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Internal Carbon Pricing and Climate Finance Tracking for Banks

Implementation Guidance Report

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Prepared in consultation with:

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Contents

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Executive Summary

The EBRD is promoting the acceleration and scale-up of sustainable energy investments in Turkey. As part of MidSEFF, **a dedicated carbon finance programme** has been launched offering participating banks support with the design of internal carbon pricing and climate finance tracking approaches that can be used to support investment decision-making processes and facilitate access to new sources of finance.

All of the Turkish banks that are engaged in the financing of renewable energy assets still maintain a considerable exposure to carbon-intensive industries and corporates that are directly or indirectly impacted by carbon pricing legislation. Such exposure merits the consideration of climate change as a strategic issue that requires full integration with internal business processes and decision-making mechanisms. This report serves to inform banks in Turkey about possible **approaches to determining an internal carbon price**. This report also aims to inform banks on different **approaches to climate finance tracking** and recommends how banks can develop a climate finance tracking framework.

Internal carbon pricing

The **momentum for climate action is strengthening across the financial sector**, with pension funds, banks and asset managers embedding climate change impacts into mainstream finance activities. On the one hand, the financial industry is reacting to **carbon pricing regulations**, which exposes investments in fossil-fuel companies and other carbon-intensive industries to previously unforeseen costs. On the other hand, the recognition that physical climate change impacts are becoming a **systemic risk across the broader economy** makes powerful stakeholder groups, risk departments and valuation teams more attentive to the link between a changing climate and asset value. Finally, the need to **disclose climate change related risks** by corporates is also being advocated or required by regulators, encouraged by the Financial Stability Board's Task Force on Climate-related Financial Disclosures. Given the Turkish government's considerations of introducing national carbon pricing legislation at some point, the case for pricing exposure to carbon for banks in Turkey is apparent.

Climate finance tracking

The Paris Agreement strongly increases the global need to set up uniform processes to track climate finance flows internationally. Requirements and expectations from this international level of governance will ultimately also trickle down to commercial banks, although with some delay. At the same time, a bank's approach on climate finance tracking should recognise that the measurement of financial flows to mitigation and adaptation projects and programmes forms an elemental part of a broader sustainability-, or low-carbon-strategy of a financial institution. The second part of this report looks at how a bank can prepare itself for an increased need to track climate financing and how these preparations can leverage its existing tracking practices and provide support to a broader low-carbon strategy.

Three key reasons can be identified to tracking for purposes of disclosure to a variety of stakeholders: growth, access to capital and value risk. First, investments around climate mitigation and adaptation (increasing climate resilience) are part of a growing shift to channel financing to sustainable investments and green infrastructure to build a low-carbon economy. Identifying and tracking these flows of finance is a starting point for building and growing a green finance business. Second, increased access to concessional- and non-concessional capital earmarked for climate- and green financing is an important reason for banks to track their own investments in climate projects. Third, climate finance tracking

provides fundamental data for value-at-risk assessments; by providing information on the monetary and physical exposure to GHG regulations. Flowing from these reasons, some key recommendations are provided in this report:

I. A definition of climate finance is elemental for a climate finance tracking framework, because the definition provides the scope for and increases the transparency of tracking measures. A bank-wide adoption of a definition of climate finance would provide a cornerstone for climate finance tracking and lend support for a bank's broader sustainability initiative. A clear definition for climate finance provides the framework within which climate finance is tracked and acts as helpful guidance to all banking units to understand what types of projects qualify as climate mitigation and adaptation projects. Anchoring definitions to internationally recognised definitions will enable Turkish banks to more clearly report climate finance flows in their sustainability reports and improve external risk assessment.

II. The source for a climate finance definition could be the list of eligible mitigation and adaptation projects provided by Multilateral Development Banks (MDB) under the Common Principles. Such list is already used by some international banks for the dedicated credit lines / loan facilities provided by MDBs. Using a different definition than the one used by MDBs could result in confusion internally with two active definitions.

III. Most banks already have internal capacity to cover sustainability management and reporting mandates, as well as specific ESG disclosure mandates. This existing capacity could be used as an internal starting point to expand a bank's commitments in tracking and reporting on climate finance. Key actions for developing climate finance tracking capacity could include: i) increase the scope of management and reporting for the sustainability team to cover climate finance tracking, ii) develop an internal definition on climate finance, iii) create a "positive list" against which projects, companies and assets can be flagged as climate finance under a bank's definition of climate finance, and; iv) use select energy sector projects to pilot the use of measurement protocols where tracking is focused on monitoring ex-post emission reductions.

1. Setting the Scene

1.1 Introduction

The EBRD is promoting the acceleration and scale-up of sustainable energy investments in Turkey. Through MidSEFF, EBRD provides close to EUR 1.5 billion in credit lines to finance mid-size investments in clean energy, waste-to-energy and industrial energy efficiency. As part of MidSEFF, a dedicated carbon finance programme has been launched. The aim of this programme is to promote new financing mechanisms through the expansion and development of the carbon market in Turkey and to encourage the participation of Turkish banks and companies in engaging in the carbon market.

As part of the carbon finance programme, participating banks are offered support with the design of internal carbon pricing that can be used to drive the investment decision process in light of existing or anticipated regulatory and reporting requirements. All of the Turkish banks that are engaged in the financing of renewable energy assets still maintain a considerable exposure to carbon-intensive industries and corporates that are directly or indirectly impacted by carbon pricing legislation. These institutions should consider evolving climate regulation as a strategic issue that requires full integration with internal business processes and decision-making mechanisms.

This report serves to inform Turkish banks about possible ways of determining an internal carbon price, including assessing the relevance of regulatory pricing, abatement cost pricing, social cost pricing, and peer pricing. Secondly, this report also aims to inform banks on different approaches to climate finance tracking and recommends on how a bank can develop its climate finance tracking framework.

1.2 Carbon Pricing: Building on the Momentum

As the consequences of a changing climate are starting to unfold, global consensus on human-induced climate change is intensifying and efforts to curb rising GHG emissions are strengthening. As of today, over 40 countries and 25 subnational jurisdictions have introduced some form of carbon pricing regulation, either in the form of a cap and trade system or through carbon taxing.[1]

The momentum for action has been further lifted through the entry into force of the Paris Agreement. In December 2015, 196 parties to the UN Framework Convention on Climate Change (UNFCCC) adopted the historical agreement, which defines a new legally-binding framework for an internationally coordinated effort to tackle climate change. The agreement represents the culmination of six years of international climate change negotiations under the auspices of the UNFCCC, and establishes a global warming goal of “well below 2°C” on pre-industrial averages. To achieve this, all parties to the agreement will need to make profound changes to their economies, and countries are required to formulate progressively more ambitious climate targets, which are consistent with this goal. Estimates indicate that in order to realise the preliminary pledges announced by individual countries in Paris, investments in the range of USD 3.5 trillion will be needed by 2030.[2] Significantly larger sums than this will have to be leveraged to clear the pathway towards long-term low carbon development.

[1] World Bank and Ecofys (2017) Carbon Pricing Watch 2017.

[2] Carbon Brief (2015) Analysis: Developing countries need $3.5 trillion* to implement climate pledges by 2030.

The urgency to act is also apparent to the global financial market, with pension funds, banks and asset managers embedding climate change impacts into mainstream finance activities. On the one hand, the financial industry is reacting to carbon pricing regulations, which exposes investments in fossil-fuel companies and other carbon-intensive industries to previously unforeseen costs. One estimate points towards 60% to 80% of existing coal, oil and gas reserves of publicly listed companies to be 'unburnable' if we are to achieve the 2°C target stipulated in the Paris Agreement, highlighting the long-term investment risk associated with such 'stranded assets'.[3] Recent analysis highlights that even with only a partial decarbonisation of the energy system, the valuation of these carbon-intensive assets will still be significantly impacted.[4] On the other hand, the recognition that physical climate change impacts are becoming a systemic risk across the broader economy makes powerful stakeholder groups, risk departments and valuation teams more attentive to the link between a changing climate and asset value. A recent study[5] on the application of such 'climate value at risk' quantifies the risk at 1.8% of global financial assets assuming a business-as-usual emissions path, equivalent to USD 2.5 trillion.[6]

The need to disclose climate change related risks by corporates is also being advocated or required by regulators. In 2010 the US Securities and Exchange Commission (SEC) released its first climate risk disclosure guidance note, which is not binding but is being followed by a growing number of listed companies.[7] In 2013, the United Kingdom became the first country to make it compulsory for publicly listed companies to disclose emissions data in their annual reports. The Montreal Carbon Pledge – a voluntary disclosure initiative announced in September 2014 – mobilised commitment from over 120 investors with over USD 10 trillion in assets under management to annually report on the carbon footprints of their portfolios.[8] In December 2016, the Financial Stability Board – an international body that monitors the global financial system – released recommendations through its Task Force on Climate-related Financial Disclosures (the Task Force) on climate-related financial disclosures applicable to organisations across sectors and jurisdictions. These include disclosure regarding organisational governance around climate-related risks and opportunities, foreseen impact of climate-related risks and opportunities on the adopted business strategy, and approaches used to identify, assess and manage material risks.[9] Finally, in 2016 France became the first country to enact legislation (Article 173), which introduces mandatory climate change-related reporting for institutional investors.[10]

Political ambitions to strengthen the response to climate change, in combination with growing regulatory pressure to disclose associated risks to investors, and behaviour of peers in the industry are all factors that underline the relevance of internal carbon pricing for banks. Several banks are engaged in financing renewable energy assets in Turkey, yet still maintain exposure to more carbon-intensive industries and corporates that are directly or indirectly impacted by carbon pricing legislation. Turkey has adopted a new regulatory framework for a mandatory monitoring, reporting and verification (MRV) system in the energy, cement and refinery sectors, and efforts under the World Bank's Partnership for Market Readiness (PMR)[11] signal the government's consideration of introducing national carbon pricing legislation. Inaction from the government on this front may increase the possibility of the European Union imposing some kind of an import tariff linked to carbon intensity as a means to protect its own industry from unfair competition. Either way, the case for pricing exposure to carbon in the Turkish financial sector is apparent.

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[3] Carbon Tracker Initiative (2013) Unburnable carbon 2013: Wasted capital and stranded assets.

[4] Carbon Tracker Initiative (2017) Expect the Unexpected: The Disruptive Power of Low-carbon Technology.

[5] Dietz. S., et al (2016) 'Climate value at risk' of global financial assets. Nature Climate Change 6, 676–679.

[6] Significant risk exists at the tail-end, with the 99th percentile climate value at risk at 16.9%, or USD 24.2 trillion.

[7] US SEC (2010) Commission Guidance Regarding Disclosure Related to Climate Change.

[8] The Montréal Carbon Pledge (2015) Available on: www.montrealpledge.org.

[9] Financial Stability Board (2016) Recommendations of the Task Force on Climate-related Financial Disclosures.

[10] www.ec.europa.eu/environment/ecoap/about-eco-innovation/business-fundings/investors-assess-climate-risk-france_en.

[11] www.thepmr.org/country/turkey-0.

The remainder of this report serves to inform Turkish banks on the logical framework behind internal carbon price implementation, the different price elements that can make up a such price, and the type of approaches that can be pursued to arrive at a price point that reflects the organisation's ambitions and purpose.

1.3 Climate Finance Tracking

Climate finance[12] involves the flow of capital to help countries to reduce their GHG emissions and adapt to climate change.[13] These funds have a crucial role to play in the efforts to implement the Paris Agreement commitments on the ground. The incentives to track climate financing, has grown strongly on the back of the climate financing commitments made in the 2009 Copenhagen Accord, where developed countries pledged[14] to mobilise USD 100 billion in climate finance, per year, by 2020. On the global level this has led to widespread efforts to define climate financing and to label and track funding to developing countries in order to bring clarity to what constitutes climate finance and how much of the financing pledge is being met by current and future commitments. The Paris Agreement recognises that the global response to the threat of climate change should make "finance flows consistent with a pathway towards low GHG emissions and climate-resilient development".[15] This provides an all-encompassing mandate to spread climate finance tracking efforts across all channels of finance.

These global efforts to track climate finance flows have increasing ramifications for banks in the private sector. Firstly, private sector financing for climate mitigation and adaptation is included in the total amount of USD 100 billion. This means there is a fundamental need, within the global climate negotiations, to track climate financing beyond public channels. Secondly, and in response to the emerging tracking need, International Financial Institutions (IFIs) - with the MDBs in particular, are leading global efforts to push tracking methodologies to private sector banks through their funding programmes. A number of Turkish banks already have first-hand experience with this through dedicated credit lines with the EBRD (MidSEFF and TurSEFF). Thirdly, global climate financing institutions, such as the Green Climate Fund (GCF) and the Global Environment Facility (GEF), are increasingly results-oriented, meaning that funding is conditional on tracking and impact reporting. In order for Turkish banks to access or channel results-based climate finance, they will need to be able to demonstrate their capability to meet the tracking and measurement requirements.

Finally, there are direct strategic reasons for a financial institution to track climate finance. The strongest forces imposing tracking approaches on banks are various climate risk disclosure initiatives that seek to improve disclosure of climate risks and opportunities through better tracking and reporting. A climate risk disclosure framework builds capacity to look at opportunities in climate finance and acts as a conduit for a bank to start identifying sources of financing for those opportunities. In addition, there are also commercial reasons for developing an improved climate finance tracking framework; it supports growth in green finance, it enables access to new channels of financing and it helps uncover changes in value in key asset classes. Some banks already track GHG impacts for project-financed energy investments under Environmental, Social and Governance (ESG) screening processes. This report provides insights into different approaches to climate finance tracking and recommends on how banks can further develop their existing climate finance tracking framework.

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[12] See: www.theguardian.com/global-development/climate-finance.

[13] See: www.theguardian.com/environment/climate-change.

[14] At the 16th Conference of the Parties (COP) in 2010, developed countries formalised a collective climate finance commitment made previously in 2009 in Copenhagen of "mobilising jointly USD 100 billion per year by 2020 to address the needs of developing countries... …from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources". COP16 Decision available online: www.unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2.

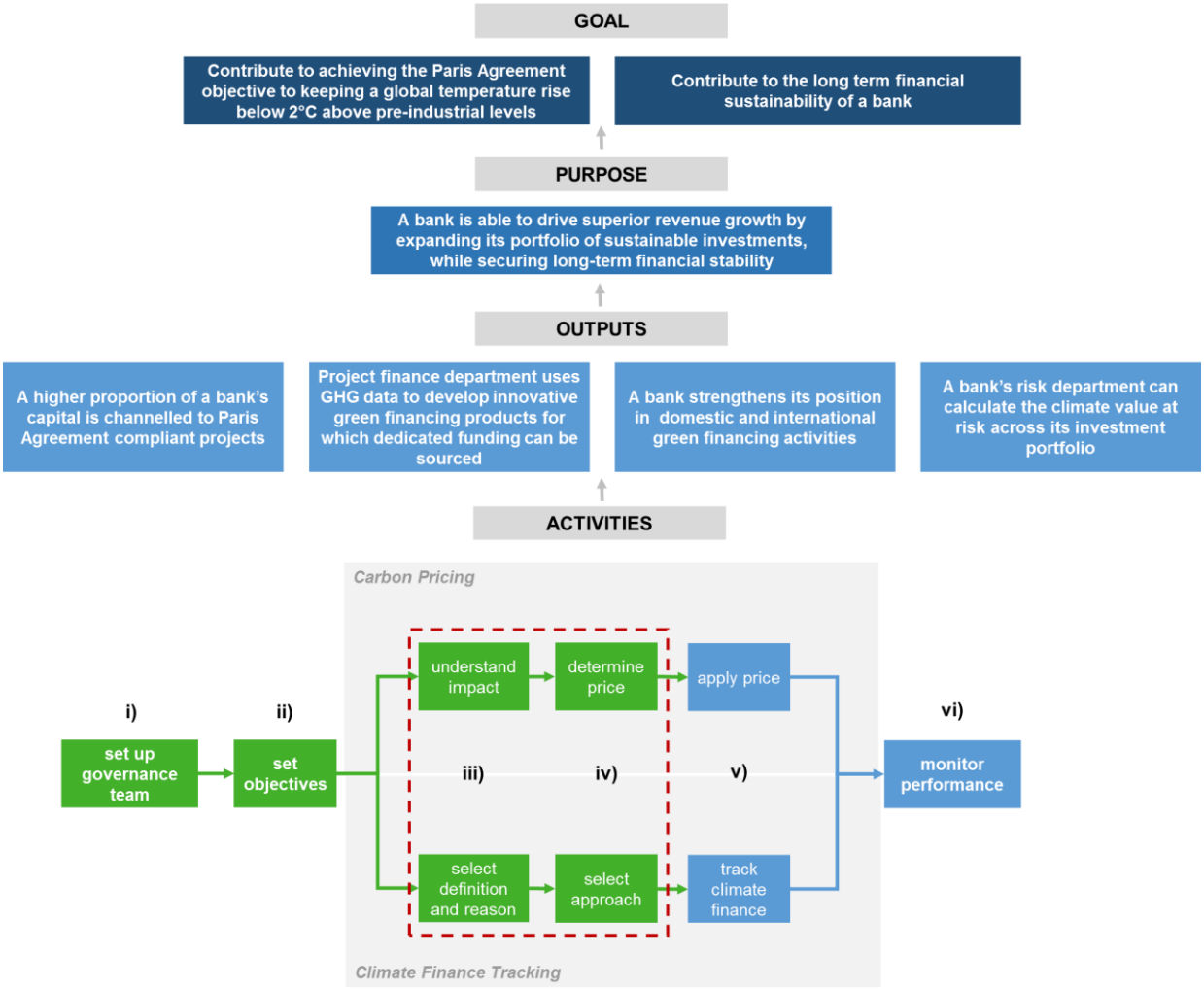
[15] Article 2, Clause 1(c) in the Paris Agreement, available online: www.unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.

2. Roadmap for Implementation

The logical framework introduced in this chapter presents a toolkit for banks to assist with the implementation of internal carbon pricing and climate finance tracking. It serves to support the decision-making process by structuring the rationale for engagement and outlining the activities that need to be implemented to achieve the desired outputs. As such, the framework can act as a management tool to guide the implementation process across various departments within a bank.

The logical framework illustrated in Figure 1 has been inspired by international approaches to implement internal carbon pricing and climate finance tracking combined with experience of the authors of this report and further inputs received from external experts.

Figure 1: Logical framework for implementation of carbon pricing and climate finance tracking



The **goal**, to which the implementation of the presented activities is to contribute, is two-fold:

- achieving the Paris Agreement objective to keeping a global temperature rise below 2°C above pre-industrial levels; and
- long term financial sustainability of the financial institution.

In order to achieve this impact, the following **purpose** or specific objective will need to be reached:

- the financial institution is able to drive superior revenue growth by expanding its portfolio of sustainable investments, while securing long-term financial stability.

Four **outputs** or results will need to be achieved to secure the purpose. These are:

- a higher proportion of the financial institution's capital is channelled to Paris Agreement compliant projects;
- the project finance department uses GHG data to develop innovative green financing products for which dedicated funding can be sourced;
- the financial institution strengthens its position in domestic and international green financing activities; and
- the financial institution's risk department is equipped to calculate the climate value at risk across its investment portfolio.

In turn, these outputs can be realised through the implementation of activities as set out in the bottom half of the logical framework, which represents the **activities** associated with the implementation roadmap and is made up of six steps.

The first two activities are similar for both carbon pricing and climate finance tracking. These steps relate to:

(i) the establishment of a governance team; and
(ii) the definition of overall strategic objectives behind the introduction of carbon pricing and climate finance tracking.

The next three steps differ depending on the topic.

For carbon pricing the steps include:

(iii) understanding the current exposure (including opportunities) by estimating the carbon footprint of the organisation's investment portfolio;
(iv) selecting a methodology to derive an internal price point for carbon; and
(v) application of the chosen carbon price across the organisation's business lines.

To implement climate finance tracking, the framework indicates the following three activities:

(iii) agreeing on a definition of what constitutes climate finance and the organisational purpose behind tracking such flows;
(iv) selecting the methodology through which such flows will be tracked; and
(v) implementation and tracking of climate finance flows throughout the organisation's business divisions.

The final step is again similar for both carbon pricing and climate finance tracking, and relates to:

(vi) monitoring and reporting of the performance.

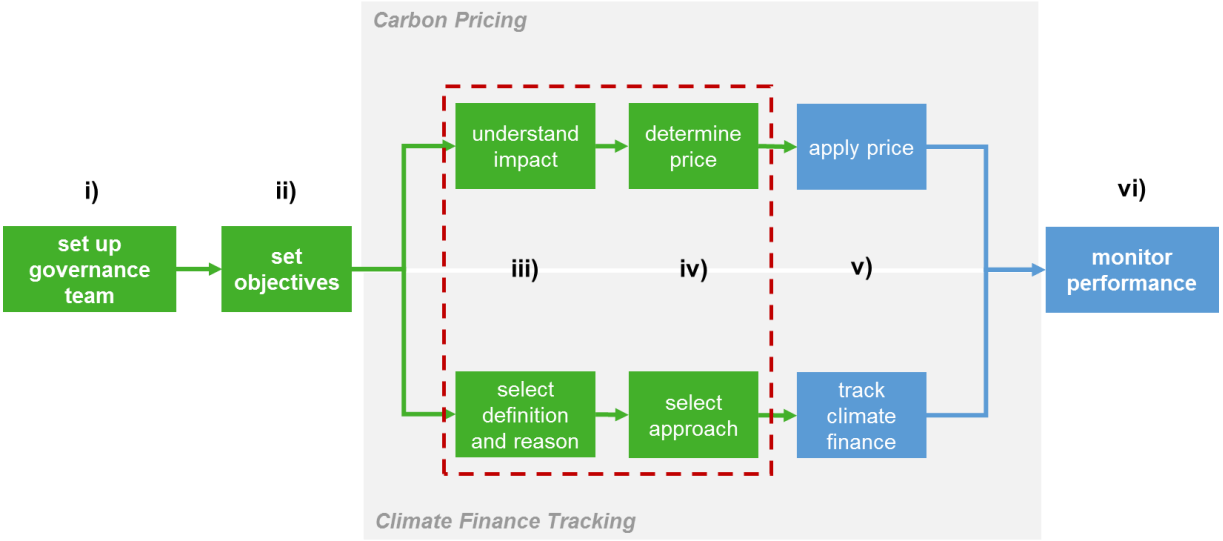
Roadmap for implementation Figure 2 below sets out this roadmap for implementation.

A financial institution could choose to take a staged approach when implementing the carbon price, as some companies under the Carbon Pricing Leadership Coalition (CPLC) have opted to do. The first stage would imply applying an internal price only to one or several dedicated business lines. As lessons are learnt from this first phase of implementation, piloting of a carbon price can be extended to other business lines, lending portfolios or investment vehicles, allowing a bank to build on lessons learned along the way and tailor the internal carbon pricing tool so that it best meets the intended purpose. By structuring the implementation over time and involving different divisions while doing so, a bank will not only be able to pinpoint an adequate and acceptable price level but will also ensure that ownership is

created within a bank's team and that the initiative becomes fully embedded within the organisational structure.

On climate finance tracking a financial institution could take a dual approach where some internal emphasis is given to understanding how climate finance tracking unfolds in the international climate negotiations and leading global public banks. Requirements and expectations from this international level of governance will ultimately also trickle down to commercial banks. At the same time, a financial institution's approach on climate finance tracking should recognise that the measurement of financial flows to mitigation and adaptation projects and programmes forms an elemental part of a broader sustainability, or low-carbon strategy. The emphasis between these two approaches should be on the latter as this has direct relevance for a financial institution's climate and low-carbon strategy.

Figure 2: Roadmap for implementation for carbon pricing and climate finance tracking



Step i): Set up governance team

Successful application of carbon pricing and finance tracking requires a carefully designed platform. Setting up a team that is responsible for the implementation is the first step. This team will need to have the full support of management to ensure the activities are timely implemented and the envisaged outputs can be achieved. In addition to a dedicated governance team that leads the discussion of these two topics, it is also important to create a cross-functional team of representatives from core parts of the institution to ensure commitment across departments and effective implementation and monitoring of results over time.

Important at this early stage is also to identify any relevant external stakeholders and determine if envisaged approaches reflect the concerns of these entities. Such external stakeholders could include key clients, regulatory bodies, banking associations and civil society organisations. These entities will not be part of international implementation processes, but may impact the decision-making process concerning the objective formulation (step (ii)) and the monitoring and reporting of performance data (step (vi)). Public relations or corporate communications departments that liaise both with clients and the wider public should therefore be also included in the initial discussions revolving around governance and objective setting. One output from these early stage team discussions can be a stakeholder engagement plan, which identifies entities that are relevant to this topic and outlines considerations concerning staffing and budget needs, identifies key management support functions, and defines incentives for departments to engage.

Step ii): Define objectives

The second step in the implementation roadmap is internal agreement on the objectives behind introducing carbon pricing and finance tracking. Clear understanding of the sought end-goal will determine the approach for implementation. For example, if the objective is to reduce risk, the methodology is likely to differ than when disclosure for communication reasons is the primary concern or when it is being used to identify business opportunities. Clear definition of objectives will therefore also impact the recommended price point and sustainability targets. Some examples of objectives related to the application of carbon pricing are presented in the table below.

Table 1: Overview of potential objectives linked to carbon pricing

OBJECTIVE	DESCRIPTION
Internal and external reporting	In the case of internal stakeholders, carbon pricing can support with the identification of new business opportunities and markets that offer more secure and improved long-term risk-return characteristics. In the case of reporting to external stakeholders, it can increase brand value and strengthen reputation. Increasingly more voluntary guidance and compliance rules require banks to better report on climate change related risks. For example, the Task Force recommends banks to disclose information on adopted governance, strategy, and risk management approaches related to the risks of climate change.[16]
Identifying risks	Climate related risks can be divided in two major risk categories, which include risks related to (i) the transition to a lower carbon economy and (ii) physical risks due to climate change.[17] The risk related to the transition to a lower carbon economy covers policy and legal risks (or regulatory risks), technology risk, market risks and reputation risk. Regulatory risks are particularly relevant in the current market context, as new carbon pricing legislation is on the rise and can significantly impact the economics of businesses operating in certain sectors, placing value at risk.
Identifying opportunities	Linked to risk, carbon pricing can also serve to help identify investment opportunities that can increase the efficiency of the clients' operations and lead to strengthened working capital positions and improved debt service capacities. In addition to resource efficiency, the Task Force identifies three further opportunities, including products and services, markets and resilience.[18]
Strategic long term change	Driving behaviour change, spurring innovation, seizing market opportunities. This can be related to behaviour change of current or new clients, or related to internal behaviour change.
Attracting financing	The last objective is the use of carbon pricing to attract financing that is linked to environmental performance, such as green bonds.

[16] TCFD (2017) Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures.

[17] For the full list of recommendations from the Task Force, please see: www.fsb-tcfd.org.

[18] TCFD (2017) Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures.

Possible objectives for climate finance tracking are presented below.

Table 2: Overview of potential objectives linked to climate finance tracking

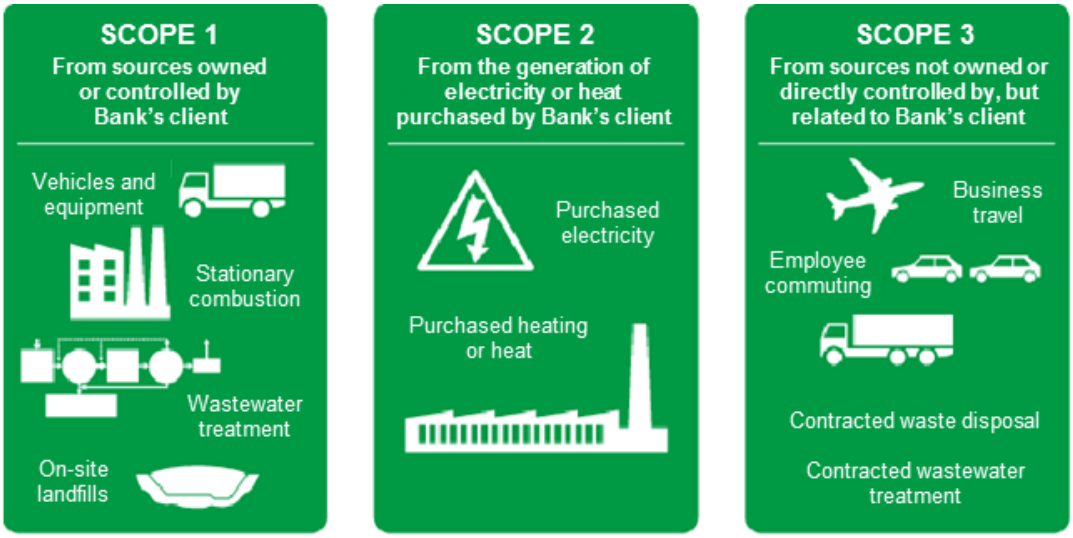
OBJECTIVE	WHAT	TRACK/MEASURE
Growth	Build new platform for business growth	→ transformational business opportunities → identify businesses, projects and investments that operate and scale in a low-carbon transition → growth correlation with impact (over time) → measure GHG reduction impact vs. benchmarks
Access to Capital	Meet tracking requirements to access new funding sources	→ measure results to access results-based finance from public sources such as the Green Climate Fund and meet requirements for green financial instruments such as green bonds → track and report capital allocation → position to leverage public climate finance support to lower cost of capital (guarantees, covers, etc.)
Value Risk	Exposure to GHG regulation and controls	→ existing assets (equity/debt) suffer a re-adjustment in value or risk → price new assets correctly → measure GHG impact of projects/investments

Step iii): Carbon pricing – understanding impact

In line with the objective of applying carbon pricing, the carbon footprint of target clients, investments or portfolios will need to be measured. This includes collecting data, calculating the footprint and managing the exposure.

To help delineate direct and indirect emission sources three 'scopes' (i.e. scopes 1, 2 and 3) are defined for GHG accounting and reporting purposes under the GHG Protocol.[19] A summary of these scopes is presented in the figure below.

Figure 3: Summary of the three scopes as per the GHG Protocol [20]



[19] Greenhouse Gas Protocol (2017) Available on: www.ghgprotocol.org.

[20] Graphic has been adapted from here.

Step iv): Carbon pricing – determine appropriate price

Once the objectives relating to the application of carbon pricing are agreed upon, the next step is to define the methodology that will determine the price level of this internal price. Chapter 3 provides more insight into potential approaches to carbon price valuation.

Step v): Carbon pricing – apply price

When the appropriate price and pricing method has been determined, the price will need to be applied. Initially limiting implementation to a selected sector, type of investment, or size of the loan – as a first focus – will help to test the concept of carbon pricing before scaling up across a wider portfolio of assets.

Steps iii) – v): Climate finance tracking

The three steps for climate finance tracking include: (iii) agreeing of a definition and defining the objective(s); (iv) selecting a methodology to implement tracking; and (v) tracking of climate finance.

Step iv): Monitor performance

Any significant organisational change must be monitored for effectiveness. Additionally, the applied internal carbon price needs to be reviewed periodically to reflect changing market and policy conditions. Similarly, application of climate finance tracking will require monitoring to assure use and effectiveness of application.

3. Carbon Pricing: Approaches to Valuation

3.1 Theory

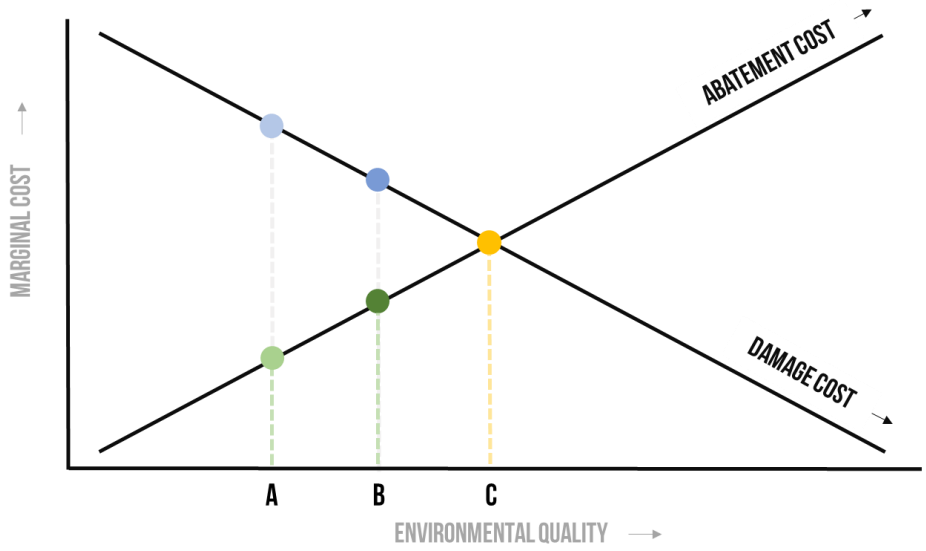
The concept of carbon pricing serves to construct a price for a good or an attribute that is currently not appropriately reflected in the pricing of goods or services. Carbon pricing relates to valuation of GHG emissions to allow for the inclusion of the negative externality created by this environmental product into economic analyses. In theory, there are generally two approaches to determine the value of carbon. The first is based on the cost to society, while the other is based on the cost to reduce. The approach to valuation of a carbon price is dependent on the purpose of its application, as further discussed below.

Cost to society

On the highest level of ambition, the price should reflect the value society places on the environmental quality of avoided GHGs. Uncontrolled release of GHGs contributes to global climate change, and society can reflect this by internalising the full future cost associated with such damage. As such, the damage cost method is the most holistic approach to assigning a price to carbon dioxide emissions, and represents a way to compensate for the adverse effects GHG emissions are expected to have on welfare over time.[21] Figure 4 illustrates the damage cost line intersecting an abatement cost line. The declining nature of the damage cost line reflects the diminishing value society places on each incremental improvement in environmental quality. Any level above point C on the damage cost line infers an environmental condition that is not satisfactory from a societal perspective and calls for a higher carbon price that internalises the full damage caused by GHG emissions at that level. This implies that in scenario A, whereby current emissions are significantly higher than what would be considered in an ideal scenario, a high carbon price - indicated by the light blue dot - would be applied under the damage cost method. Various efforts are currently underway to pinpoint the value of this social cost of carbon, as further explored in Section 3.2. At the same time, any level below point C on the damage cost line reflects a situation whereby pollution abatement becomes costlier than the value attached to that level of environmental quality. Point C, as such, represents Pareto-optimality and sets an equilibrium price that effectively internalises all expected future costs associated with GHG emissions.

[21] Under the UNFCCC, efforts to internalise such damage costs have been initiated under the Warsaw International Mechanism for Loss and Damage, which was established at COP19 in 2013. The mechanism addresses loss and damage linked to climate change through enhancing risk management approaches, fostering dialogues, and delivering financial and technical support to vulnerable countries.

Figure 4: Theory behind the valuation of an internal carbon price



Cost to reduce

Another way to approach valuation of a carbon price is through the abatement cost method. This methodology focuses on determining the most cost effective price at which a certain environmental policy target is to be achieved. It disregards the broader implications of GHG emissions on the society, as it is focussed to effect change up to the level required by policy. The upward sloping abatement cost line at each point reflects the marginal cost of achieving a higher level of environmental quality. To derive a realistic price point along the abatement cost line, a relevant marginal abatement cost (MAC) curve needs to be referred to. This could be on a global level or country level, but may also be determined on a company level or even on an investment portfolio level. An understanding of the investment costs needed to achieve a certain reduction of GHG emissions allows businesses to budget for regulatory or voluntary emission reduction targets. Policy makers, in turn, can refer to global or national MAC curves to estimate the volumes of finance that are needed to achieve a defined GHG mitigation target. Referring to the ambition agreed in Paris during the 21st session of the Conference of Parties (COP) held in December 2015, a global GHG emission reduction target needed to limit global warming to “well below 2°C” compared to pre-industrial temperatures can be translated into a fixed volume of GHG emissions that needs to be reduced over time. Assuming that the 2°C target reflects society’s satisfaction with the resulting environmental quality level, point C in Figure 4 would reflect the long-term carbon price that enables governments and businesses to achieve the ambitions set in Paris.

3.2 Price Elements

The theoretical elements discussed above are relevant to guide the methodological approach to define an internal carbon price within a financial institution. This section provides an overview of price elements that can inform the determination of a carbon price, including regulatory pricing, marginal abatement cost pricing, social pricing, and peer pricing. The selection, discounting and weighting of the presented price elements will depend on the designated end-use of the internal carbon price.

Regulatory pricing

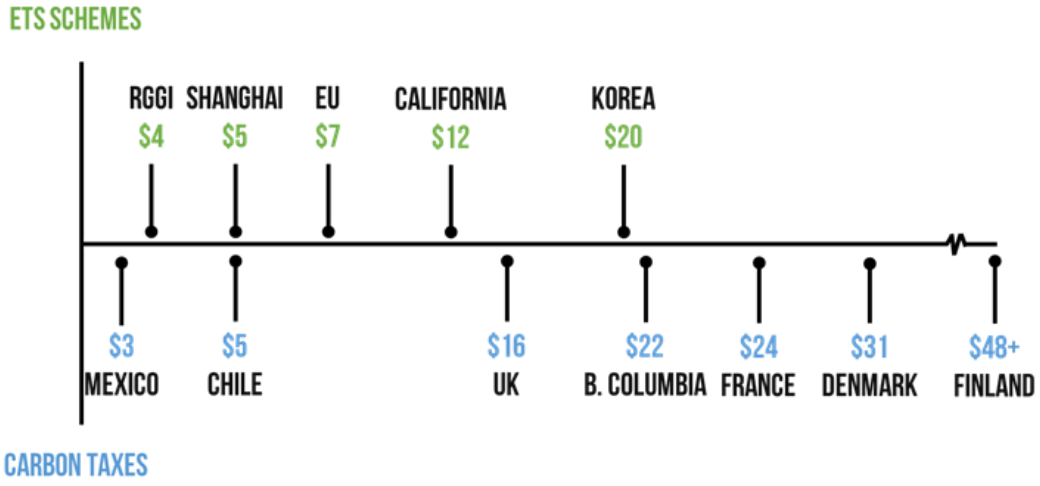
The most direct, transparent and implicit price component of a carbon price is the value existing environmental regulation places on a tCO_2. Finland became the first country to implement pricing legislation linked to the content of CO_2 in 1990.[22] Since then, a combination of international efforts promoted under the Kyoto Protocol and bottom-up initiatives pursued independently on jurisdictional levels have resulted in approximately 13% of global GHG emissions to become covered under some form of regulatory carbon pricing mechanism.[23]

[22] UNFCCC (1995) Finland's National Report under the United Nation's Framework Convention on Climate Change.

[23] The World Bank (2016) Carbon Pricing.

Regulatory carbon pricing can be categorised into two broad categories: cap and trade systems and carbon tax schemes. A cap and trade scheme, or ETS, caps the total amount of emissions within a defined market and allows for the trade of allowances between capped installations. The demand and supply dynamic defines the regulatory price, which generally is exchange traded and settled daily. One example of a cap and trade scheme is the EU ETS, which caps over 11,000 installations responsible for around half of the EU's CO_2 emissions. In its current third phase, non-compliance is fined at EUR 100 + inflation adjustment, effectively delivering a price cap. As of February 2017, EUAs trade in the range of EUR 5 to 6, the result of over-allocation of allowances and lacklustre economic growth and subsequent demand for EUAs. Currently, there are nine[24] operating ETS schemes globally, with the EU ETS leading in terms of size. The Chinese ETS, expected to be launched in the second half of 2017, will be double to size of the EU scheme, capping over four billion tCO_2.[25] The top part of Figure 5 presents an overview of traded carbon prices in selected ETS schemes, as of February 2017.

Figure 5: Overview of price levels applied across selected ETS schemes and jurisdictions applying carbon taxing (list not exhaustive) [26]



Application of carbon taxation is a second policy measure used by governments to price CO_2 emissions. Under a carbon tax, a pre-defined price linked to the CO_2 content of a product or process is applied. As such the price is fixed over time, while the resulting GHG abatement is unknown, and contingent upon individual action. This contrasts with a cap and trade scheme, where the cap is fixed but instead the carbon price is floating. The choice of carbon taxation over the setup of an ETS scheme is either politically driven, or guided by the practicality of implementation across different sectors. As of date, 22 national or regional carbon tax schemes have been operationalised globally. The bottom part of Figure 5 illustrates pricing across selected carbon tax schemes.

Marginal abatement cost pricing

An alternative approach to pricing carbon is through the use of the marginal abatement cost curve, or MAC curve. As introduced in Section 3.1, the MAC curve sets the basis for the application of the abatement cost approach. The curve reflects the costs associated with one additional unit of mitigation across a range of possible GHG mitigation options. These options could be represented by technologies (such as wind power or solar photovoltaic systems) or processes (including waste heat recover or carbon capture and storage). The MAC curve illustrates the estimated cost per tCO_2 for each identified intervention, taking into account both capital expenditures (CAPEX) and operating expenses (OPEX) over a measured lifetime. Figure 6 presents an illustration of a typical MAC curve. The abatement

[24] Covering the following jurisdictions / schemes: California, Ontario, Québec, Switzerland, New Zealand, China (the seven regional pilot schemes treated as one), South Korea, the EU ETS, and the Regional Greenhouse Gas Initiative.

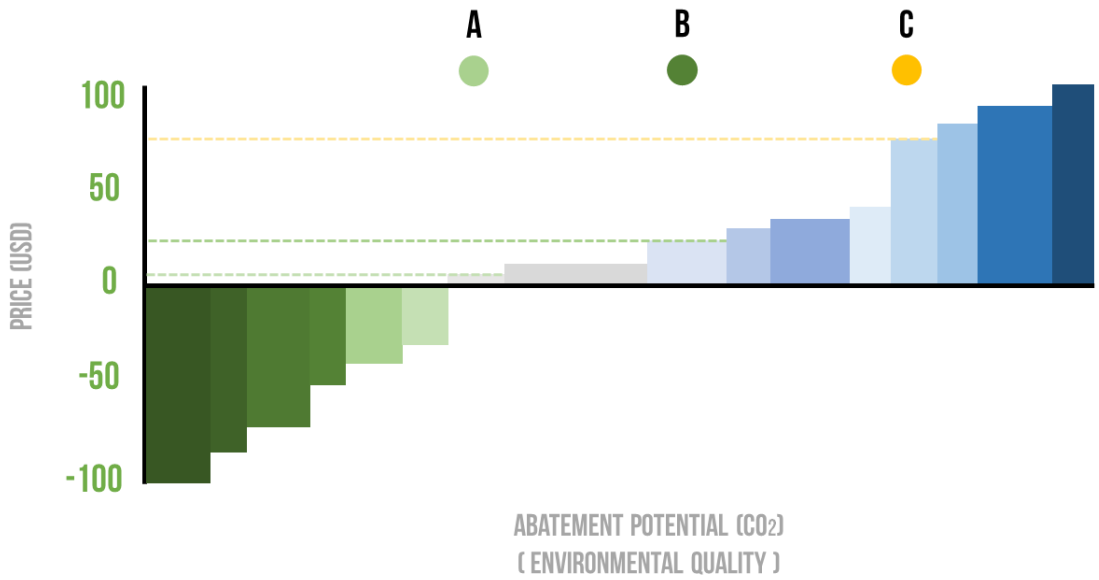
[25] ICTSD Global Platform on Climate Change (2016) China's National Emissions Trading System.

[26] Data by the World Bank (2016) State and Trends of Carbon Pricing; and Partnership for Market Readiness (2017) Carbon Tax Guide: A Handbook for Policy Makers. Graphic by Climate Focus (2017).

interventions highlighted in green can deliver reductions of GHG emissions at negative cost, meaning these investment opportunities are profitable without any carbon price. These measures represent e.g. energy efficiency improvements in residential real estate, improved industrial production processes, and an increasingly larger composition of renewable energy technologies. As one moves along the MAC curve to the right, the blue shaded interventions indicate measures that require a certain price of carbon to become profitable. At the extreme ends, investments in nuclear power or carbon capture and storage are likely candidates.

MAC curves can be constructed on a global level, but will have stronger impact if developed on a national or even corporate level (where such data is available). In any case, such curves by themselves do not facilitate the determination of a carbon price unless a specific emission reduction target is defined that subsequently intersects the curve at a certain price level. Linking to the three different environmental quality scenarios identified in Section 3.1, Figure 6 illustrates how the selection of a targeted level of GHG emission reductions (scenarios A, B, or C) can lead to the determination of a minimum price of carbon that is needed to realise the defined policy target. Such target can be defined by a government to drive domestic GHG mitigation action, but may also be approved by a corporate aiming to achieve a compliance or voluntary emission reduction target. The European Investment Bank (EIB) for instance, uses the abatement cost approach to define its internal carbon price, valued at EUR 49 by 2030.[27]

Figure 6: The marginal abatement cost curve and its link to determining internal carbon pricing [28]



Social cost of carbon

The previous section introduced the concept of the damage cost line, which acts as a proxy for determining the value society places on each marginal improvement in the environment. The resulting price point anywhere along the damage cost line indicates the perceived social cost of carbon. This approach serves to determine the present value of expected future damages caused by each additional GHGs emitted, and declines as our overall environmental condition improves. GHG emissions continue rising for now, and as long as the rising trajectory is not reverted the social cost is set to appreciate.

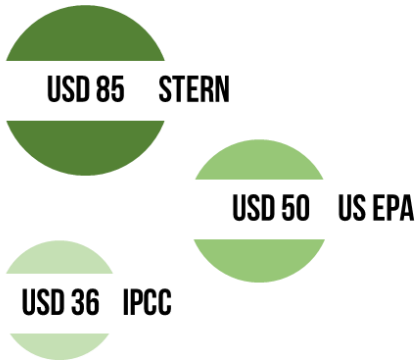
Given that value is the result of the demand function for environmental quality, it is challenging to accurately determine this social price. Different approaches have been proposed to determine an appropriate value for this cost element, ranging from survey methods inquiring into Willingness to Pay (WTP), to Integrated Assessment Models (IAM) simulating complex relationships between a changing climate and global economic growth. As multi-year projections apply in the latter, varying assumptions on the discount rate have significant implications for the resulting price points. According to the IPCC,

[27] The World Bank (2014) Social Value of Carbon in project appraisal: internal guidance note.

[28] Graphic by Climate Focus (2017).

more than one hundred estimates of the social cost of carbon are available. These run from USD 10 to USD 350+ per tCO_2.[29] Figure 7 highlights the social cost of carbon pricing estimates presented by influential studies or adopted by selected institutions.

Figure 7: Estimates of valuation of the social cost of carbon by selected studies or institutions [30,31,32]



Peer pricing

Independent from the valuation approach used to identify an appropriate carbon price, it is imperative for a corporate to benchmark its valuation against the pricing levels applied by peers and competitors. According to data by CDP, over 500 companies are already applying some form of carbon pricing. The majority of these are headquartered in the EU and the United States, with corporates in the utility, energy and telecom sector being at the forefront of such initiatives. In Turkey, six companies are already applying carbon pricing, with a further 14 indicating the intention to do so within the next two years.

The use of carbon pricing is also growing within the financial sector. In 2016, 65 banks reported the use of an internal carbon price, with a further 68 banks planning to integrate carbon pricing in the short term. In terms of banks, once again European organisations are most active, followed by Asian banks and Latin American institutions. Based on a selected sample of banks that have publicly disclosed the value of their applied carbon price, the mean price is USD 18.35 per tCO_2. Figure 8 highlights several selected examples of the price valuations applied by peers.

Figure 8: Examples of internal carbon prices applied by financials [33]

[29] IPCC (2007) IPCC Fourth Assessment Report: Climate Change 2007.

[30] Stern, N. (2006) The Stern Review: The Economics of Climate Change.

[31] The US EPA price assumes a 3% discount rate and a price for the year 2030. Source: EPA (2016) Fact Sheet: Social Cost of Carbon.

[32] The IPCC suggests a price of USD 36.30 per tonne for 2016 emissions, to be increased by 2% annually to allow for the potential of increasing marginal damage of global warming over time.

[33] Data by CDP, graphic by Climate Focus (2017).

Whereas certain banks openly disclose applied prices, the approaches through which such valuations have been reached remain confidential. Informal discussions and data by CDP indicate that to a large extent, current and forecasted prices in existing regulatory environments are mostly being used to evaluate corporate price levels. Most of the applied prices exceed the current price of EUAs traded in the EU ETS, resulting from the expectation that the cost of carbon must be significantly higher to drive a transition towards low carbon development. Some organisations update their internal carbon prices regularly, while others opt to apply a fixed price over time.

4. Climate Finance Tracking: Definition and Approaches

4.1 Background on climate finance tracking

Over the past years climate finance tracking in banks has gained a lot of ground. This interest has emerged from the international context of developed country pledges[34] to mobilise USD 100 billion in climate finance, per year, by 2020. Spurred on by the emphasis given to climate finance tracking by the international climate negotiations and a variety of public banks, commercial banks are increasingly aware of benefits from building a robust climate finance tracking framework. Climate finance tracking builds on a growing recognition that the measurement of financial flows to mitigation and adaptation projects and programmes forms an elemental part of a broader sustainability, or low-carbon, strategy of a financial institution.

From the perspective of international public finance, it is crucial to transparently distinguish the status of finance as it provides information on whether pledges are being met, and whether finance is reaching recipients. Increased monitoring of climate finance is thus needed to determine if countries are on track to meet their climate finance commitments. The pledges for mobilising climate finance under the UNFCCC are based on a principle of mutual accountability. To achieve this, tracking of climate mitigation and adaptation finance should be “comparable, transparent and accurate”. Tracking enables Parties to the UNFCCC to build trust and accountability regarding climate finance commitments and monitor trends and progress in climate-related investments.

For private sector banks, the challenges with climate finance tracking on the level of the UNFCCC and IFIs has limited direct relevance. Indirectly, however, there are aspects that bear significance on all banks. These include e.g. i) definitions on climate finance, and ii) methodologies for tracking climate finance that first become standardised across public financial sector and then move to the private financial sector. Many commercial banks become exposed to these through e.g. MDBs’ lending programmes, financial sector disclosure programmes and internal sustainability initiatives.

Definitions of Climate Financing

A fundamental challenge in monitoring and measuring international climate finance is that there is no agreed definition on what constitutes ‘climate finance’. Broadly speaking, climate finance refers to the investments made to fund the transition to a low-carbon global economy that is consistent with a 2°C degree target on limiting global warming and to fund adaptation or build resilience to current and future impacts from a changing climate. In line with this, the principles of the UNFCCC suggest that developed countries mobilise ‘new and additional’ financial resources to meet the ‘incremental costs’ of climate change. The challenge of the international community has been to ground these principles into a practical interpretation and definition that could be broadly applied. Instead, the push for building practical definitions, anchored in investment flows, has largely come from IFIs, academia and international research organisations. For the broader international discussion on what counts as climate

[34] At the 16th Conference of the Parties (COP) in 2010, developed countries formalised a collective climate finance commitment made previously in 2009 in Copenhagen of “mobilising jointly USD 100 billion per year by 2020 to address the needs of developing countries... …from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources”. COP16 Decision available on: www.unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2.

finance, the Climate Policy Initiative[35] has identified five variables relevant when accounting for such finance. These include; motivation (finance explicitly for mitigation or adaptation), concessionality and source (level of benefit vs. market terms of financing), causality (mobilisation of further activities), geographic origin and type of recipient. Some of the variables could be used in private sector definitions on climate finance.

A definition on climate finance is elemental for a climate finance tracking framework, both for the public and private sector. After all, a definition provides the scope for and increases the transparency of tracking measures. In the global context, transparency is central for identifying who benefits from public climate financing, and how public funds are being used. Transparency on the funding recipient's side improves the understanding of how climate financing has been able to be matched with demonstrated needs for finance. Table 3 below, provides select examples on climate finance definitions that illustrate the generic nature of various definitions.

Table 3: Examples of international definitions of 'climate finance'

SOURCE	DEFINITION
UNFCCC Standing Committee on Finance:	Reducing emissions, and enhancing sinks of GHGs and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts.
Paris Agreement (Art.9)	Climate finance from a wide variety of sources, instruments and channels, noting the significant role of public funds, through a variety of actions
MDBs	Activities, as defined by Common Principles for Climate Mitigation Finance Tracking and Common Principles for Climate Change Adaptation Finance Tracking
The G20 Green Finance Study Group	Investments that provide environmental benefits in the broader context of environmentally sustainable development.
Climate Policy Initiative	Capital flows directed towards low-carbon and climate-resilient development interventions with direct or indirect GHG mitigation or adaptation benefits
ISO 14 080[36] (forthcoming 2018)	The forthcoming ISO 14 080 standard provides the principles for designing a framework and guideline to establish methodologies that take into account prevailing climate change policies and prevailing climate finance requirements. This complements ISO 14064 the international standard for quantifying and reporting GHG emissions.

The notable exception in Table 3 is the project categories listed by the MDBs under the Common Principles for Climate Mitigation Finance Tracking and Common Principles for Climate Change Adaptation Finance Tracking ("Common Principles"). The Common Principles were developed by MDBs and the IDFC looking to define common approaches for climate finance tracking and reporting and they provide common definitions and guidelines, including a detailed list of project activities. The approach developed by the MDBs provides both a definition and a tracking approach for climate finance.

Disclosure or tracking?

Among banks in the private sector, climate finance tracking initiatives have been indirectly pushed forward by a variety of climate risk disclosure initiatives aimed at providing information to stakeholders about a financial institution's exposure to climate risk and climate opportunities. Climate disclosure initiatives in the financial sector relate to banks (i) on the corporate level, such as CDP and We Mean

[35] Bodnar, P., Brown, J. and Nakhooda, S. (2015) What Counts: Tools to Help Define and Understand Progress Towards the $100 Billion Climate Finance Commitment. Available: www.climatepolicyinitiative.org/publication/what-counts-tools-to-help-define-and-understand-progress-towards-the-100-billion-climate-finance-commitment.

[36] ISO (2015) Briefing Note. Available on: www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/iso_14080_briefing_note.pdf.

Business[37] or (ii) through wealth and asset management, such as Portfolio Decarbonisation Coalition[38], Principles for Responsible Investment[39] and Asset Owners Disclosure Project.[40] All these initiatives aim to build trust, accountability and allow stakeholders to monitor trends and progress in the climate risk exposure of a financial institution. While disclosure reporting frameworks do not directly align with climate finance tracking methodologies, they underscore the importance of collecting and managing information on climate risks and opportunities to the organisation of a financial institution.

As mentioned before, under a mandate from the G20, the Financial Stability Board set up the Task Force on Climate-related Financial Disclosures[41] to "*undertake a coordinated assessment of what constitutes efficient and effective disclosure and design a set of recommendations for voluntary company financial disclosures of climate-related risks that are responsive to the needs of lenders, insurers, investors, and other users of disclosures*". The purpose of the Task Force's recommendations is to enable financial stakeholders to make more informed investment-, credit- and insurance underwriting decisions and to improve the understanding of sector and system wide exposure to concentrations of asset classes with high carbon and climate risk. The Task Force provides guidance on the overlap between different reporting initiatives and becomes the 'umbrella' disclosure-reporting framework for banks. Hereby ensuring alignment with all key disclosure frameworks, including the G20/OECD Principles of Corporate Governance[42], the CDP Climate Change Questionnaire 2016[43] and the Global Reporting Initiative G4 Sustainability Reporting Guidelines.[44]

The Task Force's report also bears direct relevance for climate finance tracking. It developed four general recommendations on climate related financial disclosures covering governance, strategy, risk management, and metrics and targets. Specific recommendations were provided for the financial sector (see Table 4), with requirements to disclose the metrics and targets that are used to assess and manage climate change-related risks and opportunities, disclosure of GHG emissions using the GHG Protocol and internal performance targets. The requirements to report the percentage of carbon-related asset relative to total assets, as well as financing to climate-related opportunities, are very closely aligned with data collected under climate finance tracking. For banks this means that adopted climate finance reporting frameworks could be used to comply with parts of the Task Force's disclosure framework.

Table 4: Select disclosure rules by the Task Force on Climate-related Financial Disclosures

METRICS AND TARGETS
Metrics for assessing climate-risks on lending and intermediary business
Metrics that relate to credit exposure, equity and debt holdings, trading positions (by industry, geography, credit quality, tenor)
Amount and percentage of carbon-related assets relative to total assets as well as the amount of lending and other financing connected with climate-related opportunities

Tracking framework – flows and impacts

Climate finance tracking can be divided into two general approaches on measurement; tracking flows and/or impacts. *Flows* measure the total and relative amount of financing that reaches projects and programmes included in a bank's definition of climate finance. The aim of flow measurement is to quantify the amount of financing going into mitigation and adaptation projects. The quantification and accounting of flows can be based on very different approaches, resulting in varying results. The Climate

[37] Available on: www.cdp.net and www.wemeanbusinesscoalition.org.
[38] Available on: www.unepfi.org/pdc.
[39] Available on: www.unpri.org.
[40] Available on: www.aodproject.net.
[41] Available on: www.fsb-tcfd.org/.
[42] Available on: www.oecd.org/corporate/principles-corporate-governance.htm.
[43] Available on: www.cdp.net/en/climate.
[44] Available on: www.globalreporting.org/information/g4/Pages/default.aspx.

Policy Initiative[45] identifies four terms that relate to accounting for both private and public flows of climate finance. These are summarised in Table 5 below.

Table 5: Select accounting factors influencing measurement of climate finance flows

FACTORS	DESCRIPTION
Stage and timing of investment: committed vs. disbursed	This is largely an issue for public funds. Finance can be counted when it has been commitment (earmarked and/or transferred from the financier into the account of the recipient/ intermediary) or disbursed (funds have been drawn down and spent by the recipient or intermediary).
Cost of the expenditure: nominal vs. subsidy	Where funding includes "soft" public finance commitments such as guarantees, technical assistance, interest rate subsidies or grants, the loans and the "soft loan" component can be counted either as a nominal or subsidy cost. The nominal cost is the face value of the loan or guarantee as the recipient sees it. The subsidy cost is the long-term actual budget cost to the contributor of the "soft" component.
Size of expenditure over time: gross vs. net	A gross flow is the amount that a bank spend in a year. A net flow accounts for loan repayments in the particular year.
Total capital cost vs. incremental/climate-targeted components	Total capital cost refers to the total invested amount, whereas the incremental cost only includes the additional cost of making an investment low-carbon and/or climate resilient relative to a "baseline" investment.

The measuring of *impacts* presents another approach to climate finance tracking, where the driver of tracking is the underlying impact caused by the financing. Such impacts could be e.g. emission reductions, energy savings or installed capacity. The approach requires that the attribute is defined in advance of tracking, either by a bank or by the adopted measurement protocol. This depends on what impact is sought. The following section provides examples on how different approaches on tracking are applied and for what specific reasons.

4.2 Applications

Why track climate finance?

There are a variety of reasons for a financial institution to track climate finance. The following segment looks specifically at some motivations to track capital flows to physical assets through project finance, corporate banking, debt-capital markets and private equity. In addition to tracking for purposes of disclosure to a variety of stakeholders, three key reasons can be identified; growth, access to capital and value risk.

Investments around climate mitigation (e.g. renewable energy or energy efficiency) and adaptation (increasing climate resilience of assets and infrastructure) are part of a growing shift to channel financing to sustainable investments and green infrastructure to build a low-carbon economy. Underpinning this shift is the Paris Agreement and its emphasis on "making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development"[46]. The growing flows of finance into green investments create a new growth platform for a bank. Identifying and tracking these flows of finance is a starting point for building and growing a green finance business within a bank because it helps:

- identify transformational green business opportunities;
- identify new businesses, projects and investments that operate and scale in a low-carbon transition;

[45] Available on: www.globalreporting.org/information/g4/Pages/default.aspx.

[46] Paris Agreement, Article 2. Available on: www.unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.

- understand if/how the opportunity growth correlates with the impact, i.e. larger emission reductions yield bigger long-term business growth opportunities; and
- understand the relative environmental performance of assets versus e.g. sector benchmarks, and identify overlooked pools of opportunities.

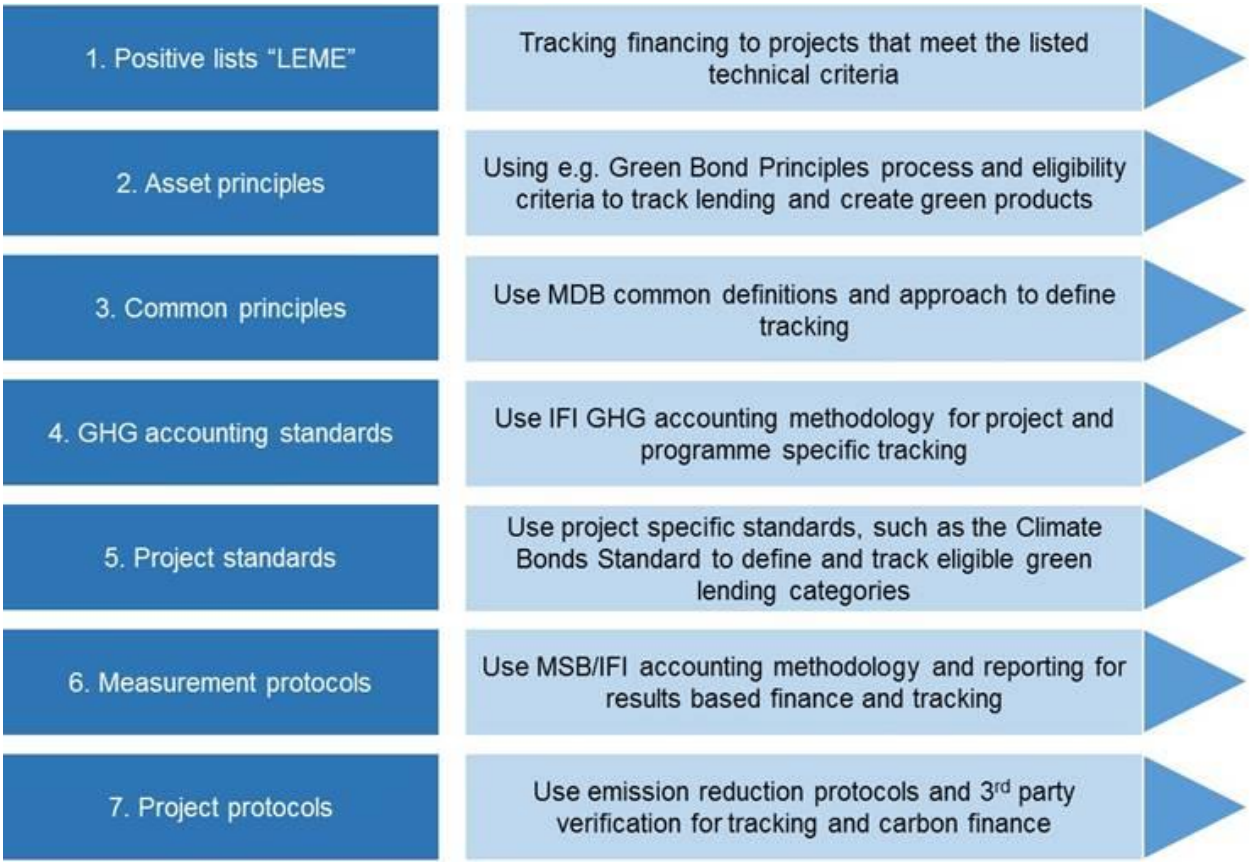
Increased access to concessional- and non-concessional capital earmarked for climate- and green financing is an important reason for banks to track their own investments in climate projects. As a result of MDBs and IFIs adopting their own internal climate finance targets, commercial banks can benefit from such financing channels by establishing climate finance tracking framework that will be compliant with the tracking requirements of the funding MDBs or IFIs. Climate finance tracking thus prepares a bank to be receptive for climate funding through new funding channels and leverage concessional climate finance to lower the investment cost or cost of capital (through guarantees, covers etc.).

The final argument supporting broad based climate finance tracking is that it provides fundamental data for any type of value-at-risk assessment; by providing information on the monetary and, where applicable, physical (emissions) exposure to GHG regulations. This allows a bank to more accurately re-assess the value of its assets in a carbon-constrained operating environment. Such a re-assessment is needed when existing assets (equity/debt) suffer a re-adjustment in value or risk, pricing methodologies for new assets need to be corrected and where the measurement of the GHG impact of the asset/investment increases the projects' bankability.

Approaches to climate finance tracking

The sections above have shown that a banks' purpose for climate finance tracking influences the choice of tracking approach and the emphasis placed on tracking flow and/or impact. This part illustrates differences in tracking approaches by providing select examples on where an increase in the level of measurement in the tracking approach increases the scope for climate funding for a bank. The complexity of the tracking approach changes as the focus shifts from tracking of flows to measuring the impact of the climate finance flows. Figure 9 below lists the various types of approaches for tracking climate finance that are further explored below.

Figure 9. Approaches to climate finance tracking



In the first approach all financing to technical measures listed on a **positive list** ("LEME" – criteria based on a List of Eligible Materials and Equipment) defined by a bank, qualifies as climate finance. This is a broad approach as it typically includes technologies that are not sector specific (e.g. insulation, motors, windows, compressors) but meet defined performance criteria (e.g. national standards or Best Available Technology (BAT) for energy performance). The approach is relevant to climate finance in that each implemented technology, e.g. aligned with international BAT standards, yields a positive climate mitigation or adaptation outcome versus the replaced technology. Under this approach all flows to eligible technologies tracked and a similar approach could be implemented for broader technology or project categories (certain types of renewable energy installations).

In the second example public green **asset based principles** are used to define the tracking approach. Under the approach voluntary best practice market guidelines, such as e.g. the Green Bond Principles, are used to monitor how funds are applied (ensure availability of information to evaluate the environmental impact of the investment), for project evaluation and selection and how to report on use of climate funding. Here the overall tracking approach is aligned with a product specific approach and in doing that it provides an opportunity to leverage the tracking process to develop a green bond product from the underlying assets that have received funding.

The **Common Principles** developed by MDBs to define common approaches for climate finance tracking represent one of the most widely adopted approaches. They provide an activity-based tracking approach for both mitigation and adaptation. Project classification of climate finance is done using the provided common list of eligible categories (
Table 6 below). The Principles are relevant for climate finance in that they have been adopted by all MDBs and are a prerequisite for MDB-linked climate funding, whether for a project, project component, proportion of a project, credit line or programme.

Table 6: Activities classified as climate finance by MDB's common principles

SECTORS
Renewable energy (generation, RE grid integration)
Lower-carbon and efficient energy generation (transmission, thermal power)
Energy efficiency (industry, buildings, public utilities, vehicle fleet)
Agriculture, forestry and land-use (afforestation, reforestation, livestock)
Non-energy GHG reductions (fugitive emissions, carbon capture)
Waste and wastewater
Low carbon technologies (products and equipment)

The **IFI GHG project accounting standards** can be seen as an expansion of the MDB Common Principles where GHG accounting standards are applied on eligible project categories. The standards provide an ex-ante investment project-based GHG assessment using established GHG calculation methodologies such as e.g. the UN Clean Development Mechanism, Gold Standard, ISO 14064. Using the GHG assessment a net annual emissions savings for the project is calculated against a 'without project' scenario. In doing so, the tracking approach also forms a basis for results-based climate funding; the expected GHG emissions savings from the funded project impacts lending decisions. The approach also creates a reporting obligation, which also includes portfolio level emissions.

Project based standards require a further level of involvement in qualifying projects for climate financing. For instance, the **Climate Bonds Standard** includes a process and guidelines for certifying Climate Bonds and could be used as an approach for determining project eligibility using its sector specific eligibility requirements. The standard's use of proceeds reporting and monitoring requirements provide the basis for tracking and its 3rd party certification process could provide a framework for an internal project eligibility assessment of impacts. Green bonds is a rapidly growing green finance instrument, with several MDBs issuing green bonds. An alignment with the definitions, reporting and monitoring approaches in the Climate Bond Standard could help a bank position itself towards this emerging market.

Performance based measurement, using **GHG measurement protocols**, can be used as a basis for tracking (e.g. Green Climate Fund, World Bank). However, it is an impact-focused approach for accessing results-based finance. Eligibility would be based on Common Principles. Yet, under this approach financing is conditional on reporting on specific emission metrics (tCO_2 avoided or reduced, number of installations, MW of installed capacity) using IFI or GEF GHG accounting methodologies for calculations and baselines. Annual reporting of achievements is used to access funding.

In the last approach, focus is solely on measuring impact where project **performance based measurement protocols** are used for tracking project emissions. The emission reductions of each investment project are tracked individually using a defined emission reduction calculation methodology (UN Clean Development Mechanism, or voluntary carbon market standards) and emission baseline ('without project'). Detailed ex-post calculations based are based on active monitoring at project site.