the steel sector, enabling financial institutions to objectively compare steelmakers performance. Committing to the five SSPs (2022) means that Standard Chartered intends to:

1. annually measure and report the climate alignment of our steel lending portfolio according to the SSP guidance and methodology
2. annually publish portfolio climate alignment scores, a brief narrative, and the percent of our portfolio represented by emissions reduction targets
3. source data from clients, or from an approved third-party data provider
4. engage with our clients to maximise real economy impact by advancing emissions reductions in line with 1.5°C
5. Set steel portfolio targets informed by the SSP, updating the SSP as data evolves

Value Chain Boundary

The majority of GHG emissions from the steel sector are related to the steel production process. Standard Chartered reports its steel financed emissions with reference to the 'Fixed

System Boundary' set out by the SSP. As such, all emissions resulting from ironmaking, steelmaking are within scope and collected on a best-efforts basis.

Emissions Boundary

Scope 1 and Scope 2 emissions are calculated for steel producers.

GHG Boundary

Standard Chartered reports its financed emissions in CO_2 as this the most material GHG produced in the production of steel. The measurement is consistent with the SSP methodology.

Data Sources

In addition to the generic data sources outlined in the 'Data Input' section above, our client emissions and production data for the steel sector is sourced from CRU's Emissions Analysis database.

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have measured our steel portfolio emissions with an intensity metric (tCO_2/t steel). This intensity metric is commonly used by stakeholders in the steel sector and is a useful comparison against peers. Additionally, the metric incorporates an Attribution Factor to derive our share of real-world emissions in the steel sector. Overall, our choice of an intensity metric for the steel sector is to recognise the urgent need to decarbonise the steel production process, whilst balancing the growing demand of steel in emerging economies.

$$\text{Financed Emissions } (tCO_2) = \sum_{\text{All Clients}} \left(\frac{\text{Client exposure } (\$)}{\text{Company value } (\$)} \right) \times \text{Client Emissions } (tCO_2)$$

$$\text{Financed Production (t steel)} = \sum_{\text{All Clients}} \left(\frac{\text{Client exposure } (\$)}{\text{Company value } (\$)} \right) \times \text{Client Production (t steel)}$$

$$\text{Emission Intensity } (tCO_2/\text{t steel}) = \frac{\text{Financed Emissions } (tCO_2)}{\text{Financed Production (t steel)}}$$

Worked example

Inputs:

- $0.15 billion general lending
- company value of $20 billion
- total asset production of 20 Mt steel
- total asset emissions of 40 Mt CO_2

$$\text{Financed Emissions} = \left(\frac{\$0.15 \text{ billion}}{\$20 \text{ billion}}\right) \times 40 \text{ MtCO}_2 = 0.30 \text{ MtCO}_2$$

$$\text{Financed Production} = \left(\frac{\$0.15 \text{ billion}}{\$20 \text{ billion}}\right) \times 20 \text{ Mt Steel} = 0.15 \text{ Mt steel}$$

$$\text{Production-based Intensity} = 2 \text{ tCO}_2/\text{t steel}$$

Reference Pathways

We have set our steel sector target range with reference to the Mission Possible Partnership's Tech Moratorium (MPP TM), which is a 1.5°C low overshoot scenario prepared by a body of experts drawn from climate science, finance, policy, and industry (MPP, 2022). The upper bounds of our reference pathway is a regional MPP TM scenario that reflects the geographical mix of our steel portfolio. Both scenarios are consistent with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Thermal Coal

We have adopted an absolute financed emissions reductions for thermal coal mining. Our thermal Coal mining portfolio continues to decrease in line with contractual commitments and our coal revenue thresholds as detailed in our Position Statements. No new thermal coal use of proceeds loans have been provided.

Per our Position Statements we will not provide financial services (effective from October 2024 onwards) directly towards:

(i) Acquire or invest in Thermal Coal mines or Thermal Coal-fired power plants;

(ii) Develop Thermal Coal Assets; or

(iii) Are:

- More than 80 per cent. dependent on Thermal Coal Activities (based on percentage of revenue);
- By 2025, more than 60 per cent. dependent on Thermal Coal Activities (based on percentage of revenue);
- By 2027, more than 40 per cent. dependent on Thermal Coal Activities (based on percentage of revenue); or
- By 2030, more than 5 per cent. dependent on Thermal Coal Activities (based on percentage of revenue).

Client entity level criteria do not apply to client entities who:

(i) Are 5 per cent. or less dependent on Thermal Coal Activities (based on percentage of revenue).

(ii) Use Thermal Coal for captive purposes to support the manufacturing process in industries such as aluminium, cement and steel where there is no economically viable alternative.

Client entities undertaking Thermal Coal Activities will be subject to Enhanced Due Diligence. Where we phase out the provision of existing financial services under this Position Statement, we will do so in accordance with existing contractual arrangements.

Just Energy Transition Partnerships (JETP)

Standard Chartered is participating in the JETP programmes as a mobiliser and provider of capital alongside the ambitions of the Glasgow Financial Alliance for Net Zero (GFANZ). Transitioning away from coal-fired power is a crucial requirement to net zero and is a key target for the JETPs. Where Standard Chartered has provided financing under a JETP or coal decommission structure, we will ringfence this funding and financed emissions from other high carbon sectors as ‘coal decommissioning’.

Value Chain Boundary

Entities engaged with the upstream extraction of thermal coal.

Emission Boundary

Scope 1 and 2 emissions are calculated for thermal coal producers

Scope 3 emissions are solely the end use of product (i.e., combustion). This is attributed to counterparties with production activities

GHG Boundary

All GHG emissions are considered with a CO_2e value measured.

Data Sources

Production is sourced from counterparty external reports e.g. ARA. The production figure is multiplied by a coal combustion emission factor to calculate the Scope 3 'use of sold product' emissions.

Calculation Methodology

In setting our emissions baseline and target, and in calculating progress in subsequent years, we have measured our thermal coal portfolio emissions on an absolute emissions basis.

$$\text{Financed Emissions} = \sum_{\text{All Clients}} \left(\frac{\text{Client Exposure (\$)}}{\text{Company Value (\$)}} \right) \times \text{Client Emissions } (tCO_2e)$$

Worked Example

Inputs:

- $0.015 billion general lending
- Company value of $2 billion
- total Scope 1 and Scope 2 emissions: 10 $MtCO_2e$
- total Scope 3 emissions: 80 $MtCO_2e$

$$\text{Financed Emissions}_{\text{Scope 1 and 2}} = \left(\frac{\$0.015 \text{ billion}}{\$2 \text{ billion}} \right) \times 10\ MtCO_2e = 0.08\ MtCO_2e$$

$$\text{Financed Emissions}_{\text{Scope 3}} = \left(\frac{\$0.015 \text{ billion}}{\$2 \text{ billion}} \right) \times 80\ MtCO_2e = 0.6\ MtCO_2e$$

$$\text{Financed Emissions}_{\text{Total}} = 0.68\ MtCO_2e$$

Reference Pathway

The thermal coal mining portfolio is a run-down book, we have a target to reduce absolute emission by 85% by 2030. In addition to the emissions target we have financial restrictions per our position statements as outlined above in the background section.

Facilitated Emissions

During 2022, Standard Chartered joined PCAF to support the development of a methodology to measure facilitated emissions associated with the arranging of capital markets issuances. In line with PCAF recommendation, we report our facilitated emissions for the O&G sector in absolute terms separate from financed emissions due to the difference in nature of these activities across two key dimensions:

1. financed emissions account for on-balance sheet exposure from direct lending and investments while facilitated emissions represent emissions from off-balance sheet activities where financial institutions support the issuance of capital markets instruments
2. capital market facilitation leads to a temporary association with a transaction, which takes the form of a flow activity. By contrast, direct financing usually leads to a financial institution holding the transaction for years on its balance sheet, which classifies as a stock activity.

The Group has applied the Target Setting for Capital Markets Activities guidance from the NZBA to set an absolute emissions baseline and target on a three-year average of bond raises for the Oil & Gas sector. The three-year average reduces annual volatility, thereby smoothing out the peaks and valleys in facilitated amounts.

Issuance Boundary

Our calculation covers the issuance of corporate bonds and excludes:

- Asset-backed securities
- Government/Sovereign and Financial Institution bonds
- Green, Social and Sustainability tagged bonds
- Loan Syndications

Value Chain Boundary

Refer to the O&G sector section on page 30.

Emission Boundary

Refer to the O&G sector section on page 31.

GHG Boundary

Refer to the O&G sector section on page 31.

Calculation Methodology

Our calculations reflect the latest guidance document described in PCAF's 'The Global GHG Accounting and Reporting Standard Part B: Facilitated Emissions' published in December 2023.

Facilitated Emissions (tCO_2e)

$$= \sum_{\text{All Clients}} \left(\frac{\text{Facilitated Amount (\$)}}{\text{Company value (\$)}} \right) \times \text{Weighting Factor (\%)} \times \text{Client Emissions } (tCO_2e)$$

Where:

- facilitated Amount = total amount raised ($) × deal volume attributable to us (%)
- company value = for listed companies this is the EVIC of the respective client. For private companies this is the sum of the total company equity and debt when no market value for equity is available
- weighting factor = 33% and 100%
- client emissions = the total in-scope emissions of the issuer for the period

Worked Example

Inputs:

- sector = O&G
- total amount raised = $0.2 billion
- league table credit volume attributable to Standard Chartered = 50%
- company Value = $10 billion
- weighting factor = 100%
- Scope 1 and Scope 2 emissions = 5 $MtCO_2e$
- Scope 3 = 50 $MtCO_2e$

$$\text{Facilitated Emissions} = \left(\frac{\$0.2 \text{ billion} \times 50\%}{\$10 \text{ billion}} \right) \times 100\% \times 55 \ MtCO_2e$$

Facilitated Emissions= 0.55 $MtCO_2e$

Averaging facilitated emissions over a 3-year period to set a baseline

In accordance with NZBA's guidance, the Group has averaged facilitated emissions over a specified duration of three years (2019, 2020, and 2021) to determine a baseline for the year 2021, as demonstrated in the following example.

Table 8: Facilitated Emissions Example

Year	Facilitated emissions - Portfolio Total, $MtCO_2e$	Facilitated emissions - Portfolio Total, $MtCO_2e$ 2021 baseline using a 3-year moving average
2019	3.35	$\frac{(3.35+5.60+3.13)}{3}=4.02$
2020	5.60	
2021	3.13	

Reference pathway

Our O&G sector target aligns with the IEA NZE scenario. This science-based scenario is consistent with the Paris Agreement to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

Conclusion

We remain committed to the transparent disclosure of our net zero methodology. We will monitor our approach and communicate amendments to our White Paper as necessary in accordance with scientific guidance and sector-agreed methodologies as updated from time to time.

Glossary

AD	Alignment Delta
AER	Annual Efficiency Ratio
BF-BOF-CCS	Blast Furnaces for reducing iron ore / Basic Oxygen Furnaces for smelting with post-combustion Carbon Capture and Storage
CCGT	Combined Cycle Gas Turbine
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Utilisation and Storage
CIB	Corporate Investment Banking
CO_2e	Carbon Dioxide Equivalent
CRE	Commercial Real Estate
CRREM	Carbon Risk Real Estate Monitor
E&P	Exploration & production
EAF	Electric Arc Furnace
ECOTS	Enterprise Value and Cash Emissions Weighted Temperature Score
EV	Electric Vehicle
EVIC	Enterprise Value Including Cash
GCCA	Global Cement and Concrete Association
GHG	Greenhouse Gas
GL	General Lending
H-DRI EAF	Hydrogen Direct Reduction Plant and EAF
IEA	International Energy Agency
IEA APS	International Energy Agency Announced Pledges Scenario
IEA NZE	International Energy Agency Net Zero Emissions by 2050 Scenario
IL	Investment loans
IMO	International Maritime Organisation
IMO Existing	International Maritime Organisation Existing Scenario
IMO rev. min.	International Maritime Organisation Revised Minimum Scenario
IMO Striving	International Maritime Organisation Striving Scenario
IPCC	Intergovernmental Panel on Climate Change
ITR	Implied Temperature Rise

LDV	Light-duty Vehicle
LNG	Liquefied Natural Gas
MPP	Making Possible Partnership
MPP STS	Making Possible Partnership Steel Transition Strategy
MPP TM	Making Possible Partnership Steel Technology Moratorium Scenario
MSCI	Morgan Stanley Capital International
MWh	Megawatt Hour
NG-DRI EAF	Natural Gas-based Direct Reduction Plant and EAF
NGO	Nongovernmental Organization
NZBA	Net Zero Banking Alliance
O&G	Oil and Gas
OEM	Original Equipment Manufacturer
PACE	Platform for Analysing Carbon Emissions
PG	Pegasus Guidance
Paris Agreement	As defined by the United Nations and adopted at the UN Climate Conference on 12 December 2015
PCAF	Partnership for Carbon Accounting Financials
PDL	Product Development Loan
PP	Poseidon Principles
PPA	Power Purchase Agreement
RMI	Rocky Mountain Institute
SEA	South East Asia
S&P	Standard & Poor's
SAFF	Sustainable Aluminium Finance Framework
SBTi	Science-based Targets Initiative
T&D	Transmission & Distribution
TPI	Transition Pathway Initiative
TTW	Tank-to-Wake
WRB	Wealth and Retail Banking
WLTP	Worldwide Harmonised Light Duty Driving Test Procedure
WTW	Well-to-Wake

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This section is specifically relevant to, amongst others, the sustainability and climate models, calculations and disclosures throughout this report.

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[22] Standard Chartered first published its Net Zero White Paper in 2022, the Second Edition was released in 2024, this Net Zero Whitepaper is an update to the 2024 Second Edition.

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