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Paris-alignment methodologies for banks: reality or illusion?

ShareAction»



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The views expressed are those of ShareAction.

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Executive Summary

This report aims to establish best practice recommendations for Paris-alignment of bank portfolios, based on a review of two major open-source frameworks and one methodology developed in-house: The Science Based Targets initiative (SBTi), The Paris Agreement Capital Transition Assessment (PACTA), and Barclays' BlueTrack. Recommendations are intended for banks or investors engaging with banks on their climate strategies.

- **The inherent uncertainty associated with Paris-alignment methodologies calls for a precautionary approach to portfolio alignment.** Banks need reliable methodologies to inform financing decisions. Yet due to climate-related and socio-economic uncertainties, all of these methodologies rely on inevitable simplifications and assumptions. For example, methodologies make the assumption that the low-carbon transition will be achieved collectively in a linear fashion. This is far from being guaranteed. Furthermore, it is often assumed that climate scenarios will indeed take us to their stated temperature outcome, overlooking their odds of success and disproportionate reliance on negative emissions technologies. This has important implications for the level of ambition and type of action taken by banks.
- **None of the methodologies covered in this report currently include or recommend including a climate scenario that is compatible with a reliable 1.5°C outcome.** This is also the case for BlueTrack, despite Barclays' ambition to be net zero emissions by 2050. Climate scenarios are the main building block of Paris-alignment methodologies. They set the minimum level of ambition in terms of temperature outcome but also the pathway to reach that outcome.
- **Robust sectoral policies can minimise any offsetting risks.** Paris-alignment methodologies allow for some offsetting between high-carbon and low-carbon activities. In addition, they do not differentiate carbon intensive assets from a broader ESG perspective. A barrel of oil sourced from the Arctic Circle or the Canadian oil sands is treated as equivalent to any other barrel of oil. Robust sectoral policies and decarbonisation expectations for clients are more effective than methodologies to prevent the financing of Paris-misaligned activities and drive ambitious corporate change on climate and biodiversity.
- **Scope of financing activities remains incomplete and underestimates transition risks.** SBTi and PACTA, the two main open-source frameworks available, dismiss important non-balance sheet items in banks' portfolios. This includes capital markets underwriting and the undrawn portion of loans. PACTA can be adapted to model them. BlueTrack is best in class in this regard but only models a fraction of capital markets underwriting. This greatly underestimates fossil fuel financing activities and transition risk for banks.
- **The three methodologies vary greatly in scope and take different approaches to alignment.** SBTi's prescriptive criteria can foster comparability and accountability. PACTA can be adapted for different purposes and provides interesting insights to inform financing decisions. While not strictly comparable to the other frameworks, BlueTrack's initial scope is narrower but uses a strong metric for the fossil fuel sector (absolute emissions covering upstream scope 1-3 emissions). Overall, Paris-alignment methodologies are iterative and those covered in the report are still undergoing developments.

- **Methodologies can increase the risk of greenwashing.** Because they are iterative and incomplete, banks combine different methodologies and often adapt them. This flexibility can come at the expense of transparency and methodological differences can increase the risk of greenwashing. Methodology developers and users alike should abide by clear communication guidelines to mitigate this risk. In addition, adhering to a methodology should not be construed as a certification of alignment.
- **Data scarcity remains an issue:** All three methodologies suffer from data quality issues, regardless of whether they rely predominantly on emission disclosures or physical data. The Partnership for Carbon Accounting Financials (PCAF) is more transparent than other methodologies to communicate on these challenges. While this makes the case for a precautionary approach, data gaps should not deter banks from Paris-alignment frameworks. On the contrary, a wide adoption of robust methodologies will prompt more disclosures alongside mandatory requirements.

Recommendations for banks and investors engaging with banks on portfolio alignment

- 1 Paris-alignment methodologies should be based on scenarios targeting a **1.5°C outcome with no or limited overshoot and limited reliance on negative emission technologies** (in line with a P1 or P2 archetype as defined by the Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5°C). If such a scenario is not readily available, banks should publicly push for its publication and state their intention to review their targets when it becomes available.
- 2 Banks should take a **precautionary approach to alignment** (described in chapter 1). This entails going beyond what the climate scenario suggests and allowing for an additional buffer given inherent uncertainties about tipping points and other climate phenomena. The need for an additional buffer is especially acute in cases where the climate scenario is not aligned with a 1.5°C outcome or if it is over-reliant on NETs. Assumptions and rationales should be disclosed alongside targets, in particular if the bank has committed to reach net zero emissions by 2050.
- 3 To be credible, Paris-alignment methodologies should be complemented by **robust sectoral policies** (described in chapter 1).
- 4 Paris-alignment methodologies should include lending with and without known use of proceeds, as well as **capital markets underwriting**.
- 5 To model lending activities, Paris-alignment methodologies should use the **credit limit of loans**.
- 6 Paris-alignment methodologies should capture **scope 1-3 emissions across the value chain for the fossil fuel sector**.
- 7 Paris-alignment methodologies should aim to cover **all relevant greenhouse gas emissions** as defined by the GHG Protocol, which includes methane for the fossil fuel sector.
- 8 Emissions intensity targets should lead to a **decrease of absolute emissions**. Absolute emissions metrics should be preferred over emissions intensity metrics to decarbonise fossil fuel portfolios.

- 9 Engagement guided by Paris-alignment methodologies should be complemented by an **escalation strategy for 'misaligned' clients** within a timeframe consistent with climate scenarios (as described under recommendation 1).
- 10 Paris-alignment methodologies should assess alignment on **both a point-in-time and cumulative basis** to ensure cumulative emissions do not overshoot the allocated carbon budget.
- 11 Regardless of the methodology, banks **should join the Partnership for Carbon Accounting Financials** and **conduct a greenhouse gas emissions inventory** despite current limitations. Financed emissions estimates should be published alongside targets.
- 12 Paris-alignment methodologies should be subject to **clear communication guidelines** to minimise the risk of greenwashing. How alignment is communicated should also be the responsibility of methodology developers.
- 13 Banks should **publish a strategy** discussing the main decarbonisation levers they intend to use alongside Paris-alignment targets.
- 14 Paris-alignment methodologies should be used as part of a broader strategy including transparent **short, medium, and long-term targets**.
- 15 Paris-alignment targets and underlying assumptions should be **disclosed in banks' annual reports** alongside other audited financial information.

Summary of Paris-alignment methodologies covered in this report

		SCIENCE BASED TARGETS INITIATIVE	PARIS AGREEMENT CAPITAL TRANSITION ASSESSMENT	BLUETRACK
Developed by		Partnership between CDP, UNGC, WRI and WWF	Two Degree Initiative (2DII)	Barclays (Blackrock FMA acting as consultant)
Type		Prescriptive framework	Open-source toolkit (can be tailored)	Methodology tailored to bank
Scope	Financed activities	Power (generation / scope 1-2 emissions) Fossil Fuel (across value chain (TBC) / scope 1-3 emissions) Real Estate (residential and commercial / scope 1-2 emissions) Any other sector (scope 1-3 under certain conditions)	Power (generation / power capacity) Fossil Fuel (extraction / oil, gas, coal production) Automotive (manufacturing / light vehicle production) Steel (manufacturing / scope 1-2 emissions) Cement (manufacturing / scope 1-2 emissions) Shipping (owners and operators / emissions TBC) Aviation (owners / emissions TBC)	Power (generation / scope 1 emissions) Fossil Fuel (extraction / scope 1-3 emissions) Barclays has indicated it will include more sectors going forward
	Financial Instruments	Corporate Lending - outstanding amount Project Finance (power sector only) - outstanding amount	Corporate Lending - outstanding amount Project Finance - outstanding amount	Corporate Lending - credit limit Project Finance - credit limit Capital Markets Underwriting - 33% of pro-rata share
Benchmarks & level of ambition	Main benchmarks	Beyond 2 Degrees Scenario (IEA ETP 2017) and IPCC scenarios	IEA ETP 2017 and IEA WEO 2019 Corporate Economy ("market")	Sustainable Development Scenario (IEA WEO 2019)
	Target time horizon	5-15 years	N/A (implicitly 5 years)	5 years
Metrics		Physical Emission Intensity Counterparts with targets approved by SBTi Temperature rating of borrowers' targets	Technology / Fuel Mix (power, fossil fuel, automotive) Production Volume Trajectory (power, fossil fuel, automotive) Emission intensity (Steel, Cement, Shipping, Aviation)	Physical Emission Intensity (power) Absolute Emissions (fossil fuel) Technology / Fuel Mix (power and fossil fuel)
Portfolio modelling & Data Sources	Measured activity	Emissions or emissions reduction targets	Production, capacity or emissions	Emissions
	Alignment level	Asset class and individual sector	Sector and individual technology/fuel	Sector
	Allocation	Attribution factor for emission intensity	Portfolio weight	Portfolio weight (power) and attribution factor (energy)
	Data sourcing	Carbon accounting (top-down) for emission intensity	Physical data (bottom-up)	Physical data (bottom-up)
	Framework / Provider	PCAF	PACTA / Asset Resolution	Barclays / Asset Resolution
Reporting		Targets Base year emissions (only asset classes / sectors with targets) Strategy to reach targets Coal phase-out and fossil fuel disclosures (recommended)	N/A (Disclosure and Communications Guidelines)	Targets Base year emissions
Main Pros & Cons		+ Prescriptive criteria drives transparency and comparability + Comprehensive scope of activities + Additional recommendations and disclosures for fossil fuels	+ Enables portfolio steering + Can be adapted for different purposes / scope / benchmark + Segregation of high and low-carbon assets for integrated energy companies	+ Includes underwriting and considers credit limit of loans + Metric for fossil fuel sector (absolute emissions) + Fossil fuel sector includes scope 1-3 emissions
		- Prescriptive but does not require a 1.5C benchmark - High reliance on borrowers' targets and underlying assumptions - Off-balance sheet financing and advisory activities excluded	- Does not define a pathway for financed emissions unless adapted - Decarbonisation focus on specific segments (e.g. upstream oil & gas) - Can lead to different interpretations and levels of ambition	- Benchmark is not aligned with Barclays' net zero ambition - Emission intensity based on capacity and lacks absolute equivalent - Narrower scope initially (cement and metals expected in 2022)

Chapter 1: Background and rationale

1.1 Introduction

The concept of Paris-alignment has rapidly become a catch-all term for making financing activities 'consistent' with the goals of the Paris Agreement. While there is a growing consensus among financial institutions on the need to 'align' portfolios, defining what this means exactly is the subject of intense debate.

As the lifeblood of the economy, banks' impact on climate can only be measured through the activities they enable, or restrain, in the real economy. Therefore, defining what 'Paris-alignment' means equates to answering the following question: Which activities need to be enabled or restrained by banks to achieve the goals of the Paris Agreement; and to what extent and in what timeframe does this need to occur?

So far, the most scientifically grounded way to take aim has been scenario analysis. While they are not all equally reliable (see section 5), climate scenarios reflect how various societal, economic and technology assumptions fit within remaining Paris-compliant carbon budgets. A Paris-alignment methodology is therefore a mechanism linking a financial portfolio to a climate scenario (and underlying carbon budget). While a range of methodologies have been developed, this report looks at two major open-source frameworks and one methodology developed in-house:

- **The Science Based Targets initiative (SBTi)**, relying on a top-down, carbon accounting approach to estimate portfolios' carbon footprint (financed emissions) at asset class level*. SBTi focuses on setting targets to align portfolios with decarbonisation pathways deemed consistent with the Paris Agreement.
- **The Paris Agreement Capital Transition Assessment (PACTA)**, relying on a bottom-up, physical data modelling approach to estimate exposure to production or technology profile at sector level. PACTA focuses on aligning capital allocation with sectoral technology or production profiles deemed consistent with the Paris Agreement.
- **BlueTrack**, developed by Barclays in the context of its ambition to be net-zero emissions by 2050. BlueTrack can be seen, at least conceptually, as a bridge between both methodologies. It takes PACTA's bottom-up, physical data modelling approach to estimate financed emissions and enables target setting at sector level.

These methodologies take different yet non-exclusive approaches to Paris-alignment. In fact, some banks rely on more than one methodology while others adapt existing methodologies (e.g. ING and the 'Katowice Banks'). These choices can be driven by operational considerations. Resources, timing and scope also play a role. While many organisations attempt to answer the pressing question of what Paris-alignment means, methodologies are relatively recent and go through an iterative process. Therefore, banks need to model their portfolios with tools and data that are often incomplete.

* Estimating financed emissions is only required for certain metrics.

While these methodologies cannot be compared like for like, it is important to establish a common set of criteria to evaluate them against the intended goal. This analysis is based on six criteria covering key aspects of a Paris-alignment methodology (Figure 1).

Figure 1: Six criteria used by ShareAction to assess Paris-alignment methodologies



 **Important disclaimer**

This report focuses on bank financing activities (including lending and capital markets underwriting) and purposefully excludes investment activities (e.g. asset management) that the methodologies might cover. The methodologies included in this report can be used to assess transition risk to some extent. However, this analysis focuses on portfolio alignment and does not intend to review climate-related risk assessment models. UNEP FI’s “Climate Risk Landscape” report¹ provides an overview of methodologies available in that field.

1.2 Are Paris-alignment methodologies sufficient to be ‘Paris-aligned’?

While banks need methodologies to inform financial decisions, it is important to remember that portfolio modelling will inevitably lead to simplifications and assumptions. In addition, these methodologies are relatively recent and have not been back tested. In other words, no methodology can guarantee a specific outcome. In addition, some inevitable shortcomings attributable to design and underlying mechanisms need to be highlighted. For example:

- The level of ambition will always be dependent on a climate scenario. While they can be used as a compass, scenarios can't predict the future.
- Methodologies are highly dependent on clients' own climate agenda and it is overly optimistic to assume that everyone will deliver enough and on time.
- A key assumption of the methodologies is that climate goals are met collectively in a linear fashion, even by companies not included in the model or by financial institutions not using a methodology.
- Portfolio alignment can allow a bank to offset high-carbon activities with low-carbon activities to the extent allowed by the model. In addition, methodologies do not differentiate carbon intensive assets from a broader ESG perspective.
- Translating financial exposure into financed emissions can lead to volatility and artificial increase or decrease of emissions. For example, financed emissions could decrease due to a change of market movements rather than borrowers reducing physical emissions.
- Most methodologies assess progress on a ‘point-in-time’ basis, without accounting for companies' historical misalignment.
- A significant portion of the data needs to be extrapolated due to insufficient disclosures and other data challenges. As a result, quality of the data can vary significantly and does not necessarily cover the entire portfolio.

For these reasons, banks need to take a precautionary approach to Paris-alignment.

1.3 A precautionary approach to alignment

Due to the inevitable uncertainty attached to the concept of Paris-alignment, banks should take a precautionary approach when setting alignment targets. This includes:

- **Going beyond what the climate scenario suggests.** Banks should allow for an additional buffer, in particular if the climate scenario is not aligned with a 1.5°C outcome (see section 4) or if it is over-reliant on NETs (see section 5).
- **Publishing robust sectoral policies,** as described in section 4, to minimise any offsetting risks and establish clear restrictions for activities that are not Paris-aligned.

- **Accepting a certain level of double counting.** Banks should estimate fossil fuels' carbon footprint across the value chain, including scope 1-3 emissions, even if this leads to some double counting of emissions.
- **Assessing the potential impact of financing activities beyond what is on the balance sheet.** While several barriers need to be overcome (and methodologies currently lack guidance in this area), banks should consider including the full amount of their underwriting and lending activities (including undrawn commitments), even if this leads to an overallocation of decarbonisation efforts.
- **Looking at both sides of the coin.** Banks should ensure that targets expressed in relative terms (e.g. emissions intensity) lead to a reduction of emissions in absolute terms (see section 6).
- **Adopting a 'point-in-time' and 'cumulative' view** to ensure total cumulative emissions remain within their allotted carbon budget.

1.4 Paris-alignment methodologies should be complemented by robust sectoral policies

Paris-alignment methodologies do not prevent financing of the most carbon intensive or environmentally destructive sectors. Depending on underlying assumptions and climate scenario, they could enable finance flows to areas of the economy that we know need to be restricted. A robust sector policy framework is therefore necessary to complement the models. This would include, but is not limited to:

- **Thermal coal:** Full exclusion of brownfield and greenfield projects (mines, plants, infrastructure), companies highly dependent on coal (relative to revenues), large coal producers (in absolute terms), and companies developing their coal capacity. These exclusions should be articulated around a phase-out strategy by 2030 in the OECD and by 2040 globally. In addition, banks should require clients to issue a phase-out strategy aligned with their own by a certain deadline, failing which they would be excluded.
- **Unconventional oil and gas:** Full exclusion of brownfield and greenfield projects across the value chain and companies with a material exposure. These exclusions should be articulated around a phase-out strategy aligned with a 1.5°C outcome (in line with a P1 or P2 archetype as defined by the IPCC – see section 6). In addition, banks should require clients to issue a phase-out strategy aligned with their own by a certain deadline.
- **Deforestation, land use, biodiversity:** Biodiversity-related exclusion criteria. Zero net deforestation goal and portfolio targets on biodiversity-related topics. Commitment to annually reporting the significant positive and negative contribution to global biodiversity goals linked to financing activities and investments in portfolios. Ensuring respect for Indigenous rights and compliance with free, prior and informed consent (FPIC) related to any project or trade financing. Rejection of biomass as a green alternative.

1.5 Shifting to a 1.5°C warming outcome to define alignment

Half a degree of warming makes a big difference². By highlighting the dramatic consequences on climate, the IPCC Special Report on Global Warming of 1.5°C³ (“SR1.5°C”) shifted focus from 2°C to a 1.5°C temperature outcome. This is often expressed as net-zero emissions by 2050. Yet **none of the methodologies covered in this report currently include or recommend including a climate scenario that is compatible with a 1.5°C outcome**. This is also the case for BlueTrack, despite Barclays’ ambition to be net zero emissions by 2050. In fact, as highlighted in Figure 2, the climate scenario currently embedded in BlueTrack (Sustainable Development Scenario) targets net-zero emissions in 2070.

SBTi, PACTA and BlueTrack mostly rely on climate scenarios published by the International Energy Agency (IEA), namely the World Energy Outlook (WEO) 2019 and the Energy Technology Perspective (ETP) 2017. Characteristics of the most ambitious scenarios included in these two publications – the “Beyond 2 Degrees Scenario” (B2DS) and “Sustainable Development Scenario” (SDS) – are highlighted below. The SBTi and PACTA’s developers claim these frameworks are ‘scenario agnostic’, meaning that any other scenario can be used. Nevertheless, developers and banks alike should be responsible for caveating their analysis and communication of alignment accordingly.

Figure 2: Most ambitious IEA scenarios used in current iteration of SBTi, PACTA and BlueTrack

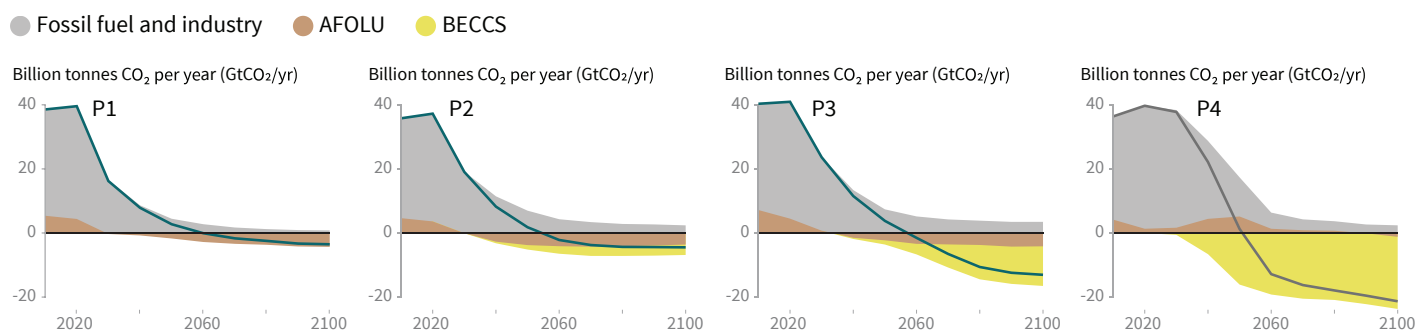
	B2DS - ETP 2017	SDS - WEO 2019
Target temperature (2100)	1.6°C	1.65 - 1.8°C
Probability	50%	50% - 66%
Net zero emissions target year	2060	2070
Scenario end date	2060	2040

Source: IEA, PRI Climate Thought Leadership report⁴

1.6 Climate scenarios are not all equally likely to achieve the same temperature outcome

Climate scenarios are the most important building block of any Paris-alignment methodology. They set the minimum level of ambition in terms of temperature outcome but also the pathway to reach that outcome. Based on a range of 1.5°C pathways, the IPCC SR1.5°C produced four ‘archetypes’ (P1, P2, P3 and P4). Each of these scenarios makes different societal, economic and technology assumptions about what needs to happen to reach net-zero emissions by mid-century. The main difference between the IPCC’s four archetypes is the level of overshoot – i.e. the temporary exceedance of a specific level of global warming – and reliance on Carbon Dioxide Removal (“CDR”) or Negative Emission Technologies (“NETs”). P1 pathways achieve decarbonisation with limited overshoot and low reliance on NETs, implying a rapid decrease in energy demand. P4 entails a high-level of overshoot and requires high levels of NETs after 2050 to reach the stated temperature outcome. The four archetypes are depicted below.

Figure 3: Breakdown of contributions to global net CO₂ emissions in IPCC's illustrative pathways



Source: IPCC Special Report on Global Warming of 1.5°C. AFOLU: Agriculture, Forestry and Other Land Use. BECCS: Bioenergy with Carbon Capture and Storage.

Relying on high levels of NETs and CDR is an extremely risky strategy, due to important uncertainties around the cost, availability, governance, measurability, and environmental and social impacts of these technologies. The IPCC states that “carbon cycle and climate system understanding is still limited about the effectiveness of net negative emissions to reduce temperatures after they peak,” adding that “CDR deployed at scale is unproven and reliance on such technology is a major risk in the ability to limit warming to 1.5°C”. As an influential paper in *Nature* puts it: “A failure of [CDR] to deliver expected mitigation in the future, due to any combination of biophysical and economic limits examined here, leaves us with no ‘plan B’... ‘Plan A’ must be to immediately and aggressively reduce [greenhouse gas] emissions”⁵.

The levels of CDR and NETs assumed in a scenario allows for artificially high levels of fossil fuel production and greenhouse gas emissions to be burned in the first half of the century. Scenarios that rely on high levels of CDR and NETs have strong implications for the level of ambition of any targets set by banks and for the decarbonisation requests that they make of their clients. It is estimated that the SDS relies on 300Gt of NETs post-2050⁶.

In October 2020, the IEA introduced a 1.5°C ‘case’ called “Net Zero Emissions 2050” with data up to 2030. While this is an important step forward, Oil Change International has identified major issues regarding its application⁷. This includes a significant misalignment with IPCC’s P1 and P2 archetypes in terms of reliance on Carbon Capture and Storage (CCS) and potentially on NETs beyond 2050. The IEA is due to release a new 1.5°C scenario in May 2021. Oil change International has outlined clear expectations for this scenario to effectively guide the world towards a 1.5°C outcome⁸.

1.7 Looking at both sides of the coin: emissions intensity and absolute emissions

Banks can set emissions targets in absolute or relative terms to track their progress towards decarbonisation. The two main types of greenhouse gas (GHG) emissions metrics that banks can set and/or ask their clients to set using the methodologies covered in this report are:

- Absolute emission metric, in relation to an absolute volume of GHG emissions.
- Physical emission intensity metric, in relation to GHG emissions per unit of physical output.

Both metrics can be an expression of the same carbon budget and used to aim for the same end point (e.g. zero emissions by 2040). However, using one or the other in isolation can have deep implications for a bank's climate strategy. Indeed, emission intensity targets do not necessarily lead to reductions in absolute emissions. This is because companies can reduce intensity in two ways – through decarbonising or by increasing market share⁹. For example, if a bank or a company increased its investments in low-carbon assets at a faster rate than it is investing in high-carbon assets, it would reduce its emission intensity. Yet it would not necessarily reduce its absolute emissions – as it might still grow the size of its high-carbon assets and/or keep it constant. In addition, an emission intensity metric does not capture the climate impact of large emitters.

The Transition Pathways Initiative recently found that while Total had cut intensity from 75.6 tCO₂e/TJ in 2014 to 71.4 tCO₂e/TJ in 2018 through a combination of expansion of LNG and gas, disclosure of biofuels, falling operational intensity and increased electricity sales, its absolute emissions rose by 8 per cent over the same period¹⁰. Intensity targets are ill-suited for the oil and gas sector, as they are incompatible with pursuing a 'managed decline' strategy and do not guarantee a fall in emissions. A 2020 study of over 3,000 global utilities published in Nature echoed the TPI's finding. It found that of 375 companies that expanded their operations by growing renewables over the last two decades, only 15 per cent reduced the size of their fossil fuel assets¹¹.

Barclays publicly recognised the shortcomings of setting intensity targets for the energy sector when it launched BlueTrack. The bank stated that “an exception to [its] general measurement approach [based on tracking emissions intensity] is the Energy sector, which is responsible for extracting fossil fuels from the earth – mainly coal, oil and gas. It is different because it cannot reduce its emissions intensity below a certain point (a barrel of oil cannot be decarbonised), and so a reduction in absolute emissions is the more appropriate measure.”¹²

Yet intensity targets might be appropriate for some sectors. For example, physical intensity metrics might be best suited for homogeneous sectors, such as steel and cement, to track efficiency improvements. Other metrics have also been developed¹³, including economic intensity metrics (e.g. emissions per unit of value added).

In general, economic intensity metrics are best suited for use within sectors whose products vary a lot and are difficult to directly compare against each other (e.g. the retail or chemical sectors). Furthermore, economic intensity targets may be appropriate for sectors with limited fluctuations in product prices over time, where growth in emissions is often tied to economic growth of the company. In any case, to avoid an artificial 'greening' of banks' portfolios, emission intensity targets should be required to lead to a decrease of absolute emissions.

Chapter 2: Science Based Targets Initiative

Background

Launched in 2015 by CDP, the United Nations Global Compact, the World Resources Institute (WRI), and WWF, the Science Based Targets initiative (“SBTi”) enables companies to publicly commit to and set GHG emissions reduction targets deemed consistent with the goals of the Paris Agreement. A list of companies that have already set and/or committed to set targets is published on the SBTi’s website alongside target details. According to the SBTi, around 1,000 companies - representing US\$1.5 trillion of estimated market value and including 20 per cent of Global Fortune 500 companies - have signed up to the initiative to date. Over 600 companies have now had targets approved by the SBTi¹⁴.

Initially limited to a corporate audience, the SBTi released a pilot guidance for financial institutions in October 2020 (updated in April 2021). While the guidance is intended for asset managers, asset owners, banks, insurance companies (when acting as asset managers), and Mortgage Real Estate Investment Trusts, this analysis only covers banks’ financing activities, i.e. excluding asset management. Fifty-five financial institutions had committed to set targets under the initiative prior to October 2020, but they were not able to set targets due to the absence of a specific guidance. Any bank now committing to the SBTi will have up to two years to submit its targets. Bank of Ireland, Credit Suisse, and NatWest are the only major European Banks to have committed to set targets since the guidance was released, with Credit Suisse also committing to the “Business Ambition For 1.5°C”¹⁵ call to action.

A key differentiator of the SBTi compared to other open-source frameworks is that it is prescriptive in terms of scope, level of ambition and disclosure requirements. The SBTi’s guidance is focused on the different criteria banks need to comply with in order to have their targets validated through a verification protocol. However, the SBTi does not conduct a comprehensive audit of the data used to set targets, nor does it issue an opinion on how targets fit each banks’ individual climate strategy.

Methodology Overview

Banks committing to the SBTi are required to set targets covering their entire carbon footprint. This includes scope 1-2 emissions as well as emissions associated with investment and lending activities, also known as financed emissions. An important element of the SBTi’s guidance for financial institutions is that it leverages carbon accounting principles defined by the Partnership for Carbon Accounting Financials (PCAF) and derived from the GHG Protocol. The SBTi recommends, but does not require, that banks conduct an institution wide inventory of financed emissions based on these principles prior to setting targets. PCAF takes a top-down approach to estimating financed emissions - it seeks to source data from corporate disclosures to the extent possible. In addition, financed emissions as defined by PCAF are calculated based on an ‘attribution factor’ (e.g. proportion of bank financing in enterprise value).

Science-based targets under the SBTi are then set for four “asset classes” broadly in line with PCAF’s accounting categories:

- Real Estate
- Mortgages
- Electricity generation Project Finance
- Corporate instruments (only loans for banks*)

In line with GHG accounting principles, the categories reflect how much is known about the use of proceeds. A single target is set for each asset class except for corporate instruments where they can be differentiated by sector. This “asset class” approach can be difficult to operationalise for banks if the same sectors and segments are subject to different targets. On the other hand, a bank’s decarbonisation strategy may be different depending on the asset class (e.g. project finance’s time horizon is longer than corporate finance).

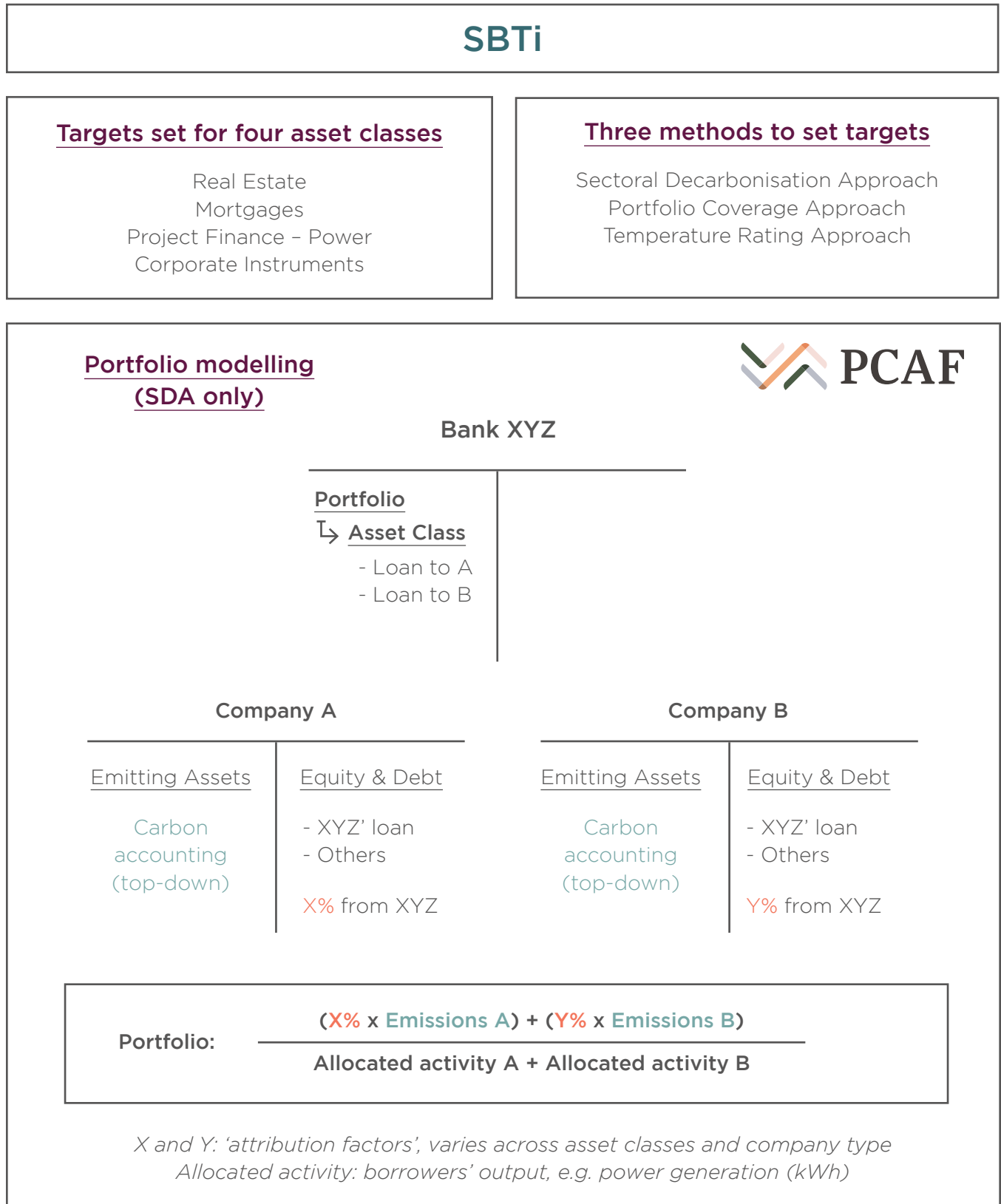
Banks can use one or more of the three methods below to set targets depending on the asset class:

- **Sectoral Decarbonisation Approach (SDA).** Here targets are set to align a portfolio’s emission intensity with sectoral emission pathways. The SDA is available for some homogeneous sectors. It is worth noting that, in line with PCAF, emission intensity is calculated by dividing the sum of financed emissions by the sum of the allocated activity (e.g. m² or MWh). In other words, PCAF estimates emission intensity at portfolio level rather than aggregating individual emission intensities.
- **Portfolio Coverage Approach (PCA).** Here targets are set to have the portfolio ‘covered’ by borrowers’ own science-based targets validated by the SBTi.
- **Temperature Rating Approach (TRA):** Here borrowers’ targets (either through the SBTi and other eligible methodologies) are converted into a temperature warming metric. Targets are set to align the portfolio with a temperature outcome (e.g. ‘well-below 2°C’).

* Equity and bond investments are also covered by the methodology but are excluded from this analysis.

Figure 4: Simplified illustration of the SBTi

The diagram below is a simplified view of the methodology and does not reflect all its features.





Discussion: SBTi for financial institutions is an extension of SBTi for corporates.

The three methods (SDA, PCA, TRA) available to banks to set targets are an extension of the guidance developed by the SBTi for the corporate sector. The SDA was developed to allow companies to set targets based on emission intensity pathways defined for specific sectors while the PCA and TRA are based on targets corporates set themselves. To assess the SBTi guidance for financial institutions, it is therefore important to understand how these methods are applied to company targets. Corporates can set targets using three metrics:

- **Absolute contraction approach (ACA).** Targets are set to reduce absolute emissions. This approach assumes that each company reduces its absolute emissions at the same rate irrespective of its initial emissions baseline and future market share. This metric can be used to set targets for scope 1-3 emissions.
- **Sectoral Decarbonisation Approach (SDA).** Targets are set to reduce emissions intensity. Reduction responsibilities vary depending on a company's initial carbon intensity and growth rate relative to others within its sector, as well as the sector-wide emissions intensity compatible with the global emissions pathway. The SDA method can be used to set scope 1-2 emission targets, and scope 3 emission targets when applicable.

In addition, targets using contraction of economic intensity or Greenhouse Gas Emissions per value added (GEVA) are accepted for scope 3 target formulation. Targets are formulated by an intensity reduction of tCO₂e/\$ value added (e.g. revenue). This method equates the carbon budget with total global GDP and a company's share of emissions is determined by its gross profit. The SBTi restricts this method to scope 3 emissions as it may not constrain global emissions within a specified budget in its current formulation. The SBTi does not generally favour economic intensity methods and recommends corporates to use the absolute contraction or physical intensity metric where possible. This has been recently disputed¹⁶.

2.1 Scope

2.1.1. The SBTi is the most comprehensive framework covered in this report as it theoretically applies to any sector.

Figure 5 aims to illustrate the financial instruments and sectors within the scope of the SBTi in a format that can be compared with the other methodologies covered in this report. A full overview of the SBTi's scope and minimum coverage requirements for each asset class is available in its guidance for financial institutions¹⁷. Theoretically, any sector is within the scope of SBTi if it can be covered by one or more of the methods available to set targets, i.e. the SDA, PCA, and TRA. The SDA is only available for certain homogeneous sectors as discussed in section 2.3. (Metrics).

Figure 5: SBTi's scope of financial instruments and counterpart's activities

Financial Instrument	Sector	Borrower/Investee's emissions	Metric	Coverage requirement
Consumer Loan	Residential Mortgages	Scope 1, 2	SDA	Optional
Project Finance	Power Generation	Scope 1, 2	SDA	100% of base year (kWh)
Corporate Loan (> 1 year)	Power generation	Scope 1, 2	SDA	100% of base year (kWh)
	Commercial Real Estate	Scope 1, 2, 3*	SDA, PCA, TRA	67% of base year (m2)
	Fossil Fuels	Scope 1, 2, 3*	SDA**, PCA, TRA	95% of base year (loan value)
	All other sectors***	Scope 1, 2, 3*	SDA, PCA, TRA	67% of base year (loan value)
Corporate loan (< 1 year)	Any	Scope 1, 2, 3*	SDA, PCA, TRA	Optional
SME loan	Any	Scope 1, 2, 3*	SDA, PCA, TRA	Optional

* Scope 3 included if required by sector specific guidance or if they represent more than 40% of scope 1-3 emissions

** Not available – oil and gas guidance under development

*** Coverage requirement applies to companies in all other sectors, not per sector

2.1.2. The SBTi sets ambitious coverage requirements for the power and fossil fuel sectors.

The SBTi indicates that coverage requirements have been adjusted to reflect “data availability, financial institutions’ level of influence, and sector’s contribution to climate change”. Nevertheless, data challenges should not undermine the level of ambition for the highest emitters and SBTi sets the bar high for the power and fossil fuel sectors. It requires banks to cover 100 per cent of electricity generation for the power sector and 95 percent of loan value for fossil fuels. In addition, coverage extends to coal companies and oil and gas companies across the entire value chain, subject to five percent and 30 percent revenue thresholds, respectively.

Companies’ scope 3 emissions are covered by the methodology if this is specified by the relevant sector specific guidance or if scope 3 emissions represent more than 40 per cent of a company’s total emissions. Regardless of these criteria, scope 3 emissions would be included for any company involved in the sale or distribution of fossil fuel products and for Auto Original Equipment Manufacturers.

While the development of sector specific guidance for the oil and gas sector remains under development, a consultation version indicated that scope 3 emissions will be required across the value chain for this sector¹⁸. As such, it would be more comprehensive than PACTA and BlueTrack which focus on decarbonisation at the point of extraction. The draft also suggests that methane emissions will be included for upstream oil and gas operations, which is particularly relevant for banks financing

fracked oil and gas. For other sectors, SBTi recommends covering all relevant GHGs where possible and CO₂ as a minimum requirement.



Recommendation 6. Paris-alignment methodologies should capture **scope 1-3 emissions across the value chain for the fossil fuel sector.**



Recommendation 7. Paris-alignment methodologies should aim to cover **all relevant greenhouse gas emissions** as defined by the GHG Protocol, which includes methane for the fossil fuel sector.

2.1.3. Project finance for sectors other than power generation, and capital markets underwriting, are excluded under the SBTi, leaving a substantial portion of banks' fossil fuel financing out of the framework.

SBTi's project finance asset class focuses on power generation. Facilities funding specific fossil fuel assets and associated infrastructure would therefore not be included in banks' targets. Advisory services, including capital markets underwriting are not included either. This is likely due to underwriting not being included under PCAF and set as an 'optional accounting item' under the GHG Protocol. With fossil fuels financed by both lending and underwriting equally, this leaves a significant gap in the SBTi's scope for financial institutions, compared to BlueTrack. The SBTi does, however, attempt to fill this gap via two fossil fuel related recommendations (publication of a thermal coal phase-out policy and disclosure of fossil fuel investments – see section 2.6.2). The SBTi also acknowledges that the current asset class coverage is not comprehensive and additional classes could be explored in upcoming iterations of the guidance.



Recommendation 4. Paris-alignment methodologies should include lending with and without known use of proceeds, as well as **capital markets underwriting.**

2.2 Benchmarks and level of ambition

2.2.1. The SBTi defines standardised ambition thresholds based on IPCC and IEA scenarios. The methodology does not currently include or require a 1.5°C ambition.

To assess companies' targets (both financial institutions and corporates) in a consistent manner, the SBTi uses 'ambition thresholds'. These are linked to the temperature goals 1.5°C or well-below 2°C. While they are not classified as such, the corporate guidance also allows for higher temperature goals up to a 2°C outcome under certain conditions (e.g. for targets set on scope 3 emissions).

For the Absolute Contraction Approach (used by corporates), 1.5°C and well-below 2°C ambition thresholds are based on a scenario envelope established through quantitative and qualitative filtering of climate scenarios compiled and assessed by the IPCC¹⁹. Ambition thresholds for the Sectoral Decarbonisation Approach (used by both corporates and financial institutions) are based on the IEA's B2DS (published in ETP 2017) and are associated with a well-below 2°C outcome. The exception to this is the power sector, where the SBTi provides a 1.5°C-aligned pathway. The SBTi is looking to update the SDA going forward to include additional benchmarks, such as an updated version of the

IEA's ETP. As highlighted in the following section, the minimum requirement for banks to set targets would be a well-below 2°C outcome across all three methods (SDA, PCA, and TRA).



Recommendation 1. Paris-alignment methodologies should be based on scenarios targeting a **1.5°C outcome with no or limited overshoot and limited reliance on negative emission technologies** (in line with a P1 or P2 archetype as defined by the IPCC Special Report on Global Warming of 1.5°C). If such a scenario is not readily available, banks should publicly push for its publication and state their intention to review their targets when it becomes available.

The SBTi is working on a new guidance for net-zero target-setting in the corporate sector²⁰. This is expected to go beyond what is presently required. The SBTi also plans to release a net-zero for financial institutions foundations paper in draft form by the end of 2021.

2.2.2. The SBTi requires banks to review and potentially recalculate targets on a regular basis but does not define quantitative criteria triggering a mandatory review.

The SBTi requires banks to review their GHG reduction targets every five years, with the aim of banks potentially recalculating and revalidating their targets. The SBTi does list certain events which could trigger a recalculation, including significant changes in a bank's GHG inventory, institutional structure or projections, etc., but it fails to define events that would make a recalculation mandatory over the course of the five-year period (e.g. period of validity of a benchmark). The two-year window to set targets could nevertheless provide some flexibility for the SBTi and banks to form a consensus on a robust benchmark to be used for the next five-years. SBTi also includes an optional recommendation for banks to check the validity of their target-related projections annually.

2.3 Metrics

2.3.1. The Sectoral Decarbonisation Approach (SDA) should lead to an equivalent decrease of absolute emissions.

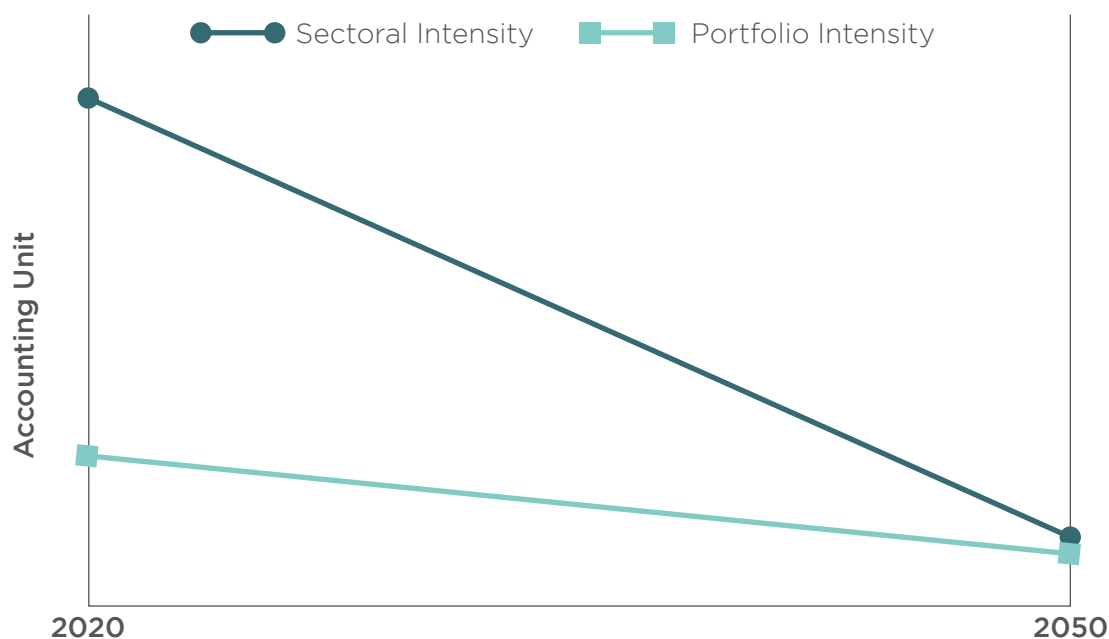
The SDA sets physical emissions intensity targets (e.g., CO₂e per unit of economic output) based on sectoral intensity pathways derived from climate scenarios. It was designed for companies operating in homogeneous energy intensive sectors and follows a 'convergence approach' to allocating carbon budgets. This is where each company's carbon intensity converges towards the benchmark. Convergence is assumed by 2050.

The SDA sets steeper intensity pathways for companies expected to grow market share and shallower pathways for companies whose market share is expected to decrease. The market share parameter is floored to prevent a situation where the company underestimates growth and the carbon budget is over allocated.

While the SDA is applicable to different geographies, the SBTi sets the convergence of sectors' emissions intensity by 2050 on the global level without taking into account any specific regional decarbonisation pathway. This means, for example, the power sector will display the same emissions intensity in China as in the US. When applicable, country or region-specific benchmarks are preferable as they reflect different regions' decarbonisation pathways.

Applied to banks, the SDA provides a pathway for a bank's portfolio emission intensity to converge towards the benchmark by 2050. SBTi is yet to create a specific tool for financial institutions to directly set targets using the SDA, except for mortgages and real estate where a dedicated tool is available. In the meanwhile, banks should use the excel-based calculation sheets developed for corporates in relevant sectors.

Figure 6: Illustration of the Sectoral Decarbonisation Approach



Banks may elect to set emission intensity targets for sectors where the SDA is available. This includes aluminium, buildings, cement, iron and steel, power generation (corporate loans), pulp and paper, and transport (passenger, freight, auto manufacturing). According to the consultation version of the oil and gas guidance, the SBTi is contemplating different options including the SDA.

As discussed in chapter 1, emission intensity metrics do not guarantee an equivalent decline of absolute emissions. Any targets set should therefore be required to lead to an equivalent decrease of absolute emissions. This is particularly important for the fossil fuel sector where targets should not focus on improving the efficiency of production. Absolute emission metrics such as the one set by BlueTrack for energy portfolio would be preferred. SDA tools also provide absolute emissions reduction as an output. However, the SBTi does not currently require banks to express intensity targets in absolute terms. The SBTi will evaluate this topic further next year.



Recommendation 8. Emissions intensity targets should lead to a **decrease of absolute emissions**. Absolute emissions metrics should be preferred over emissions intensity metrics to decarbonise fossil fuel portfolios.

SBTi defines target criteria for the SDA as follows:

- Ambition: well-below 2°C pathway for each sector as a minimum ambition.
- Time frame: between 5 and 15 years. banks are further encouraged to develop long-term targets up to 2050 in addition to the required mid-term targets.

2.3.2. Metrics guiding engagement can be a powerful tool on top of an emission-based metric, but combining them could be at the expense of transparency.

Banks may opt to use two metrics guiding engagement (PCA and TRA) for asset classes or sectors where the SDA is not applicable, or to complement the SDA in order to meet minimum coverage requirements discussed in the section 2.1. For asset classes where more than one method is available, banks can decide how their portfolio is distributed across each method.

While this structure allows for some flexibility, it could also potentially result in a wide range of targets being used for different parts of a bank's portfolio. Nevertheless, banks also need to submit a 'headline scope 3 target' that attempts to summarise asset class level targets. In addition, the SBTi requires banks to disclose the percentage of their total investment and lending activities covered by the portfolio targets. In any case, this should not prevent the bank from publishing an engagement strategy separately.

2.3.3. The Portfolio Coverage Approach (PCA) needs to be complemented by a qualitative analysis and a fallback escalation strategy.

Under the PCA, banks can commit to engaging with borrowers to have them set their own science-based targets by a certain date. Borrower's targets must be independently submitted to the SBTi for validation. Targets submitted via another framework are not considered valid.

The SBTi requires that "coverage" – or the portion of the portfolio with a validated target - is defined consistently throughout the target period by using specific weightings. For example, a target could be set relative to a bank's total lending book or total financed emissions. The PCA only reflects the proportion of borrowers with a SBTi-approved target but does not differentiate between targets. It would therefore be difficult to compare portfolios or track progress over time.

While the SBTi requires banks to review targets and potentially recalculate them every five years, banks should clarify what steps would be taken if their clients, especially those operating in the fossil fuel sector, fail to set targets or define a decarbonisation strategy compatible with banks' own targets. Banks setting targets using the PCA should complement this approach by an escalation strategy with defined timelines. In a separate section of the guidance discussing "how to achieve SBTs", the SBTi emphasises the need to have an escalation process for when company engagement does not lead to significant results within set time frames.



Recommendation 9. Engagement guided by Paris-alignment methodologies should be complemented by an **escalation strategy for 'misaligned' clients** within a timeframe consistent with climate scenarios (as described under recommendation 1).

SBTi defines target criteria for the PCA as follows:

- Ambition: commit to having a portion of borrowers set their own approved SBTs such that the bank is on a linear path to 100 per cent portfolio coverage by 2040.
- Time frame: maximum of five years. Fulfilment of portfolio coverage targets means that borrowers' SBTs have been approved by the SBTi.

The guidance notes that the 2040 timeline has been determined to “allow borrowers enough time to implement their target to ultimately achieve an economy-wide transition to net zero by 2050”. Considering the timeframe for corporates to set targets would span over several years, this timeline would be credible only if the highest emitters have set targets in the early stages of implementation.



Discussion: Recent critics of RWE’s science-based targets

RWE’s emission reduction targets, validated as a ‘well-below 2°C’ target by SBTi in 2020, recently came under fire when French insurer AXA excluded the power company on environmental grounds²¹. In March 2021, AXA dropped RWE as a client since its coal power capacity was above the insurer’s policy threshold (10GW). In response to the news, Urgewald noted that the SBTi’s target validation for a company like RWE, lobbying aggressively against climate protection measures and with a coal phase-out strategy that is not compatible with the Paris Agreement, undermined its credibility. Indeed, RWE intends to phase-out coal by 2038, a date decided by the German government, and has lobbied for an even later date. Urgewald further added that the way the target announcement was branded was misleading, as RWE reported that the designation was “scientific proof that we are on the right path”. These developments highlight the need for Paris-alignment methodologies to be complemented by a robust sector policy and engagement strategies. Relying solely on a target set by a borrower, even if technically compliant with a defined carbon budget, could pose serious risks to banks’ decarbonisation strategies. In the updated guidance it released in April 2021, the SBTi reminds its audience that a science-based target does not replace a robust assessment of the companies’ business model or associated risks. It has also included additional recommendations on “how to achieve SBTs”.

2.3.4. The Temperature Rating Approach (TRA) can be a powerful tool to communicate climate ambitions. Temperature rating metrics can nevertheless be more opaque than emission-based metrics due to their complexity.

Banks can use the TRA to set targets in terms of temperature warming of their portfolio. The TRA translates borrowers’ GHG reduction targets into ‘temperature scores’ by comparing these targets against a range of temperature outcomes, for example, a target equivalent to a 1.5°C outcome²². It expands the scope of the PCA as eligible targets cover both targets validated by the SBTi and any other public GHG reduction targets that meet the method criteria. As such, the TRA also includes targets leading to temperature outcomes above the SBTi’s ambition thresholds. In line with previous recommendations, temperature scores should be based on metrics that lead to absolute emission reductions where possible.

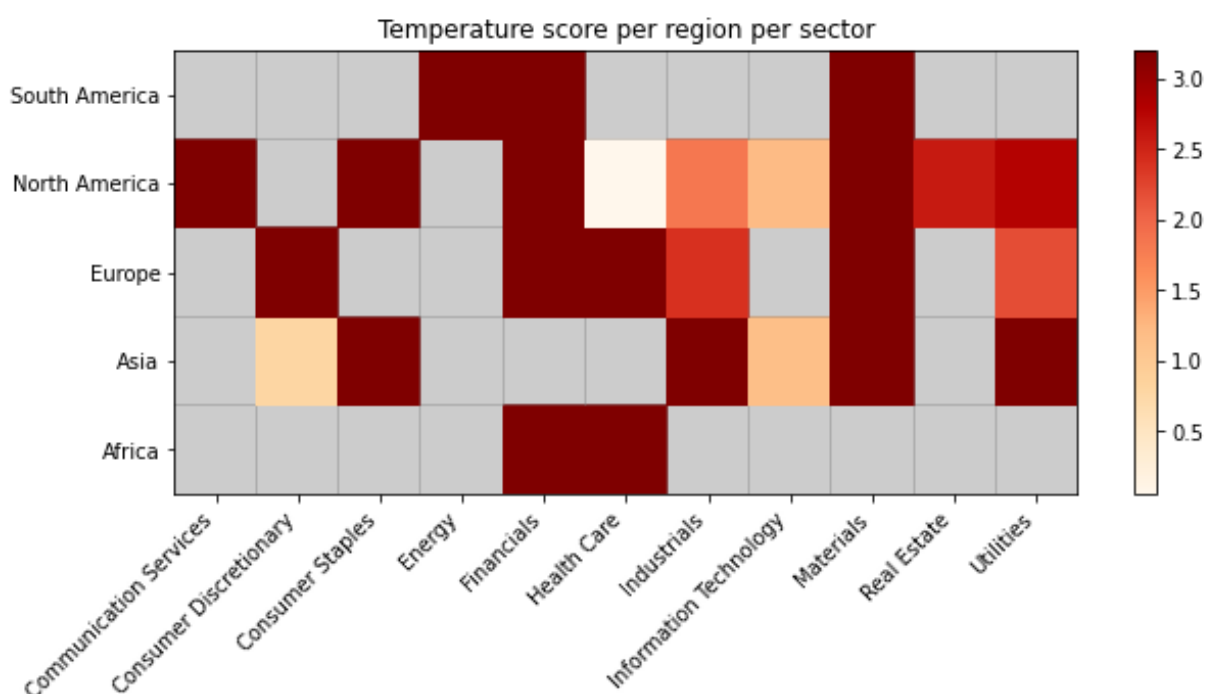
To translate targets into temperature scores, the TRA uses linear regression models for estimated warming in 2100 based on the IPCC scenarios. Companies without any relevant, publicly disclosed targets, or without targets covering an important GHG emissions scope, are assigned a default temperature score*. In the absence of targets, companies are assumed to follow a business-as-usual pathway and are allocated a 3.2°C value. This approach might grossly underestimate or overestimate the temperature trajectory of a company. For example, Schrodgers’ Climate Dashboard suggests that the fossil fuel sector, using fossil fuel production as a proxy, is on track for a 6.1°C warming²³.

* The default score is combined with publicly disclosed targets if the company is missing a target for a certain scope and/or timeframe.

Since companies can set different climate targets varying in scope and timeframes, the tool produces a single temperature score at company level by filtering targets based on quality criteria (e.g. scope coverage, target timeframe) and aggregating eligible targets into separate scope 1-2 and scope 3 scores for short-term (2021-2026), mid-term (2025-2036), and long-term (2036-2050) timeframes. Temperature scores are then aggregated at portfolio level using a portfolio weight (score weighted based on size of exposure) or different emission weightings (e.g. enterprise value, enterprise value including cash, revenue, total assets).

The TRA also includes what-if analysis features supporting the actual target setting process and to design engagement strategies.

Figure 7: Illustration of Temperature Rating Approach by region and sector



One of the main benefits of this approach is its ability to summarise differences in decarbonisation pathways. As highlighted in the report “Measuring Portfolio Alignment”²⁴, this metric is simple to communicate but not simple to construct considering the various assumptions and inputs it requires. This makes it harder to ensure analytical robustness and to understand the drivers behind the results. The report also references an analysis by The Alignment Cookbook showing little consistency and correlation across temperature estimates from 13 different temperature warming methodologies. The SBTi has indicated that it does not consider this analysis a meaningful comparison as methods included are too diverse, serve different purposes, and use very different inputs in many cases.

SBTi defines target criteria for the TRA as follows:

- Ambition: align portfolio’s scope 1-2 temperature score with a minimum well-below 2°C scenario and align the scope 1-3 portion under a separate target to a minimum 2°C scenario by 2040, i.e. in such a way that the bank is on a linear path to the stated goal by 2040. The SBTi “highly encourages” alignment with more ambitious scenarios such as 1.5°C.
- Time frame: maximum of five years.

2.4 Portfolio Modelling

This section discusses how financed emissions are measured and how physical emissions intensity for SDA targets are calculated in line with PCAF.

2.4.1. Banks would only account for the outstanding amount of loans at the end of the reporting period to measure financed emissions, potentially excluding a large portion of non-amortising or unutilised loans such as Revolving Credit Facilities.

In line with PCAF, the financial indicator used to model exposure under each asset class is the outstanding amount on the bank's balance sheet at the end of its reporting period (usually the financial accounting period). PCAF defines the outstanding amount as the value of the debt that the borrower owes to the lender, i.e. disbursed debt minus any repayments. While this approach is relevant for asset-based and mortgage style loan repayments (i.e. when the loan amortises over the life of the credit facility), it would only partially include loans during disbursement periods and non-amortising debt instruments such as Revolving Credit Facilities if they are not utilised.

Revolving Credit Facilities create a liability only when they are drawn and the repayment of the liability does not result in amortisation of the loan. As a result, a Revolving Credit Facility that is not utilised at the reporting date will not be modelled as no loan has been created. These facilities can only be sporadically drawn outside periods of liquidity crunch. However, they are important relationship drivers for banks and can facilitate the issuance of other debt instruments. Excluding undrawn commitments in the portfolio makes sense from a credit risk management perspective but it underestimates bank's potential support to a company.

Accounting for the total "limit" (undrawn + drawn amount) would model the potential financing and the support of banks to their borrowers. In light of the important proportion of Revolving Credit Facilities in banks' loan books, it is important to include the credit limit (undrawn + drawn amount) of loans to model financed emissions. This would potentially lead to an overallocation of decarbonisation efforts considering the allocation rules discussed below (which consider only on-balance sheet items). However, it is consistent with a precautionary approach to making finance flows consistent with the goals of the Paris-Agreement.



Recommendation 5. To model lending activities, Paris-alignment methodologies should use the **credit limit of loans**.

2.4.2. Allocation of borrower's emissions to a portfolio is based on an attribution factor defined for each asset class. This can introduce some volatility in the portfolio if not adjusted for.

PCAF, and therefore the SBTi, measure financed emissions using attribution factors tailored to each asset class.

Figure 8: Calculation of financed emissions and attribution factor for each asset class

$$\text{Financed Emissions} = \text{Attribution Factor} \times \text{Emissions}$$

Asset Class	Attribution Factor
Real Estate	$\frac{\text{Outstanding amount}}{\text{Property value at origination}}$
Mortgages	$\frac{\text{Outstanding amount}}{\text{Property value at origination}}$
Electricity Generation Project Finance	$\frac{\text{Outstanding amount}}{\text{Total equity + debt}}$
Corporate Instruments (loans)	$\frac{\text{Outstanding amount}}{\text{Enterprise value including cash OR equity + debt}}$

The allocation factor for corporate loans is based on Enterprise Value Including Cash (EVIC) for public companies or total balance sheet for private companies or when EVIC is not available. This can generate discrepancies across the portfolio but also introduce volatility. Financed emissions could indeed artificially increase or decrease with no actual correlation with borrowers' activities. PCAF should aim to build a consensus on normalising attribution factors.

As the SBTi is an asset-class based approach, it does not require segmentation rules for companies operating across different sectors or assets (e.g. power and fossil fuels) unlike PACTA or BlueTrack. A conglomerate's blended emissions would be linked to the financial instrument in the SBTi. However, it is unclear how this would fit with the minimum coverage requirements set for different sectors within the same asset class (e.g. 100 per cent for power generation, 95 per cent for fossil fuels, and 67 per cent for others).

2.4.3. SBTi's approach to modelling emissions at portfolio level can be valid to set targets but would be less relevant to operationalise them.

To calculate portfolio emission intensity and set SDA targets, the SBTi divides the sum of financed emissions by the sum of attributed activity data of all loans in scope. No further weighting based on the size of each loan in the portfolio is applied when data is aggregated at portfolio level. In comparison, PACTA allocates borrowers' activity in full to a loan (regardless of its size on the borrower's balance sheet) but weights it by the size of the loan relative the portfolio. This reflects different methodological objectives. PACTA is company-centric and is designed to visualise impact

of capital allocation. The SBTi is bank-centric and focuses on achieving a certain level of financed emissions. The SBTi seems therefore more relevant to estimate what parts of the portfolio should be prioritised while PACTA can be helpful to inform financing decisions.

2.5 Data sources

2.5.1. PCAF takes a top-down approach to estimating counterparts' carbon footprint and aims to source disclosed emissions where possible. Subject to data quality, the SBTi would more accurately estimate borrowers' carbon footprint than other methodologies covered in this report.

Because PCAF relies primarily on emission disclosures from companies, a bank using PCAF to conduct an inventory of its financed emissions would need to match the loans with these disclosures. This is in contrast with PACTA's bottom-up approach where activity is estimated at asset-level before being matched with a loan.

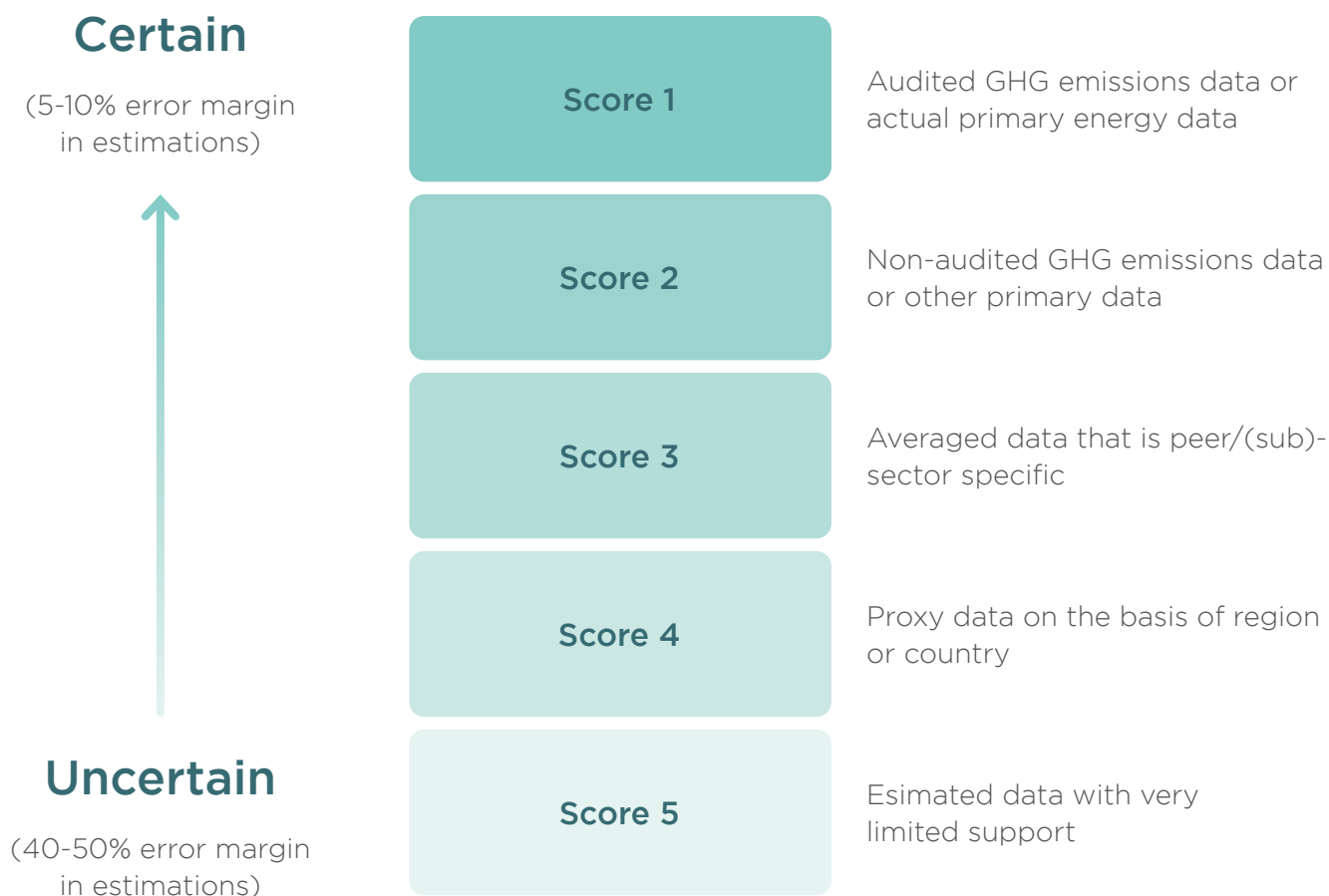
Currently, both approaches suffer from data challenges. As discussed in the chapter on PACTA, it requires additional assumptions to estimate emissions. Several banks have mentioned that a major hurdle to applying PCAF was data granularity, as emissions are often only partially disclosed, if disclosed at all, and sometimes only at parent level. It has also been reported that data collection can be challenging for certain company types and sizes (e.g. SMEs, state-owned entities). In addition, reported data is not always audited or reliable. However, should a large number of financial institutions require this information, it would promote more disclosures in the corporate sector alongside mandatory disclosures. Ultimately, the SBTi would more accurately estimate borrowers' carbon footprint and financed emissions.

2.5.2. Like other Paris-alignment methodologies, the SBTi suffers from data challenges. Nevertheless, PCAF provides a transparent framework to disclose the quality of data used in the methodology.

While a top-down carbon accounting approach can suffer from data challenges, PCAF has defined a scoring grid to assess data quality in a consistent way. Banks can use this grid to communicate externally on data collection in a transparent way and set objectives to improve it over time. Scores can also be used in the context of engagement with borrowers to promote emission disclosures. Other methodologies also face data quality issues, but they lack a clear and objective framework to disclose gaps in the data collection process. The SBTi could even go a step further and require financial institutions to publish these scores.

PCAF's data scoring grid ranges from estimated data with very limited support (score 5) to audited GHG emissions data on client-level (score 1). In addition, PCAF differentiates three options for data collection (from highest to lowest quality) to calculate data scores: reported emissions (option 1), physical-activity based emissions (option 2), and economic activity-based emissions (option 3). Option 1 and 2 are sourced from the borrower or third-party data providers. Option 3 is based on region- or sector-specific average emissions, or financial data using public data sources such as statistics or other third-party providers. Scores for each option vary depending on asset classes. A full description of the scoring system can be found in PCAF's Global GHG Accounting & Reporting Standard²⁵.

Figure 9: Data scoring grid developed by PCAF



PCAF is not prescriptive in terms of data collection. For option 1, it recommends either collecting emissions data from the borrower itself or a third-party provider, preferably one that uses the standardized CDP framework. Acknowledging that reporting in emerging markets lags developed markets, it does not prevent banks from filling gaps with estimates to maximise the coverage of emissions data. For option 2, PCAF recommends using data on actual energy consumption (e.g. MWh of natural gas consumed) or production (e.g. tons of steel produced) reported by companies. It states that emission factors should be expressed per physical activity, based on appropriate and verified calculation methodologies or tools issued or approved by a credible independent institution. For option 3, PCAF recommends using official statistical data or acknowledged EEIO tables providing region- or sector-specific average emission factors expressed per economic activity (e.g., tCO₂e/€ of revenue or tCO₂e/€ of asset). PCAF also provides its own emission factor database for option 2 and 3.

For the Real Estate sector, PCAF recommends using actual building energy consumption when possible but acknowledges it may not be widely available. In the absence of metered data, banks can estimate energy use based on building characteristics and publicly available data (e.g. energy label, type of property, and floor area of property) to get a reasonable approximation. Similarly, supplier-specific emission factors for specific energy sources should be used if they are available. If they are not, average emission factors may be used. PCAF's web-based emission factor database provides emission factors by building type, floor area, and number of buildings for a large set of geographies.

The SBTi is not prescriptive in terms of data collection for the engagement-based approaches (PCA and TRA). Data can be obtained from multiple sources including borrowers' disclosures, data providers and the SBTi's database.

2.6 Reporting

2.6.1. The SBTi requires a bank to produce a strategy underpinning its targets and disclose progress against all approved targets annually. However, it is not prescriptive as to where this information should be published.

When submitting targets, banks are required to produce a brief summary of the strategy and actions they will implement to reach their targets. The summary is published alongside the targets on the SBTi's website. This requirement helps to make targets more transparent for third parties. For example, while Barclays outlines BlueTrack's underlying assumptions, it has not published a strategy explaining how it will reach the targets calculated based on the tool. While the strategy doesn't necessarily have to be granular at company level, a high-level summary could allow external stakeholders to assess the credibility of the target and levers used to achieve decarbonisation of portfolios.

In addition, the SBTi requires annual disclosure of progress against all approved targets in the relevant metrics, and disclosure of actions and strategies taken during the year to meet portfolio targets. This includes the percentage of the portfolio covered by the target in specific asset classes and sectors. For the TRA, banks should also disclose the percentage of portfolio emissions and invested value covered by targets and the percentage covered using default scores.

Nevertheless, the SBTi does not require banks to disclose targets and additional reporting in their annual reports alongside other financial information.



Recommendation 15. Paris-alignment targets and underlying assumptions should be disclosed in banks' annual reports alongside other audited financial information.

2.6.2. The SBTi's recommendations to publish a thermal coal phase-out policy and disclose fossil fuel investments should be a requirement.

While not mandatory, the SBTi has formulated two important fossil fuel-related recommendations as part of its guidance. These would require banks to:

- Publish a thermal coal phase-out policy across all activities and in line with a full phaseout of coal by 2030 globally within six months from the time of target approval. The SBTi recommends immediately ceasing all financial support to coal developers and thermal coal expansion across the value chain* as part of the policy.
- Disclose fossil fuel investments (oil, gas and thermal coal) and lending on an annual basis across investments (public equity, private equity, corporate bonds), project finance and corporate finance**. In line with the rest of the methodology, this recommendation does not apply to capital markets underwriting.

* The SBTi recommends a 5 percent revenue threshold to define coal companies.

** The SBTi recommends a revenue threshold of 5 to 30 percent to define oil and gas companies.

These recommendations highlight that the SBTi acknowledges that setting targets for the highest emitting sectors in itself is not sufficient and that coal financing in particular is not compatible with a Paris-aligned strategy. The recommendation goes even further than the most robust coal policies as it suggests a global phase-out by 2030 (while most policies have focused on 2030 for the OECD and 2040 for emerging countries). Nevertheless, the SBTi has stated that these recommendations will not become mandatory and that it does not expect to add a requirement for a rapid phase-out of fossil fuels for the time being.



Recommendation 3. To be credible, Paris-alignment methodologies should be complemented by **robust sectoral policies** (described in chapter 1).

2.7 Case study – NatWest

NatWest was the first major UK bank to sign up to the SBTi since the guidance for financial institutions was published in October 2020. This commitment followed an announcement in February 2020 in which the bank set itself the challenge to at least halve the climate impact of its financing activity by 2030. In February 2021, NatWest provided a comprehensive overview of this ongoing work in its 2020 climate related disclosures report. This includes a preliminary assessment of its financed emissions baseline and the abatement required to achieve its 2030 ambition as well as Paris-alignment in 2030 and 2050.

In line with PCAF, NatWest does not model capital markets underwriting as it includes “loans and investments (debt securities and equity shares) on NatWest Group’s balance sheet” to estimate finance emissions. The bank has initially focused on four sectors: residential mortgages, agriculture (primary farming), automotive (manufacturing), and oil and gas (extraction).

The initial scope of the methodology was mainly guided by a double materiality assessment. While the report is silent on underwriting, the scope of the review seems consistent with the bank’s financing activities based on the breakdown provided. For example, real estate mortgages, accounting for 43 per cent of total sector exposure in scope, were included in the review. Pending the SBTi’s full guidance on the automotive, agriculture, and oil and gas sectors, the bank relied on other approaches or SDA adaptations to estimate emissions intensity pathways. While only manufacturing and extraction are in scope for the automotive and oil and gas sectors respectively (in line with PACTA’s segmentation), scope 1-3 emissions are measured for these sectors.

Of note, power utilities were not yet included in this preliminary assessment. This is probably less problematic for NatWest compared to some of its peers considering its UK focus. The bank reported an exposure of £0.6bn related to customers engaged (15 per cent or more EBTIDA) in coal (thermal and lignite). Nevertheless, Urgewald estimates that NatWest provided more than US\$2 billion financing (lending and underwriting) to companies involved in thermal coal in 2020^{xiii}.

Preliminary results relied on an emission intensity metric. In isolation, this metric is insufficient to assess decarbonisation efforts for the oil and gas sector. Absolute emissions metrics such as the one used by BlueTrack for the energy sector would be preferred. Nevertheless, NatWest discloses absolute emissions (CO₂e/y), physical emissions intensity (CO₂e/unit) and economic emissions

intensity (CO₂e/£M). This gives a balanced overview of the starting point and would be helpful to assess NatWest's progress. The SBTi is expected to provide further guidance on the oil and gas sector.

NatWest also disclosed PCAF's data quality score with a clear explanation on how scores were calculated. NatWest estimates that 44.8 per cent of the Groups' loans and investments are covered by this analysis, while coverage is up to 95 per cent for the relevant sectors. PCAF's data quality score (ranging from one to five) is quite low for residential mortgages, highlighting data challenges for this sector. On the other hand, the relatively high score for the oil and gas sector, for which scope 3 emissions are also measured, shows that a considerable portion of emissions data was available.

NatWest's emission intensity benchmark for residential mortgages (which uses the UK's Climate Change Committee's sixth Carbon Budget's Balanced Net Zero pathway) goes beyond the SBTi's minimum ambition requirement as they are based on a 1.5°C temperature outcome. In addition, NatWest's 2030 commitment to halve its climate impact seems more ambitious than the Paris-aligned benchmarks for the agriculture (1,103 tCO₂e/£m vs 1,449 tCO₂e/£m revenue) and automotive (84 gCO₂/km vs 121gCO₂/km) sectors.

2.8 SBTi: Summary of main Pros & Cons

Pros	Cons
<ul style="list-style-type: none"> • Comprehensive in terms of sector/ value chain and emissions coverage (theoretically any sector is included). • Transparency and comparability of target thanks to standardised approach and prescriptive criteria which are reviewed by a third-party. • Leads to a commitment from banks to conduct a GHG inventory of their portfolio using a common framework. • A recommendation to phase-out thermal coal and disclose fossil fuel investments (although it is not required by the framework). • Mandatory target recalculation, although this should be backed by clearer triggers. 	<ul style="list-style-type: none"> • The framework is prescriptive but does not currently include a 1.5°C benchmark. • SBTi for banks is highly reliant on SBTi for corporates and borrowers' strategy to achieve their targets. • Capital markets underwriting are excluded and only the outstanding amount of loans are in scope. • The only emission-based method is an emission intensity metric and translating the target into an absolute emission metric is not compulsory. • Less intuitive to implement than other methodologies covered in this report in the context of portfolio steering and financing decision process.

Chapter 3: Paris Agreement Capital Transition Assessment

Background

The Paris Agreement Capital Transition Assessment (“PACTA”) is an open-source climate scenario analysis tool developed by the 2° Investing Initiative (“2DII”) and backed by the UN Principles for Responsible Investment. It is intended to “allow users to measure the alignment of their financial portfolios to various climate scenarios” and assess whether they are on track to meet the goals of the Paris Agreement. According to 2DII, PACTA has had over 1,500 users worldwide including regulators (e.g. Swiss Federal Office for the Environment) and central banks who use the tool to perform stress-testing and assess climate-related risks to their regulated entities.

PACTA was first introduced in 2018 for equities and fixed income portfolios as a web-based platform before the methodology was expanded to banks as an open-source ‘toolkit’ in September 2020. This analysis focuses on PACTA for banks. The toolkit has been road-tested over the last two years by 17 banks from Europe and the Americas (ABN Amro, Bancolombia, Barclays, BBVA, BNP Paribas, Citi, Credit Suisse, Groupe BCPE, ING, Itau, KBC, Nordea, Santander, Societe Generale, Standard Chartered, UBS, Unicredit). Around 60 banks have downloaded the methodology and 2DII estimates that half of them are already applying it as of April 2021.

As an open-source toolkit and in the absence of prescriptive criteria, PACTA has been adapted by several banks for different purposes or parts of their portfolios. At the 2018 COP24 in Katowice, five banks – BBVA, BNP Paribas, ING, Societe Generale and Standard Chartered (the “Katowice Banks”) – pledged to develop an open-source methodology to align lending portfolios with the goals of the Paris Agreement. In partnership with 2DII, the Katowice Banks have published a PACTA-based framework²⁶ discussing key methodological choices and deviations from the original methodology. While they rely on a common framework, methodologies developed by the Katowice Banks are tailored to each bank (e.g. ING’s Terra approach). This analysis looks at the core ‘default’ version of the toolkit as described in the PACTA for banks guidance²⁷.

Methodology overview

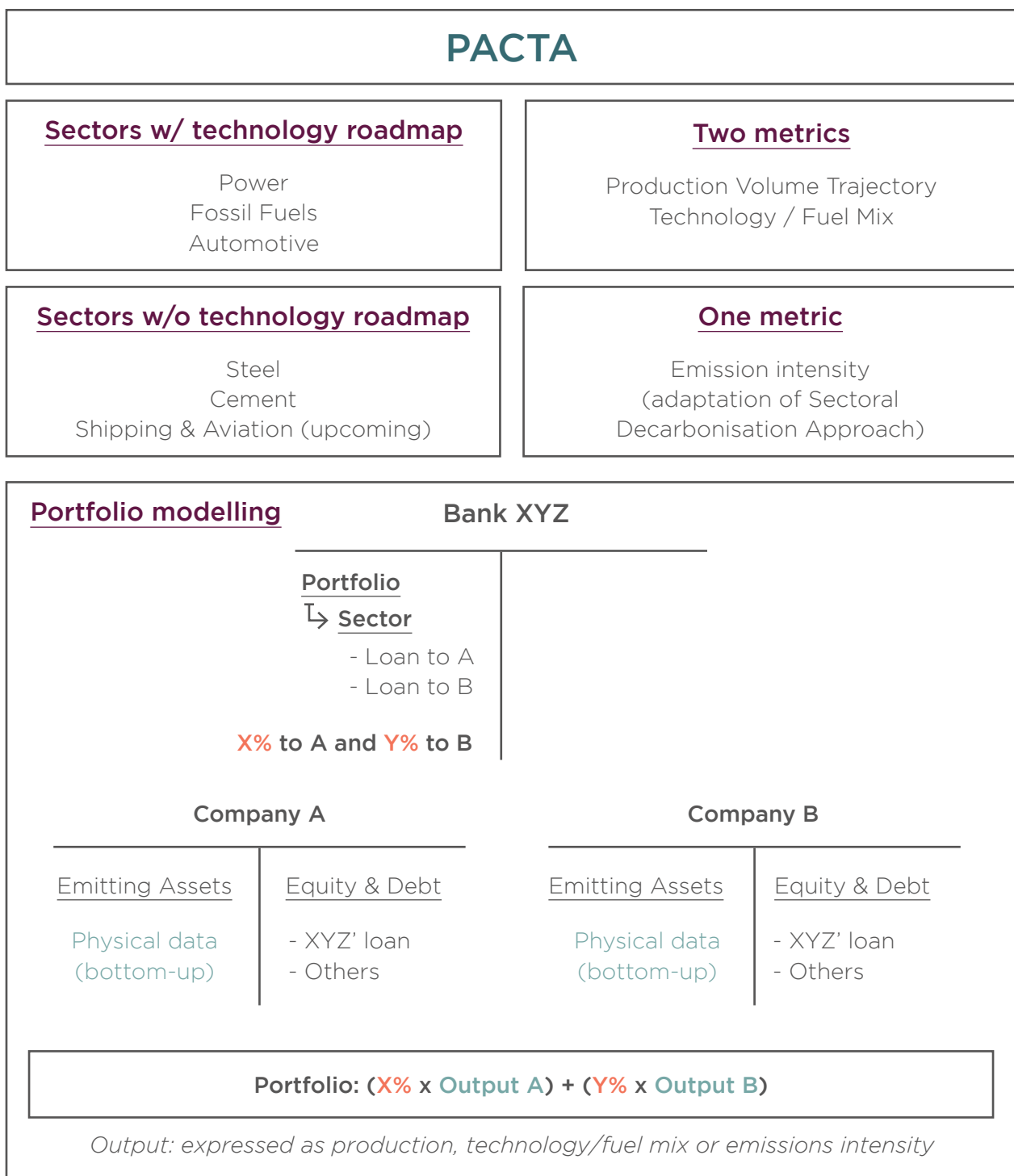
PACTA assesses portfolio alignment at sector or sub-sector level. The methodology is based on the premise that decarbonisation should primarily occur through a shift of technology or energy source where climate scenarios provide such roadmaps. It thus differentiates between two types of sectors:

- **“Sectors with a technology road map”**: this includes power, fossil fuels and automotive. For this group, PACTA benchmarks portfolios’ “Technology / Fuel Mix” (e.g. share of renewables in a power portfolio) and “Production Volume Trajectory” (e.g. evolution of oil production linked to an energy portfolio).
- **“Sectors without a technology roadmap”**: this currently includes steel and cement and will be expanded to shipping and aviation. PACTA benchmarks portfolios using a fallback emission intensity approach inspired by the SBTi’s SDA.

In contrast with the SBTi's top-down carbon accounting approach, PACTA relies on physical data and takes a bottom-up approach to quantify counterparts' activities. Production or capacity data is sourced primarily at asset-level and converted where necessary into an emissions intensity metric. The toolkit includes free access to Asset Resolution, a commercial data provider founded by 2DII. In addition, PACTA weights production, capacity or emission intensity by the size of the financing in the portfolio in order to assess alignment. In other words, what is being benchmarked is not a share of emissions but the capital allocation to different production and technology profiles.

Figure 10: Simplified illustration of PACTA for banks

The diagram below is a simplified view of the methodology and does not reflect all its features.



While it can be adapted, the original version of the methodology is not intended to measure and align financed emissions. PACTA was not designed to produce a pathway for a bank's carbon footprint to reach a certain level by a certain date. Instead, 2DII's proposition is for banks to influence their counterparts (e.g. push for more renewable energy assets) to achieve emission reductions in the real economy. In that respect, diverging opinions on the concept of 'impact' led 2DII to withdraw from SBTi for financial institutions, which it had been invited to join as a methodology co-developer²⁸. 2DII believes that direct correlation between action undertaken by financial institutions and GHG emission reductions remains scientifically unproven. In addition, 2DII estimates that the concept of financed emissions can introduce artificial volatility in portfolios as it can be influenced by financial values.

While all methodologies will have to be back-tested, reducing financing in a specific sector can indeed be a driver of emission reductions in the real economy. For example, coal miners have reported facing a funding squeeze²⁹ following global financial institutions and government-backed agencies exiting the coal industry³⁰. This has raised the cost of capital and could jeopardise the viability of other more carbon-intensive projects.

3.1 Scope

Figure 11: PACTA's scope of financial instruments and counterparts' activities

Financial instruments	Sector	Segment	Measured Activity	Method/Metric
Corporate Lending	Power (Oil, Gas, Coal, Nuclear, Renewables)	Generation	Power capacity (MW per year)	Technology / fuel mix Production trajectory
	Fossil Fuels (Oil, Gas, Coal)	Extraction	Oil production Gas production (GJ per year) Coal production (tonnes per year)	
Project Finance	Automotive (ICE, Electric, Hybrid)	Manufacturing	Light-duty vehicle production (vehicles per year)	Sectoral Decarbonisation Approach (adaptation from SBTi)
	Steel	Manufacturing	Emissions intensity (scope 1-2)	
	Cement	Manufacturing	Emissions intensity (scope 1-2)	
	Shipping*	Ship owners & operators	Emissions intensity (scope TBD)	
	Aviation*	Owner	Emissions intensity (scope TBD)	

*Guidance for shipping and aviation is under development.

Note: PACTA's dataset defines renewables as the following: bioenergy, geothermal, solar photovoltaic, concentrating solar power, wind and marine (tide and wave). However, bioenergy should not be systematically included in renewable energy sources, as highlighted in ShareAction's report "The Biomass Blind Spot"³¹. PACTA's dataset also blends thermal coal and metallurgical coal production. The Katowice Banks have indicated that they would filter out metallurgical coal activities via revenue segmentation.

3.1.1. PACTA covers most priority sectors to be decarbonised except real estate.

2DII estimates that the sectors covered by the methodology account for over 75 per cent of global CO₂ emissions. The real estate sector is not included in the current iteration of the toolkit. 2DII acknowledges the relevance of this sector for banks but notes it is difficult to integrate due to lack of reliable and homogenous data on energy use. 2DII is working on integrating the real estate sector in partnership with the Swiss government, but this would be difficult to deploy at scale as it is country-specific. It is expected that heavy-duty vehicles and aviation are soon to be included, and shipping will likely be added later in 2021. 2DII is also exploring other areas including land use sectors (e.g. agriculture).

3.1.2. PACTA focuses on decarbonisation of specific segments across the value chain. Banks using PACTA to model emissions instead of production should translate it into scope 1-3 emissions.

As depicted in Figure 11, PACTA only considers specific segments across the value chain. This is based on the structure of climate scenarios and the belief that decarbonisation of these segments, which control the bulk of the impact on the climate system, will have a knock-on effect on the other segments in the value chain. According to 2DII, this segmentation also allows for a comparison of output in each sub-segment (e.g. how many cars need to switch to electric batteries). While this segmentation fits the methodology's objectives, it could underplay the interdependence of assets across the value chain. For example, Canadian oil sands might increase production if new pipeline capacity is approved³². This argument also shows the need for robust energy policies to be in place on top of any Paris-alignment methodologies. Banks could otherwise be underestimating the climate-related risk, and notably the reputational risk, arising from their fossil fuel financing activities. 2DII has indicated that it is working on metrics based on total primary energy demand which should capture a larger part of the value chain.

When assessing adaptations of PACTA, it is important to remember that it does not model emissions from the energy sector but rather production and capacity. 2DII has indicated that the methodology can be adapted in principle to reflect emissions rather than physical data, but has made clear that this is not what PACTA was intended for and results would have to be interpreted differently. Banks adapting PACTA to measure emissions should ensure production is translated into scope 1-3 emissions for fossil fuels. Indeed, accounting only for emissions at the point of extraction following PACTA's specific segmentation greatly underestimates the climate impact of extractive industries across the value chain³³. In this context, the recommendation below applies to adaptations of PACTA seeking to estimate emissions, rather than the 'default' version.



Recommendation 6. Paris-alignment methodologies should capture **scope 1-3 emissions** across the value chain for the fossil fuel sector.

3.1.3. While the scope of financial instruments is limited to loan books in PACTA for banks, the methodology can be technically adapted to reflect capital markets underwriting.

PACTA for banks includes loans (both project and corporate finance) to listed and unlisted companies. 2DII has indicated that data coverage (see section 3.5. - Data Sources) tends to be lower for project finance. Nevertheless, the guidance indicates that the “methodology can be adapted in principle to any individual or group of financial relationships between a company and a financial institution”, i.e. it could include instruments such as capital markets underwriting or guarantees. Considering that fossil fuels can be almost equally financed by lending and underwriting, 2DII should go a step further and recommend including capital markets underwriting as a best practice approach.



Recommendation 4. Paris-alignment methodologies should include lending with and without known use of proceeds, as well as **capital markets underwriting**.

3.2 Benchmarks and level of ambition

3.2.1. PACTA offers multiple benchmarking options including regional subsets of climate scenarios. While any other scenario can be adapted in theory, the toolkit does not currently include a 1.5°C outcome.

PACTA includes a range of scenarios published by the IEA. According to 2DII, any other scenario could be used if production at technology level (for sectors with technology roadmap) or emission intensity (for sectors without a technology roadmap) is given or can be used to calculate these metrics in the right format. Scenarios included in the toolkit are sourced from the IEA’s World Energy Outlook (WEO) 2019 and Energy Technology Perspective (ETP) 2017 as depicted in Figure 12. 2DII has indicated that WEO 2020 and ETP 2020 will be added to the toolkit.

In contrast with the SBTi, it is possible to select a regional or national subset of the scenario. This allows for more granular benchmarking assumptions. PACTA recommends measuring alignment at the geographical level in which the sector usually operates, noting for example how the power sector tends to be regional or national while the oil sector operates in a global market.

However, none of these benchmarking options currently include a 1.5°C temperature outcome. 2DII simply encourages banks to use “multiple scenarios with varying levels of climate ambition” with “at least one scenario ambitious enough to achieve the goals set out in the Paris agreement”. The guidance also notes how banks are individually responsible to caveat the underlying assumptions and modelling of each scenario. 2DII has indicated that a scenario leading to a 1.5°C outcome is likely to be included soon. The reliability of such a scenario should be assessed once it is available.



Recommendation 1. Paris-alignment methodologies should be based on scenarios targeting a **1.5°C outcome with no or limited overshoot and limited reliance on negative emission technologies** (in line with a P1 or P2 archetype as defined by the Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5°C). If such a scenario is not readily available, banks should publicly push for its publication and state their intention to review their targets when it becomes available.

Figure 12: Climate scenarios included in PACTA for banks (published in IEA’s WEO 2019 and ETP 2017)

Sector	Scenario	Geographic subsets
Power	CPS, STEPS, SDS, B2DS	Regional and national
	B2DS	Global
Oil and Gas	CPS, STEPS, SDS	Regional
	B2DS	Global
Coal	CPS, STEPS, SDS	Regional
	RTS, 2DS, B2DS	Global
Automotive	B2DS	Global
Steel	B2DS	Global
Cement	B2DS	Global

Source: 2DII. CPS: Current Policies Scenario. STEPS: Stated Policies Scenario. RTS: Reference Technology Scenario. 2DS: Two Degrees Scenario. All these scenarios except the two degrees scenarios lead to temperature warming well above 2°C.

Note: an adjustment is necessary for the automotive sector considering that the scenario provides only stock values (while PACTA measures manufacturing). Stock values are converted into sales values by estimating the retirement of cars based on the ETP 2015 (which includes both sales and stock values).

3.2.2. Banks can also benchmark their portfolios against all producing assets included in PACTA’s dataset.

PACTA for banks also includes a corporate economy (“market”) benchmark. It can be used to compare a portfolio against PACTA’s entire dataset, representing the “lendable universe” of the bank. In other words, the bank can compare its portfolio against a portfolio exposed to all counterparts covered by the methodology in a specific sector. PACTA can also generate an aligned version of the market benchmark based on any of the climate scenarios listed above. The extent to which this benchmark is relevant would depend on the underlying dataset (see section 3.5. - Data sources).

Because the “market” benchmark does not assume a specific capital allocation (the portfolio is equally distributed across assets), the guidance notes that it should be interpreted with care when compared to a bank’s portfolio. On the one hand, the same capital intensity (e.g. \$/MW for the power sector) is assumed for all technologies. However, 2DII notes that renewables tend to be more capital intensive (historically, although this might change). Therefore, the proportion of renewables

in the portfolio mix could be overestimated in comparison to the market. In addition, 2DII notes that the portfolio finances both capital and operating expenditure whereas the market benchmark only reflects total capital stock. Therefore, technologies that tend to be over-represented in current debt (e.g. renewable technologies) will feature more prominently in the portfolio profile than in the market, which could also lead to a situation where misalignment is underestimated.

3.3 Metrics

3.3.1. PACTA can generate multiple views for each metric within a 5-year timeframe.

In addition to displaying aggregated results at portfolio level, PACTA can model results across sub-segments and several universes where applicable, including at company level. Metrics can also be used to generate several outputs for each universe:

- Current day estimate (production, capacity, or emission intensity).
- 5-year forecast (reflecting counterparties' capex plans, retirement of assets, reserves, etc.). PACTA notes how it is usually challenging for a company to produce production plans beyond that timeframe.
- Benchmark-aligned target profile at a 5-year horizon or longer within the timeframe of the scenario.

While PACTA is not prescriptive in terms of target setting, the methodology implicitly focuses on managing exposure within a 5-year timeframe. This horizon can cover banks' corporate relationship cycles and is relevant to setting short term targets. However, banks using PACTA should balance short term targets with medium (10-15 years) and long term (20-30 years) objectives. This also ensures that the bank takes into account how and when decarbonisation occurs throughout the climate scenario.



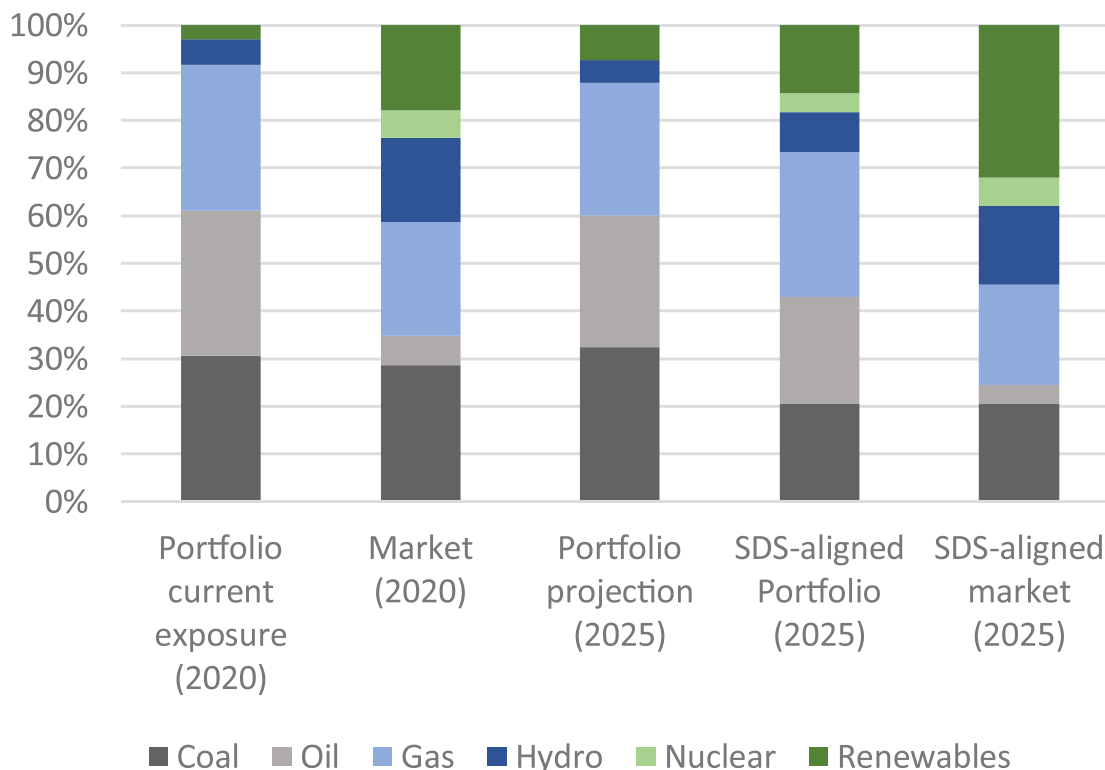
Recommendation 14. Paris-alignment methodologies should be used as part of a broader strategy including transparent **short, medium, and long-term targets**.

3.3.2. The Technology / Fuel Mix and Production Volume Trajectory metrics should complement each other when assessing alignment.

Technology/Fuel Mix

This metric measures the distribution of exposure across technologies/fuels for the power, fossil fuel and automotive sector. It aims to illustrate how the mix should evolve to become aligned with a climate scenario. The metric is expressed as a percentage of a given technology/fuel in each of these sectors in the chosen universe. To be deemed aligned, the portfolio or company in the portfolio (when results are displayed at company level) need to follow the changes in distribution implied by the benchmark.

Figure 13: Illustration of Technology/Fuel Mix for the power sector



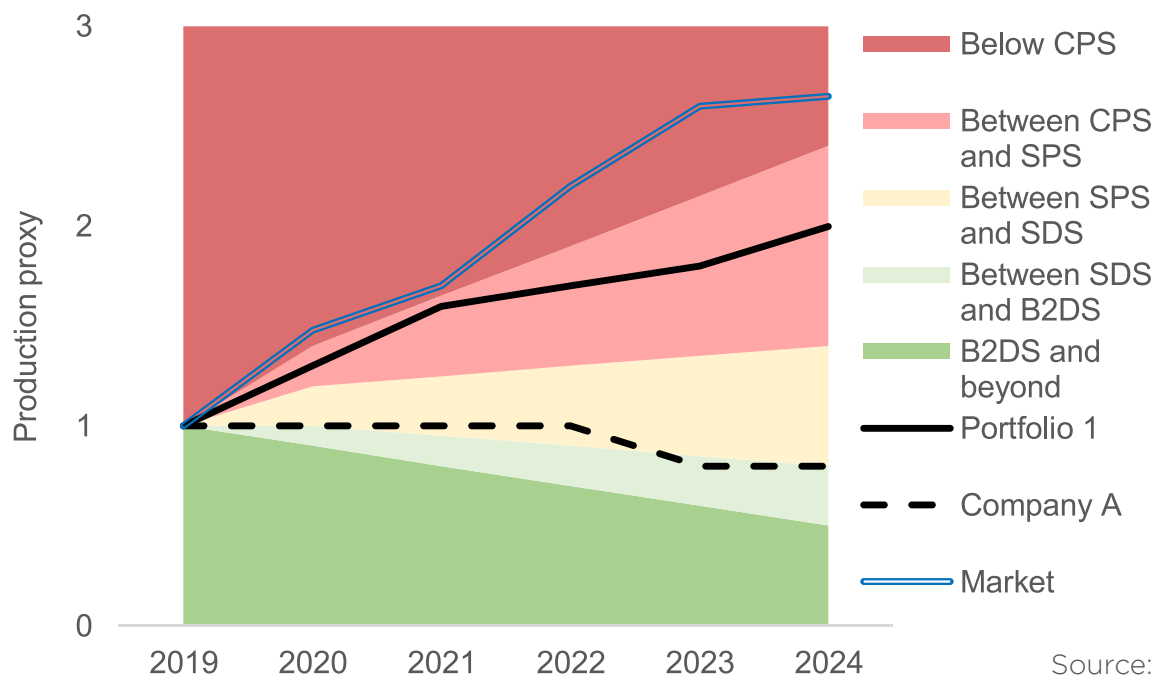
This metric is not sufficient by itself to determine whether a specific technology is increasing or decreasing in absolute terms. For example, the proportion of each fossil fuel in the portfolio might become aligned with the benchmark while the underlying levels of production (and resulting emissions) increase to meet these proportions. For that reason, PACTA notes how this metric should be complemented by the Production Volume Trajectory metric.

Although difficult to integrate into the methodology, it is important to note that other drivers of decarbonisation exist outside a given sector. For example, decarbonising the aviation sector should also entail behavioural changes around flying³⁴.

Production Volume Trajectory

This metric illustrates individual technology/fuel's production trends in any given universe. These trends are then compared with production trajectories implied by the benchmark to assess alignment. Both exposure and benchmarks are normalised to 1 in the starting year to focus on building out trends of production, however users may choose to display production in absolute terms. The portfolio or the company in the portfolio is deemed aligned if the associated production trajectory remains within the benchmark's limit. If data is normalised to 1 at the base year, this metric does not appear suitable for assessing the initial alignment of the portfolio, but rather assess alignment on a forward-looking basis.

Figure 14: Illustration of Production Volume Trajectory metric (individual technology / fuel)



One of the benefits of this metric is that production trends within the portfolio or at company level can be compared with different scenario outcomes at the same time, which can facilitate engagement with borrowers.

3.3.3. Assessing alignment using the Technology/Fuel Mix and Production Volume Trajectory metrics is based on the premise that all companies will successfully transition in a linear fashion.

The above metrics take a linear approach to alignment, meaning that portfolios and borrowers are expected to increase or decrease production at the same rate as the benchmark regardless of the starting point. The underlying assumption of this trajectory approach is that production and capacity trends are proportionally distributed across companies so that they retain the same market share (e.g. an initial 10 per cent market share means having to contribute 10 per cent of the decarbonisation effort). PACTA refers to this method of allocating carbon budgets as the “market share approach”.

Following this principle, the metrics define different pathways to alignment for high-carbon (oil, gas and coal) and low-carbon (nuclear, hydro and renewables) activities. High-carbon technologies would need to decrease at the same rate as global production in line with the climate scenario and regardless of initial distribution. On the other hand, low-carbon technologies would need to increase at the same rate relative to the entire sector depending on initial distribution. By way of example: the power sector, a portfolio highly reliant on coal with almost no renewable capacity (portfolio A) will have to decrease the proportion of coal in its fuel mix at the same rate as a portfolio with limited exposure to coal and large proportion of renewable capacity (portfolio B). However, portfolio A will have to build its renewable capacity at a faster pace than portfolio B so that both portfolios display the same rate of change.

While the economic rationale seems valid, this approach assumes that low-carbon assets can offset high-carbon assets in the power sector. It also assumes that the impact of GHG emissions released in the atmosphere is a linear function of fossil fuel combustion, i.e. it excludes the cumulative impact of emissions from the highest emitters and carbon lock-ins. In addition, a company highly reliant on fossil fuels could decrease production at the same rate as the benchmark but still develop new assets. While any methodology have to make assumptions, assuming a linear transition through a shift in technology does not reflect what is usually observed in the real economy. Finally, this approach also assumes that all emitters are working towards the same goal, even if these companies are not in the banks' portfolio, and that they will all successfully diversify - an assumption which goes against a precautionary approach.



Recommendation 3. To be credible, Paris-alignment methodologies should be complemented by **robust sectoral policies** (described in chapter 1).



Recommendation 9. Engagement guided by Paris-alignment methodologies should be complemented by an **escalation strategy for 'misaligned' clients** within a timeframe consistent with climate scenarios (as described under recommendation 1).

3.3.4. While additional developments are underway to address some of these shortcomings, they may simultaneously raise other questions.

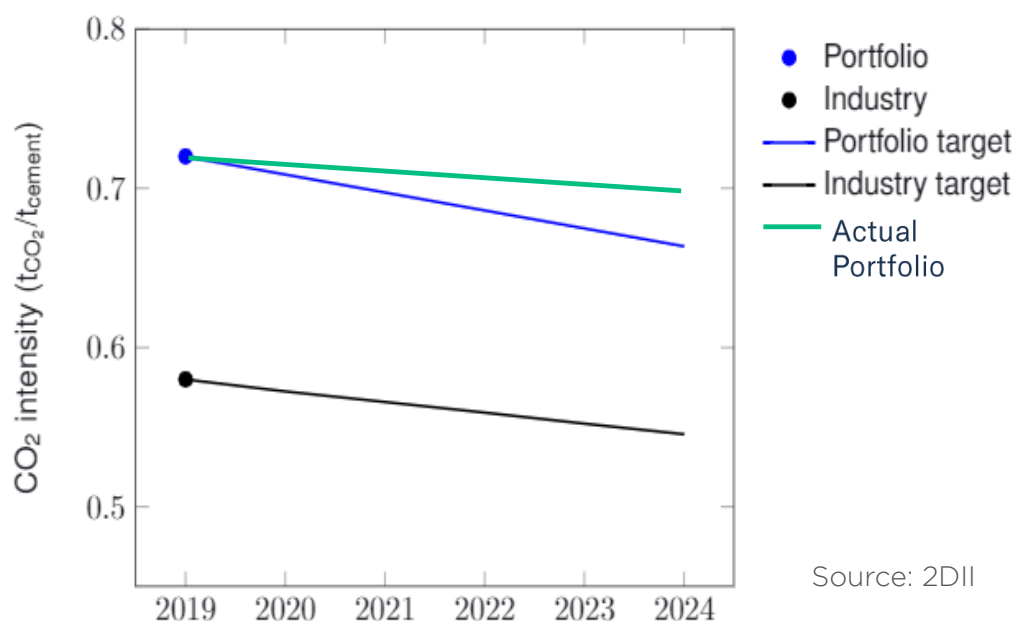
In addition to the market share approach, 2DII is working with Carbon Tracker to include an “economic efficiency/least cost approach” to allocating carbon budgets. In line with Carbon Tracker’s methodology, it will use the cost structure of companies’ existing, planned and potential capital stock to estimate which assets meet a sector-wide output constraint, under the assumption that low-cost assets will be deployed first.

This approach could provide further insights to enable portfolio steering. All the same, it could lead to a situation where banks would favour cheaper and/or less carbon intensive fossil fuel assets located in jurisdictions affected by other ESG controversies (e.g. human rights issues for conventional oil and gas in the Middle East). This approach would also ignore important geopolitical considerations such as an overreliance on a limited number of jurisdictions.

3.3.5. PACTA uses a fallback emission intensity metric inspired by the SBTi’s Sectoral Decarbonisation Approach for sectors where it cannot model lower carbon substitutes.

For the steel and cement sectors, PACTA uses an adaptation of the SBTi’s Sectoral Decarbonisation Approach (SDA). This metric measures the average emission intensity at portfolio level (not applicable at company level) and compares it against an emission intensity benchmark. The portfolio is deemed aligned if its emission intensity is equal or below the benchmark.

Figure 15: Illustration of PACTA's emission intensity metric



Similar to the SDA, the emission intensity metric in the PACTA methodology uses a convergence approach to alignment, i.e. the portfolio converges towards the benchmark by a certain date at a pace dependent on the starting point (the more carbon intensive at the base year, the steeper the decrease needed to become aligned).

The alterations to the SDA methodology aim to reconcile the SBTi's top-down approach and PACTA's bottom-up approach to measuring borrowers' activity (see section 3.5. – Data sources). PACTA calibrates the sector intensity in the base year and at the end point of the scenario to account for different data universes. The emission intensity given by the scenario is based on global production in the SBTi whereas PACTA relies on the specific perimeter defined by 2DII's dataset. To adjust the scenario's emission intensity, PACTA calculates a yearly rate of change based on the scenario and applies it to the sector intensity in the base year using 2DII database. In addition, the market share parameter discussed in the chapter on the SBTi is eliminated so market shares remain constant, as 2DII argues it would counter-intuitive at company level (e.g. a company with a growing market share would have to display a lower carbon-intensity than a company with a decreasing market share).

3.4 Portfolio modelling

3.4.1. PACTA recommends using the drawn amounts of loans to model portfolios. This could underestimate banks' support to high-carbon sectors.

2DII suggests using the drawn amount of loans to model exposure on the grounds that "it reflects the current amount contributing to economic activity in the real economy". As discussed in the chapter on the SBTi, this assumption is not compatible with a precautionary approach to alignment and underestimates banks' support to high-carbon sectors. Nevertheless, the toolkit allows users to model the credit limit of loans as well.



Recommendation 5. To model lending activities, Paris-alignment methodologies should use the **credit limit of loans**.

To forecast exposure over a 5-year horizon, PACTA assumes portfolios are constant, i.e. that loans do not amortise and are perpetual. This assumption is made to avoid any repayment bias and focus on the decarbonisation efforts of borrowers assuming the bank does not divest. It also means that project finance facilities are also considered constant. Users can overwrite the forecast to embed portfolio management assumptions. This modelling choice seems appropriate to guide banks' engagement efforts.

3.4.2. PACTA deconstructs diversified borrowers' activities to model sectoral exposures. This ensures that high and low carbon activities of integrated energy companies are assessed separately.

For general corporate purpose finance extended to integrated or cross-sectoral companies, PACTA recommends using revenues, capex or debt as segmentation keys to allocate the activity pro-rata to different portfolios. By way of example: a bank extends a US\$100m loan to a company deriving 50 per cent of revenues from upstream oil and gas, 30 per cent from other oil and gas activities and 20 per cent from renewable power. Assuming the facility is fully utilised, a US\$50 million loan will be modelled under the energy portfolio while a US\$20million loan will be modelled in the power portfolio. If no data is available, only the primary activity is considered (upstream oil and gas in the above example).

Deconstructing borrowers' activities ensures that low-carbon and high-carbon activities of integrated energy companies cannot offset each other. Provided that the benchmark is sufficiently ambitious, this enables an engagement strategy that is compatible with a decrease in exposure to fossil fuels.

3.4.3. PACTA models portfolios based on capital allocation rather than an attributed share of activity. This complements a financed emissions' view of the portfolio and provides further insights to inform financing decisions.

While the SBTi models portfolios based on the size of loans in borrowers' balance sheets, PACTA models portfolios based on the size of loans in each sector's portfolio. For example, if a loan represents 10 per cent of the portfolio, a 10 per cent coefficient is applied to the production, technology share or emission intensity it is financing. PACTA also includes an "ownership approach" similar to the SBTi's attribution factors for equity portfolios. However, 2DII does not recommend this approach for debt instruments. It argues it does not support steering decisions and can lead to volatility of the results (e.g. when the attribution factor is based on market capitalisation). While both approaches serve different purposes, PACTA can facilitate portfolio steering to a greater extent.

PACTA can also display results on an unweighted basis at portfolio level for the Production Volume Trajectory metric. Results at company level are always given unweighted. This could help the bank visualise which clients are driving alignment or misalignment, and also provides a more granular view of climate-related risks.



Discussion: Integration challenges faced by Paris-alignment methodologies

While PACTA could enable portfolio steering to a greater extent than the SBTi, it is important to highlight that integrating a methodology in a bank's decision-making process remains challenging. Paris-alignment methodologies, including PACTA, would sit outside of a bank's existing decision-making process and systems architecture. An integration process is therefore necessary to operationalise alignment targets. For example, Barclays has worked on integrating BlueTrack in its financing decisions by setting a "carbon limit" on the activities it finances³⁵.

3.5 Data sources

3.5.1. PACTA primarily relies on production and capacity data at asset-level.

PACTA and PCAF take somewhat opposite approaches to sourcing data. Indeed, PACTA takes a bottom-up approach to quantifying borrowers' activities, as opposed to PCAF's top-down approach to estimating emissions. Production and capacity data are thus sourced primarily at asset-level.

The toolkit includes free access to Asset Resolution, a commercial data provider founded by 2DII. The methodology is theoretically data agnostic, however, using a different dataset would require further in-house research as the format must fit the software developed by 2DII.

Asset Resolution itself relies on different providers (e.g. GlobalData for coal and oil and gas). These providers source data on individual assets in climate-relevant industries using a variety of research capabilities, including web scraping, desk research and direct engagement with industry. Forward-looking information is based on company investment and production plans that have been announced publicly. According to a briefing³⁶ published by 2DII in December 2019, the dataset covered more than 230,000 individual assets (e.g. individual power plants, oil fields etc.), accounting for more than 75 per cent of global carbon emissions.

PACTA, through Asset Resolution, aggregates asset-level data along the corporate structure proportionally to the level of ownership in an asset or subsidiary. The default set up of PACTA is to match the financial instrument at the most precise level (the direct borrower), "so as to best circumscribe and reflect the economic activities", but banks may also opt to aggregate exposure at the parent company level. To establish an efficient engagement strategy, banks should in any case look to aggregating data at parent level as decarbonisation will impact the relationship with the bank globally. To match borrowers with companies in the Asset Resolution database, PACTA uses unique identifiers (ISIN, LEI etc.) and runs a matching algorithm where no reference is applicable. Banks must then override or complete the matches if necessary. Where gaps exist, data has to be collected manually by users.

3.5.2. While Asset Resolution can alleviate the data collection process, it can raise other data challenges and lead to further assumptions.

PACTA's dataset and matching capabilities can initially alleviate the data collection process and ensure consistency across companies and sectors. However, it could be difficult to reconcile asset-level data with client-reported figures. The Katowice Banks' whitepaper notes that discrepancies between PACTA's data and client-reported numbers have been observed. This is to be expected as companies' reporting methodologies and cycles differ. Asset Resolution has indicated it is in the process of systematising the analysis of discrepancies to give insights into the sources of the differences and facilitate the use of the data for engagement with companies.

For the steel and cement sectors (emission intensity metric), the dataset relies on emission factors, based on average emission intensity of the asset (if known) or other characteristics (technology or regional emission averages). PACTA favours modelled emissions over reported data, even when the latter is available, to ensure consistency of measures in the approach and the resulting values across assets, companies, and sectors. This is contrast to PCAF which always favours reported data.

According to the Katowice Banks, PACTA's data coverage and quality varies by company size (it typically includes larger corporates, but coverage of smaller entities is lower) and across datasets from different providers (as sometimes these can't be reconciled). The Katowice Banks also noted that forward-looking data is available for only around 35 per cent of the dataset. 2DII disagrees with this estimate and has indicated that coverage is comprehensive.

3.6 Reporting

While PACTA is not a prescriptive framework, 2DII is working on "Disclosure and Communications Guidelines" containing a checklist of methodological options on which clear communication is needed. To minimise the risk of greenwashing, this should also include disclosures around how the bank intends to manage its exposure to fossil fuels regardless of what can be technically allowed by the methodology to align its portfolio with a benchmark. Indeed, some banks may otherwise infer that relying on PACTA is sufficient in itself to align financing activities with the goals of the Paris Agreement.

3.7 Case Study - ING

ING was among the 20 systematically important banks to join the 'PACTA for Banks' pilot project. The bank is also one of the Katowice Banks who published a whitepaper discussing methodological choices and deviations from the original methodology. ING's application of PACTA is part of its broader Terra Approach, the most comprehensive application of Paris-alignment methodologies among European banks so far. ING's Terra Approach combines multiple frameworks for nine sectors (power generation, fossil fuels, commercial real estate (Netherlands), residential real estate (Netherlands/Germany), cement, steel, automotive, aviation and shipping). This includes PCAF/SBTi for residential real estate. The framework also relies on the SBTi's SDA for the aviation sector (recommended but still undergoing development within PACTA). In line with some of the other Katowice Banks, ING relies on the Poseidon Principles for its shipping portfolio.

ING does not include capital markets underwriting and considers the outstanding portion of loans to model portfolios. In line with PACTA's segmentation, Terra only covers the upstream segment of the oil and gas sector. While it is not possible to reconcile the outstanding amount modelled for the fossil fuel portfolio (US\$4.7 billion equivalent) with ING's loan book disclosures, this approach could leave a significant proportion of fossil fuel financing out of the equation. The Rainforest Action Network found that ING's fossil fuel financing was US\$6.5 billion in 2020³⁷. While Terra only models half of ING's thermal coal mining exposure (EUR70 million of EUR144 million reported in the 2020 annual report), the bank has committed to reduce its thermal coal-related lending exposure (including coal power) to close to zero by 2025. This will override the target derived from the benchmark.

In line with the Katowice Banks' whitepaper, Terra uses a financial metric ("portfolio financing trend") for the fossil fuel sector. The metric is expressed as a loan book value and takes a trajectory approach to alignment. The stated objective is an absolute reduction in fossil financing. The Katowice Banks noted that they had "not yet identified a satisfactory way of allocating volumes of production associated with an asset or client to a financial instrument". While an absolute emissions metric is subject to several shortcomings, ShareAction believes that metrics used for the fossil fuel sector should in any case lead to a decrease of absolute emissions (including scope 1-3 emissions) and should be expressed as such (e.g. Barclays' BlueTrack methodology) alongside other metrics.

For the power sector, ING adapts PACTA to reflect an emission intensity metric. Because PACTA is based on power generation capacity, this would lead to further assumptions (e.g. utilisation and intensity factors). The report does not specify which emissions are covered (scope 1 or scope 1-2). Nevertheless, ING's sector policy will override the trajectory for the thermal coal power portion of the portfolio.

3.8 PACTA: Summary of main Pros & Cons

Pros	Cons
<ul style="list-style-type: none"> • Enables portfolio steering as it models borrowers' activity per sector, as opposed to "owned" emissions attached to an asset class. • Includes a forward-looking metric which allows for a dynamic assessment of alignment (although this is subject to availability of data). • Segregation of high-carbon and low-carbon assets for integrated energy companies. • Agile open-source framework that can be adapted for different purposes, financial instruments and benchmarks. 	<ul style="list-style-type: none"> • Does not define an emissions pathway for banks unless adapted for that purpose. • Decarbonisation focus on specific segments (e.g. upstream oil and gas). • Can lead to different interpretations and levels of ambition as it is not prescriptive. • Relies on electricity generation capacity for the power sector. This would less accurately estimate the climate impact of power portfolios although it fits the capital allocation focus of the methodology.

Chapter 4: Bluetrack™

Background

In November 2020, Barclays released an update on its ambition to be a net zero emissions bank by 2050. At the same time, the bank unveiled BlueTrack³⁸, a methodology designed to measure financed emissions and track them against the goals of the Paris Agreement. Developed with the assistance of Blackrock Financial Markets Advisory, BlueTrack draws on Barclays' work as a pilot bank for PACTA and, to a lesser extent, PCAF, which the bank joined in 2020. BlueTrack can be conceptually seen as a bridge between both methodologies in that it models exposure to a sectoral production profile based on physical data but translates it into a financed emissions metric.

Barclays' decision to develop a methodology in-house can be partly explained by the scope of the resolution it tabled and passed in response to a shareholder resolution coordinated by ShareAction in 2020³⁹. The bank committed to align all its financing activities – including project finance, corporate finance and underwriting – with the goals and timelines of the Paris Agreement, starting with the energy and power sectors. BlueTrack initially covers these two sectors and most notably includes capital markets underwriting. Nevertheless, Barclays acknowledges that “it is difficult to compare approaches and targets used across the industry, given the lack of standardisation” and said it is working with peers to build a common approach. The bank further indicated that having developed a methodology in-house would not prevent it from joining other industry initiatives such as the SBTi, with which Barclays engages on a regular basis. BlueTrack was developed for the most part before the SBTi and PACTA's guidance were released as Barclays was keen to make progress on this front rather than wait. While it is included in this report as an individual chapter alongside these frameworks, BlueTrack is a concrete methodology already enabling action.

Barclays is working on integrating BlueTrack into its financing process. The bank is introducing a system in which banking teams will be able to assess how transactions affect 'carbon limits' and in which situation transactions would have to be escalated. The pipeline of new/maturing deals is discussed at regular intervals and involves senior decision-makers from the business. This would include representatives from the power and energy banking teams which Barclays has configured to harmonise the transformation and client engagement process.

Methodology Overview

Like PACTA, BlueTrack assesses portfolio alignment at sector level. These include two of the “sectors with a technology roadmap”, namely power and energy (fossil fuels). It also relies on physical data from the same provider (Asset Resolution) and takes a bottom-up approach to quantify borrowers' activities. However, BlueTrack translates this data into emission-based metrics.

- **Power portfolio:** BlueTrack uses an emissions intensity metric to assess alignment and set targets. Stated rationale is that decarbonisation should be mainly driven by the roll out of low-carbon substitutes in the sector (e.g. renewables). In a similar fashion than the SBTi's SDA, this metric takes a 'convergence' approach to alignment (portfolio's intensity converges towards the benchmark). BlueTrack weights individual emission intensities by the size of the financing in the power portfolio rather than using PCAF's financed emissions approach.

- Energy portfolio:** BlueTrack uses an absolute emissions metric to assess alignment and set targets. The stated rationale is that the emissions intensity of fossil fuels cannot be reduced beyond a certain point (“burning a barrel of oil will always produce a similar quantity of emissions”). The metric takes a ‘trajectory’ approach to alignment (the portfolio’s absolute emissions decrease at the same or similar rate than the benchmark). In a similar way to PCAF, BlueTrack estimates the bank’s share of emissions using an attribution factor.

While not explicitly formalised in the BlueTrack whitepaper, Barclays also communicates on sub-sector alignment (e.g. proportion of renewables in energy portfolio) in its climate dashboard⁴⁰ via a ‘Technology / Fuel Mix’ metric similar to that of PACTA.

Figure 16: Simplified illustration of BlueTrack

The diagram below is a simplified view of the methodology and does not reflect all its features.

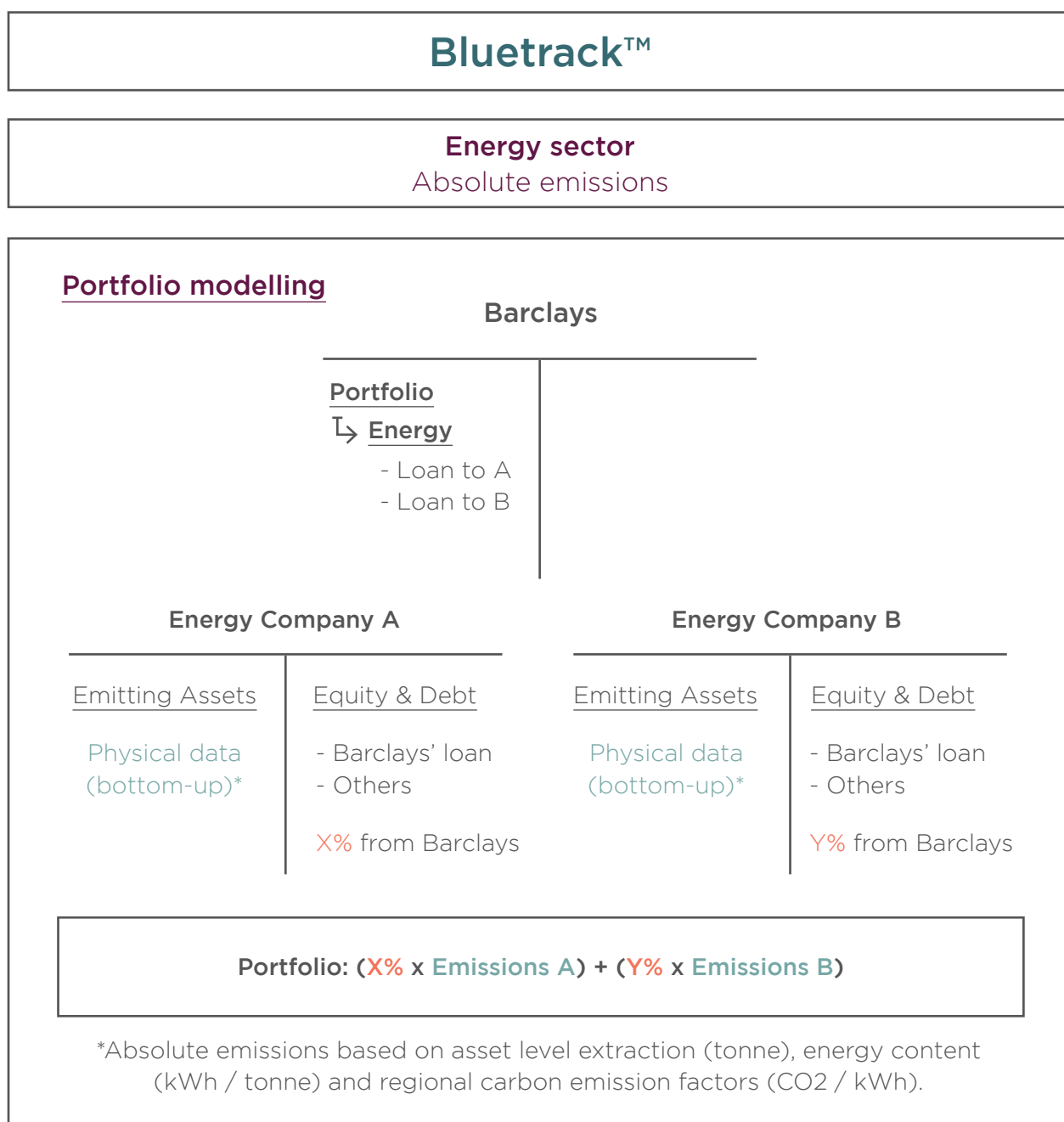
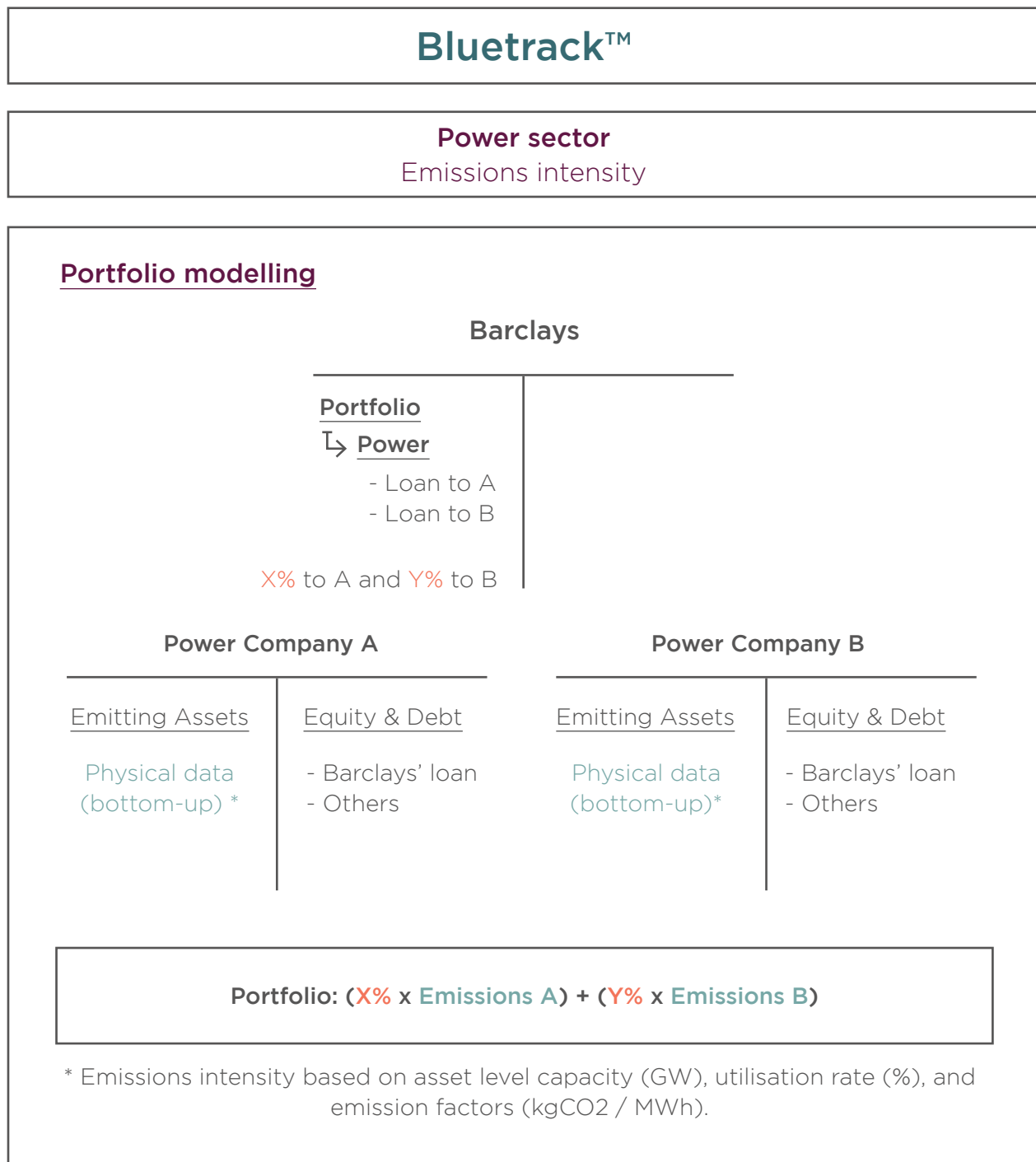


Figure 16 (continued)



Note: Financing is pro-rated based on divisional revenues for diversified power companies.

4.1 Scope

Figure 17: BlueTrack’s scope of financial instruments and counterpart’s activities

Financial instruments	Sector	Segment	Borrower / Issuer’s emissions	Metric
Corporate Lending Project Finance	Power (Oil, Gas, Coal, Nuclear, Renewables)	Generation	Scope 1 (based on capacity)	Emissions intensity
Capital Markets Underwriting*	Energy (Oil, Gas, Coal)	Extraction	Scope 1, 2, 3 (based on production)	Absolute emissions

*Capital Markets Underwriting also includes deals arranged but not underwritten by Barclays

4.1.1. BlueTrack focuses on the most carbon intensive sectors (Power and Energy) and includes scope 3 emissions for fossil fuel extraction. However, the methodology only captures upstream energy activities.

In line with Barclays’ own 2020 climate resolution, BlueTrack initially covers the Energy (i.e. fossil fuel extraction, including oil, gas, and coal) and Power (i.e. electricity generation including oil, gas, coal, nuclear, hydro, and renewables including bioenergy) sectors. The intra-sector technology/fuel and segmentation coverage is identical to PACTA. While sector coverage is not as extensive as the SBTi (theoretically covering any sector) and PACTA (including Fossil Fuels, Power, Automotive, Steel, Cement, Shipping and Aviation), these two sectors are responsible for up to three quarters of all emissions globally and should be prioritised to set Paris-alignment targets. Barclays has indicated it will add the cement and metals (steel and aluminium) sectors in early 2022⁴¹.

Both BlueTrack and PACTA focus on decarbonisation at the point of extraction and production (e.g. upstream oil & gas, power generation). Because BlueTrack does not rely on carbon accounting, it is crucial that oil, gas, and coal extraction is translated into scope 1-3 emissions. This is a strong modelling choice which ensures that the bulk of emissions from the energy sector are captured. However, BlueTrack is deemed less comprehensive than the SBTi which covers the entire value chain of fossil fuel companies (subject to guidance under development). The BlueTrack whitepaper notes that fossil fuel midstream operations typically represent less than 10 per cent of the Energy sector’s emissions and that the methodology focuses on reducing extraction volume instead of making the production process more efficient. PACTA also justifies its focus on upstream activities based on the expected “knock-on effect throughout the rest of the value chain”. As discussed in the chapter on PACTA, this assumption does not consider the fact that, in some instances, midstream infrastructure facilitates the expansion of upstream operations (e.g. Canadian oil sands).

BlueTrack is also less ambitious than the SBTi in terms of Power sector coverage as it measures only scope 1 emissions of a borrower/investee (scope 1 and 2 in the SBTi). BlueTrack considers scope 2 emissions to be marginal for the power sector and that scope 3 emissions, generally comprising

emissions resulting from combustion of natural gas provided to end-users for residential or commercial heating, will be accounted for in the scope 1 emissions of end users as Barclays expands the number of sectors covered by the model.

BlueTrack considers CO₂ emissions only for the model to be consistent with the climate scenario used as a benchmark (the IEA Sustainable Development Scenario; see section 2 – Benchmark and level of ambition). The SBTi, which relies on PCAF for GHG emission inventory, recommends covering all relevant GHGs as defined by the GHG Protocol Corporate Standard, but only requires financial institutions to include CO₂ emissions at a minimum if they are unable to cover all GHGs. For the fossil fuel sector, the SBTi will require upstream companies to set targets including for methane emissions (subject to guidance under development). This would be particularly relevant for Barclays as the bank is among the top financiers of fracked oil & gas, an important source of methane emissions.



Recommendation 7. Paris-alignment methodologies should aim to cover **all relevant greenhouse gas emissions** as defined by the GHG Protocol, which includes methane for the fossil fuel sector

4.1.2. BlueTrack is the most comprehensive Paris-alignment methodology for banks in terms of financial instruments covered as it includes capital markets underwriting.

A positive feature of BlueTrack compared to other methodologies is that, in addition to lending, underwriting of equity and debt securities is in-scope of the methodology. This also includes transactions arranged by Barclays which the bank does not underwrite in the strict sense. Barclays is the first bank to introduce these activities in a Paris-alignment methodology. The bank indicated that this had led to the creation of a PCAF working group on this topic. While excluding advisory services can be justified from a credit risk perspective, such an approach underestimates banking support to high-carbon sectors and falls short of the ambition of making finance flows consistent with the goals of the Paris Agreement. Broadening the scope of financed emissions to capital markets underwriting is a powerful commitment considering that high-carbon sectors can be almost equally financed through lending and capital markets. Advisory services are not included in either the SBTi or PACTA, although the latter can be technically adapted. Nevertheless, as discussed under section 4, BlueTrack only models 33 per cent of Barclays' pro-rata share of underwriting.

4.2 Benchmarks and level of ambition

4.2.1. While Barclays has set short-term targets (2025), BlueTrack currently relies on a climate scenario that falls short of the bank's net zero ambition.

BlueTrack uses the OECD subset of the IEA's SDS 2019 to assess alignment and set targets for its energy and power portfolios. According to Barclays, the OECD subset most accurately reflects the geographic range of its client base for the energy sector and constitutes the most appropriate benchmark for the power sector. Nevertheless, this scenario falls short of Barclays' 2050 net zero ambition, usually associated with a 1.5°C outcome. In its April 2020 position statement on climate change⁴², Barclays notes that "Under the SDS, global CO₂ (...) are on track to net zero emissions by 2070" and that the "scenario has a 50% probability of holding the temperature rise to below 1.65°C, without reliance on global net-negative CO₂ emissions". In reference to NETs, the bank indicates that

“we do not wish to rely on them”. However, as discussed in chapter 1, the SDS over-relies on negative emissions beyond 2050 and ignores risks of temperature overshoot.

BlueTrack has nevertheless enabled Barclays to set short-term targets (2025). The bank has indicated that the methodology will be updated over time to track newer benchmark scenarios as they are developed. However, Barclays has not yet stated whether it is lobbying for a more ambitious scenario to be published nor provided guidance on key scenario parameters.



Recommendation 1. Paris-alignment methodologies should be based on scenarios targeting a **1.5°C outcome with no or limited overshoot and limited reliance on negative emission technologies** (in line with a P1 or P2 archetype as defined by the Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5°C). If such a scenario is not readily available, banks should publicly push for its publication and state their intention to review their targets when it becomes available.

4.3 Metrics

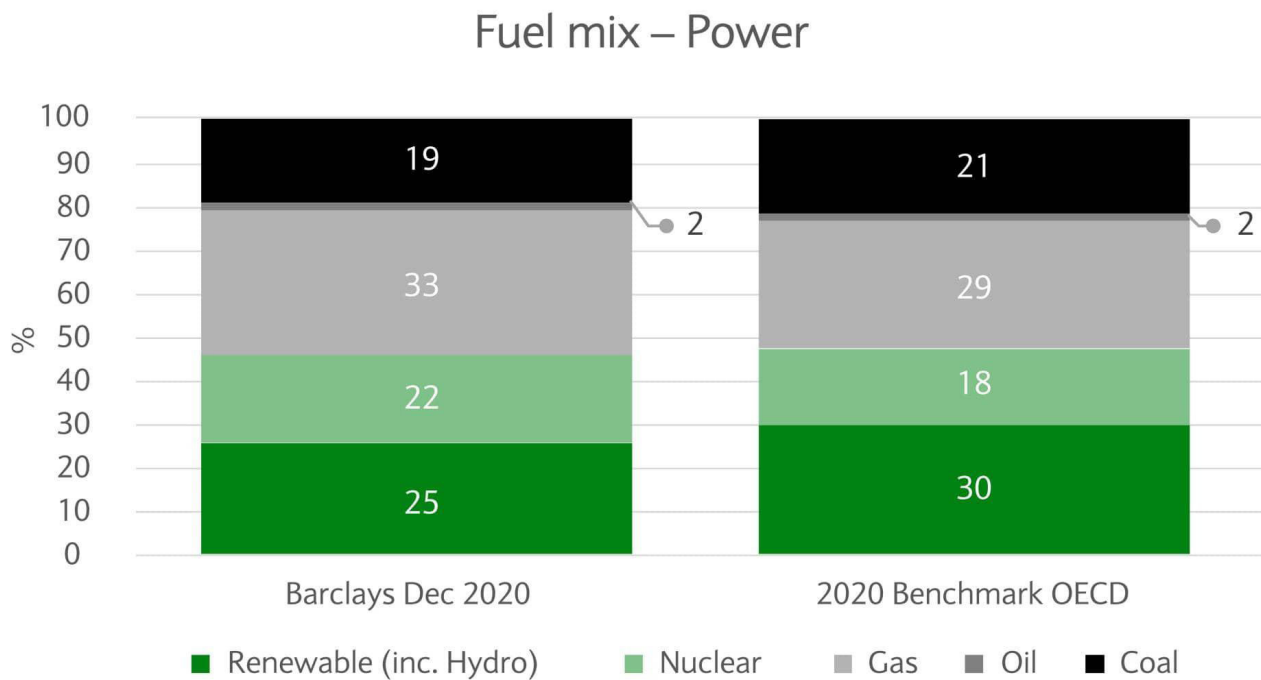
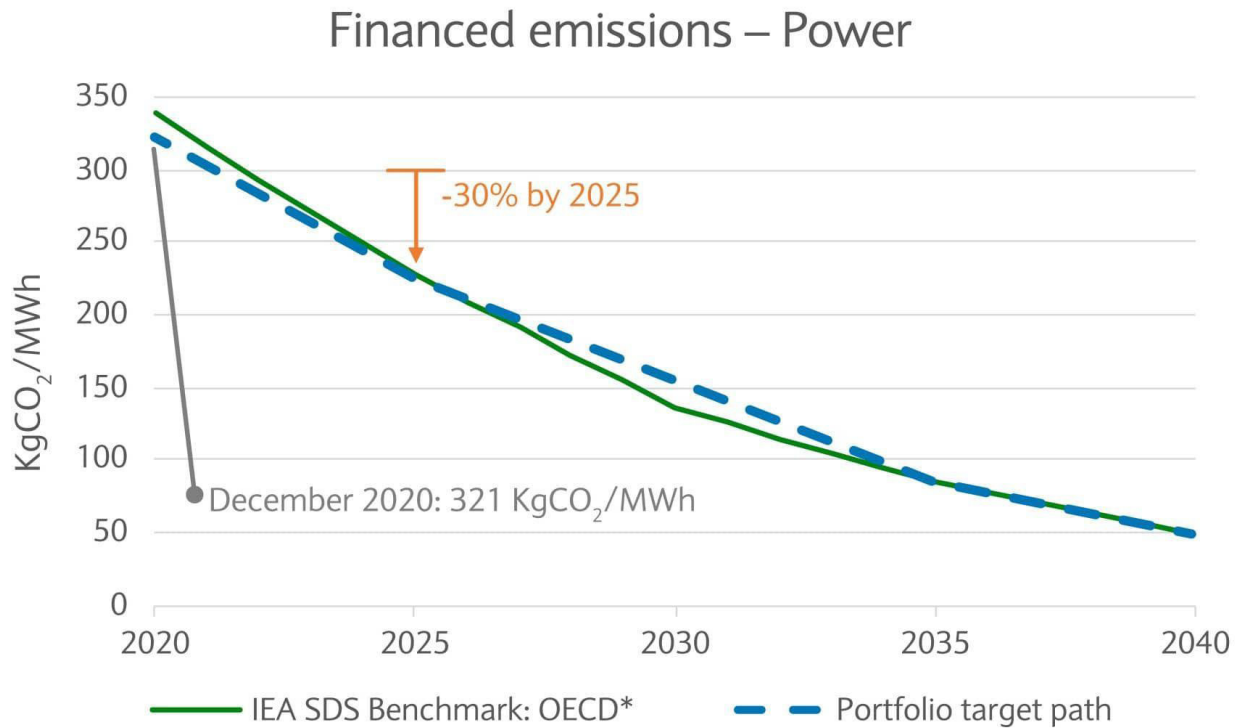
While Barclays considers companies’ climate strategy to estimate how alignment targets can be met, BlueTrack only measures current emissions (spot values).

4.3.1. The emission intensity metric used for the power sector is valid only if it leads to a reduction of absolute emissions.

BlueTrack uses an emission intensity metric for the Power sector. The target is set using a convergence approach – regardless of the starting point, the portfolio’s emission intensity converges towards the benchmark by a certain date. This approach is usually considered appropriate for the Power sector where decarbonisation is likely to be achieved by switching from high-carbon technologies/fuel (e.g. coal) to low-carbon technologies (e.g. renewables). However, as discussed in chapter 1, this metric is appropriate only if it leads to a fall in absolute emissions. The whitepaper lists absolute emissions as a secondary metric for the power portfolio but has yet to disclose it .

Using 2020 as a baseline, Barclays is targeting a 30 per cent reduction of its portfolio emissions intensity by 2025, on the way to alignment with the IEA SDS benchmark by 2035.

Figure 18: BlueTrack’s emission intensity target and fuel mix for the power sector



Source: Barclays' Climate Dashboard

The portfolio of financed emissions is already below the benchmark in 2020 and therefore deemed aligned. The portfolio is thus allowed a shallower reduction than the benchmark between 2020 and 2030 on the path to convergence. The fuel mix provides a breakdown of the portfolio by technology or fuel. While helpful, additional disclosures on how the metric is formalised would be necessary to assess alignment as it is correlated to capital allocation.



Recommendation 2. Bank should take a **precautionary approach to alignment** (described in chapter 1). This entails going beyond what the climate scenario suggests and allowing for an additional buffer given inherent uncertainties about tipping points and other climate phenomena. The need for an additional buffer is especially acute in cases where the climate scenario is not aligned with a 1.5°C outcome or if it is over-reliant on NETs. Assumptions and rationales should be disclosed alongside targets, in particular if the bank has committed to reach net zero emissions by 2050.

4.3.2. Barclays is the only major European bank using an absolute emission metric for the Energy sector. This is the most suitable metric to set targets for fossil fuel portfolios.

BlueTrack uses an absolute emission metric for the energy sector. The target is set using a ‘trajectory’ approach – the portfolio tracks the benchmark by decreasing at the same or similar rate. Like PACTA’s production trajectory metric, both portfolio and benchmark emissions are indexed to 100 to compare future production trends rather than absolute volumes.

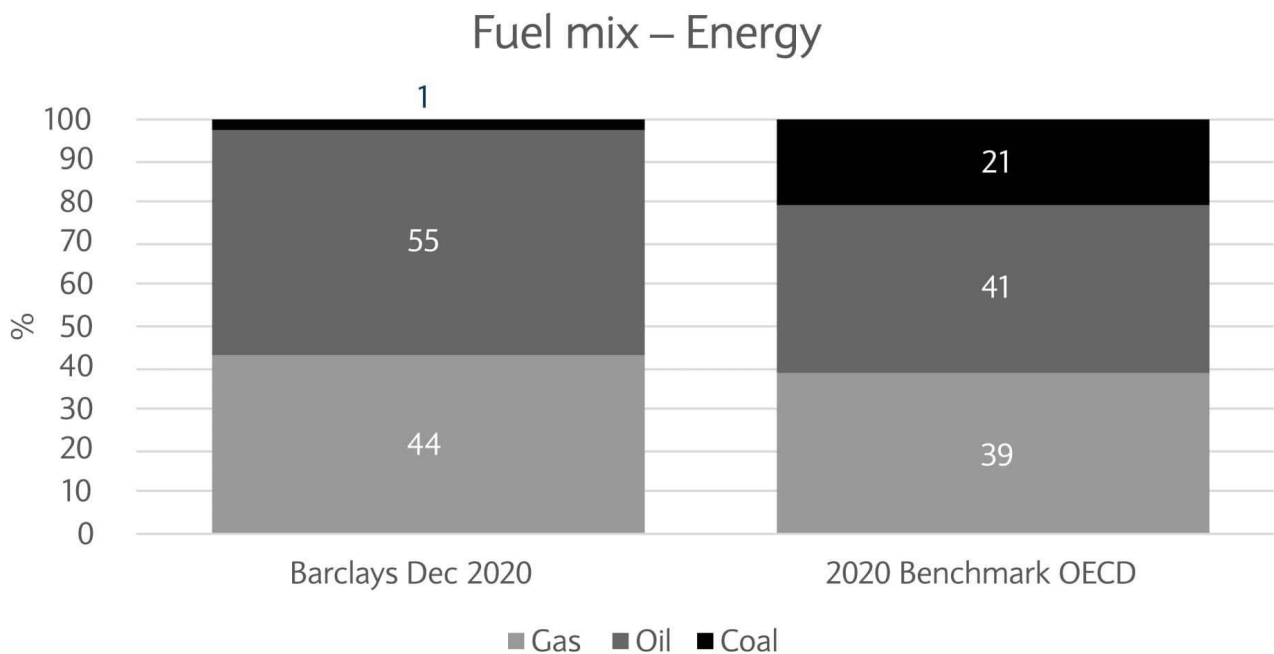
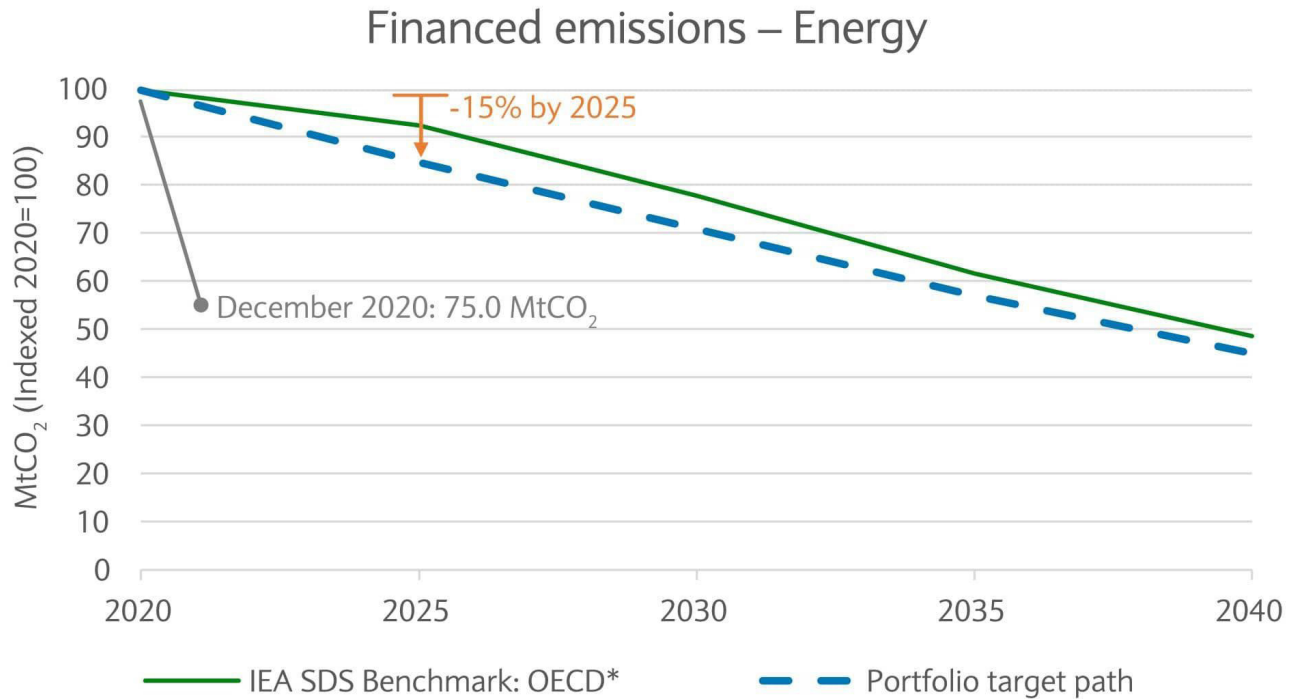
Using absolute emissions as the primary metric for the fossil fuel sector is the most suitable approach to setting targets under a sector-based methodology. This metric would indeed contribute to reducing exposure to fossil fuels regardless of the efficiency of fossil fuel companies. However, while it is positive that Barclays recognised that the “energy sector cannot reduce its emissions intensity beyond a certain point (for example, burning a barrel of oil will always produce a similar quantity of emissions)”, the bank’s action needs to be complemented by an energy policy restricting finance to the most carbon intensive sub-segments such as oil sands. The bank has not implemented a phase out of thermal coal and does not restrict financing to coal developers either.



Recommendation 4. To be credible, Paris-alignment methodologies should be complemented by **robust sector policies** (described in chapter 1).

An absolute emission pathway defined by a ‘linear rate of change’ could also underestimate decarbonisation efforts in the short-term if it relies on NETs at the back end at the scenario. Using 2020 as a baseline, Barclays is targeting a 15 per cent reduction of its portfolio absolute emissions by 2025, thereafter tracking the IEA SDS benchmark. This represents a steeper decrease than the benchmark, although Barclays has not disclosed what assumptions underpin this additional buffer (see recommendation 2).

Figure 19: BlueTrack’s absolute emissions target and fuel mix for the energy sector



Source: Barclays’ Climate Dashboard

While helpful, additional disclosures on how the fuel mix metric is formalised would be necessary to assess alignment as it is correlated to capital allocation.

4.4 Portfolio modelling

4.4.1. BlueTrack uses a strong financial indicator for its loan book as it models both the drawn and undrawn portion of facilities. However, the methodology underplays the bank's underwriting activities.

BlueTrack accounts for the capital markets financing arranged over the past 12 months, pro-rated if several banks are in the syndicate. This includes deals where Barclays takes leading roles but also participant roles pro-rated accordingly. BlueTrack allocates only 33 per cent of the pro-rated capital markets financing to Barclays, “with the remaining proportion allocated to investors.” Both ratio and justification make sense from the viewpoint of transaction economics, however this approach underestimates financing arranged by the bank and transition risks. Investors using other mainstream methodologies such as PACTA for investors and the SBTi would consider up to 100 per cent of their investment to estimate a quantum of financed emissions. Should BlueTrack include a forward-looking metric in the future, ‘exposure’ arising from a capital markets transaction will have to be assumed constant throughout the life of the instrument after year 1.

A positive feature of the methodology is that it considers the total “limit” of each loan (i.e. amount available to the client including drawn and undrawn amount) instead of the drawn amount only, which is the approach recommended by PACTA and the SBTi (as recommended by PCAF). While undrawn amounts may not be reported on companies’ balance sheets, Barclays takes the right approach by considering the theoretical maximum impact of its loan book, especially as “the majority of Barclays’ lending is in the form of Revolving Credit Facilities which are typically undrawn, particularly in the Investment Bank.”

4.4.2. In a similar fashion to PACTA, BlueTrack models power and energy activities separately for diversified companies. This would prevent offsets between high- and low-carbon activities of integrated energy companies.

As alignment is sought at sector level, general corporate purpose finance (lending and underwriting) to diversified companies needs to be adjusted. To allocate exposure to power assets (emission intensity metric), Barclays splits financing with unknown use of proceeds based on divisional revenues. For example, if a £100 million facility is extended to a company which derives 10 per cent of revenues from power generation, a £10 million facility will be allocated to the power portfolio. Where granular revenue data is not available, BlueTrack relies on a standard matrix developed in-house and subject to overriding by an expert for cases deemed material. A limitation of this approach is that it is highly dependent on clients’ own segmentation rules and reporting periods. In addition, as acknowledged in the BlueTrack’s whitepaper, it would be difficult for third parties to reconcile Barclays’ emissions disclosure with financial exposure.

For the energy portfolio, where emissions are expressed in absolute terms, Barclays allocates a ‘fair share’ of companies’ absolute emissions by comparing the size of Barclays’ financing to the borrower/investee’s balance sheet. This is similar to the approach adopted by PCAF to estimate financed emissions and PACTA’s ‘ownership approach’. BlueTrack allocates financial instruments to absolute emissions based on financing provided as a proportion of book value of equity whereas

PCAF uses Enterprise Value Including Cash (EVIC) for listed companies (and book value of equity for private companies). The BlueTrack whitepaper mentions that Barclays is “cautious about using the more traditional measurement of enterprise value, as it relies on market capitalisation, which can create volatility. In addition, EV uses debt net of cash (...) would lead to the equity and debt holders owning more than 100 per cent of a company’s emissions.” PCAF acknowledges that volatility may potentially arise from a market-based metric, although the second point does not justify deviating from PCAF as cash is added back to EV to avoid such a situation.

When assessing financing opportunities, methodologies relying on an ‘ownership approach’ should also consider the global carbon footprint of counterparts irrespective of the metric used to assess exposure so that the cumulative impact of the biggest emitters on climate as well as reputational risks is not underestimated.

4.4.3. BlueTrack weights power portfolio’s emission intensities and aggregates energy portfolio’s absolute emissions

When aggregating data at portfolio level, emission intensities are weighted by the size of the financial indicator in the power portfolio. This is consistent with a metric expressed in relative terms and in line with PACTA’s ‘portfolio weight approach’ which focuses on capital allocation. For the energy sector, as discussed BlueTrack adopts an ‘ownership approach’ to allocating emissions. Absolute emissions are simply aggregated at portfolio level.

4.5 Data sources

4.5.1. In contrast with PCAF’s carbon accounting approach, BlueTrack relies on asset-level production or capacity to estimate financed emissions.

Asset-level data is primarily obtained from Asset Resolution, the external data provider founded by 2DII and used in the default version of PACTA for banks.

For energy companies, extraction data is converted into scope 1-3 emissions using the carbon content of each fuel type (kWh per tonne) and regional carbon emission factors (CO₂ per kWh) included in IEA publications. For Power companies, production is first estimated based on capacity data applying a utilisation factor (per cent of capacity) derived from IEA publications for each fuel type and region. This estimated production is then converted into scope 1 emissions using IEA’s carbon content of each fuel type. The BlueTrack whitepaper includes a summary of emission/capacity factors. The methodology relies on regional factors for the power sector (this has been confirmed separately by Barclays as the whitepaper suggests global capacity factors). For the energy sector, emission factors are given at global level. The bank indicated that there is no reliable way to estimate scope 1-3 emissions factors from IEA’s regional datasets considering trade flows. Material carbon footprints are checked against company disclosures when available and overridden if disclosures are granular enough. Reconciling data at parent level and asset level might prove difficult and this is a common challenge faced by banks using the PACTA methodology. Values for energy companies without data are estimated based on the portfolio average.

4.5.2. Like any other Paris-alignment methodology, BlueTrack suffers from data challenges. The methodology is less transparent than PCAF when it comes to communicating on these data challenges.

BlueTrack's data coverage is expected to be around 80-90 per cent of Barclays financing for both energy and power portfolios as of December 2020. Over time, Barclays will look to increase data coverage to a target of 90 per cent of financing. This is slightly lower than the required level of coverage set by the SBTi (95 per cent for fossil fuels and 100 per cent for power).

In line with Katowice Bank's assessment of PACTA's dataset, Barclays finds that important data gaps need to be filled manually. On the other hand, PCAF's data scoring grid can be a useful communication tool for both members and third parties. According to Barclays, "company-level disclosure has improved significantly in recent years, particularly driven by the Taskforce on Climate Related Financial Disclosures. Nonetheless, we have found that the data is still not sufficiently robust overall to be used as the primary source for BlueTrack". While data challenges are widely acknowledged, banks should not wait for mandatory disclosures to be enacted but embark on a similar journey. Should a significant number of financial institutions require this information, it would promote more disclosures in the corporate sector alongside mandatory disclosures.

4.6 Reporting

Barclays has disclosed its alignment targets in its 2020 Annual report⁴³. Going forward, Barclays should include assumptions (including climate scenario used and caveats associated with temperature outcome and any reliance on NETs) alongside targets. This would be important for third parties to assess the pathway Barclays is intending to rely on to track its financed emission "against the goals of the Paris Climate Agreement" and when communicating on alignment. Barclays also communicates on BlueTrack through its Climate Dashboard and 2020 ESG disclosures⁴⁴.

4.7 BlueTrack: Summary of main Pros and Cons

Pros	Cons
<ul style="list-style-type: none"> Capital markets underwriting in scope (although only 33 per cent of Barclays' allocated share of the underwritten amount is used as financial indicator). Financial indicator used for corporate loan is the total outstanding amount (including undrawn and drawn amounts). Absolute emission metric for the fossil fuel sector. Energy sector includes scope 1, 2, and 3 emissions (however this is limited to the upstream segment). 	<ul style="list-style-type: none"> The benchmark falls short of Barclays' ambition to become net zero by 2050. Emission intensity metric is based on generation capacity and is not complemented by absolute emission disclosures. Narrower scope initially (cement and metals expected in 2022). The methodology only includes CO₂ emissions for fossil fuels.

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