Climate Transition Finance

ICMA
International Capital Market Association

Climate Transition Bond Guidelines

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1 Introduction

The Climate Transition Bond Guidelines (the "Guidelines") introduce a standalone Climate Transition Bond ("CTB") label under the Principles designed to help (re)finance critical projects for achieving the goals of the Paris Agreement, especially from those in high-emitting sectors and/or with high-emitting activities ("high-emission issuers"). Such projects complement and typically go beyond the scope of the Green Bond Principles ("GBP") in addressing today's decarbonisation and emissions reduction challenge. The Guidelines also make recommendations for high-emission issuers of climate transition-themed Sustainability-Linked Bonds ("SLBs").

ICMA's report "Transition finance in the debt capital market" confirms that sustainable bonds[1] are already being used at great scale to finance key components of the climate transition, through financing renewable energy, clean transportation and green buildings, among other things, as well as generally supporting the climate transition strategy of issuers. However, the report also underlines that the sustainable bond market has not been sufficiently contributing to financing the transition of the fossil-fuel and hard-to-abate sectors. Organisations from those sectors especially, may therefore wish to use the CTB label when raising finance for transition related projects.

It is estimated that USD30 trillion of additional capital, including corporate and infrastructure investments, is needed to decarbonise eight high-emission sectors representing 40% of global GHG emissions by 2050[2]. Several influential investor initiatives have in recent years also highlighted the need to provide financing for the transition of high-emission issuers to achieve credible and impactful real-economy decarbonisation[3].

The ambition of the Guidelines is to enable a greater role for the sustainable bond market in financing these priorities. The Guidelines provide issuance-level guidance that supplements the entity-level practices, actions and disclosures recommended by the Climate Transition Finance Handbook (CTFH) for issuers of sustainable bonds when raising funds for their climate transition strategy.

The Guidelines:

1. Introduce the use of the Climate Transition Bond ("CTB")[4] as a standalone label for use-of-proceeds bonds.
2. Provide guidance on financing credible climate transition projects ("CT Projects") with a definition and safeguards, as well as a preliminary and non-exhaustive list of CT project categories in Annex 1.
3. Build on existing guidance from the Principles to make recommendations for climate transition-themed SLBs from high-emission issuers.
4. Include illustrative annexes to help issuers identify relevant official sector and market-based guidance and taxonomies, decarbonisation pathways and roadmaps, and resources on avoiding carbon lock-in.

The Guidelines will be reviewed and amended as necessary based on market feedback and developments. They may also be supported in the future by case studies and Q&As in the Guidance Handbook.

1 Sustainable bonds is used in these Guidelines as an umbrella term for all use-of-proceeds and sustainability-linked bonds aligned with the Principles.
2 See "Net-Zero Industry Tracker 2024 Edition" (December 2024), World Economic Forum. The report covers the following sectors: aviation, shipping, trucking, steel, cement, aluminium, primary chemicals, and oil and gas.
3 For example, IIGCC report: "From concept to capital flows: The investor perspective on transition finance".
4 Climate transition bonds were originally identified as an additional label in the CTFH.

2 Climate Transition Bonds (CTBs)

The Guidelines encourage the use of the CTB label, for use-of-proceeds bonds, when all or a meaningful portion of the bond proceeds, as determined by the issuer, are intended to be allocated to CT Projects. The assessment of CT Projects requires a high level of transparency and disclosure from issuers to convey their importance for the transition which can be achieved with the use of the CTB label.

If the issuer determines that its use-of-proceeds bond will not involve a meaningful allocation to CT Projects and the use of the CTB label is not warranted, the issuer is encouraged to provide comparable transparency and disclosure of its CT Projects as recommended by these Guidelines. For the avoidance of doubt, when CTBs are not exclusively (re)financing CT Projects, the remainder of the proceeds should be allocated to eligible Green Projects as defined by the GBP.

It is inherently difficult to draw a line between a CT Project and a Green Project. The Guidelines do not therefore aim to make any final determination on their classification, which remains with the issuer, based on its own assessment and methodology aligned with the definition and safeguards for CT Projects described below. These Guidelines do not imply an automatic (re) classification of projects already financed or envisaged under existing sustainable bond issuances or frameworks.

CTBs are use-of-proceeds bonds that follow the four core components and the key recommendations for heightened transparency outlined for such instruments in the Principles[5] with the necessary adaptations resulting from the financing of CT Projects. Specific recommendations for CTBs are listed below.

5 See especially the GBP.

2.1 Use of Proceeds

The cornerstone of a CTB is the utilisation of the proceeds of the bond for eligible CT Projects which should be appropriately described in the legal documentation of the security.

CT Projects are defined as including assets, investments and activities, early phase-out and decommissioning, and other expenditures such as R&D related to high-emission activities that lead to substantial and quantifiable GHG emissions avoidance, reduction, or removal. CT Projects complement and go beyond the scope of Green Projects under the GBP in pursuit of the goals of the Paris Agreement.

To ensure the integrity of their CT Projects, issuers should meet, or explain how they aim to meet, the following safeguards:

1. **Existence of an issuer-level sustainability and/or climate transition strategy** to which the CT Projects contribute and incorporating disclosures which align on a best-efforts basis with the four key elements of the Climate Transition Finance Handbook.
2. **Analysis supporting the technological and/or economic unfeasibility of low-carbon alternatives for the issuer** considering also the local context. For practical purposes, this assessment can be made by referencing existing official sector or other authoritative third-party resources and issuers' cost-benefit analyses[6].
3. **Alignment or compatibility with official sector and market-based taxonomies[7], decarbonisation pathways and roadmaps, and/or other international and national decarbonisation policy frameworks,** where available and relevant. Annex 2 provides a non-exhaustive list and an overview of existing official sector and market-based taxonomies and pathways and roadmaps to help issuers identify the relevant resources.
4. **Mitigation of substantial and quantifiable GHG emissions beyond business-as-usual (BAU),** considering sector standards, practices, proxies and best available technologies (BAT), where available and feasible.
5. **Identification, analysis, best-efforts mitigation, and disclosure of carbon-lock in risks.** In this respect, sunset provisions and/or the restriction of interim performance categories (also known as the "amber" category) primarily for existing assets and activities in some taxonomies should be noted[8].

   The lock-in assessment may consider, where relevant, factors such as a project's lifetime and amortisation period, utilisation rate, emission profile over time, rebound effects, potential barriers to low(er)-carbon substitutes (e.g. contractual, labour, or supply chain constraints), readiness for future incorporation of lower-carbon feedstock or change in end-use, reversibility (e.g. retrofitting, repurposing, or repowering), and displaceability, and monitoring of a project's end-use emissions. Annex 3 provides a non-exhaustive overview of existing resources for evaluating and avoiding carbon lock-in risks.

Where a CT Project substantially relates to fossil fuel infrastructure or activities, and to the extent not already addressed by alignment with a taxonomy, pathway, roadmap or policy framework as per above, additional safeguards may be needed to ensure the credibility of a CTB. These may include some or all of the following:

(i) activity/asset level transition plans;

(ii) commitment to decommission/phase-out assets or switch to a low-carbon alternative within a certain timeframe consistent with credible scenarios;

(iii) annual reporting on forward-looking metrics such as key milestones, sunset dates, and external verification thereof;

(iv) implementation of accompanying investments and flanking measures to enable low-carbon alternatives in the future;

6 See the OECD report "Mechanisms to Prevent Carbon Lock-in in Transition Finance", for which an overview is provided under Annex 3.

7 In light of the usability and data unavailability challenges of some taxonomies and some policymakers' recognition of the concept of "partial alignment", the Guidelines recommend issuers to consider, when faced with similar challenges, the material aspects of the testing criteria (e.g. quantitative performance thresholds or a required degree of certification) that aim to ensure the substantial contribution to the climate change mitigation objective. It is acknowledged that the use of estimates and proxies may also be needed in some cases to address data gaps.

8 See Annex 2.

(v) limitations to fossil fuel capacity expansion or assets' lifetime extension as a result of or in the context of a CT Project's implementation;

(vi) limitation of CT Project eligibility to assets already in existence as of a certain date (i.e. brownfield investments); and/or,

(vii) commitment to implement CCUS for further abatement.

A preliminary and non-exhaustive list of eligible CT Project categories is available in Annex 1. It is recognised that several additional project categories may be eligible through alignment with the definition and safeguards highlighted above. The relevance and specifics of CT Project categories may also vary across geographies. Furthermore, they are likely to evolve over time as low-carbon alternatives become available and feasible through technological progress and innovation, as well as improved economics.

In the event that all or a proportion of the proceeds are or may be used for refinancing, it is recommended that issuers provide an estimate of the share of financing vs. refinancing, and where appropriate, also clarify which investments or project portfolios may be refinanced, and, to the extent relevant, the expected look-back period for refinanced eligible CT Projects.

For the avoidance of doubt, financial institutions issuing CTBs can also (re)finance portfolios of transition loans[9] for CT Projects.

2.2 Process for Project Evaluation and Selection

Issuers should provide information on the eligibility, safeguards, classification, and exclusion criteria, as relevant, for their CT Projects as described above. This should include any alignment or compatibility with official sector and market-based taxonomies, decarbonisation pathways and roadmaps, and/or other international and national decarbonisation policy frameworks (see Annex 2).

9 The APLMA, LMA, and LSTA have published a Guide to Transition Loans in October 2025 to provide guidance for transition finance in the loan markets.

The assessment of CT Projects by issuers may include, among other things, the levels of ambition and technical performance thresholds existing in taxonomies (e.g. green vs. amber or decarbonisation measures), net-zero pathways and roadmaps, established market practices and investor expectations, the analysis of relevant contextual factors such as the technical aspects of projects, and/or the ambition level of the issuer's transition strategy and plan.

Issuers should also commit to regularly review and update their project eligibility criteria at appropriate intervals to assess, among other things, the availability and feasibility of low-carbon alternatives[10].

Issuers should clearly communicate to investors information on their processes to mitigate material adverse social or environmental impacts. This should include, where relevant, how "just transition", climate adaptation, and the protection of nature and biodiversity will be considered[11].

2.3 Management of Proceeds

The net proceeds of the CTB, or an amount equal to these net proceeds, should be credited to a sub-account, moved to a sub-portfolio or otherwise tracked by the issuer in an appropriate manner, and attested to by the issuer in a formal internal process linked to the issuer's lending and investment operations for eligible CT Projects and any other eligible projects.

As long as the CTB is outstanding, the balance of the tracked net proceeds should be periodically adjusted to match allocations to eligible CT Projects made during that period. The issuer should make known to investors the intended types of temporary placement for the balance of unallocated net proceeds.

The proceeds of CTBs can be managed per bond (bond-by-bond approach) or on an aggregated basis for multiple bonds (portfolio approach).

The Guidelines encourage a high level of transparency and recommend that an issuer's management of proceeds be supplemented by the use of an external auditor, or other third party, to verify the internal tracking method and the allocation of funds from the CTB proceeds (see Key Recommendations section below).

2.4 Reporting

Issuers should make, and keep, readily available up-to-date information on the use of proceeds to be renewed annually until full allocation, and on a timely basis in case of material developments. The annual report should include a list of the projects to which CTB proceeds have been allocated, as well as a brief description of the projects, the amounts allocated, and their expected impact. Where confidentiality agreements, competitive considerations, or a large number of underlying projects limit the amount of detail that can be made available, the GBP recommend that information is presented in generic terms or on an aggregated portfolio basis (e.g. percentage allocated to certain project categories).

Transparency is of particular value in communicating the expected and/or achieved impact of projects. The Guidelines recommend the use of qualitative performance indicators and, where feasible, quantitative performance measures and disclosure of the key underlying methodology and/or assumptions used in the quantitative determination. Issuers should refer to and adopt, where possible, the guidance and impact reporting templates provided in the Harmonised Framework for Impact Reporting[12].

The use of a summary, which reflects the main characteristics of a CTB or a programme and illustrates its key features in alignment with the four core components of the Guidelines, may help inform market participants. To that end, a template will be made available in the sustainable finance section of ICMA's website which once completed can be made available online for market information.

10 For the avoidance of doubt, such updates do not require however a re-qualification of existing issuances and a declassification of financed or committed projects.
11 Issuers can refer to the Handbook – Harmonised Framework for Impact Reporting and the Practitioner's Guide on Sustainable Bonds for Nature.
12 Although the "Handbook - Harmonised Framework for Impact Reporting" does not explicitly mention CT projects, issuers may be able to use some of the impact reporting indicators proposed there, where suitable.

2.5 Key Recommendations

Bond Framework

Issuers should explain the alignment of their CTB or CTB programme with the four core components of the Guidelines (i.e. Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds and Reporting) in a CTB Framework or in their legal documentation. The CTB Framework and/or legal documentation should be available in a readily accessible format to investors.

It is recommended that issuers summarise in their CTB Framework the issuer's overarching sustainability and/or climate transition strategy to which the CT Projects contribute and incorporating disclosures which align on a "best-efforts" basis with the four key elements of the Climate Transition Finance Handbook. This communication may also include other relevant contextual information such as external dependencies[13], enablers, barriers, infrastructure needs, fiscal incentives, etc.

External Reviews

It is recommended that issuers appoint (an) external review provider(s) to assess through a pre-issuance external review the alignment of their CTB or CTB programme and/or Framework with the four core components (i.e. Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds and Reporting) as defined above.

Post issuance, it is recommended that an issuer's management of proceeds be supplemented by the use of an external auditor, or other third party, to verify the internal tracking and the allocation of funds from the CTB proceeds to eligible CT Projects.

There are various ways for issuers to obtain external input to their CTB process and there are several types of review that can be provided to the market. Issuers should consult the Guidelines for External Reviews which have been developed to promote best practice, for recommendations and explanations on the different types of reviews. They are a market-based initiative to provide information and transparency on the external review processes for issuers, underwriters, investors, other stakeholders and external reviewers themselves.

The Guidelines encourage external review providers to disclose their credentials and relevant expertise and communicate clearly the scope of the review(s) conducted. Issuers should make external reviews publicly available on their website and/or through any other accessible communication channel as appropriate and if feasible, as well as use the template for external reviews available in the sustainable finance section of ICMA's website.

13 For a list of potential dependencies, see the entity-level Guidelines by the UK Transition Finance Council.

3 Sustainability-Linked Bonds for high-emission issuers

High-emission issuers willing to commit explicitly to future emission reductions at the entity-level can issue Sustainability-Linked Bonds ("SLBs") aligned with the Sustainability-Linked Bond Principles ("SLBP") to finance the implementation of their climate transition strategy. When communicating sustainability and/or climate transition strategies, issuers are strongly encouraged to incorporate disclosures which align on a "best-efforts" basis with the four key elements of the Climate Transition Finance Handbook. In addition, they should specifically consider the guidance below drawn from the Guidance Handbook of the Principles.

3.1 Selection of key performance indicators

For high-emission issuers of SLBs, one or more of the key performance indicators ("KPIs") should monitor GHG emission reductions – either direct results (i.e. absolute/intensity GHG emission metrics) or supportive proxies (i.e. metrics that act as levers to advance GHG emission reduction targets)[14]. Since 2021, the Principles have provided a regularly updated Illustrative KPI Registry that includes high-level recommendations as well as illustrative examples for the selection of KPIs for SLBs. In cases where a Scope 3 GHG emissions KPI/SPT is not feasible, issuers may consider using a "green" CapEx KPI or supportive proxies to demonstrate their commitment and progress towards reducing GHG emissions in their industry[15].

High-emission issuers of SLBs should otherwise select KPIs in relation to the specific sectors and local context with ambitious SPTs based on a combination of benchmarking approaches, such as historical and externally verified values, those selected by the issuer's peers, and industry or sector standards, incorporating recognised "Best-Available Technologies" (BAT) or other proxies in the sector/industry. Targets should be set at a minimum, to be in line with official country/regional/international targets and when possible, should aim to go beyond such levels. For example, climate-related targets should be set in line with "science-based" scenarios[16].

3.2 Alignment and independent validation of sustainability performance targets

Should credible decarbonisation pathways exist for a given region and/or sector, it is strongly recommended that high-emission issuers of SLBs establish ambitious targets which are aligned to these. Annex 2 of the Guidelines provides a non-exhaustive list and an overview for the existing official sector and market-based taxonomies and pathways and roadmaps to help issuers identify the relevant sources. Also, in June 2022, the Principles released a Methodologies Registry which provides a non-exhaustive, yet comprehensive list of available tools, methods, scenarios, and initiatives dedicated to the validation of specific emissions reduction trajectories/pathways.

While independently validated or approved targets are not strictly speaking needed to support an SLB issuance, it is recognised that for high-emission issuers of SLBs, investors may value independent validation of targets as "science-based". Furthermore, investors may view such validation (or intent to secure validation) where available/feasible (be it through the Science Based Targets initiative (SBTi) or comparable science-based frameworks or scientific decarbonisation scenarios such as those from the Accelerate Climate Transition (ACT) initiative and the International Energy Agency (IEA) as best practice and as serving to enhance the credibility of any stretching SPTs presented via a sustainability-linked bond[17].

14 See Introduction (p3), CTFH 2023.
15 See Q 4.2.4 "Can "green" CapEx be used as a KPI?", Guidance Handbook.
16 See Q 4.3.1 "How should differences in the sector, geography, governing laws and environmental policies be reflected when defining the ambition of SPTs?", Guidance Handbook.
17 See Q 4.3.8 "Are SBTi [or SBTN] approved targets needed to issue an SLB?", Guidance Handbook.

Annex 1 – Preliminary and non-exhaustive CT Project categories

The preliminary and non-exhaustive list of CT Project categories includes but is not limited to:

1. **Carbon Capture, Utilisation and Storage (CCU, CCS), and carbon removal technologies,** applied to fossil-based energy and industrial applications including associated infrastructure investments for CO2 transportation and storage, excluding uses for enhanced oil recovery.
2. **Early retirement and decommissioning of high-emission assets,** including the permanent early retirement of coal-fired power plants (CFPPs).
3. **Fossil fuel switch (e.g. coal to gas)** demonstrably replacing a higher emitting fuel and subject to infrastructure design allowing the future integration of low-carbon alternatives, monitoring and control of methane and other fugitive emissions, and CCUS, as relevant.
4. **Lower-carbon fuels** including their production, use, purchase, and enabling infrastructure investments.
5. **Methane and flaring abatement in oil & gas infrastructure** existing as of the initial publication date of the Guidelines. Eligible measures should be aligned with long-term decarbonisation goals and exclude uses for enhanced oil recovery, greenfield exploration and production activities[18].

It is recognised that several additional project categories may be eligible through alignment with the definition and safeguards of the Guidelines. The relevance and specifics of CT Project categories may also vary across geographies. Furthermore, they are likely to evolve over time as low-carbon alternatives become available and feasible through technological progress and innovation, as well as improved economics.

The Guidelines also acknowledge the difficulty of drawing a line between a CT Project and a Green Project and confirm that the ultimate classification remains with the issuer based on its own assessment and methodology aligned with the definition and safeguards for CT Projects (including additional safeguards for CT Projects substantially relating to fossil fuel infrastructure or activities). This assessment may include, among other things, the levels of ambition and technical performance thresholds existing in taxonomies (e.g. green vs. amber or decarbonisation measures), net-zero pathways and roadmaps, established market practices and investor expectations, the analysis of relevant contextual factors such as the technical aspects of projects, and/or the ambition level of the issuer's transition strategy and plan.

18 Guidance on additional safeguards, potential projects and activities, and KPIs may be sought from the Guidance for Including Methane Abatement in Oil and Gas Debt Structuring, as well as the SBTi's Financial Institutions Net-Zero Standard v.1 published in July 2025 (see pp. 34-35 notably).

Annex 2 – Overview of official sector and market-based tools for transition finance

This annex provides an illustrative and non-exhaustive list and an overview for the existing official sector and market-based taxonomies, pathways and roadmaps to help issuers identify the relevant sources.

Taxonomies

Taxonomies incorporate diverse approaches to accommodate the complex nature of the transition and the needed safeguards. These include the recognition of interim performance improvements (known as the "amber" category), sunset dates or forward-looking pathways embedded in technical criteria.

Taxonomies can be used by issuers for a number of purposes when raising transition finance, including a) to credibly identify green and transition activities, projects, and investments for use of proceeds (UoP) bonds; b) to support the disclosure of decarbonisation investments and green CapEx in entity-level transition plans; and c) as an SLB KPI and SPT, as recognised by the Illustrative SLB KPI Registry.

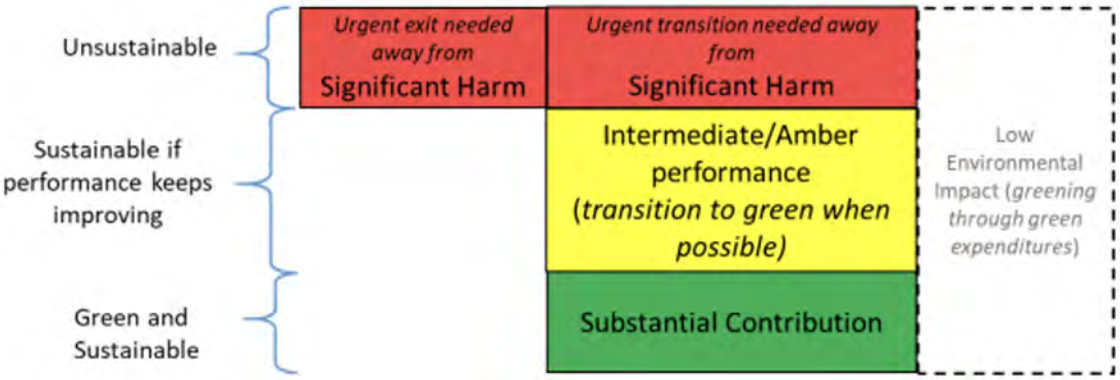
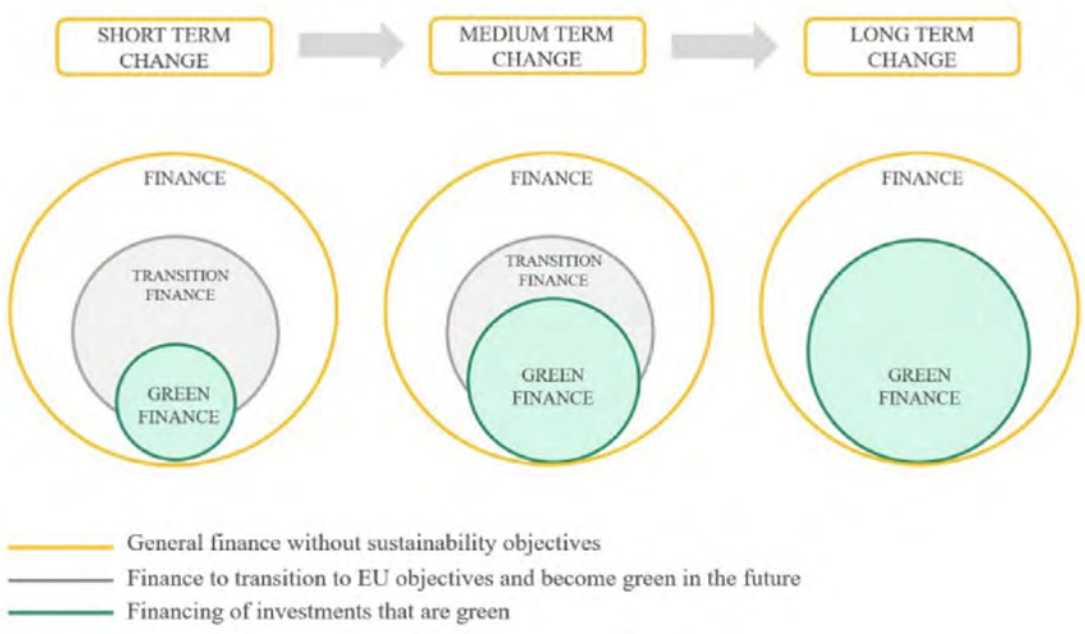
The table below provides a non-exhaustive overview of how transition is reflected in some official and market-based taxonomies:

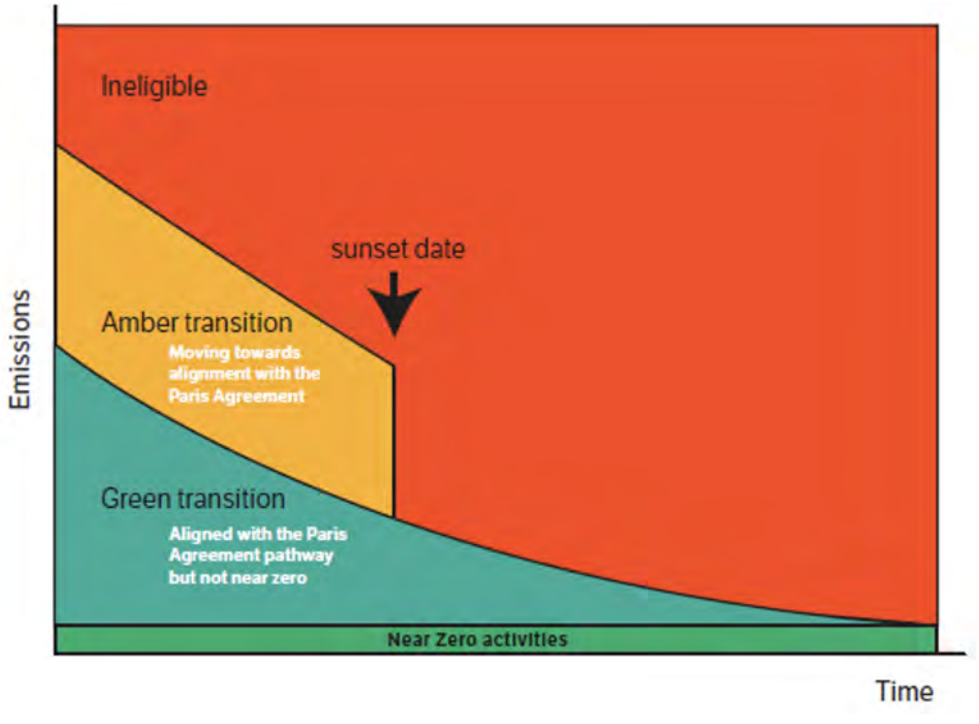
Taxonomy	Overview
ASEAN Taxonomy (v3)[19]	The ASEAN Taxonomy adopts the approach of a traffic-light system ("Green", "Amber", "Red") based on (i) a principles-based Foundation Frameworks (FF) which applies a qualitative assessment to activities through a sector agnostic decision tree and (ii) a Plus Standard (PS) with detailed technical criteria, metrics, and thresholds. Six focus sectors (1) Agriculture, forestry, fishing, (2) Electricity, gas, steam and air conditioning supply, (3) Manufacturing, (4) Transportation & storage, (5) Water supply, sewerage & Waste management, (6) Construction & real estate) and three enabling sectors ((1) Information & communication, (2) Professional, scientific & technical, (3) Carbon capture, storage & utilisation) have been prioritised under the PS. The Technical Screening Criteria under the PS may be based on quantitative or qualitative (e.g. process or practice-based) assessments or assessment based on the nature of the activity. The PS allows the classification of activities into three tiers: • *Green – Tier 1:* based on 1.5°C-aligned science-based pathways (e.g. for power generation, lifecycle GHG emissions by the entire facility to be <100 gCO2e/kWh.) • *Amber – Tier 2:* activity supports transition towards Green within a defined time frame and results in a contribution which is at least as good as the lowest carbon emitting technology that is technologically feasible for widespread use in ASEAN, with a prescribed sunset date, or enables or promotes the implementation of a Green activity (e.g. for power generation, lifecycle GHG emissions by the entire facility to be ≥100 and <425 gCO2e/kWh). • *Amber – Tier 3:* activity is in line with meeting NDC reduction targets of ASEAN countries that do not have a net zero 2050 timeline (e.g. for power generation, lifecycle GHG emissions by the entire facility to be ≥425 and <510 gCO2e/kWh); or while meeting TSC for Green or Amber-Tier 2, the activity does some significant harm to other objectives, which will be remediated within 5 years. Not meeting the DNSH criteria does not lead to immediate disqualification as "remedial measures", when already commenced or to be implemented within five years, allow activities to qualify for Green or Amber-level performance categories.

19 A 4th version is expected to be published in Q4 2025.

Taxonomy	Overview
	As the ASEAN Taxonomy foresees that "Amber" tiers will be gradually phased out over time and performance will converge into the Green level, sunsetting approach will guide the evolution of relevant technical criteria. Activities not meeting the criteria for "Green" or "Amber" Tiers under the FF or PS are automatically classified as "Red". An example would be coal or oil power generation without CCUS.
Australian Sustainable Finance Taxonomy (Version 1 – 2025)	Version 1 of the Taxonomy prioritises the climate change mitigation objective for six priority sectors, namely (i) Agriculture and Land, (ii) Minerals, Mining and Metals, (iii) Manufacturing and Industry, (iv) Electricity Generation and Supply, (v) Construction and Buildings, (vi) Transport. As per the Taxonomy's methodology, the Green classification applies to: a) Low or zero emissions substitutes which need to meet the corresponding performance requirements set out in the Technical Screening Criteria (TSC) consistent with a 1.5°C pathway; b) High-performing activities with no low-emissions alternative that need to meet the relevant TSC which are consistent with a 1.5°C pathway and may include additional requirements to mitigate risks of carbon lock-in; and) Enabling activities which directly enable the decarbonisation of another activity. The Transition criteria generally apply to entities seeking finance to decarbonise components of their economic activities (i.e. assets, projects, facilities) where the activity produces an output with a stable or growing demand profile in a post-net zero economy, and has material Scope 1 and 2 emissions. Where an activity has a low-emissions alternative, measures are not available for a new activity, as there is an expectation that the whole activity should meet green criteria. For new whole activities without a low or zero-emissions alternative, such as mining, measures can be accessed. The two types of transition criteria are: 1) *decarbonisation measures* which include eligible technologies, processes, practices, materials and/or services that improve the emissions performance of an activity without necessarily making the whole activity green; 2) *Transition criteria (whole activity)* provided, in limited cases, where an assessment is made that it can feasibly reach alignment with green criteria in the short to medium term, thus covered with a sunset date generally.
China's Catalogue of Green Finance Supported Projects (2025 Edition)	The 2025 version of the China's Green Finance Endorsed Project Catalogue harmonises the identification of projects eligible for green and transition finance across bond and loan markets. The updated list encompasses nine major sectors (including energy conservation and carbon reduction, environmental protection, resource recycling, green and low carbon energy transition, ecological protection, restoration and utilisation, green infrastructure upgrades, green services and two newly-added primary categories – green trade and green consumption), 38 secondary categories, and 271 tertiary categories. On transition, a new secondary category "green and low-carbon transition of key industrial sectors" is added, targeting hard-to-abate industries, including but not limited to iron and steel, non-ferrous metals, petrochemicals, chemicals, and building materials on activities such as improvement of energy efficiency, process optimisation and equipment upgrades. The catalogue adopts a "white-list", measure-based approach providing mainly descriptive eligibility criteria, with China's national (GB) and industry-specific standards (such as GB/T) now applying to certain tertiary categories. Apart from creating a new transition-related secondary category, a new labelling system is introduced that classifies tertiary-category activities into two types – those given a double-tick mark are activities with direct (i.e. absolute or relatively significant) carbon emission reduction benefits, while those given a single-tick mark are activities that provide no direct contributions but are significantly contributing to emission reductions in other sectors.
The Climate Bond Initiative (CBI)'s Taxonomy and Sector Criteria	The Climate Bonds Taxonomy and its more detailed Sector Criteria constitute the cornerstone of its Certification Scheme. Climate Bonds provides Sector Criteria for the industrial sectors, such as Electrical Utilities, Basic chemicals, Cement, Steel, and Hydrogen but also the agricultural sectors, buildings, transport, and bioenergy. These Sector Criteria are applicable at different levels to allow the certification of measures/projects, asset, entities and sustainability-linked bonds. The criteria for individual sectors rely on a variety of eligibility approaches used on a stand-alone or combined basis. See below some selected examples for the Steel sector: • *Decarbonisation measures and projects that are automatically eligible:* e.g., optimisation of Electric Arc Furnace (EAF), installation and operation of other mitigation measures associated with EAF facilities.

Taxonomy	Overview
	• *Decarbonisation measures eligible if leading to a certain outcome in existing facilities:* e.g. measures which lead to a reduction of emissions intensity (tCO2/t steel) in a steel blast furnace facility that has become operational before 2007, by at least 50% between 2022 and 2030. • *Facility-level criteria for investments differentiated for newer and older facilities:* e.g., production line with a blast furnace (operational in or after 2007) where a bundle of decarbonisation measures lead to at least 20% of reduction in the facility's emissions intensity (tCO2/t steel) between 2022 and 2030 if the baseline emissions are at 2 tCO2/t steel or greater; and by 2030, the emissions intensity should be below 1.8 tCO2/t steel. • *Tiered entity-level criteria (Level 1 – "Aligned" and Level 2 – "Transitioning"), requiring quantitative intensity values to be met over a declining emissions pathway, at least by 2030.* The Sector Criteria may also provide examples for decarbonisation CapEx for certification which may qualify on their own or if their implementation cumulatively leads to a certain outcome, e.g. X% reduction of emissions intensity in a facility as shown above. Examples for the steel sector include: Heat recovery systems, optimisations of Electric Arc Furnace (Oxyfuel burners, EAF scrap preheating, CHP from waste heat) and of Blast Furnace (Pulverize Coke Injection, Top Gas Recycling, Stove waste gas heat recovery), recovery of Basic Oxygen Furnace gas and sensible heat, high efficiency burner, flue-gas monitoring, combustion optimisation, exhaust gas heat recovery, near net-shape casting, advanced sensors and digitised control equipment and systems, sinter plant heat recovery, CCU and CCS, infrastructure, revamps or modifications of equipment needed for the production of steel using hydrogen or biomass as reducing agent, electrification of reheating furnacing. Specific Sector Criteria may also provide case studies and worked examples for these criteria, as well as requirements to comply with for climate adaptation and resilience and other process-based requirements including to demonstrate how measures are implemented over the life of a certified bond.
EU Taxonomy	The EU's Taxonomy Regulation establishes a framework to facilitate sustainable investment. For this purpose, the Regulation establishes the criteria for determining whether an economic activity qualifies as environmentally sustainable for the purposes of establishing the degree to which an investment is environmentally sustainable. An economic activity shall qualify as environmentally sustainable where that activity: a) contributes substantially to one or more environmental objectives defined by the Regulation; b) does not significantly harm any of the environmental objectives defined by the Regulation; c) is carried out in compliance with minimum safeguards; and d) complies with technical screening criteria (TSC) that have been established by the Commission. In the field of climate change mitigation, in addition to low-carbon economic activities, the EU considers that the transition also requires substantial reductions in greenhouse gas emissions in other economic activities and sectors for which there are no technologically and economically feasible low-carbon alternatives ("transitional activities"). The Taxonomy Regulation specifies that a transitional activity shall qualify as contributing substantially to climate change mitigation only where it supports the transition to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1.5ºC above pre-industrial levels, including by phasing out greenhouse gas emissions, in particular emissions from solid fossil fuels, and where that activity: (a) has greenhouse gas emission levels that correspond to the best performance in the sector or industry; (b) does not hamper the development and deployment of low-carbon alternatives; and (c) does not lead to a lock-in of carbon-intensive assets, considering the economic lifetime of those assets. In March 2022, the EU Platform on Sustainable Finance published a report on Taxonomy extension options supporting a sustainable transition. The Platform recommended to extend the Taxonomy framework to classify economic activities that do not qualify as environmentally sustainable as follows: a) unsustainable performance requiring an urgent transition to avoid significant harm (or Red) b) intermediate (or Amber) performance activities which operate between significantly harmful and substantial contribution performance levels c) unsustainable, significantly harmful performance where urgent, managed exit/decommissioning is required (or Red) and d) low environmental impact activities which do not have a significant environmental impact and should not be regarded as either red, amber or green.

Taxonomy	Overview
	In summary:  In the field of climate change mitigation, "amber activities" are, therefore, transition activities that do not qualify as substantially contributing to climate change mitigation and are therefore not green. In its June 2023 Recommendations on Transition Finance, the European Commission clarified how transition finance then relates to general finance and green finance, and how these different forms of financing might evolve in the short-, medium- and long term:  *Source: June 2023 Recommandations on Transition Finance* The intersection between green finance and transition finance covers the sub-set of transitional activities that are considered environmentally sustainable (i.e. green) by the EU Taxonomy. In this report, the European Commission also encouraged the use of the EU Taxonomy criteria as a target setting tool for significant performance improvements that fall short of the regulatory Taxonomy alignment.

Taxonomy	Overview
MDBs – IDFC Common Principles for Climate Mitigation Finance Tracking	The Common Principles define Climate Finance for Mitigation, i.e. a subcategory of Green Finance. They also define "transitional activities" as those which are still part of GHG-emissions systems but are important for and substantially contribute to the transition towards a climate-neutral economy, e.g. energy efficiency improvement in manufacturing that directly or indirectly use fossil fuels. The eligibility principles consist of: a) lack of technologically or economically feasible very-low-emission alternatives; b) compliance with high performance country- or sector-specific standards, benchmarks or thresholds for GHG emissions or emission-intensity that significantly exceed expected performance in a sector or activity; c) not hampering the development or deployment of very-low-emission activities; and d) not leading to a lock-in of GHG-emission-intensive assets that is inconsistent with the long-term goal of net-zero GHG emissions. These activities and investments can therefore be seen as green transition investments. For brownfield energy and resource efficiency investments, old technologies must be replaced well before the end of their lifetimes with new technologies that are substantially more efficient. For greenfield efficiency investments, new technologies or processes must enable substantially higher system-efficiency compared to those normally used in greenfield projects. More specifically, the Common Principles provides a list of eligible activities, projects, and measures across the sectors of (i) Energy, (ii) Mining and metal production for climate action, (iii) Manufacturing, (iv) Agriculture, forestry, land use and fisheries, (v) Water supply and wastewater, (vi) Solid waste management, (vii) Transport, (viii) Buildings, public installations and end-use energy efficiency, (ix) ICT and digital technologies, (x) Research, development and innovation, and (xi) Cross-sectoral activities. The Common Principles do not fix quantitative thresholds to accommodate MDBs' individual mandates and specific circumstances in the areas of their operation and to allow the application of other standards or taxonomies.
Singapore-Asia Taxonomy	The Singapore-Asia Taxonomy (SAT) is based on a traffic-light system ("Green", "Amber", "Ineligible") where: • The Green category includes both near-zero emission activities and those decarbonising in line with a 1.5°C pathway. New activities should generally meet the criteria and thresholds for the Green category. • The Amber category is mainly relevant to existing assets and brownfield investments and includes activities currently not on a 1.5°C pathway, but are either moving towards Green or facilitating significant emissions reductions in the short term. In any case, amber activities have prescribed sunset dates as transition cannot last forever, usually by 2030, and for some hard-to-abate activities, by 2035. At the sunset date, there is no longer an amber category and either the activity is aligned with the 1.5°C pathway (Green category) or it is downgraded to the "Ineligible activities" category. This does not mean that the activity has to be at zero emissions by the sunset date but rather aligned with the 1.5°C pathway. • For some activities, there are no Amber criteria which means that Green alternatives are considered feasible. 

Taxonomy	Overview
	The SAT 2023 edition focuses on the climate change mitigation objective providing TSC for the sectors of Energy, Transport, Real Estate/Construction, Industry, Forestry, Carbon Capture and Storage, Information and Communications Technology, Waste, Water, Agriculture. In addition to facility-level and thresholds-based criteria, the SAT also incorporates a measures-based approach for some activities, such as basic chemicals, cement, and hydrogen. Among other things, this is intended to enhance the usability of the SAT for CapEx and labelled use-of-proceeds financial products. For example, for the Cement sector, measures for the Amber category include: heat recovery systems, digitised control equipment or infrastructure (including sensors and measurement tools and communication control, testing equipment (e.g. automated XRD systems), electrification of heat (e.g. electrified kiln processes), installation, upgrade, and operation of CCS (subject to SAT's Green criteria), and measures enabling the use of hydrogen in cement production where hydrogen is aligned with the SAT's Green criteria. For hard-to-abate industries, since such measures-based approaches are more flexible, they need to be supported with 1.5°C aligned transition plans. SAT also provides detailed facility-, entity-, and power system-level criteria for the managed coal phase-out activities. While coal phase-out falls outside the SAT's "traffic light" system, it still qualifies as transition finance. In March 2025, the Monetary Authority of Singapore (MAS) published an Information Note on the Application of the Singapore-Asia Taxonomy in the Financial and Corporate Sectors. In July 2025, Singapore Sustainable Finance Association (SSFA) published Guidance for Leveraging the Singapore-Asia Taxonomy in Green and Transition Financing which aims to guide market participants notably on the practical application of transitional criteria of the SAT.
Chile's Taxonomía de actividades económicas MAS	Chile's Taxonomía de Actividades Económicas Medioambientalmente Sostenibles (T MAS) - the Taxonomy of Environmentally Sustainable Economic Activities - was created as a country wide classification system that promotes transparency and efficiency in the market through a common language, simplifies the identification of sustainable investments and access to finance, contributes to efforts to improve environmental processing/ permitting, and generates reliable standards to curb the risk of green washing. The inaugural version, launched in 2025, identifies nine eligible economic sectors, chosen based on their current and potential contribution to Chile's GDP and their current or prospective impact on the six defined environmental objectives within the T-MAS. These nine economics sectors cover (1) agriculture, livestock, forestry, fishing and aquaculture, (2) mining and quarries, (3) manufacturing industries, (4) electricity, gas, steam, and air conditioning supply, (5) water supply and wastewater management, waste management and decontamination, (6) construction, (7) real estate activities), (8) transportation and storage, and (9) information and communication. The taxonomy distinguishes three tiers of contribution to the T-MAS' environmental objectives: • Direct Contribution activities that deliver tangible sustainability outcomes for one or more of the environmental objectives • Enabling activities whose substantial contribution to one or several Environmental Objectives is not direct but enables other activities' direct substantial contribution provided that: o It does not involve the retention of assets that undermine the Environmental Objectives in the long term, taking into account the economic life of those assets; and o It has a substantially positive environmental effect when the whole life cycle is considered (European Union, 2020). Examples of such enabling activities are the transmission and distribution of electricity, or the transportation of renewable and low-carbon gases • Transition activities whose substantial contribution to one or several Environmental Objectives is not direct, but support a shift toward a climate neutral economy in a manner compatible with the 1.5 °C target to limit global temperatures above pre-industrial levels. This is achieved by the progressive phase out of greenhouse gas (GHG) emissions, especially those from fossil fuels, when no lower carbon alternatives that are technologically and/or economically viable exist. Additionally, these activities must: o Achieve GHG emission performance that matches the best-in-class benchmark for the respective sector or industry; and o Not hinder the development or deployment of low carbon alternatives, nor retain carbon intensive assets beyond their economic lifetime

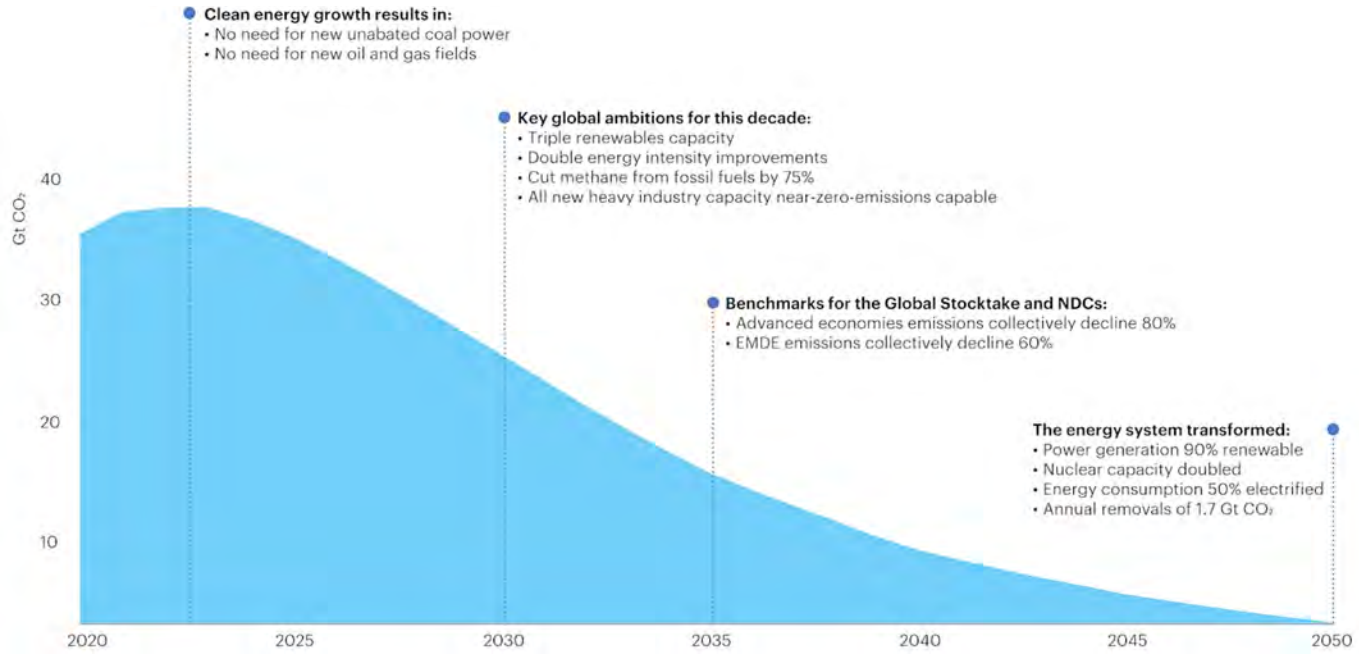
Taxonomy	Overview
	All sectors included in the T-MAS encompass a broad set of activities, each subject to science-based technical screening criteria that identify best in class environmental performance. Certain activities within sectors are defined as transition, such as: - Agriculture, Livestock, Forestry, Fishing and Aquaculture Sector: e.g. Industrial marine fishing; - Mining and Quarrying Sector: e.g. Extraction of metallic minerals (copper, gold, lithium, etc.) from primary sources (underground or open pit mines) and from secondary sources (e.g. re processing of tailings); - Industrial Manufacturing: e.g. Manufacture of wood and cork products; Manufacture of fertilisers and nitrogen compounds; manufacture of cement; Food processing - Electricity, Gas, Steam, and Air-conditioning Supply Sector: e.g. Generation of electricity from gaseous fossil fuels
South African Green Finance Taxonomy 1st Edition (2022)	In March 2022, South Africa published its Green Finance Taxonomy which covers at the moment the objectives of climate change mitigation and climate change adaptation as well as the sectors of (i) Agriculture, Forestry and Fisheries, (ii) Industry, (iii) Energy, (iv) Water and Waste, (v) Transportation, (vi) ICT, (vii) Construction, and (viii) Enabling Activities, System Resilience & Innovation. To qualify, an economic activity should (i) contribute to substantially to at least one environmental objective; (ii) do no significant harm to the other taxonomy objectives; and (iii), meet minimum social standards. The Taxonomy accommodates transitional activities. An economic activity for which there is no technologically and economically feasible low carbon alternative, is considered to contribute substantially to climate change mitigation as it supports the transition to a low carbon economy by phasing out greenhouse gas emissions, in particular from solid fossil fuels, where that activity: a) has greenhouse gas emission levels that correspond to the best performance in the sector or industry; b) does not hamper the development and deployment of low-carbon alternatives; and c) does not lead to a lock-in in carbon-intensive assets considering the economic lifetime of those assets. The Technical Screening Criteria of the Taxonomy include both (i) “Principles” that provide the underlying rationale for how the activity will result in a substantial contribution and/or avoidance of significant harm to the environmental objective in question and (ii) “Metrics and Thresholds”, i.e. the method(s) by which the environmental performance of the economic activity will be measured, including defining the boundary for this measurement and the qualitative or quantitative conditions which must be met to enable the performance of the activity in a way that is considered environmentally sustainable.

Pathways and roadmaps

Science-based and Paris-aligned pathways and roadmaps are highly relevant for transition finance as they:

- Help issuers position their sustainable bonds under broader credible decarbonisation strategies, benchmark the ambition of SLB targets, and showcase the relevance selected technologies for use-of-proceeds financing.
- Inform transition plans by providing details on the expected evolution of decarbonising economies and sectors, as well as on key assumptions, dependencies and limitations. Accordingly, they serve as a key reference to entities' transition targets to showcase ambition and to support the transparency on the implementation of transition plans.
- Provide a basis against which financial institutions can assess the compatibility of investments against their own transition targets and plans.
- Inform policymakers on the needed enabling policy support for the uptake of future technologies and infrastructure, and where needed, for the development of more granular taxonomies, notably by informing how thresholds would evolve for included sectors and activities.

At an international level, **the IEA scenarios** and pathways have been particularly influential and authoritative. IEA's Net Zero by 2050 report (updated in 2023) provides over 400 key milestones and technologies on the pathway to reach net zero in relation to low emissions sources of electricity, unabated fossil fuels in electricity generation, road transport, shipping and aviation, steel and aluminium, cement, primary chemicals, space heating, space cooling, energy efficiency and behavioural change, hydrogen, carbon capture, utilisation and storage, bioenergy, energy access and air pollution, and fossil fuel supply (see here).



Source: A roadmap to net zero by 2050, IEA

In October 2025, **IEA** also published its report "Scaling Up Transition Finance" which provides analyses to map the landscape for transition finance, explains why it matters, and highlights approaches that could move the debate forward. The report also examines the role of transition finance in the steel and cement, critical minerals, and the natural gas sectors. By way of example, the report indicates that technologies eligible for transition finance in the cement sector may include energy efficiency, bioenergy-based fuels and electric kilns without CCUS on process emissions, and CCUS with partial capture rates while those in the iron and steel sector include energy efficiency, gas-based direct reduced iron, partial electrification, charcoal and scrap-based production with partial emissions reductions. The report further presents findings from a survey of financial institutions on transition finance, along with an assessment of current challenges and emerging trends.

There is a variety of available sector-specific guidance and pathways, some of which are widely used for transition financing (e.g. those provided by the Science-based Targets Initiative (SBTi), the Transition Pathway Initiative (TPI), and the Network for Greening the Financial System (NGFS)). In June 2022, the Principles also released a Methodologies Registry which is a non-exhaustive, yet comprehensive list of available tools, methods, scenarios, and initiatives dedicated to the validation of specific emission reduction trajectories/pathways.

The **World Economic Forum's** Net Zero Industry Tracker (2024 edition) analyses the progress of eight sectors, namely, aviation, shipping, trucking, steel, cement, aluminium, primary chemicals, and oil and gas, in achieving net-zero emissions by 2050. It offers stakeholders a framework and methodology to understand the key drivers of industrial emissions, highlights the key steps that the industries must take to further progress towards their respective emission reduction goals across five key dimensions of the readiness framework – technology, infrastructure, demand, capital and policy. Each dimension has a readiness score based on a set of metrics. Among other things, it also provides an assessment and scoring for technology readiness levels for low/near-zero carbon technologies for the covered sectors.

In June 2025, **Methane Finance Working Group** published a thematic "Guidance for Including Methane Abatement in Oil and Gas Debt Structuring".

Some key jurisdictions have also started developing sector roadmaps to support transition in their hard-to-abate industries by also considering local circumstances.

The ASEAN Transition Finance Guidance (v2) acknowledges that there are challenges for entities in ASEAN when selecting a reference pathway. It provides (i) a non-exhaustive list of commonly used reference pathways by sector with characteristics such as geographical granularity, emissions scope, emissions metrics, and temperature outcome and (ii) guidance on how entities may augment reference pathways to more accurately reflect their operational and geographical setup. The Economic and Research Institute for ASEAN and East Asia also published a report, Technology List and Perspectives for Transition Finance in Asia (updated April 2025), which provides a comprehensive inventory of essential technologies for decarbonisation and assesses the potential of various transition technologies based on key criteria, including emissions impact, affordability, and reliability/maturity.

In Australia, the Climate Change Authority released in October 2024 its review of the potential technology transition and emissions pathways for the Australian Government to reach net zero emissions by 2050. The review considers the pathways for six sectors – agriculture and land; built environment; electricity and energy; industry and waste; transport and resources – to decarbonise. It identifies barriers and proposes strategies and actions to address them.

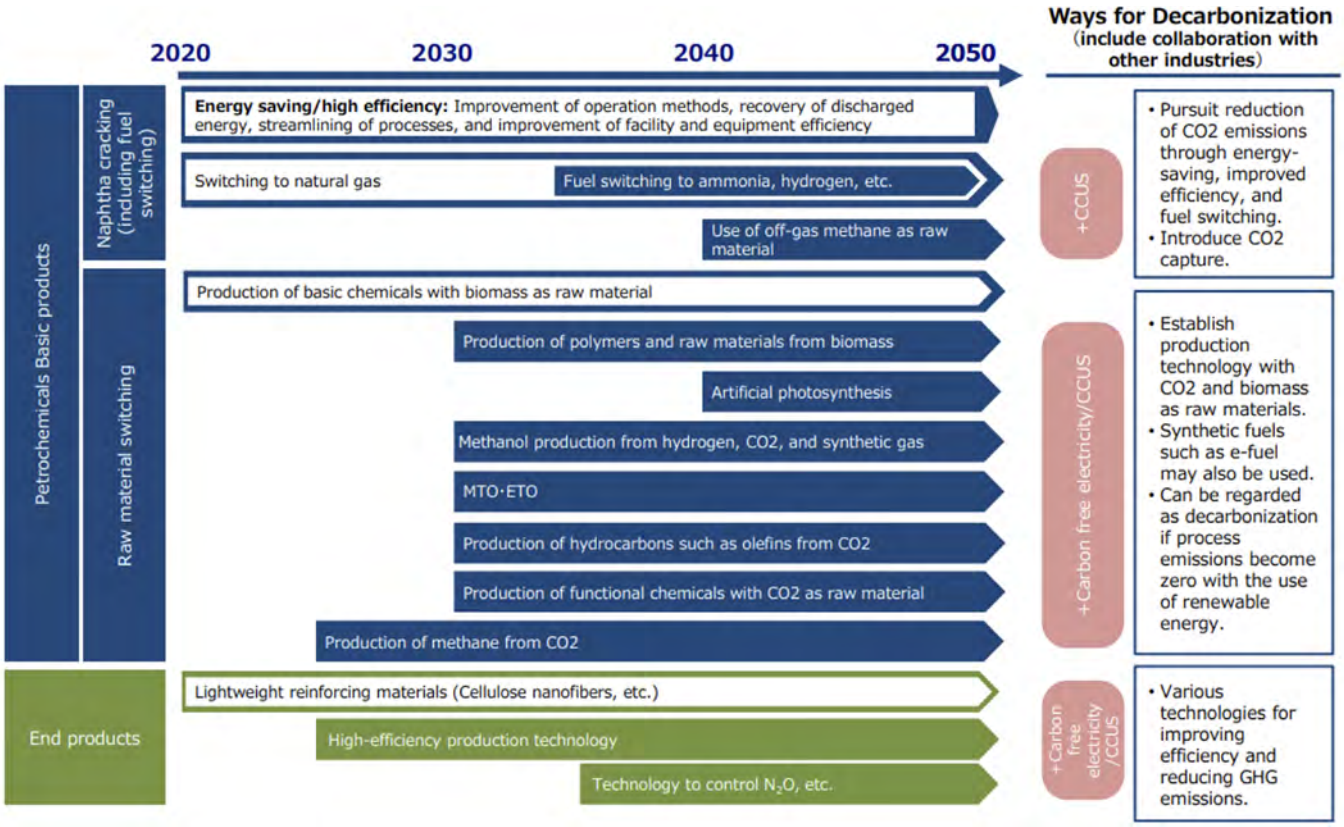
In China, at least a dozen guidelines on technical pathways for decarbonisation in carbon-intensive industries have been issued and implemented at provincial, municipal, and city levels. For example, In December 2023, Hebei Province released its Transition Finance Guidelines for the Iron and Steel Industry which include 176 whitelisted eligible activities, transition plans and emission targets for 2025, 2030, and 2060, as well as incentives for downstream industries (e.g. for automotive sector) for the purchase of green steel. The latter aims to address the green premium-induced demand gap which has been highlighted a key bottleneck highlighted by several industries and international stakeholders. At the national level, the People's Bank of China has made significant progress in developing sectoral standards notably for four key sectors (steel, coal power, building materials, and agriculture) with these standards currently being piloted in selected regions. It was also reported that the PBoC is currently developing new transition finance standards covering seven new sectors including shipping and chemicals.

The European Commission (EC) provides transition pathways for European industrial systems, among which the qualitative pathway for the chemical industry focused on green and digital transitions. The EC's recommendation on transition finance (2023) recommends entities consult these pathways when considering transition finance. The Clean Industrial Deal (February 2025) roadmap for competitiveness and decarbonisation also signals future and ongoing engagement with several emission intensive sectors for sector specific action plans.

In France, the Environment and Energy Management Agency (ADEME) published sectoral transition plans for 9 sectors.

In Japan, the decarbonisation roadmaps developed by the Ministry of Economy, Trade and Industry (METI) for the sectors of iron and steel, chemicals, power, gas, oil, pulp and paper, cement, and automobile have been used to raise transition finance including through labelled financial instruments. They provide expected corporate actions and potential decarbonisation technologies and levers over an implementation timeline towards the 2050 carbon neutrality objective. METI also published selected case-studies for the application of its roadmaps for transition finance in different sectors. In addition, the Ministry of Land, Infrastructure, Transport and Tourism has developed roadmaps for international shipping, domestic shipping, and aviation for transition finance.

Extract for illustration (Chemical Sector)



Source: Technology Roadmap for "Transition Finance" in Chemical Sector, METI

In the Republic of Türkiye, the Ministry of Industry and Technology developed sectoral low carbon pathways in collaboration with EBRD for steel, aluminium, cement and fertilisers sectors in 2023 and 2024.

The UK Transition Plan Taskforce resources, currently hosted by the ISSB's Knowledge Hub, include specific sector guidance for Asset Managers, Asset Owners, Banks, Electric Utilities & Power Generators, Food & Beverage, Metals & Mining, Oil & Gas, as well as a comprehensive Sector Summary for 30 financial and real economy sectors including guidance on the recognised decarbonisation levers; metrics and targets; and key sources of guidance for a transition plan.

The UK Transition Finance Council in August 2025 published "Sector Transition Plans: The Finance Playbook" which provides a practical framework for embedding finance into sector transition plans and technology scale-up roadmaps. Furthermore, draft entity-level Guidelines alongside a first consultation have been released in the same month, with a second consultation expected to be published in November 2025.

In February 2025, **the Institutional Investor Group on Climate Change (IIGCC) published "the Principles for developing sector decarbonisation roadmaps - the investor perspective for policymakers"**. It sets out IIGCC's key principles for the design of these roadmaps, for the consideration of policymakers, to improve their effectiveness for investors in line with their individual net zero strategies and mandates. IIGCC states that if done well, the roadmaps can better allow policymakers to attract the long-term investment required to implement ambitious climate goals.

Annex 3 – Overview of guidance on avoiding carbon lock-in risks

The **OECD report** "Mechanisms to Prevent Carbon Lock-in in Transition Finance" (September 2023) points to the risk of carbon lock-in in transition finance, which occurs when fossil fuel infrastructure or assets (existing or new) continue to be used, despite the possibility of substituting them with low-emission alternatives, thereby delaying or preventing the transition to such alternatives. To prevent carbon lock-in to the extent possible, and ensure the environmental integrity of transition finance, relevant investments must be carefully selected and carried out with appropriate safeguards in place.

Among other things, the report states that transition finance definitions can be strengthened and made more transparent by providing clarity on how to assess feasibility as part of eligibility criteria, and by explicitly taking a long-term approach in the assessment. Transition finance approaches that credibly prevent carbon lock-in will provide a more detailed definition of what feasibility entails, notably by specifying the need to: a) take into account project costs in 2030 and beyond, using an appropriate net-zero scenario; b) take into account future costs of reinvestment in order to achieve net zero; c) appropriately assess and monetise transition risk, including by projecting it over a longer time horizon (2030 and beyond), as it may not immediately materialise; and d) explicitly acknowledge and address potential challenges related to institutional and social feasibility, which may affect economic feasibility, for example by providing adequate support, social protection, training, and reskilling to impacted workers, households, and communities.

The report presents key findings and good practices for carbon lock-in considerations in transition finance definitions, notably on the role of feasibility assessments, in financing and investment frameworks, and in transition financial instruments. As a summary and extract of some of the relevant aspects:

Addressing lock-in risks in financing and investment frameworks	Addressing carbon lock-in risks in transition financial instruments: Key findings and good practices
• Standards and frameworks for credible corporate climate transition plans, with net-zero targets based on the Paris temperature goal, are key tools to preventing carbon lock-in in transition finance. • National sectoral emissions pathways can guide technology roadmaps, robust transition taxonomy criteria, and similar tools, as well as allowing companies to develop credible net-zero plans and targets. • Excluding the most emission-intensive energy sources from eligibility for transition finance enhances the credibility of transition finance frameworks. • Actions to future-proof transition investments can include setting requirements with technical specifications that enable infrastructure for the use of low-emission and renewable fuels. • Sunset clauses for use of fossil fuels can reduce lock-in risk for assets where a fuel switch is planned to ensure alignment of the asset with the Paris temperature goal (e.g. a switch from natural gas to low emission hydrogen). • For assets where a fuel switch is needed to achieve alignment with the Paris temperature goal, flanking measures to ensure the switch can happen in a timely manner can contribute to preventing carbon lock-in. The examples of such measures include R&D and innovation investments, investments to support future low-emission fuel, contracts for low-emission replacement fuel agreed within a specified timeframe (ideally within three years of the initial investment), detailed and time-bound plans setting out a strategy of how the low-emission fuel will be used by the company. • Establishing a date for early retirement of assets that cannot be retrofitted or refurbished to be consistent with net zero, accompanied by a strategy to finance the retirement, as well as additional requirements for the managed phaseout of high-emitting assets (e.g. specific phase-out plans as part of transition plan frameworks including key metrics and milestones, etc.)	• To reduce the risk of lock-in, it is important that green and transition bond frameworks and standards clearly distinguish between green and transition eligible activities, in line with applicable taxonomies or other relevant eligibility requirements disclosed by the issuer. Credibility can also be enhanced by linking frameworks with corporate transition plans, and by using ambitious KPIs and SPTs that are linked with key milestones designed to prevent carbon lock-in. • Where they finance transition activities or projects involving fossil fuels, such as natural gas-based energy production for a limited period (when blending with or before switching to 100% renewable or low-emission gases), credibility can be ensured through additional verification requirements and reporting on forward-looking indicators like sunset requirements and flanking measures. The same logic applies to investments in efficiency improvements of fossil fuel assets, or ammonia co-firing in coalfired power plants, where explicit and detailed information on key milestones to achieve net zero should be reflected in KPI and SPT requirements. • The development of standards and frameworks for SLBs is necessary to strengthen the credibility of this instrument and address emerging loopholes which increase the risk of lock-in of related investments. • Eligibility criteria of standards and frameworks for transition financial instruments should be regularly updated and reassessed as factors affecting feasibility evolve. Wherever green or transition eligible projects include activities that are emission-intensive because of feasibility hurdles, feasibility should be regularly reassessed in case technological, economic, regulatory, or political and social conditions change over time. Wherever innovative and not fully tested and scalable net-zero technologies are used, details should be provided on the associated Capital Expenditure (CapEx) required, the feasibility of the technology used and any foreseen limitations, constraints, and uncertainties to their application.

The **Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment of New Operations** defines carbon lock-in as follows: "Carbon lock-in occurs when, due to technical, economic, or institutional factors associated with a given investment, an emissions-intensive asset is expected to continue to operate even after there are feasible—and economically preferable— lower-carbon options that could replace it."

The **Methodology to determine the Paris Agreement alignment of EBRD investments** (March 2024) (the "EBRD Methodology") requires that qualifying projects present low likelihood of carbon lock-in to give assurance that the project does not enable an emissions-intensive asset to continue to operate when economically preferable, lower-carbon options could replace it.

As per the EBRD's Methodology, the risk of carbon lock-in is considered low where the project entails investment in assets that will cease to operate in an emission intensive way in the near future (generally less than 10 years) or where the project does not involve investments in any physical assets.

The EBRD's Methodology also sets specific lock-in considerations in the sectors of Energy, Buildings, Transport, Waste, and Agribusiness. Please see in detail the Annex 4 of the EBRD Methodology.

For all other projects, a detailed assessment including questions tailored to individual sectors is conducted. These questions focus on: (i) the project's commercial arrangements (e.g. to assess whether carbon intensive operation will continue when greener alternatives are expected to become available); (ii) the market structure of the project sector (e.g. lack of regulatory framework promoting low carbon alternatives or project's dominant position potentially deterring market entry); (iii) the wider project context (e.g. whether the project country has credible decarbonisation commitments or carbon pricing policies); (iv) the cost structure of the project assets including sunk cost assessments and how the costs compare to future lower carbon alternatives and current more emissions-intensive alternatives.

If carbon lock-in risk is observed, projects are required to incorporate project-specific features considering demonstration of low carbon readiness and client commitment to decarbonise in line with the mitigation goals of the Paris Agreement, either at the asset or company level.

Contact details

ICMA Paris

25 rue du Quatre Septembre

75002 Paris

France

sustainabilitybonds@icmagroup.org
PrinciplesHelpdesk@icmagroup.org

www.icmagroup.org