

Financing credible transitions

How to ensure the transition label has impact



Table of Contents

Executive summary	3
1. Introduction	8
1.1 Climate change: at the heart of the SDGs	8
1.2 Mobilising finance for the Paris Agreement	9
1.3 What we mean by transition	9
2 The climate mitigation transition	10
2.1 A framework to capture the diversity of transition	10
2.2 Five Transition Principles to avoid greenwashing	12
2.3 The framework in practice – illustrative examples	16
3 A guide for users – what credible transition means in practice	18
3.1 Activity and entity level transitions	18
3.2 Granular measures to decarbonise	19
4 Implications for transition finance	21
4.1 Opportunities for investors	21
4.2 A need for a ‘transition’ label?	21
4.3 Practical considerations when portfolios are mixed	24
4.4 Sustainability-linked financing	24
5 A review of market transactions	25
5.1 Energy and utilities	26
5.2 Energy distribution	27
5.3 Agriculture	27
5.4 Hard-to-abate sectors	27
6 Stakeholder views – the debate	28
7 Next steps	29
Annex 1: A review of selected guidance	30
Annex 2: Other stakeholders’ approaches and commentary	34
Annex 3: Stakeholder views – the detail	36
Endnotes	39

Executive Summary

The UN's 17 Sustainable Development Goals (SDGs) frame a future where it is possible to imagine air that is cleaner than what we breathe today, where everyone can access clean water and where climate change is restrained to avoid threats to peace and our survival.¹ To achieve that from where we are today, we urgently need to reverse rising greenhouse gas (GHG) levels and help communities and economies to adapt. This will require entities with some of the highest emissions levels to reimagine themselves, planning and implementing transition pathways in a world that has renewed priorities for GHG management and climate resilience.

Green and sustainable bonds have become an increasingly important tool to finance these transitions. As the market has grown, so too has the breadth of assets and activities that is being financed to cover a more diversified cross-section of the global economy. Large GHG emitters, however, are still largely absent and present an opportunity for the markets to aid their sustainable transition. But while such actors have not played a significant role in the green finance market to date, they have a vital role to play in reducing global emissions – and are often key constituents in mainstream investment portfolios.

The need for a robust transition framework to avoid greenwash

In order to fill this gap, those issuers which felt locked out from the green bond market have utilised the 'transition bond' concept and label, and have provided a valuable solution for high carbon emitting sectors to finance their transition.

However, labelled - "transition", "sustainable" - transactions to date have utilised different definitions of transition. Consequently, some investors have expressed concerns around the lack of a set of robust, industry-adopted standards for transition instruments and that this lends itself to the potential for greenwashing – i.e. that the label is being used as a catch all for activities that are a 'bit green' but are not linked to a Paris-aligned transition pathway and therefore have very limited impact in moving the needle on reducing global emissions.

This should not be the case. The transition concept and any associated label could and should be a useful tool for identifying sectors and entities that are making ambitious transitions, as a complement to the existing green label. As the market expands to encompass new sectors and issuers that need to be rapidly decarbonised, a common, coherent and scientifically credible framework for this transition is needed. Without that, hesitancy will thwart progress at the time when action is most needed.

Investors are supportive of a global definition of a credible and ambitious transition

Climate Bonds Initiative undertook in-depth interviews with stakeholders including issuers, banks and policy makers to understand their thoughts about transition. The following key messages came across:

- **Ambition is essential for any definition of transition** – it should mean a *significant* reduction in GHG emissions relative to current practice *and* alignment with the Paris Agreement.
- **Strong support for issuance to be accompanied by an entity-level carbon reduction strategy** consistent with Paris Agreement targets.
- **Transition should be applicable to high emissions sectors** – although a distinction was drawn between activities that are needed in the future (iron and steel) and those that are "stranded" (coal). Better guidance on transition pathways is needed, ideally with emissions thresholds, particularly for some sectors and activities.

This paper presents a framework for identifying credible transitions aligned with the Paris Agreement

This paper has two purposes:

- 1. Define transition as a concept** by presenting a starting point for the market to see a credible brown to green transition as ambitious, inclusive and aligned with the Paris Agreement (thereby avoiding greenwash).
- 2. Put forward a framework for use of the transition label** in practice and propose clearly demarcated roles for both a green and a transition label.

Underpinning these proposals is recognition that the nature of transition differs for different entities - depending on the need and substitutability of their economic activity and its near-term and long-term potential to decarbonise. The proposals therefore embrace transition in a variety of activities, entities and technologies across the global economy, including those less readily accepted within the current green bond market, and by extension, transition finance delivered via a range of financial products.

A starting point – 5 principles to protect from greenwash

To achieve ambition, we need transition pathways that have end-goals for environmental factors that are consistent with planetary boundaries and have sufficiently ambitious trajectories to get there. A prerequisite is developing transition pathways to move from today's high GHG emissions to levels commensurate with meeting the goals of the Paris Agreement. That is our 'climate mitigation transition'.

To drive this ambition, we propose the following 5 principles for a transition with impact.

Importantly, any entity, activity or project meeting these principles is substantially contributing to meeting the goals of the Paris Agreement and should therefore be eligible for capital that has a climate or environmental mandate. This provides wide scope to support the growth of a large, liquid market for both already net-zero and transition-related activities.



1. In line with 1.5 degree trajectory

All goals and pathways need to align with zero carbon by 2050 and nearly halving emissions by 2030.



2. Established by science

All goals and pathways must be led by scientific experts and be harmonised across countries.



3. Offsets don't count

Credible transition goals and pathways don't count offsets, but should count upstream scope 3 emissions.



4. Technological viability trumps economic competitiveness

Pathways must include an assessment of current and expected technologies. Where a viable technology exists, even if relatively expensive, it should be used to determine the decarbonisation pathway for that economic activity.



5. Action not pledges

A credible transition is backed by operating metrics rather than a commitment/pledge to follow a transition pathway at some point in the future. In other words, this is NOT a transition to a transition.

An inclusive framework – promoting an economy-wide transition

Only a minority of economic activities operate at zero or near zero emissions today. For some high-emitting activities, feasible low- or zero-emissions solutions are available or credibly envisaged within a reasonable timeframe - transition should be towards those solutions. For others, there are no such solutions, but substitute low-emission activities exist or are in development - transition should be away from those activities and towards the better alternatives.

To account for these differences, we have categorised economic activities based on:

- i. how long the product or service delivered by the activity will be needed (which depends in turn on the availability of low-carbon substitutes); and
- ii. the viability of decarbonising the activity so that it aligns with the Paris Agreement.

This gives rise to 5 categories for economic activities:

Enabling Activities cut across all of the categories above. Within each category, there are activities whose biggest contribution to transition will not be their own decarbonisation, but the decarbonisation they enable elsewhere. In other words, the goods and services they produce are essential to enable other activities to follow Paris aligned decarbonisation pathways – e.g. manufacture of wind turbines or metals recycling or carbon capture and storage.

NEAR ZERO

Activities already at or near net-zero emissions that may require some further decarbonisation but not a significant transition - e.g. wind power generation.

PATHWAY TO ZERO

Activities needed beyond 2050 and have a clear 1.5-degree decarbonisation pathway – e.g. shipping

NO PATHWAY TO ZERO

Activities that are needed beyond 2050 but at present, do not have a clear 1.5 degree decarbonisation pathway to 2050 – e.g. long-haul passenger aviation.

INTERIM

Activities currently needed but should be phased out by 2050 – e.g. production of energy from municipal waste

STRANDED

Activities that cannot be brought into line with global warming targets and have an alternative, low-emissions substitute – e.g. electricity generation from coal.

A flexible framework – applicable to whole entities, everything they do and a range of associated financial products

It is also important to note that the transition concept is applicable at both an activity and an entity-level. This goes beyond the Use of Proceeds model in the green bond market where, for example, a green label is appropriate at an activity-level for an oil company building a wind farm but not appropriate for the entire entity.

In this framework, we propose that the transition concept is also applicable to whole entities if the entire company is on a transition pathway. We do note, however, that the work to map out specific transition pathways for whole entities and determine credible indicators for their transitions is still at a nascent stage.

The implication of this is that the transition concept is also applicable to a broader range of financial products. For whole entities, this may include equity investments, sustainability-linked loans/bonds and general purpose bonds. For activities, this includes asset-backed securities and Use of Proceeds bonds (already well-used in the current green bond market).

Who do we propose should use the transition label and how?

Following the principles outlined above would ensure all resulting transition investments are aligned with the goals of the Paris Agreement and as such can be viewed as green.

That said, we do believe there is a useful distinction to be made between activities that do not have a long term role to play in a low carbon economy (due to their high emissions) and those that do (despite their high emissions), and this can provide the foundation of a demarcated 'transition' label.

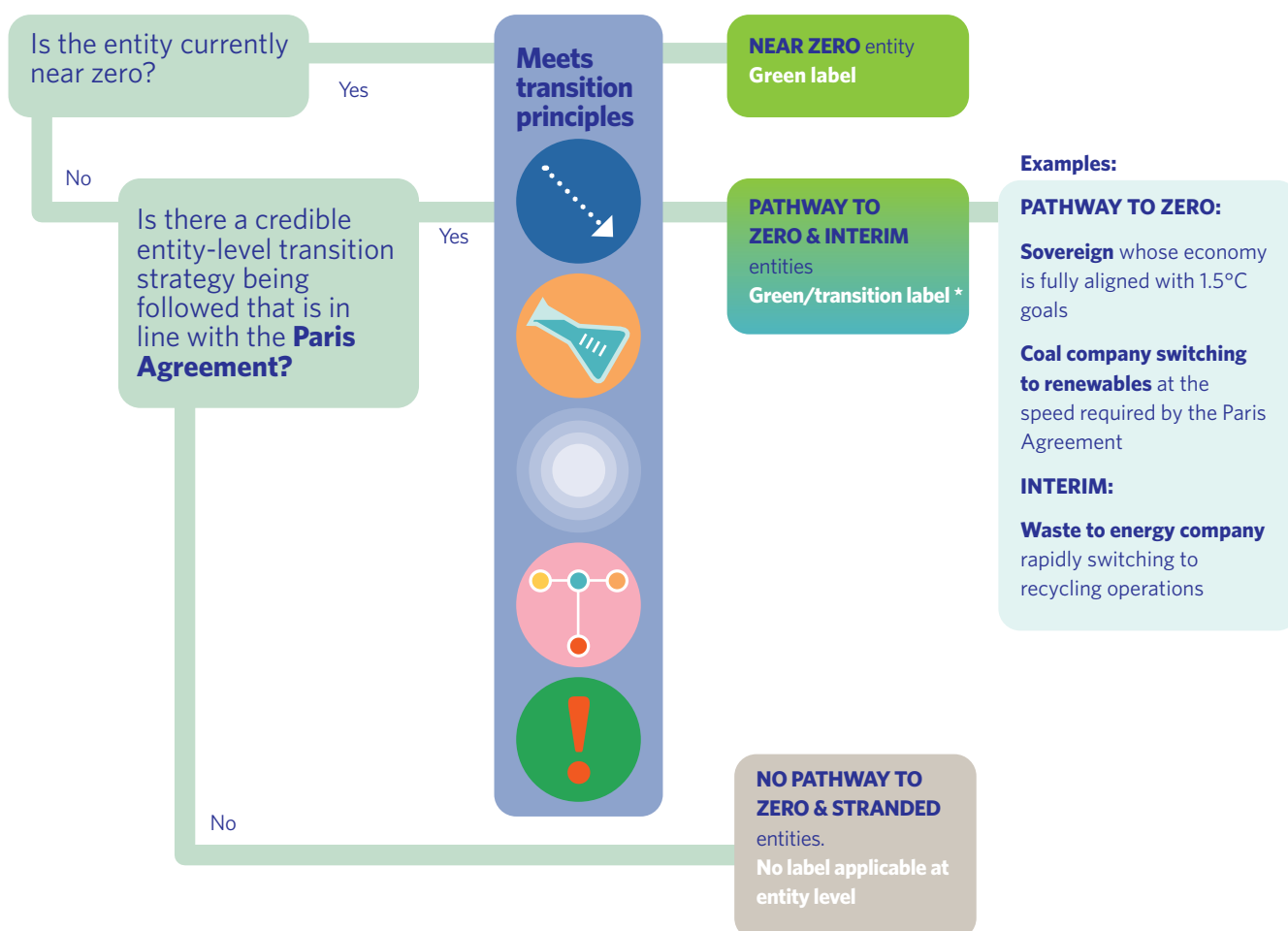
In broad terms, we propose that the green label continue to be used for eligible investments (i.e. that meet the Principles) in activities or entities that have a long-term role to play and are either already near zero or are following decarbonisation pathways in line with halving global emissions by 2030 and reaching net zero by 2050. And also for investments in activities and entities that enable those activities and entities.

And the transition label can be used for eligible investments that:

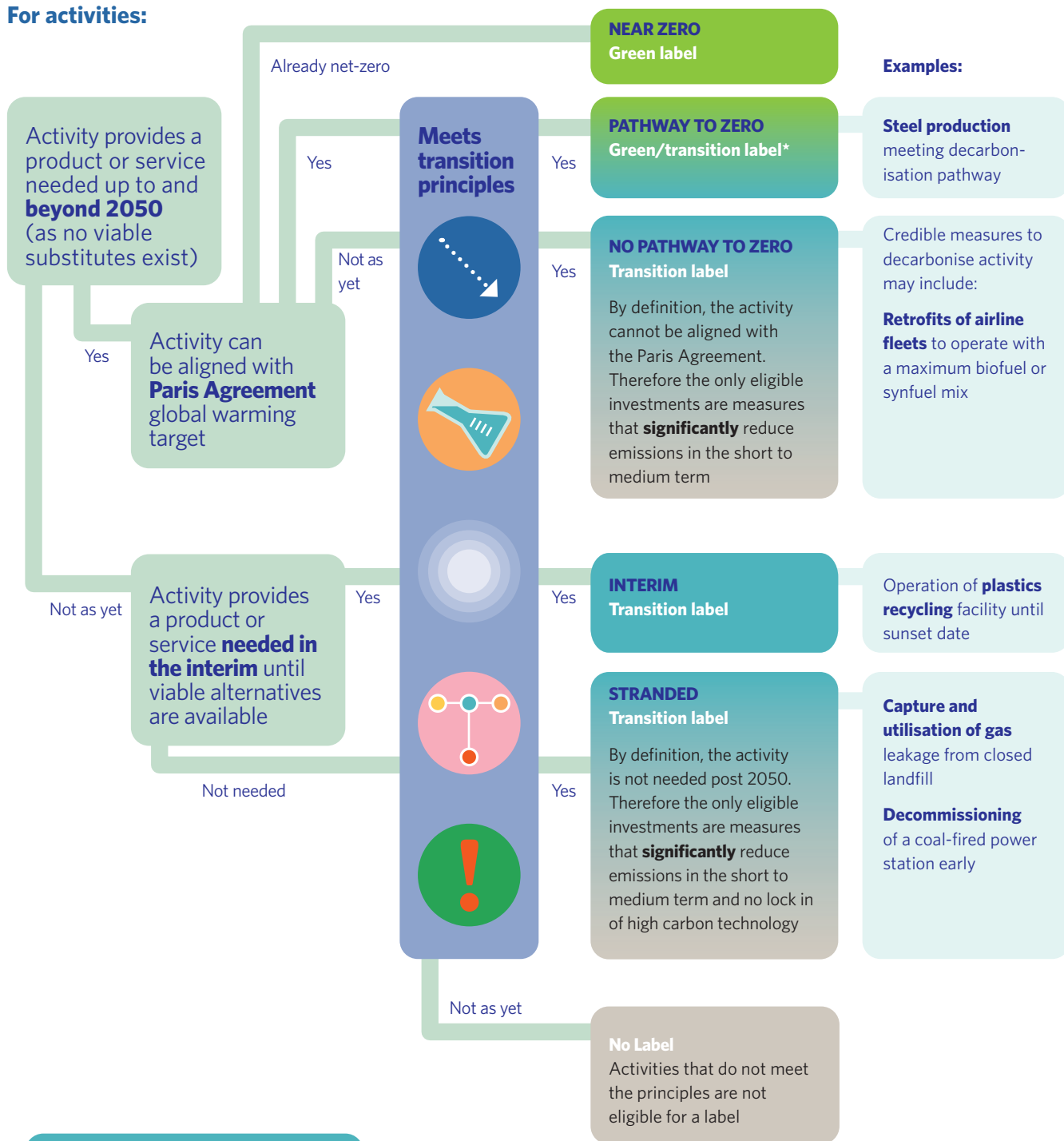
- are making a substantial contribution to halving global emissions levels by 2030 and reaching net zero by 2050 but will not have a long term role to play; OR
- will have a long term role to play, but at present the long term pathway to net zero goals is not certain.

These proposals are illustrated in the two decision trees below.

For entities:



For activities:



ENABLING ACTIVITIES
Green/transition label*

These are essential goods and services in supply chains and cut across all of the categories. Their appropriate label depends on what they are essential to:

- If essential to Near Zero activities (e.g. manufacture of triple glazed windows) then the green label is applicable.
- If essential to No Pathway to Zero activities (e.g. CCS), then the transition label can apply.

***Why can green or transition labels be used?**

This proposal leaves open whether 'pathway to zero' investments be labelled as green or transition. In theory, they can be labelled as green as they are aligned with the Paris Agreement. However, given the current lack of consensus on appropriate, viable transition pathways for some activities, flexibility is built in if a more cautionary approach is preferred in the short term.

How would this proposal apply to transition bonds already issued?

To illustrate the above, here are a few examples of bonds already issued and whether or not the proposed transition label would have been appropriate.

Repsol green bond, 2017: Proceeds funded energy efficiency projects and technologies to reduce fugitive methane emissions from refineries. However, neither the use of proceeds, nor the corporate strategy were at the time aligned with the Paris Agreement. In 2019, Repsol committed to be zero net carbon by 2050 meaning that either the transition or green label may be applicable for future bonds depending on the detail and alignment with the 5 Principles put forward in this paper.

Cadent transition bond, 2020: Proceeds were directed to adaptation of the gas network for hydrogen as an energy carrier. The company explicitly aligned with the EU (draft) Taxonomy. It excluded natural gas network expansion and applied tight EU thresholds for biogas. Such explicit alignment with the EU (draft, at the time) taxonomy has not yet happened often and is an important contribution to transitioning to near zero activities, subject to addressing fugitive emissions.

EBRD green transition bond, 2019: Proceeds supported investment in 'hard-to-abate' sectors' to finance substantial energy efficiency improvements in chemical, cement and steel production and agribusiness, among others. Projects should also not lock-in carbon-intensive assets or processes in the longer term. It excluded new fossil fuel generation. The criteria set out by EBRD broadly follow the principles we outline above but do rely on the development of trajectories to fully articulate. However, by focussing on assets and activities in sectors with pathways to zero the bond does fit the broad requirements for a green label.

There are gaps

As noted above, the transition framework and principles are inclusive. However, they are predicated on the availability of clear guide-rails for transition pathways for all activities and entities across the economy. However, while some of this exists, many gaps remain.

Existing material is largely focused on those activities that will be needed in a post 2050 economy. There is little guidance for stranded activities or for those high emitting industries, where energy efficiency or shifting fuels will not be enough. More specific pathways are needed for industries such as oil & gas, mining and heavy industry. While these are being developed, it is recommended that borrowers and investors select a pathway they believe is credible and provide transparency on the source of the pathway, the extent to which it does or does not meet these principles, and the rationale for its selection for the assessment of the activity or entity transition in question.

Next steps...

The concepts in the paper will be put out for consultation and discussion in the market so that they can be refined and improved.

In the meantime, there is a role for investors, issuers, academics, subject-matter experts, scientists and policy-makers to strengthen and reinforce the idea of an ambitious transition model around the world:

- 1. Investors:** socialise the definitions here with the sell-side and encourage future transactions to be aligned with the principles.
- 2. Issuers:** issue securities in line with the principles outlined.
- 3. Scientists, subject experts and academia:** help use the best available science and research to give further definition to appropriate transition pathways that exist today or are within sightlines.
- 4. Policy-makers:** lend a voice of support and contemplate how regulation could assist in incentivising this market to scale.
- 5. Market analysts:** test and use this transition concept to assess real transactions and financial products. More detail on how the Climate Bonds Initiative plans to do so is given in the box below.

Implications for the Climate Bonds Initiative

The Transition Framework proposed will have a number of implications for the work that the Climate Bonds Initiative does in collecting labelled bond data and in certifying debt instruments. The following areas are currently under consideration:

Certified Climate Bonds: We already certify many financial products relating to sectors and activities that could be classified as 'transition' under this framework and work is underway to develop criteria that define transition pathways in more of these sectors - industrial sectors such as cement and steel are particular priorities. These cover Use of Proceeds bonds, asset-backed securities and other debt instruments.

We are not currently able to certify whole-entity transitions but this is currently being explored and we hope to make an announcement on this in the coming year.

Climate Bonds Database: We currently collect data for green and other labelled bonds that is used as the base data for indices and indexes. For green bonds, the data is screened to ensure that bonds are aligned with the Climate Bonds Initiative Taxonomy. For social bond data, each bond is mapped against relevant SDGs but as no widely-accepted social taxonomy exists, the data is collected without any additional filtering.

For future transition bonds, we will collect and tag all bonds labelled as transition and categorise their uses of proceeds. We are also looking to develop a methodology to screen these deals in line with the framework outlined.

1 Introduction

The goal of this paper is to assist in the mobilization of global capital flows towards activities which enable the transition to a Paris Agreement-aligned economy, a critical requirement if the world is to achieve sustainable development.

To date, green finance frameworks and capital flows have been principally directed at activities which can be considered 'already green'. There has been significantly less investment into transitioning activities and assets that are associated with the highest carbon-emitting industries and businesses.

To this end, this paper addresses the following issues:

- How do we avoid 'greenwashing' when financing transition?
- How do those effecting their transition demonstrate that their actions are moving the needle and investors evaluate the impact of transition claims – i.e. that they have an impact?

To address this, we put forward:

- **A Transition Framework** in Section 2.1 that categorises economic activities based on the nature of their role in a global, economy-wide transition to the Paris Agreement targets, and describes the corresponding transitions needed from entities practicing those activities.
- **Five Transition Principles** in Section 2.2 where adherence to these principles signal the credibility of the transition ambition.
- **Illustrative examples** in Section 2.3 of entities, economic activities and specific use-of-proceeds taken from across the brown-to-green spectrum that fall into each transition category.
- **A proposal on the use of a 'transition label'** in Section 4 and our views on other key considerations relating to transition-related financial instruments.

These proposals build on and align with other work, particularly Climate Bonds Initiative's Taxonomy and more recently the proposed EU Taxonomy for Sustainable Activities, as well as the Green Bond Principles administered by the International Capital Markets Association.

Our objective is to create the foundation for capital markets to drive the mobilisation of large pools of investments dedicated to accelerating the transition to resilient, sustainable economies and societies. We hope this guidance can provide the basis for discussion, collaboration and broad market adoption of a comprehensive, robust and implementable concept of transition. We also hope that this results in greater consistency of how the term 'transition' is used across the market and make a meaningful contribution to economic transformation, rather than delivering incremental improvements.

Lastly, we would hope that this work could also inform the design of Covid-19 stimulus and industry bail-out packages, thereby linking the post-pandemic recovery to a more sustainable future.

1.1 Climate change: at the heart of the SDGs

The 17 Sustainable Development Goals (SDGs) were adopted as part of the 2030 Agenda for Sustainable Development by the UN General Assembly in 2015. This programme's objective is to secure peace and prosperity for all people and the planet. However, ending poverty and hunger, improving health and education, reducing inequality, supplying clean water and energy, strengthening the natural environment and establishing peace is not possible in a world where global temperatures continue to rise, and communities and economies are unable to adapt.

Addressing climate change is central to delivering the SDGs, but more than that, scientific evidence overwhelmingly points to this century reaching a tipping point for extreme weather volatility and intensity as a result of climate change, including a greater and more severe incidence of floods, storms and droughts. We will continue to experience accelerating global temperatures negatively affecting our food and water supply, health of our oceans and billions of livelihoods. And in relation to the crisis at hand, also at risk are our many fragile ecosystems which rely on planetary health and biodiversity. Yet on the current climate trajectory, we will likely experience further pandemics arising from pathogens jumping species and unique animal-to-human contact in climate-stressed habitats.

Already we are seeing the disruption caused by a one-degree temperature rise. The compounded effects if we do not tackle record high emissions now will be catastrophic and irreversible. Not only do we need investment to stave off the effects of climate change but investment is also needed to ensure that economies and societies are equipped to adapt and be able to recover from climate shocks. This is where we turn to the SDGs which help us to provide a blueprint for the areas where investment can both help mitigate and support resilience.

Addressing climate change requires fundamental and rapid transformations across all sectors of the economy, including those with the largest and hardest-to-abate emissions. Such transformations cannot be achieved through incremental improvements to established modes and systems alone. Climate action to date is neither broad nor deep enough to be responsive to the scale of the challenge faced. The question is no longer why or whether the global economy needs to swiftly move towards a low carbon, climate adapted, sustainable model, but rather how to urgently finance and operationalise the required transition.

1.2 Mobilising finance for the Paris Agreement

Our aim is to make finance consistent with the requirement for rapid shift to a low-carbon and climate-resilient world. Finance is beginning to flow: United Nations Framework Convention on Climate Change (UNFCCC)'s most recent Biennial Assessment on Climate Flows reports a growth in climate finance flows from USD584bn in 2014 to USD681bn in 2016 (the next biennial assessment is not yet ready).² Using slightly different definitions, Climate Policy Initiative reports flows of USD388bn in 2014, rising to USD546bn in 2018.³ However, we need at least USD3.5tn per year in energy systems investments alone,⁴ let alone other sectors of the economy that have to transition. The gap in investment required across the SDGs is around USD3tn per year just for developing countries.⁵ The UN estimates the climate and development finance gap to be around USD 5-7tn per year.⁶

Green and sustainable financial instruments have contributed to closing that gap. Sustainable investing has been increasing at pace, supporting global green bond market growth from zero in 2007* to almost USD800bn outstanding by the end of 2019.⁷ Hundreds of issuers have offered thousands of deals, now coming from more than 60 countries - the majority focussed on decarbonisation. Government-led initiatives such as the European Commission's Action Plan on Financing Sustainable Growth, regulator-commissioned initiatives such as the Task Force on Climate-related Financial Disclosures (TCFD) or investor campaigns like Climate Action 100+ all aim to accelerate the path to more sustainable business models funded by sustainable capital markets.

However, the speed and scale of climate investment is still far lower than necessary. Most use-of-proceeds finance has focused on sectors and activities for which climate action has been more straightforward. Green bond issuance to date is dominated by top-rated government-related entities (including water and public transport utilities), energy utilities, the real estate sector and financial corporates. Their uses of proceeds have been largely geared toward green buildings, renewable energy, energy efficiency and (public) transport. But action is needed across the broader economy in every industry, and finance will particularly need to support rapid change in high-emitting sectors such as heavy industry, manufacturing and agriculture. This will involve mobilising institutional investment at scale.

To gain an understanding of how the investment community is addressing climate change, in 2019 Climate Bonds Initiative surveyed 48 Europe-based fixed income investment managers representing EUR 13.7tn assets under management.⁸ The survey found broad interest among investors to support industry sectors that most urgently need to transition. When asked to identify the non-financial corporate sectors in which they would like to buy more green bonds, respondents highlighted industrials (e.g. transportation, manufacturing, machinery, services), utilities (e.g. electric, gas, water), consumer discretionary (e.g. automotive, retail, electronics), energy (including oil & gas, though often with a tendency to earmark desired issuance to renewable energy projects), and materials (e.g. metals & mining, chemicals, construction materials, forestry products). Committed ESG-motivated investors, looking for greater portfolio diversification and yield, are calling for a broader diversity of corporate issuers, uses of proceeds and credit ratings (including the non-investment grade universe).

Guidance on what qualifies as appropriate climate action, assets or activities can be provided by market-led (e.g. Climate Bonds Initiative Taxonomy⁹) or the regulatory-driven (e.g. EU Taxonomy¹⁰) initiatives. These establish the concepts and thresholds needed for investments in sectors that have to transition and decarbonise. Notably, the proposed EU Taxonomy includes cement, steel and aluminium production under the manufacturing sector, power generation from

renewable sources that can be high emitting (such as hydropower, geothermal power and bioenergy), agricultural production, buildings and transport, recognising them as 'transitional activities'. Disclosure against the EU Taxonomy will become mandatory for EU investors and corporates from 2021. Many other organisations are also engaged in establishing performance criteria for high-emitting sectors. Other market participants have published proposals to identify and categorise activities that achieve different levels of transition and cover a broader range of sectors. This provides a wealth of useful guidance - though it is important to note that there remain significant gaps and inconsistencies. A summary of existing input relevant to this discussion is given in Annex 2.

More recently, a small but growing number of bond issuers have used the term 'transition' (or labels like 'climate action bonds', 'sustainable transition bonds') to describe their transactions. Notable examples are discussed in Section 5.

In the absence of a market-adopted standard for transition bonds, some of these proposals and transactions have raised concerns in the market about inconsistencies across the various transition labels and the potential for greenwashing. This has led to calls for a framework and robust methodologies that provide clarity on the green benefits of transition-related use-of-proceeds and corporate strategies.^{11,12} Our survey also pointed out that market participants are in disagreement as to whether the transition-concept (whatever that may be) would be best supported by existing green use-of-proceeds bonds, 'transition' use-of-proceeds bonds, by bonds linked to KPIs relevant to corporate strategies, or a combination of these. Several respondents who act as bond underwriters report that prospective issuers out of high-emitting sectors which have not found access to the green bond market to date are studying the market with great interest - but are held back by the lack of guidance and perceived reputational risk associated with their industry or use of proceeds. The buy-side stresses a similar call for guidance for 'transition'-type products to maintain the credibility and rigorous standards of the now well-established green bond market. Section 6 summarises the views of market participants interviewed as part of this work.

1.3 What we mean by transition

Before going further, it is important to be clear what we mean by 'transition'.

Delivering sustainable development requires clear and agreed transition pathways that have end-goals for all of the environmental and social objectives embedded in the SDGs. These end-goals have to be consistent with planetary boundaries and social and societal objectives like the Paris Agreement for climate change, and also have sufficiently ambitious trajectories. This is easy to write, but challenging to implement, given the tangle of co-benefits and trade-offs, and the difficulty in establishing measurable metrics.

In this paper, our focus is on the transition that entities, activities and assets need to make from today's high greenhouse gas (GHG) emissions to levels commensurate with meeting the goals of the Paris Agreement. That is a 'climate mitigation transition'. We start here as this is the focus of most transition-labelled transactions to date, and climate change is integral to achieving many of the SDGs.

* The European Investment Bank issued the EIB Climate Awareness Bonds essentially created the green bond market in 2007. This concept was replicated a year later by the World Bank, upon bespoke demand by, among more, the Swedish AP buffer funds.

2 The climate mitigation transition

Who has a role to play in a decarbonisation effort to limit global warming to the levels targeted in the Paris Agreement? What is the nature of transition needed from them? How do they and other stakeholders, including investors, ensure that their transition claims are credible? To address these fundamental questions:

A Transition Framework is provided in Section 2.1 which categorises economic activities based on the nature of their role in a global, economy-wide transition to the Paris Agreement targets. It describes the nature of transition needed in respect of activities in each of those categories.

Five 'Transition Principles' are outlined in Section 2.2 which, when adhered to, signal the credibility of transition.

Examples are given in Section 2.3 to illustrate the Transition Framework and Transition Principles across the brown-to-green spectrum that we believe would fall into each category of transition.

A user guide follows in Section 3 to discuss how the Transition Principles can also be applied in practice to entities and activity level transitions, and to the more granular measures to reduce emissions within economic activities or to enable a transition away from certain economic activities. In summary, the Transition Framework and Transition Principles can be said to define a 'green transition', as they are tied to the Paris Agreement.

They are inclusive, with space for both traditionally 'green' and 'brown' actors to participate - given the need to decarbonise whole economies.

They are flexible by addressing whole entity transitions as well as the specific measures that deliver those transitions - in other words they are broad enough to encompass both tied (use-of-proceeds) and general-purpose finance.

They set a high bar, requiring operating performance to be aligned with Paris Agreement targets (so far as this can be determined*), rather than relying on promises for future change. This is necessary to avoid charges of green-washing, and also because the climate emergency dictates that we hold entities to account for their performance today.

2.1 A framework to capture the diversity of transition

Only a minority of economic activities operate at zero or near zero emissions today. The vast majority currently produce emissions that are substantially higher which need to transition to rapidly decarbonise.

For some high-emitting activities, feasible low- or zero-emissions solutions are available or credibly envisaged within a reasonable timeframe, and transition should be towards those solutions. For others, there are no such solutions, but substitute low-emission activities exist or are in development and so transition should be away from those activities and towards the better alternatives. For this reason, the nature of transition differs for different entities - depending on the activities they practice and the need and potential to decarbonise them.

Figure 1 illustrates the proposed framework for capturing this transition diversity. It categorises economic activities based on their role in a global, economy-wide transition to the Paris Agreement targets. Specifically, this categorisation depends on:

- how long the product or service delivered by the activity will be needed (which depends in turn on the availability of low-carbon substitutes); and
- the viability of decarbonising the activity so that it aligns with the global warming limits targeted in the Paris Agreement, taking into account its scope 1, 2 and 3 emissions.**

5 distinct categories for economic activities are identified:

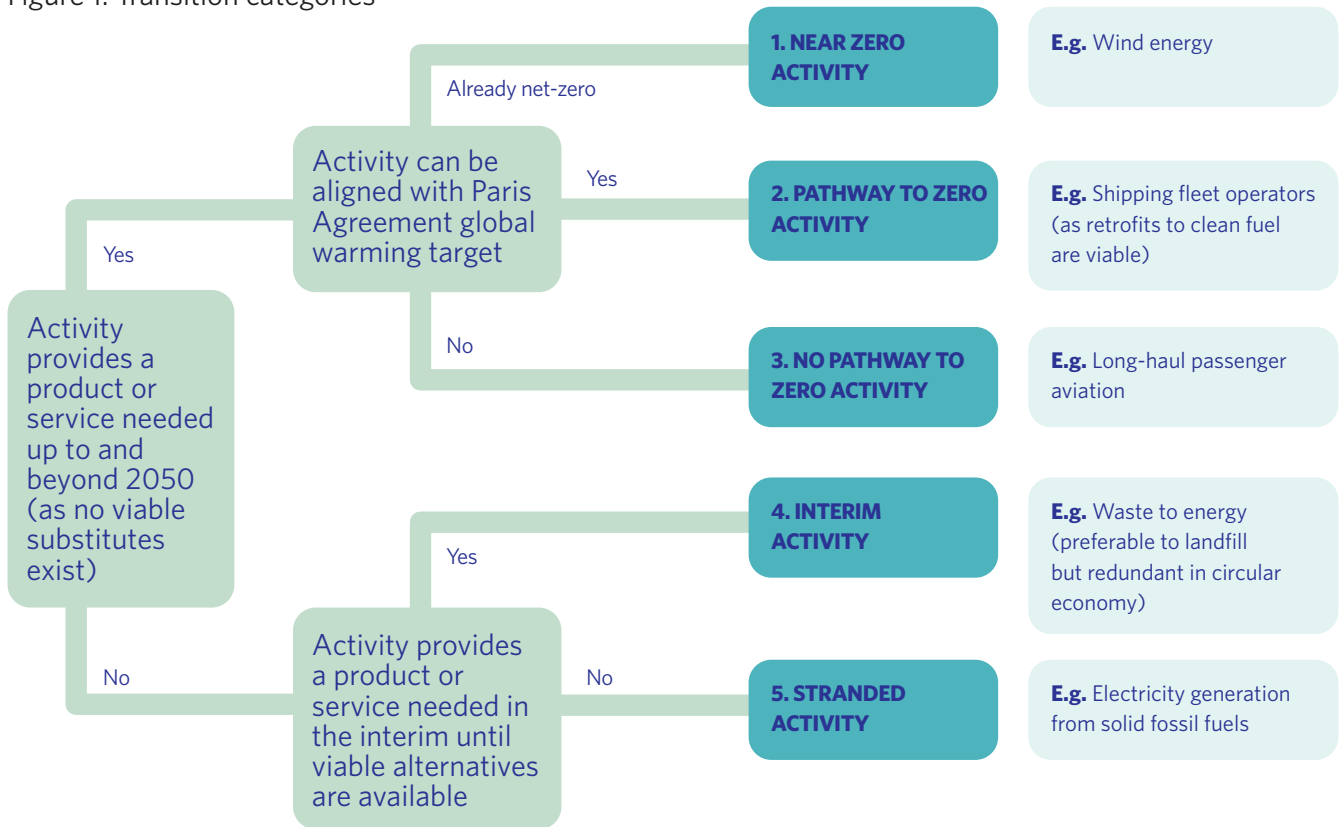
- 1. Near zero:** activities already at or near net-zero emissions that may require some further decarbonisation but not a significant transition*** - e.g. wind power generation.
- 2. Pathway to zero:** activities needed beyond 2050 and have a clear 1.5-degree decarbonisation pathway to 2050 - e.g. shipping.
- 3. No pathway to zero:** activities that are needed beyond 2050 but at present, do not have a clear 1.5 degree decarbonisation pathway to 2050 - e.g. long-haul passenger aviation.
- 4. Interim:** activities currently needed but should be phased out by 2050 - e.g. production of energy from municipal waste.
- 5. Stranded:** activities that cannot be brought into line with global warming targets and have an alternative, low-emissions substitute - e.g. electricity generation from coal or solid fossil fuels.

* The Paris Agreement targets are collective, global targets. How these are allocated to countries, and for the purposes of this work, to industries or economic sectors is a complex question with no fixed answer. For some industries it is not yet possible to give clarity on Paris-aligned transition pathways as either i) the emissions goal for that industry that is consistent with global warming targets is not clear, and/ or ii) the transition pathway to that goal is not clear due to uncertainties about e.g. technological solutions to reduce emissions.

** Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. See ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf for more detail. It is important to include scope 3 emissions here. This is not about determining liability or accountability for emissions within an entity's control. It is an attempt to look across the whole economy to determine which activities and their supply chains are or are not viable with a zero emissions future.

*** Such as reducing embedded emissions and increasing energy efficiency. But these improvements are relatively small compared to the emissions reductions required in other economic activities.

Figure 1: Transition categories



Enabling Activities cut across all of the categories above. Within each category, there are activities whose biggest contribution to transition will not be their own decarbonisation, but the decarbonisation they enable elsewhere. In other words, the goods and services they produce are essential to enable other activities to follow Paris aligned decarbonisation pathways – e.g. manufacture of wind turbines or metals recycling or carbon capture and storage. This indirect contribution to transition is addressed in more detail later in this section.

How does a credible transition look for entities and activities falling into each category?

- For 'Pathway to Zero' activities: decarbonise as fast as possible along appropriate transition pathways.
- For 'no pathway to zero' activities: reduce emissions as much as possible without locking-in technologies that might prevent future rapid decarbonisation.

- For 'Interim' activities: phase them out in line with their future sunset date, but in the meantime decarbonise them as fast as possible along appropriate transition pathways.
- For 'Stranded' activities: phase them out, but at the same time take any measures that can deliver substantial emissions reductions without locking in those stranded assets and technologies.
- For enabling activities in any of these categories: the primary objective is simply that the activity makes a substantial contribution to facilitating another activity to follow an appropriate transition pathway. Their own decarbonisation is a secondary priority.

N.B. Those with near zero activities do have a transition to make but as noted above, do not require significant decarbonisation and as such are not a focus of this paper.

A broader scope than the EU definition of transition

The transition framework put forward here is broader than the scope of transition in the proposed EU Taxonomy, addressing entity-level transitions as well as more familiar activity-level transitions. The proposed EU Taxonomy addresses only economic activities deemed critical to the economy in 2050. Our framework adds activities that are needed for an interim period and also stranded activities, given that emissions reductions are needed by entities practicing those activities too. Our framework also addresses measures that reduce emissions/ increase sequestration. Such measures are only addressed in the EU Taxonomy for a small number of economic activities.

The proposed EU Taxonomy does not make a distinction between what we call 'Pathway to zero' and 'No pathway to zero' activities, calling them all 'transitional activities' defined as activities which are not currently close to a net-zero carbon emissions level and

therefore must significantly enhance their performance, without lock-in to carbon-intensive assets or processes. Our framework splits these activities into two categories. This distinction becomes important when discussing appropriate labels (see 3.2).

Like the proposed EU Taxonomy, our framework incorporates the concept of 'enabling' activities – i.e. those that provide products or services enabling transition in other economic activities or sectors. These enabling activities would in theory inherently belong in one of categories 1-4 depending on their own longevity and decarbonisation viability. However, at this time, the transition priority for these activities is not their own emissions reduction but rather that of enabling the transition of other economic activities or sectors. The enabling contribution is deemed to significantly outweigh the direct emissions footprint. For this reason, such activities have been identified as a fifth category in the framework.

2.2 Five Transition Principles to avoid greenwashing

Five transition principles are summarised in Table 1 and further described below.

The principles define the characteristics of credible transition pathways and note that credibly transitioning entities and economic activities are those that are already following and will continue to follow such pathways - credible transition is not just making promises for alignment tomorrow. In summary, these transition pathways must align with 1.5 degree targets and have been established by the scientific and technical community, taking into account technological possibilities rather than economic competitiveness, and counting own contributions only (as opposed to emission offsets). The principles are consistent with the framework for evaluating transition activities in the EU Taxonomy.¹³

They encapsulate a scientifically robust transition, aligned with internationally agreed climate change goals. The climate emergency dictates that we push for rapid and ambitious transition - anything else is a distraction.

Table 1: Summary of the Transition Principles for activity and entity level transitions

Principle	Details
1. Credible transition goals and pathways align with 1.5°C global warming limits	<ul style="list-style-type: none"> Transition goals and pathways need to align with global targets for net zero emissions by 2050 and a nearly halving of emissions by 2030. Compatibility with Nationally Determined Contributions (or strategies aligned with that) is not automatically sufficient. Neither are pathways that are exclusively defined in terms of best in class benchmarks (such as best available technologies).
2. Credible transition goals and pathways are established by the climate science community and are not entity specific	<ul style="list-style-type: none"> The expertise of the climate science community and technical experts is needed to navigate the complexity of allocating global GHG budgets between industries and economic activities. Using the science as a common base for commonly applied transition pathways maximises the chance of global emissions reductions reaching the scale needed to limit global warming to the agreed targets, and ensures comparability between transitioning activities and entities in the same industry.
3. Credible transition goals and pathways don't count offsets, but should count upstream scope 3 emissions	<ul style="list-style-type: none"> Pathways should not account for emissions reductions generated through separate activities, including purchased offsets, but should address scope 1 and 2 and <i>upstream</i> scope 3 emissions as far as this is practically possible.
4. Credible transition goals and pathways take into account technological viability, but not economic competitiveness	<ul style="list-style-type: none"> Development of transition pathways must include assessment of current and expected technologies. Where a viable technology exists, even if relatively expensive compared to business-as-usual technology, it should be used to determine the appropriate decarbonisation pathway for that economic activity.
5. Credible transition means actually following the transition pathway - pledges, policies and strategies alone are not sufficient	<ul style="list-style-type: none"> Actual operating metrics are the key indicators of performance, not simply pledges or the implementation of policies and procedures that may or may not deliver operational outcomes. Activities/ entities must be able to credibly demonstrate how they will follow the transition pathway over the financing term, and regular assessment is required to demonstrate that transition is continuing at the necessary scale and pace. In some situations, this will require activity/ entity level decarbonisation plans and targets matched to the financing term.



PRINCIPLE 1: Credible transition goals and pathways align with 1.5°C global warming limits

Per the Paris Agreement, governments have set a shared goal of keeping global temperature rise this century well below 2°C and ideally within 1.5°C. The benchmark of credible transition should be alignment with pathways consistent with 1.5°C global warming limits, given that:

- i. the scenarios for 1.5°C give us only a 50:50 chance of keeping global temperatures to that level; and
- ii. in reality, there will be laggards who do not meet the decarbonisation thresholds, and unfortunately others will need to compensate for that if we are to limit warming to well below 2°C.

In its *Special Report on Global Warming of 1.5°C (SR15)*¹⁴ the Intergovernmental Panel on Climate Change (IPCC) presented pathways with no or limited overshoot of 1.5°C.

In these pathways, **global emissions need to drop by 45% from 2010 levels by 2030 and down to net zero globally by 2050**. Entity and activity specific transition pathways should align with this goal.



PRINCIPLE 2: Credible transition goals and pathways are established by the climate science community and are not entity specific

The 1.5°C warming goal is a collective, global target for decades into the future. How global GHG budgets should be allocated to countries and to economic sectors, and how these allocations evolve over time, is a complex question. This complexity is compounded by uncertainties over future emissions levels and therefore decarbonization needs, and technological capabilities. In essence, different industries will have greater or lesser potential to reduce emissions/ increase sequestration over time, meaning that the end goals and speed of transition toward them will vary. Some activities will need to be phased out before 2050. For those needed in 2050 and beyond, not all industries will be able to reach net zero at that date.¹⁵

Navigating this complexity to establish appropriate transition pathways requires a full understanding of the potential for and timing of each activity to align with 1.5°C global warming limits, i.e. of the climate modelling scenarios for each sector and of its emissions profiles and technological options vis-à-vis sectoral and economy-wide carbon budgets. This requires the expertise of the climate science community in partnership with other technical experts.

Transition pathways should not be determined by individual institutions on a case-by-case basis. Rather, pathways should be harmonised globally, e.g. through regulatory approaches such as the roll out of regulated taxonomies like the EU's. That would significantly increase the chance of global emissions reductions reaching the scale needed, and boost comparability.

There may, of course, be other considerations at play affecting the relative ease or difficulty of meeting common GHG thresholds in different contexts or locations, while balancing other development needs (e.g. degree of economic development or maintaining resource security). For this reason, there may be some flexibility in applying the climate science in different regions and contexts. But in navigating this, we must again be led by the scientific community.

Implication of Principle 1 – The need to go beyond Nationally Defined Contributions (NDCs) and best-in-class benchmarks

Pathways that align with NDCs cannot automatically be taken to represent credible transitions to 1.5°C goals, at least at this time. In theory, it makes sense to align transition pathways with NDCs, since the Paris Agreement allows flexibility for nations to determine their own contributions, and to determine how emissions reductions will be shared across the economy. However, at this time, in aggregate, NDCs do not equal even a 2°C world (rather 3-4°C). An individual NDC may be sufficiently ambitious to align with 1.5°C goals, but this would need investigation and cannot be assumed.

Likewise, benchmarks such as 'best available technologies' cannot themselves represent credible transition to 1.5°C goals (or any climate-aligned goal) as they simply identify 'top performers' and may not over time keep pace with the speed of required decarbonisation. At best, they might be used as a starting point for appropriate decarbonisation pathways. For example, a decarbonisation pathway might start with best-in-class metrics today but very quickly decline thereafter to reach the necessary emissions target in future.

Challenge of Principle 2 – An urgent need to address and deal with incomplete transition pathways

Annex 2 reviews existing guidance on transition goals and pathways. A number of groups including but not limited to the Climate Bonds Initiative, the Technical Expert Group (TEG) advising on the EU Taxonomy, the Energy Transition Commission, and the Transition Pathway Initiative provide analysis and pathways across a number of sectors. However, the review has identified a number of critical issues that will limit the roll out of ambitious transition. These are i) a number of gaps in the scope and coverage of existing guidance, and ii) inconsistencies where different groups or initiatives have recommended different transition goals and pathways (for a variety of reasons, including basing those pathways on different climate scenarios or different methodologies for allocating emissions across industries). As a result, widely and commonly accepted transition metrics and pathways have not been established yet for many sectors.

This is a significant barrier to change. Transitioning entities, and their investors, have no clear targets or guidelines to aim for, nor to measure performance against. This leads to challenges in determining/ assessing the credibility of their transition, deterring engagement. This holds particularly for longer term financing (or equity investments), where we would wish to see alignment with the targets over the full term of the investment. Unfortunately, as illustrated in Annex 2, this is the case for many high-emitting activities, for which we most need to see transition.

In 'Next Steps' (Section 7), we recommend that this situation is addressed as a matter of urgency. In the meantime, we recommend that borrowers and investors select a pathway they believe is credible and provide transparency on the source of the pathway, the extent to which it does or does not meet these principles, and the rationale for its selection for the assessment of the activity or entity transition in question.



PRINCIPLE 3: Credible transition goals and pathways don't count offsets but should count upstream scope 3 emissions as much as is possible

Transition pathways should not take into account purchased or self-generated offsets from other activities (such as 'natural' carbon capture and storage solutions via agriculture, forestry, natural landscape restoration and 'artificial' carbon capture and storage solutions through direct air capture). Offsetting reduces transparency and diverts attention away from reducing inherent emissions. The only exception to this is if the offsetting is very directly linked to the key activity in question and offsets emissions that cannot be minimised in any way, e.g. putting solar panels on a hydropower reservoir, or CCS solutions applied directly at an industrial facility.¹⁶

Transition pathways should take into account scope 1 and 2 and upstream scope 3 emissions as under the control of the transitioning entity, but not downstream scope 3 emissions.



PRINCIPLE 4: Credible transition pathways take into account technological viability, but not economic competitiveness

Transition pathways should be 'technology- or solution-neutral' in order to maximise opportunities to reduce emissions and encourage innovation.* However, determination of appropriate pathways cannot be done without consideration of technologies currently available or on the horizon. To be of use, transition pathways must be viable as well as ambitious, or they will not incentivise change.

This assessment of viability should not rule out technologically feasible options that are already in commercial use, even if they are relatively expensive compared to business-as-usual.

Economic barriers to technology up-take could be addressed with appropriate incentives and support, as has been demonstrated for various renewable energy forms. This sends a strong signal to all stakeholders, including governments and other bodies that can catalyse change by addressing the economics.

Clarification for Principle 3 – Addressing scope 3 emissions

As noted in section 2.1, all scope 1, 2 & 3 emissions should be considered when categorising activities within the framework. This is particularly important to properly identify 'interim' or 'stranded' activities. For example, the transportation of fossil fuels in oil tankers is a stranded activity as much as a power station burning that oil, even if the tanker fleet is powered by clean energy sources.

However, transition pathways can and should account only for emissions within the control of the entity (i.e. scope 1, 2 and upstream scope 3 emissions) based on reasonable expectations of traceability of upstream scope 3 emissions.

Why upstream scope 3? Upstream scope 3 emissions are the emissions related to purchased goods and services (i.e. within their supply chain). While these are not directly controlled by an entity, they are indirectly controlled by their purchasing decisions. By including upstream Scope 3 emissions, the transition principles are reinforced along supply chains. A food manufacturer, for example, purchasing ingredients associated with significant deforestation would not be making a credible transition even if their manufacturing process gave rise to zero emissions. Sourcing sustainably is a valid expectation of someone deemed to be making a credible transition.

Implication of Principle 4 – Entities constrained by cost competitiveness cannot be said to be credibly transitioning

Entities carrying out an activity that does not follow its decarbonisation pathway, even if the reason is maintaining cost-competitiveness, are not making a credible transition. This may seem harsh, given the need to remain cost-competitive, but is a true reflection of emissions status, which is the variable under consideration here.

* Such as by using metrics representing emissions intensity per unit of output



PRINCIPLE 5: Credible transition means actually following the transition pathway – pledges and policies are not sufficient

Pledges to align with 1.5°C global warming limit, or even policies, procedures and governance practices which influence and guide operating performance in the right direction, are not sufficient indicators of a credible transition because they can only provide an indication of intent and commitment. The focus needs to be on impact that is actually being delivered today (and over the term of the investment), as determined by alignment with a credible transition pathway (that meets principles 1-4).*

This is a high bar to set, but we do not have time to delay decarbonisation. Activities or entities that are moving towards, but are not reaching, transition pathways for their industry are not yet doing enough. Transition to transition is not acceptable. More practically, it is a much simpler and more robust process to set and assess the performance of entities and activities in terms of their actual and expected operating metrics, rather than assessing the future effectiveness of their current pledges and policies.

This does of course require looking to future operating practices and metrics to assess whether the transition pathway will (continue to) be met over the term of the instrument. In practice, what this means varies according to the financial instrument in question:

- **For use-of-proceeds bonds:** if the measure or activity aligns with a transition pathway over the financing term that meets principles 1-4 and it is needed post 2050,** then it is delivering credible transition. While many investors may look for an accompanying entity-level decarbonisation strategy, particularly for a highly emitting sector, such strategies are welcomed rather than essential.
- **For fixed term but general purpose finance** (e.g. general purpose bonds, or sustainability linked loans): if the entity follows a transition pathway over the financing term that meet principles 1-4 then it is delivering credible transition. This should be demonstrated via a credible entity-level transition strategy which at least covers the term of the financial instrument.
- **For open ended entity level finance** (e.g. equity investments): if the entity follows a transition pathway that meet principles 1-4 then it is delivering credible transition. Again, this should be demonstrated via a credible entity-level transition strategy. There is a question here regarding the timeframe of that strategy given the finance is open-ended. We suggest this should outline a transition pathway to 2050, with significantly more detail on alignment with a transition pathway to halve global emissions by 2030.

We note that further guidance is needed to define the key characteristics of these entity-level transition strategies. Certainly, they must demonstrate that the entity is undertaking a broader low-emissions shift, not a one-time effort amid ongoing high emitting activities. This should address how the entity is transitioning its assets and capital to provide products and services which will allow the entities business activities to follow transition pathways that meet the principles outlined above.

In all cases, the robustness of these strategies and actual performance against the relevant transition pathways over the financing term (where appropriate) must be verified by an independent third party.

In the green bond market, this could be via a second opinion provider following the Green Bond Principles, or for bonds and debt instruments more broadly, via certification under the Climate Bonds Standard.

* i.e. Good transition performance should have already started. The pathways developed for high emitting sectors represent ambitious but possible performance levels today and you should be meeting those if your transition claim is credible

** Further, transition pathways have downward emissions trajectories, capturing the need to ratchet down emissions over time and reflecting future opportunities to decarbonise as new, improved technologies come online. Therefore, activities and entities that are close to the GHG threshold at any point in time run the risk of falling out of compliance if they do not take further action to reduce their emissions. Hence, compliance over the financing term needs to take account of the declining emissions trajectory over the financing term.

2.3 The framework in practice - illustrative examples

Table 2 provides examples of economic activities that are likely to fall into the categories described in the transition framework. These examples have been assessed based on an understanding of the likely role that they will play in an economy that meets the goals of the Paris Agreement, the mitigation potential of these activities, and the ability to set transition pathways for them that satisfy principles 1-4 above. However, fully understanding the mitigation potential for any activity requires detailed analysis of each sector, its emissions profile and technological options vis-à-vis sectoral and economy wide carbon budgets. For some activities, this work has already been done, for others it is ongoing. The examples in this table are based on our best understanding at this time.

It is very important to note that it is not the case that all real-world instances of those activities, or entities practicing them, or all investments associated with those activities, will fall into these categories. They will only do so if they meet their respective transition pathways, including associated GHG thresholds or qualitative equivalents.

In the footnotes following the table are brief explanations for this categorisation, particularly where there is likely to be some debate.

As noted in Section 2.1, appropriately categorising activities requires full and consistent consideration of lifetime emissions associated with a product or service. That is, covering all material sources of emissions across scope 1, scope 2 and scope 3 to the best extent possible. This ensures consistency in categorisations across supply chains. For example, energy generation from coal is a 'stranded' activity, and so we want to phase out not just those energy generation facilities, but also the coal mining and transport services that supply them. These linked activities are also 'stranded'.

Importantly, the allocation of activities to transition categories is not determined by their emissions today but rather about the need and potential to rapidly move to net zero alignment.

Lastly, at- or near-zero activities and their enabling activities have been included just for completeness for the full brown-to-green spectrum, and as in some cases transition requires transition to these activities. However, they are shaded light grey as they are not the focus of attention here.

Table 2: Categorisation of activities within the brown-to-green spectrum

	Activity category	Examples relating to power generation	Examples relating to transport	Other examples
BROWN TO GREEN	Near zero	<ul style="list-style-type: none"> Solar energy generation Wind energy generation Generation of bioenergy from agricultural or forestry waste products 	<ul style="list-style-type: none"> Manufacture or operation of electric modes of transport 	<ul style="list-style-type: none"> Production of green hydrogen Landscape restoration
	Pathway to zero	<ul style="list-style-type: none"> Hydropower generation ⁱ 	<ul style="list-style-type: none"> Shipping ⁱⁱ 	<ul style="list-style-type: none"> Manufacture of steel, ⁱⁱⁱ cement ^{iv} Manufacture of packaging ^v Crop production ^{vi} Property management ^{vii}
	Interim	<ul style="list-style-type: none"> Waste to energy from municipal solid waste ^{viii} Production of energy from bioenergy (non-waste products) ^{ix} Gas power generation with CCS ^x 	<ul style="list-style-type: none"> Production of biofuels for shipping ^{xi} Gas production for heavy industry ^{xii} 	<ul style="list-style-type: none"> Production of blue hydrogen ^{xiii} Fossil-fuel plastics recycling ^{xiv} Production of mineral water ^{xv}
	No pathway to zero	<ul style="list-style-type: none"> Electricity generation from solid fossil fuels 	<ul style="list-style-type: none"> Long-haul passenger aviation ^{xvi} Manufacture or operation of fossil fuel powered passenger vehicles ^{xvii} 	<ul style="list-style-type: none"> Production of hydrogen using steam generated from fossil fuels
	Stranded	<ul style="list-style-type: none"> CCS for power generation ^{xviii} 	<ul style="list-style-type: none"> Manufacture of electric fuel cells or batteries 	<ul style="list-style-type: none"> Single use fossil fuel plastics
	Enabling	<ul style="list-style-type: none"> Manufacture of renewables components 	<ul style="list-style-type: none"> Metals recycling ^{xix} 	<ul style="list-style-type: none"> CCS for industry ^{xx} Energy storage

i Impoundment hydropower can offer a variety of services as well as (potentially) providing low GHG intensity power, including peaking and storage services that do not have easy substitutes at this time. This justifies the inclusion of this activity in the ‘activity in transition’ category, even though it is recognized that individual hydropower facilities may have only limited opportunities to actively reduce their emissions. Emissions reductions would come then from the development of lower GHG footprint hydropower facilities and the phasing out of higher footprint facilities.

ii The use of ammonia and hydrogen at scale is looking sufficiently viable in the medium term future to enable long-distance shipping to transition to alignment with a net zero emissions economy, and biofuels coupled with short scale electricity and/ or wind, is a viable fuel mix to achieve emissions reductions to begin the transition in the interim.

iii The categorisation of steel manufacturing is perhaps more debatable. The development of green hydrogen is enabling rapid decarbonisation of the production processes of iron and steel, as hydrogen is a viable high intensity power supply as a long-term substitute for coke. Gas could be used sooner to substituting for coke (in the interim period only, as leakage factors mean gas production and energy supplies will not be compatible with net zero emissions goals). However, some argue that hydrogen (alone) cannot give the full process temperatures needed. Part of the solution will also be to reduce demand by maximising recycling of steel.

iv The production of cement results in process carbon dioxide emissions from the reduction of limestone (calcium carbonate) to lime (calcium oxide) which binds to silicates to produce cement. Binding agents other than calcium oxide could reduce emissions or even absorb CO₂ however there are other problems in using or handling these cements limiting their adoption. An interim solution might be to replace some of the cement used in concrete with materials like blast slag, and reduce demand for cement overall e.g. by improving building design. However, at this time it is thought that carbon capture and storage will be needed for cement production to reach net zero emissions.

v A transition from manufacturing fossil-fuel based, single-use plastic packaging to multi-use packaging using lower emission materials and production processes, alongside a rapid shift to a more circular economy and reduced demand for plastics would significantly reduce emissions. However, as above, there are doubts about the availability of sufficient biomass to enable a transition to net zero in this sector.

vi Crop production as a whole is generally not realising its mitigation potential. There is the need and opportunity to improve land management techniques to reduce emissions and build up greater carbon sequestration in above and below ground biomass and soil. Application of vertical farming may be an option to enable expansion in productivity without significantly increasing land requirements.

vii Commercial building stock has a generally long life (post 2050) and often has a relatively high emissions footprint. However, most of these buildings undergo retrofits or upgrades as part of their regular maintenance cycle, which offers relatively regular opportunities to reduce their GHG footprint to align with emissions reductions targets.

viii The contribution of waste-to-energy to decarbonisation pathways is hotly debated. Waste-to-energy can be an effective way to deal with residual waste, better than putting into landfill, particularly where displaced energy still has a relative high emissions intensity. However, as grids decarbonise and circular economies are more fully established, the value of waste-to-energy’s contribution diminishes. Nevertheless, at present, there is no clear guidance as to when that tipping point might be reached.

ix There is disagreement about the sustainable capacity for bioenergy over the long term - per the IPCC’s Special Report on Global Warming of 1.5°C (SR15), October 2018. Deployment at the levels envisioned by 1.5°C-consistent pathways may put significant pressure on available land, food production and prices and potential water and nutrient constraints. Therefore, the use of biomass should be prioritised for sectors where there are few other viable decarbonisation technologies, e.g. long haul aviation and possibly plastics production.

x Electricity generation from gas may be a viable interim activity given the relatively short life of such assets (around 15-20 years) - if actions taken to address emissions, including leakage, ensure that the power facility meets the appropriate GHG thresholds. In the longer term, given leakage cannot be fully curbed, such activities will not be part of a net zero carbon economy.

xi Ibid

xii See footnote on steel manufacturing example.

xiii The production of blue hydrogen is powered by gas, and therefore has high emissions associated with it. It will therefore only be eligible as a short-term transition solution until the production of green hydrogen is viable.

xiv Deemed an interim activity as fossil-fuel based plastics should be phased out as quickly as appropriate alternative plastics allow (e.g. plastics produced from bio- or synthetic feedstocks that can be sustainably produced at scale and appropriately disposed of after use).

xv Deemed an interim activity on the grounds that ideally we will not be buying bottled water by 2050 as by then clean drinking water will be available via water infrastructure networks in all locations and consumer preferences will have moved away from bottled water towards tap water.

xvi Long-haul aviation does not yet have a viable pathway for substantial emissions reductions to take it to net zero. Electricity storage for long haul is not viable, and there is insufficient agricultural production to deliver the volume of biofuel that would be needed without causing serious problems for food supplies. For now, long haul aviation cannot be categorised as an ‘activity in transition’.

xvii These are already unable to meet established GHG thresholds and pathways for passenger vehicles, given the existence of electric vehicles with significantly lower tailpipe emissions (sufficient to offset embedded emissions).

xviii As noted in a number of these examples, CCS critical for some activities to get to significantly reduce emissions.

xix As enables the establishment of a circular economy, where the reuse of materials reduces emissions by displacing virgin materials with higher production emissions.

xx Ibid

3 A guide for users – what credible transition means in practice

Our collective goal, as agreed by signatories to the Paris Agreement, is to decarbonise the global economy sufficiently rapidly to halve global emissions by 2030 and achieve net zero emissions by 2050.

This requires various levels of transition:

- **Entities** to implement/ finance/ incentivise¹⁷ the rapid decarbonisation of all their activities that have a role in a post-2050 net-zero economy and phase out those that do not, switching to low carbon alternatives.
- **Activities** to each be decarbonised (if needed post-2050) or phased out (if not)
- **Measures** undertaken to substantially reduce emissions in those ongoing activities and phase out those that do not have a role.

Below we describe how the transition framework and principles can be applied to each of these layers of transition.

3.1. Activity and entity level transitions

The idea behind the principles is that any entity or economic activity that follows a transition pathway that satisfies the principles will not be greenwashing.

However, this simple message needs a little flexibility when applied to the diversity of transitions encapsulated in the categories and the diversity of entities practicing them.

Table 3 captures how the principles would be applied in practice by credibly transitioning activities and entities.

Table 4 then provides specific examples of investments that would likely meet these requirements, given what we know today of transition pathways aligned with the five principles, drawing on the range of guidance already available (see Annex 1 for more information).

Table 3: How to apply the principles for a credible activity or entity level transition

Activity category	Entity	Activity
Near zero	N/A	
'Pathway to Zero'	Decarbonise entity (and therefore all activities) as fast as possible along 2050 transition pathways in line with Principles	Decarbonise activity as fast as possible along 2050 transition pathways in line with Principles.
'No pathway to zero'	N/A (No pathway exists therefore there is no credible transition at the activity or entity level, but see 'Measures' below for decarbonisation options)	
'Interim'	Phase out all interim activities in line with sunset date AND In the meantime, decarbonise entity along appropriate transition pathways	Phase out activity in line with sunset date AND In the meantime decarbonise activity along appropriate transition pathways
'Stranded'	Phase out all stranded activities and switch to low carbon alternatives	N/A (the aim is not to decarbonise stranded activities but phase them out)
Enabling	The activity makes a substantial contribution to facilitating another activity to follow an appropriate transition pathway. Their own decarbonisation is secondary	

Table 4: Examples of likely credible transitions at activity and entity level

Activity category	Credible transition at activity level	Credible transition at entity-level
Near zero	Construction of wind farms by a mixed power generation company (e.g. oil, gas and wind)	N/A
Pathway to zero	Farm following low carbon agricultural practices A steel production facility that meets decarbonisation pathways	Property management company undertaking deep retrofits to all properties in its portfolio Sovereign whose economy is fully aligned with 1.5°C goals Bank whose loan portfolio includes only loans to entities/ activities/ projects meeting appropriate decarbonisation pathways
No pathway to zero	N/A	N/A
Interim	Operation of plastics recycling facilities (within sunset date for plastics use and production)	Waste to energy company with full capture and utilisation of energy (within sunset date) Waste to energy company rapidly switching to recycling operations
Stranded	N/A	Coal fired power generation company rapidly expanding into renewables
Enabling	Establishing metals recycling facilities	Company specialising in R&D into e.g. CCS for industry, synthetic plastics, new feedstocks to reduce / eliminate ruminant emission, cement-less concrete, hydrogen or electric kiln furnaces that generate sufficient heat intensity

3.2 Granular measures to decarbonise

Discussed below is how the five transition principles can be applied to determine the credibility of more granular measures to decarbonise activities or phase out 'stranded' or 'interim' activities. Table 5 provides specific examples of measures that would likely meet these requirements, given what we know today of transition pathways that broadly align with the five principles, drawing on the range of guidance already available.

Credible measures to reduce emissions/ increase sequestration within activities or entities should:

1. Be part of a programme to bring the performance of the activity or entity in line with a credible transition pathway (per principles 1-4)

For example, if the transition path for activity X dictates operating emissions must be 100gCO₂e/m² in 2020 and 50gCO₂e/m² in 2025, then the measures must be part of a programme that will deliver such emissions performance.

The programme should have a very high likelihood that the activity or entity will meet the thresholds by the end of the period. This should be evidenced - e.g. via a detailed and viable capital expenditure plan and therefore in line with Principle 5 (pledges and policies are not indicators of credible programmes).

OR

2. Be recognised individually as making a substantial contribution to climate mitigation

Many measures are already effectively pre-assessed through their recognition by the technical and scientific community. As an example, the proposed EU Taxonomy includes a 'whitelist' of measures that can be undertaken to decarbonise buildings (e.g. install triple glazed windows) and a similar 'whitelist' for decarbonising electricity transmission and distribution systems. These measures should seek to reduce emissions as much as possible without locking in technologies that might prevent future rapid decarbonisation

The box on the right considers more specifically potentially credible measures to reduce emissions in 'stranded' activities before they are phased out.

AND

3. In all cases, the measures should not lead to a lock-in of GHG-intensive assets activities or entities

Credible measures within 'stranded' activities

Under what conditions might measures (and associated investments) to reduce emissions generated by 'stranded' activities be viewed as part of the transition landscape?

Here, it is not about transitioning the activity per se, but rather about recognising the contribution of specific measures to transitioning onto Paris Agreement-aligned pathways at the aggregate, global level. Such measures could potentially be admissible if they deliver very substantial mitigation without locking the underlying activity or the entity performing it deeper into the economic system. Examples here might include gas capture on closed landfill sites. It would not include incremental improvements in energy efficiency at fossil fuel power generation facilities.

Credible measures to transition entities away from high-emissions activities or assets

Measures relating to acquisitions or organic growth in low-emissions alternatives are eligible. So are the costs of early decommissioning in order to align with the necessary sunset dates dictated by global emissions reductions targets.

Measures relating to divestment of high-emissions assets or activities are not eligible. Simply passing high-emitting assets and activities to others will not help us achieve global emissions reductions targets.

Are entity-level transition strategies needed alongside credible measures?

If the above conditions are met, the measures being implemented (and financed) are enabling an appropriate decarbonisation and are therefore making a credible contribution to transition. The whole entity need not be aligned with 1.5-degree pathways for the value of the measures to be recognised.

However, we acknowledge that many investors look to supporting entity-level decarbonisation strategies, particularly when the investment relates to a highly emitting sector. They view such strategies as a means to assess that any specific decarbonisation measures are part of a broader low-carbon shift, not a one-time effort amid ongoing high-emitting activities.

Table 5: Likely examples of credible transition measures

Activity category	Measures to decarbonise activities	Measures to transition away from activities that ought not be part of the long term economy
Near zero	Replacement of wind turbines with more efficient models	n/a
Pathway to zero	Deep retrofits of residential properties Retrofit of shipping vessels to run on green ammonia Installation of CCS in steel manufacturing facility Kiln electrification for cement production Switch to use of 100% recycled materials in clothing production	n/a
No pathway to zero	Retrofits of airline fleets to operate with a maximum biofuel or synfuel mix	n/a
Interim	Installation of gas capture at a waste-to-energy plant treating only residual waste Switch from fossil fuel based plastics to compostable alternative in production of bottled mineral water Capture and utilise gas leakage in gas pipelines	Early shut down of waste to energy facilities when circular economy sufficiently established and residual waste is minimised
Stranded	Capture and utilisation of gas leakage from closed landfill [Noting that these investments are recognised not because of the need or desire to transition stranded activities, but rather to maximise opportunities to halve global emissions by 2030]	Early decommissioning of a coal-fired power station
Enabling	R&D in technologies for the production of new construction materials using low emission cement and steel	n/a

4 Implications for transition finance

4.1 Opportunities for investors

As stressed above, accelerated decarbonisation is needed across all sectors of the economy if we are to meet the goals of the Paris Agreement. A number of examples of credible transition investments are given in section 3, but this is just the tip of the iceberg.

As these examples illustrate, transition can be and should be financed via a range of financial instruments – some general purpose at the entity level (e.g. equity investments, general purpose debt and sustainability linked loans), some focussed on activities and measures to reduce emissions (e.g. use of proceeds bonds and loans). Figure 2 below gives an example of these options for transition of an electrical utility company.

Given this range of economy-wide transition actions and the diversity of associated financial instruments, there are huge opportunities for credible transition investments for green or responsible investors.

4.2 A need for a 'transition' label?

Whether relevant investments are labelled as 'green' or 'transition' is less important than that these transitions happen and finance is available for them. However, it is necessary to address whether there is a need for the nascent 'transition label' to remain and to scale alongside the established 'green label'.

Turning to the bond market, the transition label originated to sell bonds that were difficult to market as green bonds. Very valuably, this has created a new drive to bring a broader range of sectors and actors into the sustainable finance space. Some market participants see the label as a way to further engage and help the largest emitters (fossil-fuel extraction, non-renewables energy generation, manufacturing, aviation that have not been widely engaged in the green finance market to date) to finance the significant investments required to facilitate their transition journey with dedicated pools of capital.

However, the reason that green finance for high-emitting activities has so far been limited is arguably due to a lack of provision of robust eligibility criteria - not because they are a priori incompatible with the

green bond market or by extension a green label. Indeed, following the principles outlined above would ensure all resulting transition investments are aligned with the goals of the Paris Agreement and as such can be viewed as green. As detailed in Appendix 1, many of the existing frameworks, taxonomies and other guidance for the green bond market, including Climate Bond Initiative's taxonomy, the EU Taxonomy, the Green Bond Principles and the China Green Bond Catalogue, incorporate manufacturing, power generation, transport, buildings and agriculture, all sectors with high emissions footprints today. This could support the view that there is no need for a separate transition label.

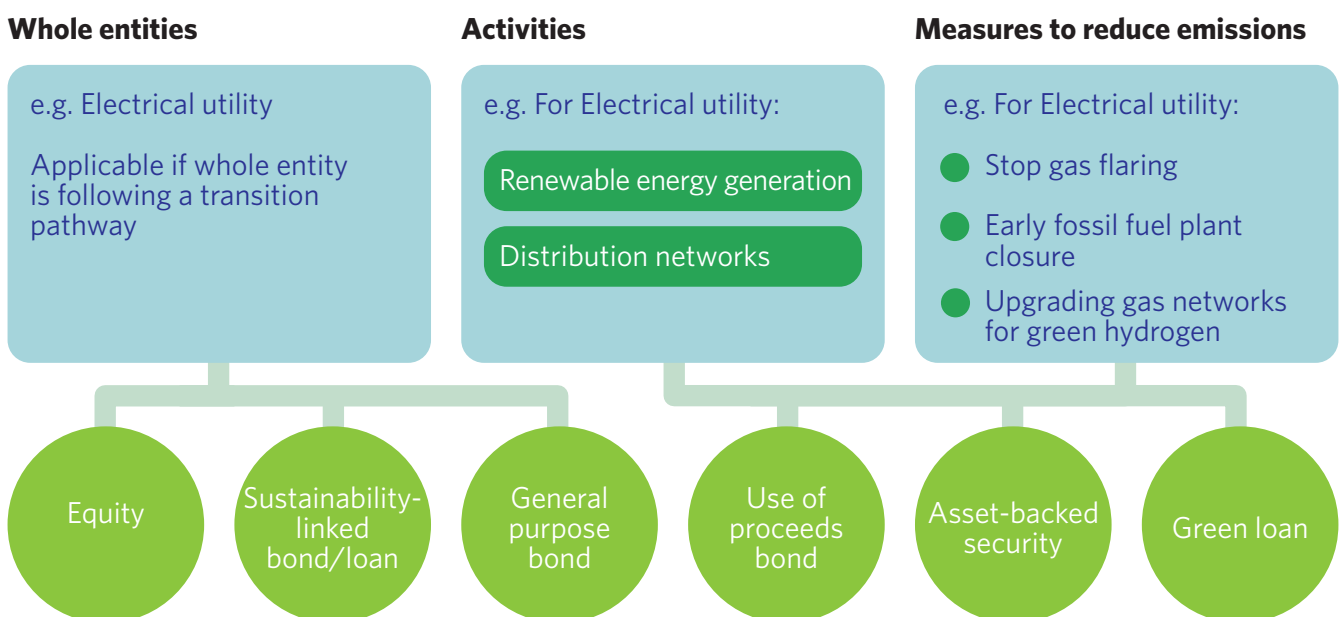
That said, we do believe there is a useful distinction to be made between activities that do not have a long term role to play in a low carbon economy (due to their high emissions) and those that do (despite their high emissions), and this can provide the foundation of a demarcated 'transition' label.

In broad terms, we propose that the:

- **green label** continues to be used for eligible investments* in activities or entities that have a long-term role to play and are either already near zero or are following decarbonisation pathways in line with halving global emissions by 2030 and reaching net zero by 2050
- **transition label** be used for eligible investments* that:
 - are making a substantial contribution to halving global emissions levels by 2030 and reaching net zero by 2050 but will not have a long term role to play; OR
 - will have a long term role to play, but at present the long term alignment to net zero goals is not certain.

* Eligible investments are those that apply the framework and principles in the manner described in Section 3.

Figure 2: Application to entities, activities and measures



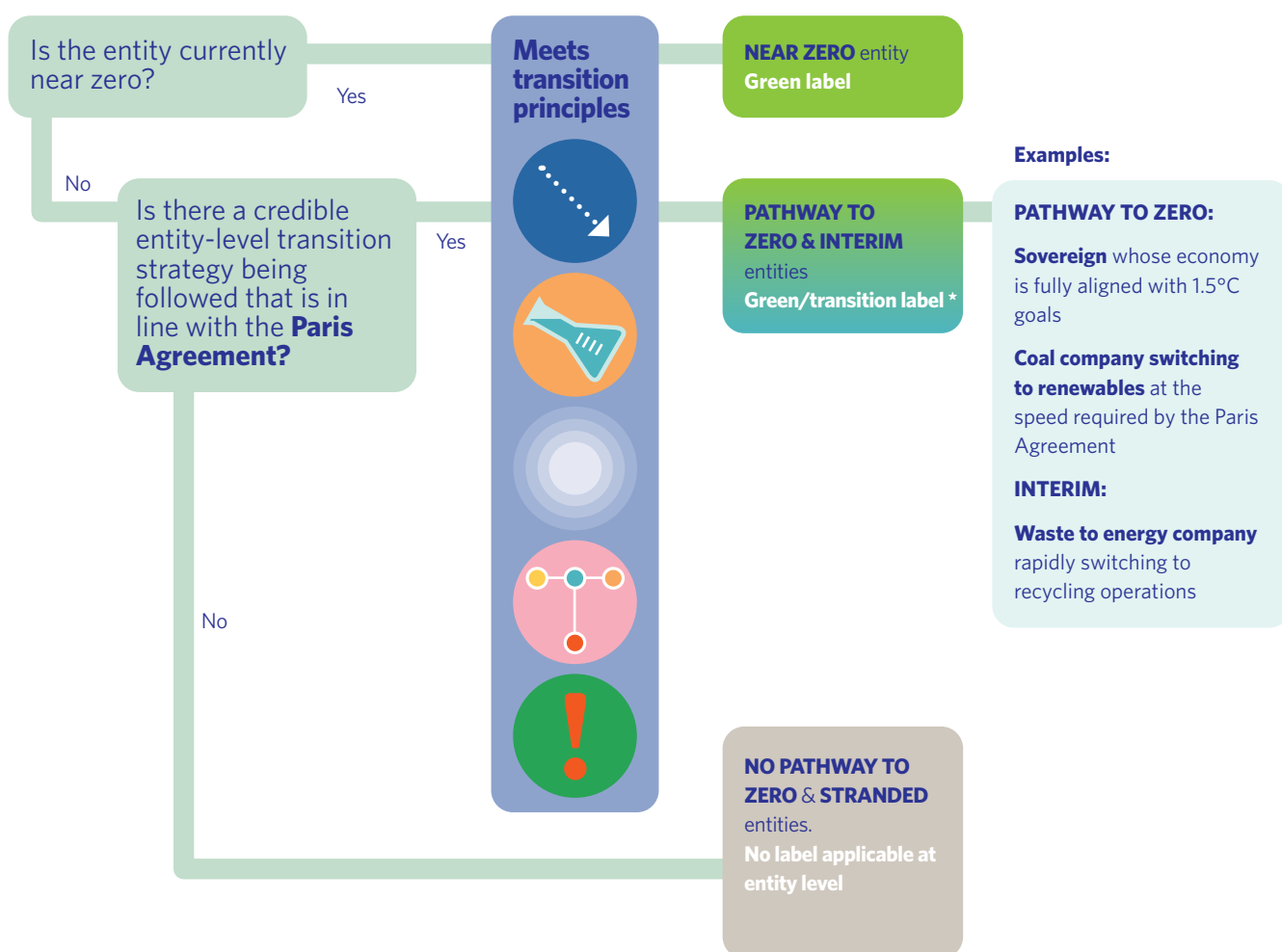
The implications of this proposal are summarised in Figures 3 and 4, which illustrate respectively the resulting labelling for activity level investments and associated measures to reduce emissions and the resulting labelling for entity level investments. It aims to balance the need for coherence and consistency across all efforts to decarbonise the global economy without creating false distinctions. It takes the opportunity that the engagement around transition labels has already opened up to accelerate and broaden our collective decarbonisation efforts.

It is perhaps worth noting that this proposal leaves open whether investments connected to 'pathway to zero' activities be labelled as green or transition. In theory, they can be credibly labelled as green as their inclusion in the 'pathway to zero' category by definition meets the requirement of alignment with Paris Agreement goals.

However, given the current lack of consensus on appropriate, viable transition pathways for some of these activities, flexibility is built in to label these as transition if a more cautionary approach is preferred in the short term.

Importantly, however, it is stressed that as anyone meeting the principles outlined above is substantially contributing to meeting the goals of the Paris Agreement, all of these investments should therefore be eligible for capital with a climate or environment mandate regardless of whether they are labelled as 'green' or 'transition'. This is important to ensure a large, liquid market for both already net zero and transitioning activities and entities.

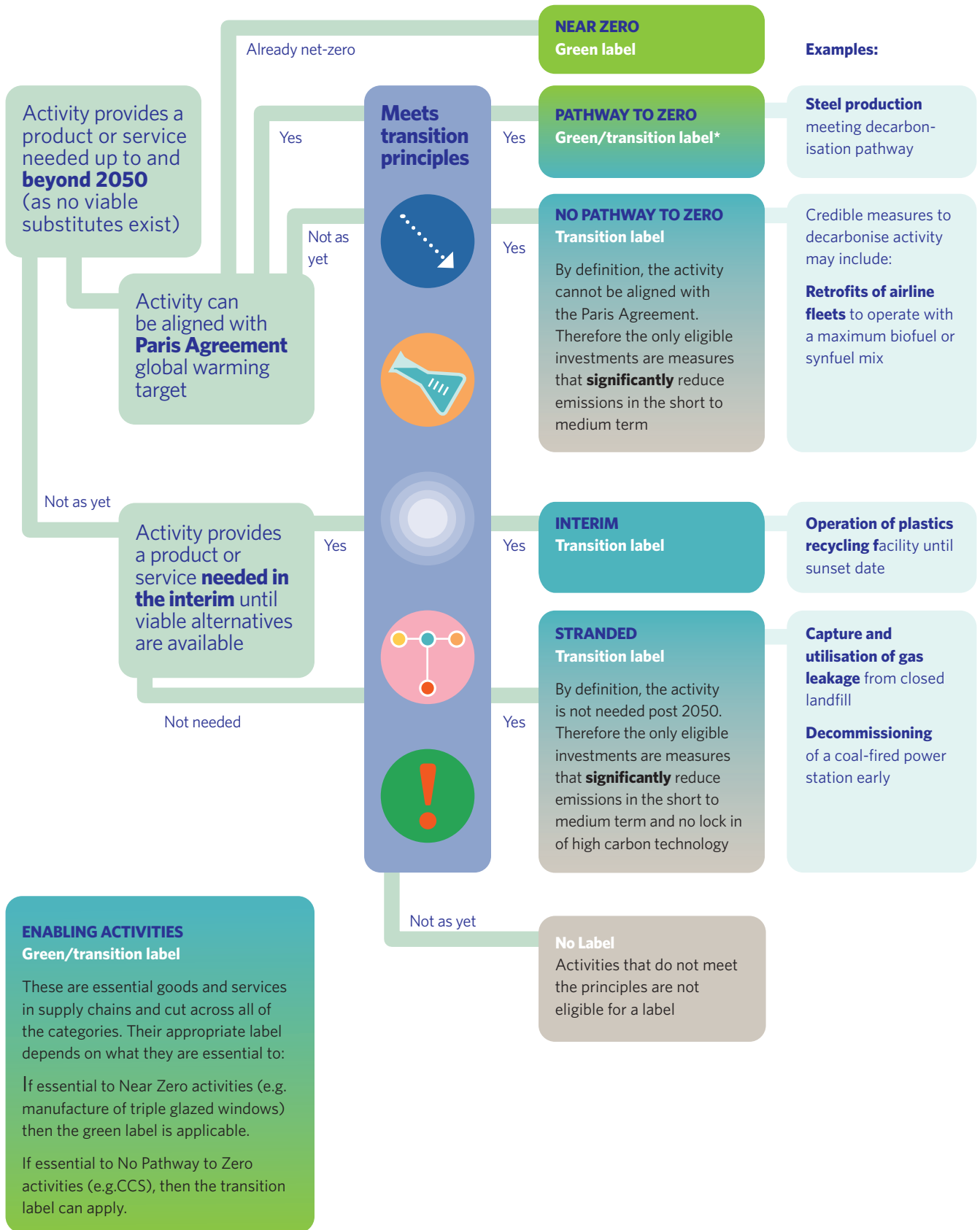
Figure 3: Use of green and transition labels for entity level investments



***Why can green or transition labels be used?**

This proposal leaves open whether 'pathway to zero' investments be labelled as green or transition. In theory, they can be labelled as green as they are aligned with the Paris Agreement. However, given the current lack of consensus on appropriate, viable transition pathways for some activities, flexibility is built in if a more cautionary approach is preferred in the short term.

Figure 4: Use of green and transition labels for investments in activities and associated measures



4.3 Practical considerations when portfolios are mixed

Many entities practice a mix of activities, some of which might be labelled as green, others as transition, others as neither per the proposals above. Likewise, use-of-proceeds bonds might likely encompass a range of assets and projects which cross a number of the categories and associated labels proposed above.

In these cases, to err on the side of caution, it is recommended that issuers/ borrowers adopt the labelling of the 'lower bar'. That is, if some proceeds or business areas are categorised as transition and others green, overall the financial product should be labelled as transition. If some proceeds or business areas are categorised as transition and others as neither green nor transition, overall the financial product should be labelled as neither green nor transition.

The approach is equivalent to requiring that 100% of proceeds or business activities must be deemed as 'eligible investments' per the requirements described in Section 3, in order to use a green or transition label. This is consistent with the current approach taken by the Climate Bonds Initiative when certifying climate bonds, where all use-of-proceeds must meet the relevant eligibility criteria in order for the bond to be certified.

4.4 Performance-linked financing terms linked to sustainability performance

Some recent green use-of-proceeds bonds have incorporated innovations in the financing terms. Examples include DC Water's 2016 Environmental Impact bond which links financial payouts with environmental performance. Generally, these have not been critical to the green labelling, though. Likewise, the key feature of transition-related use-of-proceeds bonds is that their use-of-proceeds are allocated to 'transition' outcomes compatible with the appropriate transition pathway. Coupons, or other financing terms, linked to future transition performance may well be a 'cherry on top' for investors but are not the key feature of use-of-proceeds finance.

Over the past year, the market for sustainability-linked products (especially loans at this stage) has exploded, attracting issuers with sustainability programmes but without necessarily the assets to issue a use-of-proceeds green bond. In the burgeoning Sustainability Linked Loan (SLL) market, performance-linked margins are often offered if entity-level ESG metrics are met. A criticism of this nascent market is that the metrics are difficult to compare and benchmark against the Paris Agreement and SDGs.

Apart from using the ICMA-administered Sustainability-linked Bond Principles, such deals with KPIs related to climate mitigation should also make use of the transition framework outlined above. Performance metrics should be linked to a transition pathway that meets the principles described above and evidence on progress should be available. Anything less than that would mean the coupon is not linked to a suitably robust and ambitious transition.

5 A review of market transactions

There have been a number of ‘transition’ transactions over recent years. Most of these have a strong focus on climate mitigation objectives, often linked to wider SDGs and a few transactions have explicitly been labelled as ‘transition’. However, dozens of deals have come to market which, while tagged as ‘green’, are highly pertinent to the transition debate.

This section reviews a selection of those deals, their characteristics, and their market reception, focusing on often debated issuance out of energy- and/or emissions-intensive sectors that we deem most instructive here.

These transactions are summarised in Table 6 below.

For each, we considered:

- What is the meaning of transition for any particular issuer’s sector to start with? Do we need a definition or are the frameworks already in place enough to support the transition?
- Do the relevant activities have a role to play up to and beyond 2050?
- What key issues have to be tackled in order to establish a robust transition framework?
- How do we set the right ambition levels and scope boundaries for any measures taken?
- What interplay does there have to be between demands at asset and project level vs. wider company strategy?

Table 6: A summary of transactions reviewed

Issuer	Labelled	Sector	Use of Proceeds	Provisional assessment*
Cadent	Transition	Gas distribution	Methane leakage control, network repairs & hydrogen readying, low-carbon vehicles	Green/transition bond - readying for hydrogen, a near zero solution, so long as fugitive emissions addressed, and decarbonising other high emitting activities with potential pathways to net zero
EBRD	Green transition	Development bank	Energy efficiency of fossil fuel use in industry	Green/ transition bond - decarbonising high emissions activities with potential pathways to net zero, subject to following appropriate decarbonisation pathways
ENEL	SDG	Power utility	NA (General corporate bond with renewable energy targets)	Green/ transition bond - entity transitioning to near zero activities
Marfrig	Sustainable transition	Beef processing	Purchase of beef avoiding farms using deforested land or forced labour	Neither green nor transition - does not address key sources of emissions)
Orsted	Green	Oil & gas	Renewables	Green bond - near zero activities
Repsol	Green	Oil & gas	Energy efficiency of fossil fuel operations	Neither green nor transition - due to potential lock in of stranded activities
SNAM	Climate action	Gas distribution	Renewable Energy, Energy efficiency of fossil fuels & methane capture	Transition bond - due to decarbonisation of a potential interim activity, alongside other green proceeds, subject to addressing fugitive emissions

* Provisional assessments based on the nature of the investment/ use of proceeds. Firmer assessments not possible in the absence of transition pathways against which to benchmark the decarbonisation impacts of the investment and fuller details to assess the credibility of transition strategies and targets

5.1 Energy and utilities

ENEL

Italian energy utility Enel issued an SDG-linked corporate bond in 2019.¹⁸ The bond was marketed around the overall corporate strategy, which was presented in the broader context of SDGs rather than the Paris Agreement - even though it mainly addresses energy and climate change objectives. Proceeds, while not earmarked or ring-fenced, are meant to support funding of projects to achieve corporate sustainability objectives linked to four SDGs (7, 9, 11, 13).

Enel defined specific corporate improvement targets, pivotal to its core business, to outline its low-carbon transition path. Unlike green use-of-proceeds bonds, the company did not specify which exact projects the proceeds would fund. Instead, it set overall targets to be achieved, laid down in a key performance indicator (KPI) of generating 55% of total capacity from renewable sources by 2021 (up from 46% as of 30 June 2019). Enel will thus not need to provide a set of proposed activities and assets and verify that such projects met certain green criteria, nor will it have to provide detailed reporting (disclosure) after issuance to describe the impacts of the pre-specified investments.

Supporters argue that the shift from impacts at project level to the entire company, its strategy, and operations, also considering sustainability beyond climate change, is important. Detractors argue that without specified project allocation and disclosure, investors will have little insight into how Enel proposes to achieve its corporate sustainability. In particular, it is unclear whether the KPI may be achieved through acquisitions/divestments (we note that some coal divestments - which are not identical to decommissioning - in Russia had already been planned) or organic renewables growth. Divestment does not contribute to reducing global emissions. The KPI itself, however, is clear and easy to map on a transition pathway compared to ESG scores or other such metrics.

The structure of the bond was also different from traditional green bonds. The coupon was linked to KPIs and would rise by 25 basis points if the company failed to hit those within the specified time periods depending on the term of the bond (4 tranches issued - 1 USD and 3 EUR). In the EUR trade, the 25bps step up represents around half of the initial spread of the shorter tranche. Such incentives have been used in the sustainable loan market before but are unusual in green bonds. It is often received with mixed views: some argue that it is good to provide a financial 'carrot' (or stick, in this case) to the issuer; others hold that it would be perverse to see investors rewarded for a failure to deliver sustainability gains.

There is some debate about the materiality of the incentive in changing corporate behaviour. However, such non-delivery risk exists with use-of-proceeds bonds as well. In both cases, the reputational risk is likely to be a more important consideration. Another risk is that KPIs may be set at insufficiently high ambition levels. Can investors judge what the right ambition level should be?

Whether or not the bond meets the transition principles hinges on whether the corporate targets are aligned to the net-zero trajectory for the power sector. Its ambition of 55% renewables by 2021 appears to be in line with the sector targets - which would put the company in transition to near zero goals.

Orsted (formerly DONG)

This Green Bond is another example of an energy company issuance in 2017. This use-of-proceeds bond set out a clear corporate strategy and commitment for achieving energy transition to net zero energy sources. The green bond framework aligned with the Green Bond Principles;¹⁹ proceeds were used to finance

renewable energy projects and excluded nuclear or fossil fuel energy generation projects. It also set quantitative targets of improvements at corporate and project level. Decarbonisation at corporate level included stopping the use of coal generation by 2023 and ensuring the share of green energy generation exceeded 95% by 2023. This would reduce GHG emission from power generation and heat by 96% by 2023.²⁰ Orsted also compared its trajectory of improvements to pathways that comply with the Paris Agreement for both green energy generation and GHG emissions.²¹

At the time, there was not yet discussion in the market about any transition label. This use-of-proceeds bond used the green label to flag and finance the company's transition away from fossil fuel. The very pivotal place that these projects had within the company's significant asset portfolio restructuring toward renewables was evident. It may have been this context of a full strategic reorientation that ensured the bond's green credentials. The bond was later often cited as a prime 'historical' example of 'transition'.²² The 2017 bond meets the criteria for being called green.

Repsol

Repsol's labelled Green Bond was an example of a Spanish oil and gas company going to market to finance improvements in its climate performance. Its 2017 green use-of-proceeds bond attracted substantial attention and debate, raising questions about what could be classified as a green bond. Proceeds were used to fund energy efficiency projects and technologies reducing fugitive methane emissions (a potent GHG) from the company's oil refineries.²³

The bond's framework defined the criteria for activities eligible for funding which included the company's sustainability model and its commitment to climate change. It also provided estimates of improvements in emissions that the earmarked activities aimed to achieve. It was externally verified as compliant with the Green Bond Principles. Despite that, the use of the green label was challenged by the market, specifically by many dedicated green bond investors.

The main concern was that funds were to be used to render fossil fuel operations more (energy) efficient - perpetuating, rather than replacing, fossil fuel emissions from the use of oil and gas. If the efficiencies avoided extension of life of the assets, then there may have been a case for inclusion if in line with necessary emission reduction pathways to meet the Paris Agreement targets. While the company did refer to the transition to a low emission future, it did not set out whether the activities funded by the green bond put it on a trajectory to align with the Paris Agreement. Critics, including Climate Bonds Initiative, argued that the savings on direct ('scope 1') emissions, while leading to significant short-term absolute emissions reductions of 0.66MtCO_{2e} (compared to the company's Spain-based refining and chemical direct emissions of 11.7M tCO_{2e}) from refining and chemical plant, were insignificant compared to the scope 3 emissions from the use of the fuel. Others had even deeper doubts as to whether investment in refinery improvement may not only lock the company into longer-term future fossil fuel production but may even make fossil fuels more competitive going forward - locking in the economy at large.²⁴

The 2017 bond would not have qualified as a green or transitional bond because neither the use of proceeds, nor the corporate strategy were aligned with the Paris Agreement. In December 2019, Repsol announced new objectives that committed it to be zero net carbon by 2050. Detailed implementation plans and transition strategies are scheduled to be published in 2020. This includes the company's scope 3 emissions, arising from the use of oil and gas products. The transition or green label may be applicable for future bonds depending on the detail of both the strategy and the bonds.

5.2 Energy distribution

Cadent Gas

About a year after SNAM's 'climate action bond', the UK gas distribution company Cadent Gas Limited brought a 'transition bond' to market. Cadent Gas has a business model similar to SNAM's. However, Cadent Gas is less openly supportive of a future role for natural gas. It is also explicit about the need for methane leakage management (and controls its leakage successfully) as well as a switch to hydrogen and other low-carbon gases with an eye on Paris Agreement compliance. The company directs spending to adaptation of its network for hydrogen as an energy carrier.

We note the company's alignment with the EU (draft) Taxonomy, as reviewed by DNV GL : 1) retrofitting networks for hydrogen 2) methane leakage repairs only if also readying for hydrogen 3) no natural gas network expansion 4) applying tight EU thresholds for biogas and (fuel-cell hybrid) vehicles and low-emissions buildings.²⁵ Such explicit alignment with the EU (draft, at the time) taxonomy has not yet happened often and is an important contribution to transitioning to near zero activities.

SNAM

Italian gas distribution utility, SNAM, issued a Climate Action Bond early in 2019.²⁶ The bond funded eligible projects and assets to improve energy efficiency of gas distribution and methane emission reductions. The company presented this issuance as part of its commitment to the energy transition. The eligible projects included enhancing the efficient operation of its equipment using more efficient gas-powered equipment. The projects do not directly contribute to a net zero outcome as a switch from natural gas to hydrogen/electric would.

The bond was underpinned by a framework that complied with the Green Bond Principles and defined project-specific criteria. It also put emphasis on the overall strategy of the company. It presented four SDGs which the company is focussing on (two with direct climate-relevance), as well as the related implementation strategy.

The second party opinion (SPO) stated that the bond supports the transition to a greener economic model and justified this based on the compatibility of the use of fossil fuels (i.e. natural gas) in the Italian National Adaptation Plan. The latter includes gas as an interim fuel while the scale of renewables increases. The SPO therefore considered funding operations that involve gas-transportation while limiting their environmental impacts - to be appropriate.

SNAM updated its framework in the context of a second transaction and changed the deal's name from the initial Climate Action Bond to Transition Bond, "in consistence with market evolutions".²⁷ The company strengthened its methane leakage target from 25% to 40% by 2025 (using a 2016 baseline) and put more emphasis on getting networks hydrogen-ready. It aligned the latter category with EU Taxonomy demands. This is an important improvement in use of proceeds categories compared with the previous transaction. Significantly, the "carbon & emissions reduction" projects focus is now on the electrification of equipment (like compressors) replacing natural gas unlike SNAM's earlier bond.

As before, the company strategy retains its focus of natural gas in the 'energy transition'. For example, the strategic pillar 'sustainable mobility' is centred around CNG (compressed natural gas) and LNG (liquefied natural gas), energy efficiency and only lastly biomethane.²⁸ However, it also flags that it monitors the European debate around hydrogen closely, and pledges to contribute to it.

More updates may be forthcoming as part of the company's planned net-zero strategy, to be published in the context of its next strategic

plan (November 2020). For now, both the use of proceeds and the corporate strategy are (largely) aligned to the continued use of natural gas. This puts the new bond within the 'transition' bond definition set out where use of gas has potential for an interim energy source, subject to fugitive emissions being abated.

5.3 Agriculture

Marfrig, a Brazilian beef producer, issued a "sustainable transition bond" in 2019. The bond, which followed a use-of-proceeds format, included a framework which was aligned with the Green Bond Principles.²⁹ This set out environmental and social criteria for the beef the company would buy from producers. The origin of those animals had to be from farms that respected deforestation criteria and complied with Federal Government Protection protections (such as National Parks, indigenous lands); labour contracts had to comply with labour legislation, including forced labour provisions.

At a broader level, some critics of this bond questioned the appropriateness of the inclusion of beef production in a global transition strategy, given its high emissions footprint compared to other food sources. Others pointed out that a transition approach would push for lower emissions from the meat sector as well as the companion objectives of avoided deforestation highlighted in this bond. Note that the EU and Climate Bonds Initiative Taxonomies include sustainable livestock production.

The bond is of interest because of its explicit referencing of legislated standards and industry practises. We consider alignment with best practice, where this is sufficiently demanding to meet climate or other sustainable development goals, as a potentially robust approach. The problem with this specific case from a climate perspective is that Marfrig's framework is insufficient to mitigate climate change. Cattle are a significant source of GHG emissions and although there are husbandry approaches farms could adopt to reduce emission, these issues were not addressed. This bond would not therefore be considered consistent with the principles set out.

5.4 Hard-to-abate sectors

EBRD issued a Green Transition Bond in 2019 supporting investment in 'hard-to-abate' sectors' energy efficiency. The bond's framework reflected EBRD's philosophy for transition to green.^{30,31} The criteria for identifying sectors supportive of transition were those where the sector: is currently highly dependent on fossil fuel; is needed to enable the transition in line with the Paris Agreement; needs to overcome significant technological or economic challenges to transition to net zero carbon emissions.

EBRD argued that green transition bonds allowed it to finance projects that made substantial energy efficiency improvements in industries like chemical, cement and steel production; food production; agribusiness and sustainable land use; transport systems; and in the construction and renovation of buildings.³² It saw progress in these sectors as necessary to meeting the Paris goals. Projects funded with the bond proceeds should not lock-in carbon-intensive assets or processes in the longer term, though. It excluded new fossil fuel generation and emphasised projects that would achieve significant resource and energy efficiency improvement or replace a high carbon asset with a low carbon one. As with some of the bonds described above, issuers also had to "frame [investments] within the context of the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability."

The criteria set out by EBRD broadly follow the principles outlined above but rely on the development of trajectories to fully articulate.

6 Stakeholder views - the debate

In order to obtain decent visibility on market views, the Climate Bonds Initiative developed a questionnaire to undertake structured interviews with a number of stakeholders interested in the concept of transition bonds, including organisations that had issued labelled bonds. Altogether 27 interviews were completed across different stakeholder groups.

Stakeholders	Interviews
Banks	6
Investors	7
Issuers	7
Policy maker/MDB	2
Think tank	5
Total	27

In summary, there was broad agreement the concept of 'transition' referred to activities that significantly reduce GHG emissions relative to current practice, but not enough to comply with the EU taxonomy's definitions of green. Few people appreciated that the EU taxonomy already includes thresholds for several 'pathway to zero' activities like cement production.

The transition label was considered applicable to hard-to-abate sectors. A distinction was drawn between currently highly-emitting activities that were needed in the future like iron and steel, and 'stranded' activities that could be dispensed with in the future like coal. A large number of the stakeholders we consulted were opposed to fossil fuel extraction and use, certainly in the absence of carbon capture and storage, being labelled 'transition'. A minority of stakeholders thought that definitions of transition might vary between emerging and developed markets, or in regions where renewable energy was not feasible.

The term 'sustainability' should be used for environmental issues extending beyond climate, like circular economy or social issues.

There were different views about whether the transition label was needed. Opponents were concerned that transition would be used to excuse weak or insufficiently demanding strategies to decarbonise, supporting greenwashing. Assigning a transition label to an activity needed emissions thresholds and a trajectory. Deciding who and how these standards should be set was controversial. National climate strategies might provide a reference, so might an independent expert panel.

There was strong support for any use-of-proceeds transition bond issuance to be accompanied by an enterprise level carbon reduction strategy consistent with Paris Agreement targets. To be credible, such a strategy needed short-term KPIs linked to material reductions in emissions. It also needed the enterprise to support government policies like carbon pricing.

More details of the survey can be found in Annex 3.

7 Next Steps

This paper lays the groundwork for how the transition label can be used as a tool for directing financial flows to activities and entities that are making ambitious transitions from a high-carbon to a low-carbon pathway. It also helps to ensure against greenwashing by putting together a set of principles for the market to align with in this complex area. The concepts in the paper will be put out for consultation and discussion in the market so that they can be refined and improved.

In the meantime, there is a role for investors, issuers, scientists and market shapers to strengthen and reinforce the idea of an ambitious transition model around the world. What next?

1. Investors: Socialize and harmonize a single definition of transition

While the detail may need refining, the message from investors is clear: transition must be ambitious not greenwash or transition-wash. The basic principles and framework expressed here are a solid basis for avoiding greenwash and the core concepts need to be socialized across the market now.

This means that all stakeholders in the market need to encourage all types of investments that fit the parameters outlined, even if they fall outside of traditional green sectors. If in doubt, encourage transactions that are:

- **Ambitious** - this means in line with 1.5 degrees or have significant emissions reduction potential
- **Global** - ambition should be evaluated against global emissions reduction requirements rather than national plans or sector-based best in class metrics.
- **Inclusive** - allow all sectors and activities to participate as long as they demonstrate compliance with the principles and framework outlined.

2. Issuers: Get issuing - in line with the principles

We need the transition market to get going in earnest and for the principles and framework outlined in this paper to become the global benchmark for issuers. The more it is used, the more others will follow and the more capital will be directed to ambitious GHG emissions reductions. But we are aware that there is inconsistent and non-existent scientific guidance for some activities.

If guidance is inconsistent - entities should be transparent over the source of the mitigation goal and transition pathway they are following, and why that was selected over alternative options.

If guidance doesn't exist - we recommend the adoption of the most ambitious measures available to maximise mitigation potential and high levels of transparency report on the transition goal and pathway.

3. Scientists/NGOs/Academics: fill in the gaps

Not all entities have a science-based transition plan laid out for them and their sector/activity. Addressing this gap in information must be a priority. It will require a concerted effort on the part of climate scientists, technical specialists and industry practitioners.

This may also involve a comparative mapping of different transition pathways, comparing not just the metrics and thresholds proposed but also the underlying assumptions driving those metrics, including assessment of their alignment with these principles. This will enable a greater understanding of why recommended transition pathways and thresholds vary, open up the potential for closer alignment, and where differences are legitimate, enable a more informed decision regarding which transition pathway to adopt.

4. Market analysts and service providers

Test and use this transition concept to assess real transactions and financial products.

More detail on how the Climate Bonds Initiative plans to do so is given in the box below.

5. All stakeholders: Send comments on this paper

Feedback is critical to ensure this is a robust and usable framework. We invite all stakeholders to send feedback on the framework over the coming months.

Implications for the Climate Bonds Initiative

The Transition Framework proposed will have a number of implications for the work that the Climate Bonds Initiative does in collecting labelled bond data and in certifying debt instruments. The following areas are currently under consideration:

Certified Climate Bonds: We already certify many financial products relating to sectors and activities that could be classified as 'transition' under this framework and work is underway to develop criteria that define transition pathways in more of these sectors - industrial sectors such as cement and steel are particular priorities. These cover Use of Proceeds bonds, asset-backed securities and other debt instruments.

We are not currently able to certify whole-entity transitions but this is currently being explored and we hope to make an announcement on this in the coming year.

Climate Bonds Database: We currently collect data for green and other labelled bonds that is used as the base data for indices around the world. For green bonds, the data is screened to ensure that bonds are aligned with the Climate Bonds Initiative Taxonomy. For social bond data, no such taxonomy exists and the data is collected without any additional filtering.

For future transition bonds, we will collect and tag all bonds labelled as transition. We are also looking to develop a methodology to screen these deals in line with the framework outlined.

Annex 1: A review of selected guidance

A number of initiatives and frameworks implicitly or explicitly provide guidance for entities undertaking, and investors financing, transition. This section reviews a selection of these providing

- A summary of the key takeaways from this review
- A summary of what we consider to be the most instructive guidance for the concept of transition
- A fuller description of a wider variety of guidance which touches on the transition topic.

Key Takeaways

1. 'Brown' is already the new 'green'...in part

Both the recommended EU Taxonomy and the Climate Bonds Initiative Taxonomy include a number of 'pathway to zero', 'interim' and 'no pathway to zero' activities inside their 'green bond' frameworks. The key factors determining inclusion are: 1) the need for those activities in a 2050 economy (i.e. no likely substitutes available at this time), and 2) the need for mitigation in those activities.

This may suggest that a separate transition label for bonds from some brown sectors is not necessary, since it is already codified under existing green labels.

2. There are gaps in the guidance for 'pathway to zero' and 'no pathway to zero' activities

Most existing guidance address only a subset of the full range of economic activities, assets and projects (henceforth abbreviated to just 'activities') that need to rapidly decarbonise. Gaps are most prominent in the high emitting sectors.

For example, transition goals, pathways, metrics and indicators have been established for activities relating to buildings (construction and retrofits) and to land-based transport (manufacture and operation of road vehicles, trains and associated infrastructure), but have been much less frequently addressed for aviation, shipping and heavy industry. Clear criteria relating to heavy industry has been addressed in only four frameworks: the EU Taxonomy, the China Green Bond Endorsed Project Catalogue, the Transition Pathway Initiative (TPI) and the Corporate Knights and Council for Clean Capitalism Taxonomy. But the first two of these relate just to performance today, rather than defining transition pathways to stated long term goals.

3. There is an absence of guidance for 'stranded' activities

There could be transition goals and pathways for activities that will be phased out by 2050. Such guidance could set-out guidelines to exploit time limited mitigation potential that avoids locking-in or extending the life of such activities. Examples might include mitigation reduction using rather than flaring waste gas.

For entities where the transition requires the business to move away from its current activities - a so-called brown taxonomy - little work has been done on specifying any trajectory for the decline. For example, for a power generation company, the key performance indicator might be coached in terms of penetration of renewables, not the suspension in use of unabated coal.

4. There are gaps in the guidance and sunset dates on 'interim' activities we need to transition away from

'Interim' activities likely won't be necessary in 2050, but for which there is no viable alternative now are rarely covered under existing guidance. Nor does existing guidance set out when the activity should be phased out. For instance, the contribution of waste-to-energy to decarbonisation pathways is hotly debated. Waste-to-energy can be an effective way to deal with residual waste, compared to landfill. However, as grids decarbonise and circular economies are more fully established, the value of the energy's contribution diminishes. There is no clear guidance as to when that tipping point is reached.

5. Decarbonisation metrics and pathways are generally not tailored to local contexts - but this will likely change as more regions develop their own taxonomies

The existing global frameworks, such as Climate Bond Initiative's Taxonomy and the GBP, and do not provide differential guidance for across countries or regions.

This can be problematic. The SDGs and the Paris Agreement incorporate the idea of differential pathways and targets to reflect local circumstances, but this is at odds with the two Taxonomies' paradigm. We are mindful of the development of a number of localised taxonomies following the lead of the EU and re-emphasise the need to balance local development needs while climate goals are being met.

6. Transition pathways do not all meet the principles set out here - for example, they do not specify alignment with 1.5-degree outcomes

The existing guidance is not consistent with the Transition Principles set out in this report. For example, few transition pathways align with 1.5 degree warming targets, some include offsets, some are based on best-in-class benchmarks, some are driven by a policy agenda as much as a climate science agenda. A full review of all existing guidance and the assumptions underpinning them is needed to fully understand their alignment with these Principles and with each other.

7. A mix of guidance for use-of-proceeds and entity strategies - that can perhaps better inform each other

Transition bonds can encompass both a) use-of-proceeds bonds, in which specific assets and projects are identified to receive the funding (these bonds may or may not be accompanied by information on aligned corporate strategies); and b) general purpose bonds underpinned by a transition strategy/ commitment/ KPIs for the issuing entity. The latter defines success to the overall strategy of an organisation and its KPIs.

Of the frameworks and guidance reviewed, some are focussed on use-of-proceeds, others on corporate strategies. The latter tend to be less precisely formulated, with more of a focus on principles and commitments, rather than KPIs with specific performance levels.

The former could perhaps be used to tie down the latter. For example, if decarbonisation trajectories for cement manufacturing facilities are defined, then these could provide the basis for a set of KPIs.

Details

Since 2014, the Climate Bonds Initiative has developed mitigation criteria following the Climate Bonds Taxonomy to screen the use-of-proceeds of various debt instruments (most notably green bonds) for the purpose of determining eligibility for Climate Bonds Certification.³³ Initially, these criteria focussed solely on climate mitigation.

For many assets and projects, the mitigation criteria define GHG thresholds that are 'Paris Agreement-aligned'. The criteria are to be used in all geographies – with no differentiation between emerging markets and developed countries, with the exception of the buildings criteria and criteria for waste-to-energy.³⁴

To date, the Climate Bonds Initiative have published Criteria across six sectors of the taxonomy as follows: i) energy - solar, wind, marine renewables, geothermal, ii) transport - land transport, shipping and bioenergy, iii) water infrastructure, iv) buildings, v) land use and marine resources - agriculture, forestry and waste management

These cover a range of activities that would be categorised as 'pathway to zero' and 'interim' activities per the descriptions in Section 2. For many of these, transition pathways are already available in which these thresholds tighten over time (notably buildings and transport). For others, the criteria are the starting point of the transition, but the future downward trajectory is not yet described (e.g. renewable energy). Climate Bonds Initiative reviews criteria regularly to revise them in line with climate mitigation targets and technological and other market developments.

For certification under the Climate Bonds Standard, use-of-proceeds must comply with the relevant sector criteria. There is no requirement for evidence of a credible green or transition strategy on the part of the issuer, although this is encouraged to be included as part of their green bond framework. As set out already the coverage of sectors is incomplete by Climate Bonds Initiative and many of the largest emitting sectors do not yet have criteria.

In March 2020, the **Technical Expert Group to the European Commission** (the 'TEG') released its recommendations for an EU Taxonomy of Sustainable Finance (the 'recommended EU Taxonomy'). The Commission will use this as the basis for an EU Taxonomy that will be adopted in regulation by the end of 2020 and enter into application by the end of 2021.³⁵ Member states and the EU will be required to apply the Taxonomy when adopting measures (e.g. setting labels or standards) presented as 'environmentally sustainable'. Similarly, financial market participants who offer financial products (debt, loans, equity investments) will be required to disclose compliance of those products and their underlying activities with the Taxonomy. Likewise, large corporates and groups subject to the Non-Financial Reporting Directive (NFRD) will need to disclose compliance.

The recommended EU Taxonomy currently addresses six environmental objectives: climate change mitigation, climate change adaptation, water management, circular economy, ecosystem protection, and pollution prevention and control. Finance will be compliant with the taxonomy if it delivers a substantial contribution to at least one of these objectives and does no significant harm to the others and respects minimum social safeguards. The intention is to extend to all six environmental goals, and to incorporate more specific social goals.

The criteria screen for 70 economic activities spanning seven macro sectors: (i) agriculture and forestry, ii) manufacturing, iii) electricity generation, iv) water, sewage, waste and remediation, v) transportation, vi) information and communication, vii) construction and real estate activities.

Each of these economic activities' eligibility is categorised on either its own performance, or because it enables substantial mitigation downstream (for example a manufacturer of wind turbines). 34 of these 70 activities are also flagged as a 'transitional activity' based on the view of the Technical Expert Group that these activities are critical to the economy in 2050 and contribute to a transition to a net-zero emissions economy by 2050 - but are not currently close to a net-zero carbon emissions level themselves and must significantly enhance their performance beyond the industry average, without lock-in to carbon-intensive assets or processes. Therefore, the screening criteria for these activities will be subject to regular revision, approaching zero over time.³⁶

These 34 activities cover a range of activities that would be categorised as 'pathway to zero' and 'interim' activities per the descriptions in Section 2. They include cement, steel and aluminium production under the manufacturing sector, power generation from renewable sources that can be high emitting (such as hydropower, geothermal power and bioenergy), agricultural production, buildings and transport. For some of these, the TEG noted that low-carbon solutions are not currently available, but still recognised them as 'transitional activities' and adopted the following two principles to determine screening criteria that can be applied today:

1. Ensuring no lock-in of assets inconsistent with the net zero goals; and
2. Environmental performance well above the sector average.

The Taxonomy Regulation requires the European Commission to review all screening criteria regularly and, in particular, to review 'transitional activities' at least every three years. Climate Bonds Initiative CEO Sean Kidney was a member of the Technical Expert Group and Climate Bonds Initiative staff were actively involved in development of the EU Taxonomy.

The draft EU Green Bond Standard requires i) the use-of-proceeds of such bonds to align with the EU Taxonomy where possible, and ii) that the issuer indicates how its strategy aligns with the environmental objectives of the EU Green Bond Standard, as well as their rationale for issuing.³⁷ The standard does not specify any KPIs or other markers that might be used to describe issuers' strategy.

At national level, the People's Bank of China (PBoC) published the first edition of its Green Bond Endorsed Project Catalogue in 2015,³⁸ covering the interbank bond market (which accounts for over 90% of green bonds issued in China). In January 2016, China's macroeconomic management agency, the National Development & Reform Commission (NDRC), published a separate set of green bond guidelines covering corporate bond issuance. China signalled in 2018 that it would exclude 'clean utilisation of coal' from the next version of the Catalogue. This has not been confirmed and it is uncertain whether it will.^{39,40}

The Canadian Standards Association is currently developing a National Standard of Canada for Transition Finance, including a taxonomy of activities intended to reduce GHG emissions in line with the transition to a lower carbon economy in Canada, for the following seven priority sectors: i) oil and gas (upstream, midstream and downstream utilities), ii) utilities (energy production), iii) agriculture, iv) forestry, v) transportation (focus on heavy duty vehicles – railways, aviation, trucking), vi) materials (cement, steel, glass), vii) mineral mining. It will build on existing taxonomies and guidance, in particular the EU Taxonomy. The first edition of the Canadian Transition Finance Taxonomy document will be published as a CSA Express Document, targeted for the summer of 2020. This document will be used as the basis for the development of a National Standard.

The ISO is also in the process of defining an international green bond standard, which will be known as ISO14030. It is expected that this new standard will be available around 2021.⁴¹ At this stage, it looks like the Standard will reference appropriate local taxonomies, not establish a meta or global taxonomy, and therefore will automatically incorporate any transition principles and resulting transition pathways embedded in those taxonomies. (Climate Bonds Initiative is a member of the relevant ISO14030 drafting committee.)

The International Capital Markets Association (ICMA) hosts the secretariat for the Green Bond Principles (GBP). The GBP identify ten eligible use of proceeds categories for green bonds which cross economic sectors and environmental factors. These are i) renewable energy; ii) energy efficiency; iii) pollution prevention and control; iv) environmentally sustainable management of living natural resources and land use; v) terrestrial and aquatic biodiversity conservation; vi) clean transportation; vii) sustainable water and wastewater management; viii) climate change adaptation; ix) eco-efficient and/or circular economy adapted products, production technologies and processes; and x) green buildings.

There are no specific screening criteria or equivalent for these categories, and they can be applied to activities across the spectrum outlined in Section 2, including 'stranded' activities. It may thus not be surprising that a number of 'transition bonds' that have been verified as aligned with the Green Bond Principles have attracted criticism (fairness commands to note, though, that some investors have also voiced support of these deals). See Section 5 for more information.

The GBP do though encourage bond issuers to position information on project selection within the context of the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability. In line with the overall approach of the GBP, they do not give any guidance on the form or levels of ambition that those objectives and strategies should take, though.

This may possibly change over time. The terms of reference of a recently formed GBP Climate Transition Finance Working Group (Climate Bonds Initiative is a member) include considering what might be the main points of a credible transition strategy for an issuer and how consistency between the strategy and expenditures could be evidenced, as well as asking what if anything might need to be added to the existing GBP to capture appropriate transition activities.⁴² This work will include consideration of relevant transition pathways and metrics. The Working Group is expected to publish some relevant output over the course of 2020.

The GBP have also recently launched a working group to look at sustainability-linked KPI instruments. While there is no full overlap with the transition question, the two issues are often perceived as closely interrelated: some observers feel that one type of instrument (use-of-proceeds vs KPI-linked) fits one type of bond label (transition or green or otherwise) better or worse.

The FSB Task Force on Climate-related Financial Disclosure (TCFD) has produced recommendations to help companies disclose tailored climate-related financial information, which will aid investors in determining which companies are most at risk from climate change and how they prepare themselves to manage such risk.⁴³ Such information will serve as an essential basis for a corporate transition strategy to move to a low carbon, climate adapted footing where its climate-related risks are appropriately minimised. The TCFD itself identified non-financial sectors and industries which have significant exposure to transition or physical risks related to GHG emissions, energy, or water, but they deliberately do not explore transition pathways that might minimise those risks.

In 2019, **Global Compact** produced a roadmap to mainstream SDG investment and SDG bonds to help companies use capital markets to finance their sustainability initiatives and increase allocation of

capital to SDGs.⁴⁴ Of particular relevance to this discussion is the reference to stranded assets and how an orderly transition away from these assets might be achieved. The roadmap notes that potential options for such assets might be re-purposing older assets, retiring assets, and retraining the workforce. This might inform transition strategies for entities engaged in stranded activities.

The Climate Action 100+ initiative is an investor initiative aiming to secure commitments from the boards and senior management of the world's largest corporate greenhouse gas emitters to take necessary action on climate change.⁴⁵ The companies on which the initiative focuses include 100 companies that represent up to two-thirds of annual global industrial GHG emissions according to CDP, plus 60 other companies flagged by investors as having significant opportunity to drive the clean energy transition.

The Transition Pathway Initiative (TPI) currently provides carbon performance benchmarks for nine sectors across the full range of categories outlined in Section 2. Specifically, oil & gas; electric utilities; automobiles; airlines; cement; steel; aluminium; paper; and shipping.⁴⁶ These benchmarks include emissions performance trajectories aligned with 3 scenarios: Paris pledges / NDCs; 2 degrees C; below 2 degrees C. Companies across these sectors have been assessed against those benchmarks.

The Science Based Targets initiative (SBTi) promotes science-based target setting by companies engaged in the transition to the low-carbon economy. It is a partnership between CDP, the United Nations Global Compact (UNGC), World Resources Institute (WRI), and WWF. We Mean Business also collaborates. As of February 2020, some 800 companies globally have committed to the objectives of the SBTi, with some 330 of them having set targets already. SBTi covers 6 macro sectors, spanning a total of 27 sub-sectors.

Working through Technical Advisory Committees, SBTi seeks to set sectoral decarbonization approaches based on mitigation potential and projected growth. Pathways are being developed for several hard to abate sectors like Oil & Gas, Forest, Land & Agriculture, Chemicals & Petrochemicals as of yet there are no published results setting out sector pathways.

Sustainability Accounting Standards Board (SASB) released its standard in November 2018 covering 77 industries in eleven sectors that include: Extraction and Mineral Processing, several other manufacturing sectors, Financial, Transportation, Infrastructure and Services.⁴⁷ The standard's universe of issues covers Environmental, Social Capital, Human Capital, Business model & Innovation, Leadership & Governance. SASB publishes a Materiality Map to identify sustainability dimensions that are likely to affect each of the 11 broad industries. The Map sets out for each industry issues that are not likely to be material, to be material for 50% of firms and issues material for greater than 50% of firms.

Companies using the standard produce reports disaggregated by ESG dimension and company activity to aid analysts to compare firms. For instance, oil and gas extraction's GHG report they are their consolidated Scope 1 emissions of the GHGs.⁴⁸ There are separate indicators for fugitive emissions and emissions from equipment used for extraction or transport. Companies are asked to discuss their forward strategies to manage Scope 1 emissions and analyse their performance against these targets. SASB's guidance does not specify thresholds or standards, nor any science-based forward trajectory for the firm benchmark performance.

The Energy Transitions Commission (ETC) is a group of leaders from across the energy landscape: energy producers, energy users, equipment suppliers, investors, non-profit organizations and

academics from the developed and developing world. In November 2018, the ETC published its flagship report, "Mission Possible: Reaching net-zero carbon emissions from harder-to-abate sectors by mid-century". Separate more detailed reports cover the cement, steel, plastics, shipping, heavy-duty road and aviation sectors. The ETC work is particularly useful as source material which other parties can use to develop industry trajectories for decarbonisation.

Mission Possible's annexes seek to establish trajectories for the six sectors based on projections of demand, opportunities for demand management (at the consumer end) and recycling, and also the technological avenues for decarbonisation. For instance, in the cement annex the technologies which are discussed include new cement chemistries, carbon capture, use of biomass as a fuel and the practical challenges in scaling each of these options. The summaries provide a useful summary of the scope for each of the technology to reduce emissions, the timeframe over which the technology might mature and an indication of the cost to consumers of implementing the technology or business practice.

The UK-based Global Investor Coalition on Climate Change (GICC), has worked with its regional counterparts (Ceres, IGCC, AIGCC) to develop guidance focusing on a number of brown sectors: real estate, construction materials, steel, oil & gas, automotive, electricity utilities, mining.⁴⁹ Using a governance and disclosure focused approach, it also articulates the level and pace of transformation that investors would like to see. It mentions current best practice and also alternative technologies / methods to provide insights on future potential and speed of change. It also provides details of the type of information that an entity-level strategy for emission improvement needs to include, in the view of investors. This may inform the development of credible markers for those strategies.

Some of these are:

- Disclosures that are in line with the recommendations of the TCFD.
- Evidence at board level confirming that the company's strategy is consistent with the goals of the Paris Agreement, with a strong governance framework which clearly articulates the board's accountability and oversight of climate change risk and opportunities.
- Action to reduce greenhouse gas emissions across the value chain, consistent with the Paris Agreement, which may include short- and long-term emission reduction targets, investment plans and other actions that support those reductions, relevant research and development and capital expenditure.

The Paris Agreement Capital Transition Assessment (PACTA) tool, supported by PRI, is a free online tool based on analysis by the 2°C Investing Initiative. The tool, which covers equity and bond issuers, is based on analysis of companies' investment and production plans in both high-emissions activities and low-carbon solutions, both now and in the coming five years. These are then compared with the technology and energy mix which would be consistent with the trajectory towards a given climate scenario. A range of scenarios are available, including the IEA 2°C and 1.75°C scenarios. The output is a 'technology exposure gap', showing the degree to which the investment and production plans within a given portfolio is aligned with a given climate scenario. This alignment analysis may in itself meet the investor's objectives on climate change; it might alternatively be used as a tool to inform deeper analysis in areas/ sectors with misalignment, or for product design.

The Paris Aligned Investment Initiative is led and coordinated by IIGCC with a steering group of leading asset owners.⁵⁰ The work to develop concepts, assess methodologies and test portfolios will be

undertaken by IIGCC, with the engagement of IIGCC members and input from external experts. The Paris Aligned Investment Initiative will produce, among other things:

- Pathways for Paris Alignment based on emissions, technology and economic scenarios.
- An assessment of relevant methodologies and approaches for 4 asset classes: sovereign bonds, listed equity, corporate debt and real estate.
- Testing of the most relevant methods and approaches for aligning portfolios using up to 5 real world portfolios, forecasting implications of aligning to Paris over time against key financial metrics relevant to investors.

The Corporate Knights and the Council for Clean Capitalism

released their taxonomy for clean financing for heavy industry, which they called Clean Transition Bonds Guidelines (CTBG), in 2018.^{51,52} The eligible transition categories are carbon intensive, covering oil and gas, energy utilities, mining, metals, and other non-fossil fuel commodities such as cement, chemicals, steel, and smelting. The CTBG make a distinction between eligible transition project categories and eligible clean project categories. Projects in the eligible transition categories are:

- Cleaner fossil fuels extraction with significant reductions in GHG emission intensity
- GHG efficient fossil fuel refining systems
- GHG efficient processes for non-fossil fuel commodities
- Cogeneration from fossil fuels

The CTBG go into some detail by providing concrete eligibility criteria based on minimum levels of GHG emissions reduction, but it is not clear whether the proposed reductions align with Paris Agreement objectives.⁵³ Furthermore, the GHG emissions considered do not cover scope 3 emissions (i.e. those from using the product), ignoring the most significant part of the sector's emissions.

Annex 2: Other stakeholders' approaches and commentary

AXA Investment Management (AXA IM) put forward their interpretation of transition bonds and activities in a 2019 publication entitled 'Financing brown to green: Guidelines for Transition Bonds'.⁵⁴ Their proposal intends transition bonds to be used by companies that are in greenhouse gas-intensive industries such as materials, extractives, chemicals and transportation. AXA IM provide examples of projects categories that will be eligible for funding from transition bonds, but do not define specific eligibility criteria for projects.

The reporting requirements lists indicators, such as GHG emissions avoided and energy efficiency achieved, and a reference point (CO2 emissions trajectory under the IEA 2°C scenario - although we note that this scenario is not Paris Agreement-compatible as carbon neutrality is reached by 2100, not 2050). The proposal explicitly links the eligibility criteria to the overall transition strategy of the corporation that issues the bond, not the use-of-proceeds.

Natixis, in its 'Brown Industries: Transition Tightrope Series', focusses on company transformations and sets a framework for setting and assessing the credibility of businesses' transition strategies. Natixis defines transition as "the interim period and process by which a company transforms its business model and activities to adapt to a new paradigm - in our case, a carbon-constrained world". In this context, they identify five complimentary transition levers for businesses:

- Quit/exit: Changing activities and/ or business model by divesting or disengaging from most harmful activities via asset disposal/ sale or asset decommissioning;
- Diversify: Increase the share of 'pure' green activities (e.g. renewables) via e.g. organic diversification, acquisitions or spin-offs;
- Decarbonise: Decarbonise core and hard to abate activities' GHG emissions via investment in new assets/ equipment, process reshuffling, dedicated R&D, ad hoc skills management
- Offset: e.g. via CCS or reforestation in addition to the removal that would occur via natural carbon cycle processes; and
- Low carbon solutions: sell materials, products or services that enable the transition of other sectors or companies.

Natixis also outline a framework for assessing the credibility of these strategies and the entity carrying them out, encompassing tests of the company's willingness, ambition, willingness and effort.

BlackRock has published a framework and argues for "converged standards on portfolio-level disclosure of environmental, social and governance (ESG) characteristics, as well as agree on naming conventions for categories of investment funds, and on product naming conventions".⁵⁵ It criticises the EU taxonomy for its binary and prescriptive thresholds for assigning whether activities are green or not green. BlackRock asserts that such "greenest of green" investment needed to be supplemented with other taxonomies. It advocates aligned and enhanced company level disclosure of ESG data through common disclosure standards, favouring the SASB standard for most ESG issues, and TCFD for forward looking climate-risks.

The concept of transition has been widely discussed in the trade press. Articles cover: a) the labelling nomenclature: "transition", "SDG", "sustainability", "sustainable transition", "climate action", b) the market's reactions to specific labelled issuances, and c) queries about the use of proceeds model vis-à-vis the enterprise level transition.

This section briefly discusses a number of thought-leadership pieces showing the arguments made in 2019. Comments are often reflections on recent labelled bond issuances described in Section 5 of this report.

Environmental Finance's Peter Cripps writing about the SNAM bond issuance (Environmental Finance - 6 March 2019) asked if a more radical agent for change was needed - than the standard green bond, especially if the funds are being used to refinance existing projects rather than drive new investment. He asked whether green bond issuers needed to have an enterprise level transition strategy. He argued that the market needed innovation to provide an entry point for "dirty issuers [...], but only those with credible plans to fall in line with a 2°C scenario".

He was ambivalent as to whether these bonds should be labelled 'green' or 'transition'. "I think a likely outcome would see bonds with non-controversial green assets being labelled green, and those such as Snam whose green bond framework involves making improvements to its fossil fuel assets, being given a transition label."

BNP-Paribas offered a thoughtful pair of articles in Environmental Finance (6 & 13 September 2019^{56,57}) arguing that the labelled bond market was setting off a revolution by:

- earmarking how funds are allocated through the use of proceeds model be spent;
- next prompting issuers to link the coupon to attainment/failure of sustainability targets [he referred to the ENEL bond]; and
- in the future, linking cost of risk with sustainability performance and impact.

In the second article he argued the need for the market to become broader and include "sectors that are 'brown' today and will remain brown for a very long time". Transition finance was about "transitioning from brown to... brown a lighter shade of brown". He suggested the concept of transition applies to sectors:

1. "that are not green today", embracing energy intensive and hard-to-abate.
2. "cannot become green tomorrow", restricting transition to activities where green is not economic or practical locally, e.g. switching from coal to gas where wind is not economically viable.
3. "can and need to get greener", referring to firms having a "comprehensive strategy roadmap" consistent with an approved GHG reduction trajectory (he cites IEA's Sustainable Development Scenario (SDS), and Beyond 2 Degree Scenario (B2DS)).

Nordea (Environmental Finance, 15 Oct 2019⁵⁸) wrote it was important to take a wide view of the purpose of the labelled bond market. It was to move capital in the right way, not about who can and cannot do green. Green bonds great virtue was their "transparency". As the labelled bond market developed, it needed to have "ESG integration" rather than binary in-out labels. He argued the transition label needed to flesh out "strategic alignment" of the issuer rather than focus on what its sector is. In the current situation it was perverse that an oil company felt it could not issue a green bond, but a bank lending to the company could. He concluded saying while supportive of the concept and need for transition, he was sceptical about the need for a transitional bond label or indeed the labelling of instruments more generally. He instead commended the transparency and disclosure that the use-of-proceeds model provided.

2° Investing Initiative (Environmental Finance, 31 Oct 2019 ⁵⁹) was sceptical about the concept of green bonds. Firstly, individual green use-of-proceeds bonds did not reduce investors' exposure to climate risks compared to vanilla bonds, because investors remained exposed to the overall climate risk of the issuer's balance sheet. Secondly, issuers and investors could claim kudos for buying / issuing green bonds, even if the emissions performance was poor.

Du Pre was more approving of issuer-level performance measures. He said: "Faced with these market dynamics, we think that Enel's bond represents healthy progress. For one thing, it's linked with issuer-level targets, which is more consistent with the 'general purpose' nature of the bond. For another, it introduces a new incentive for the issuer to meet the target, rather than nothing."

Annex 3: Stakeholder views – the detail

In order to obtain decent visibility on market views, the Climate Bonds Initiative developed a questionnaire to undertake structured interviews with a number of stakeholders interested in the concept of transition bonds, including organisations that had issued labelled bonds. Altogether 27 interviews were completed across different stakeholder groups.

Stakeholders	Interviews
Banks	6
Investors	7
Issuers	7
Policy maker/MDB	2
Think tank	5
Total	27

Views on the (application of the) concept of ‘transition’

Desired focus for transition:

All commentators agreed that the focus should be on climate change mitigation. This limited scope was favoured over inclusion of other environmental or social issues because of the conceptual and measurement issues in developing KPIs and thresholds, and differences in geographic contexts. One interviewee remarked that the definition and measurement of other environmental and social issues was at such a nascent stage that no one could be expected to credibly report performance.

Where to look for guidance on credible transition:

The EU taxonomy was cited by some interviewees as the benchmark for defining ‘green’ or ‘climate-friendly’ activities. According to some financial institutions and energy companies, it sets the point of departure for defining ‘transition’ activities. In their view, transition activities need not meet the EU taxonomy’s mitigation thresholds, but can meet some other, less demanding carbon mitigation standard. This raises the issue of whether this alternate threshold is sufficiently demanding (potentially breaching Principle 1), and who decides on the appropriate threshold (Principle 2).

Some argued the thresholds should be set in the context of the national decarbonisation strategy. For instance, SNAM saw gas pipelines as providing essential energy infrastructure for transporting low carbon gaseous fuels like biomethane or in future hydrogen (though the company does not clarify its commitments or planned activities in this respect), as suggested in Italy’s climate strategy. One German energy company identified the transition as being the eventual closure of coal and nuclear energy as per the Energiewende’s (Germany’s policy of moving away from coal and nuclear toward renewables) concept of transition.

Which sectors are relevant and should be prioritised?

One interviewee said the ‘transition’ label should be limited to manufacturing, building renovation (enabling activities), and the agricultural sector - i.e. hard-to-abate sectors where decarbonisation is necessary, but there is no easy pathway to zero emissions.

There was a polarisation of views about the role of natural gas in the transition. The majority of interviewees thought it should

be excluded. However, issuers in the oil and gas sector and some banks dissented from this view. They thought gas offered significant emission reductions compared to coal and petroleum, and in time CCS could be fitted to large point users of gas like power stations. One interviewee argued that gas was the only viable fuel for some high temperature industrial processes (though one other interviewee disputed this).

There were divided views about the role of nuclear power in the transition. One proponent of nuclear argued that without it, GHG emissions from electricity production would dramatically increase because of a switch to natural gas; an opposing view was that nuclear energy did not meet the “do no significant harm criteria” and was unnecessary because of the emerging dominance and cost-effectiveness of renewables.

Differences between transition, sustainability and the Just Transition bonds

Interviewees across think-tanks, government and regulators agreed that corporations needed to engage with sustainability across its different facets. In principle, its scope included issues like circular economy and nature-based solutions. One stakeholder stressed corporate-citizenship issues like paying taxes, fair wages etc. These were not the focus of a transition or green bond, but in the realms of a sustainability bond.

One emerging market interviewee was concerned that the role played by fossil fuels in resource-rich export-dependent countries was overlooked by the EU taxonomy. The framing of transition needed to take into account social issues, especially important in some economies. He argued the transition should not be viewed in terms of climate alone, but the broader range of social, economic and development SDG goals. (In conflict with the principles outlined earlier). This multi-faceted approach was essential because a pure mitigation focus would not be socially or politically acceptable in many countries. For example, access to energy is often in conflict with climate change mitigation. He introduced the concept of Just Transition in which climate investments should be viewed in wider context of protecting the interests of people whose livelihoods are being transitioned-away from. This might include providing alternative livelihoods, training or social welfare payments.

Stakeholders agreed enterprises were a long way from operationalising full ESG disclosure in a meaningful and decision-useful way. The ‘materiality’ of particular ESG issues varied industry by industry and across different regions. Non-carbon ESG issues (e.g. water, biodiversity) were often considered as relevant as climate for e.g. the mining sector in emerging economies.

Does green finance need a new label?

Views on whether a new ‘transition’ label was needed were highly polarised even within stakeholder groups.

Why we need a different concept/label:

A number of underwriters and oil company issuers said the green bond market was not engaging with the largest emitters (fossil-fuel extraction, non-renewables energy generation, manufacturing), or the hard-to-abate low-carbon-enabling sectors. If there was a sufficient convergence of views, a transition bond label would provide a useful recognition of companies or assets making a meaningful reduction in their emissions and could help flag such companies’ transactions to investors.

What impact does transition need to achieve:

Many interviewees used AXA IM's conceptualisation of 'transition' as the point of departure from 'green'.⁶⁰ One bank was pleased with AXA IM's contribution to the debate. They found the EU taxonomy too restrictive, disqualifying many worthwhile activities from the labelled bond market. The bank welcomed the opportunity to bring high emitting sectors in from the cold. The organisation also supported the leadership taken by the oil and gas company Repsol with its 2017 green bond issuance, which met the ICMA Green Bond Principles but would not today meet the EU taxonomy thresholds. The bank noted the market had chosen to exclude Repsol from green bond funds. It recognised the need for a different standard with which not-strictly-green but other still useful investments should be judged.

One bank took the view that "any innovation is welcome, a moral imperative even, to help flow capital into the right direction", but it was important to reserve the label 'green' for Paris Agreement compliant deals. This bank thought the term 'transition' could be crafted to avoid being accused of 'greenwash' by reserving its application to where there was no Paris Agreement compliant investment, but where the investment lead to some material reductions in emissions.

In summary, proponents of a new label note that there are insufficient bankable investment opportunities for investors looking for green products, and that an additional label (if applied consistently and credibly) could widen the scope of potential investment opportunities.

... the more-labels-more-confusion view

Motivation for a new label:

Amongst the think-tanks interviewed, most were concerned about the motives of sectors and financial institutions seeking to introduce the 'transition' label. They argued energy-intensive sectors had to move straight to zero carbon energy sources, leap-frogging lower carbon fossil fuel options. Investment in new fossil fuels was not part of the transition to a 2°C world, let alone a 1.5°C one. They were suspicious of a corporate strategy that set zero- or low-carbon long-term goals. Even if meant sincerely, these could be reversed by a change in management or were contingent on financial conditions. Some interviewees referred to BP's "Beyond Petroleum" branding during John Browne's tenure as CEO, which was reversed after his departure. This agrees with our Principle 5 – pledges alone are not enough.

Some market participants were nervous about the proliferation of labels:

It was flagged that the green bond market was well understood, and thus questioned why another rival label needed to be created. There was also the worry that new labels would do nothing to strengthen capital flows into green investments. While AXA IM's proposal would extend the supply of labelled assets, the overall emissions reduction impact might be slight. One banker was especially dubious about the 'transition bond label'. He thought the idea was merely a 'solution looking for a problem'. A US investment manager said: "It all seems very straightforward to me, so why do we need new or fancy new labels?" He recommended simply using the green label and reporting duly.

Some felt the transition label would be used by investment managers profiling themselves as socially responsible to pad out their portfolios, given the shortage of available Paris Agreement compliant green issuances. Instead of funnelling scarce green capital into genuinely low carbon investments, it would allow firms to 'greenwash' or 'transition-wash'. They saw the following risks from a transition bond label: taking capital away from the areas that need it most; validating corporates that were not substantially contributing to the SDGs; and/or devaluing the credibility of existing labels.

Deciding a sufficiently demanding transition trajectory (Principle 2)

There was strong support for KPIs quantifying transition to be aligned to a sectoral 'science-based' trajectory. Two problems arose in operationalising this, though: who should decide the science-based decline trajectory for a sector? Should this trajectory vary according to local circumstances or a nation's state of economic development? Both these issues were contested.

On the issue of who should define the concept of transition, one asset manager thought it should be driven by asset owners, since other parties had less incentive or were conflicted to develop a concept. Interviewees spoke favourably about initiatives like the Science Based Target Initiative (SBTi), run by a coalition of NGOs and business groups, but it was noted SBTi had not succeeded in assigning trajectories for the hard-to-treat sectors like iron and steel or agriculture.

The Energy Transition Commission note that some hard-to-abate transitions are conditional on innovations in other sectors. The cost-effective synthesis of zero-carbon hydrogen could reduce the emissions in manufacturing and freight transport, for example.

One investor mentioned that corporate sustainability strategies needed to adopt a materiality matrix and metrics addressing non-CO2 emissions also. The SASB's framework could assist in identifying parameters that are material.⁶¹

Transition in energy-intensive activities

Interviewees were asked about appropriate transition paths for different energy-intensive activities. There was a difference of opinion about 'hard-to-abate' activities like iron and cement production, which cannot be made net-zero through fuel substitution alone and will continue to be needed after 2050, and 'stranded' activities oil and gas production - which could in theory be replaced by renewable energy sources.

Activities requiring decarbonisation:

These are economic activities producing goods like agricultural produce, minerals, metal production and cement that will probably continue to be needed up to and beyond 2050, but for which there is no widely adopted net zero emissions technology (yet).

One bank which lent to mining and extraction used a KPI-linked structure for some of its loans. It said the size of the loans were individually too small to be issued as bonds but could in theory be aggregated into a sustainability-labelled instrument.

A policy maker wanted to see the transition label to include agriculture and land use because they are major sources of emissions, and potentially large contributors to sequestration. Beef and dairy's methane emissions were a particular issue. This person thought off-setting should only play a role when energy efficiency opportunities had been exhausted.

For energy-intensive manufacturing, several think tanks and issuers saw that any attempt for a region to force firms to reduce the emissions-intensity of production risked 'carbon finance leakage' from enterprises outside the region. One interviewee said that under existing policies "large-scale deployment of Paris-aligned technologies is commercial suicide."

One car manufacturer said its move away from fossil fuels could be managed without strong supportive price signals. Consumer pressure and government regulation made the switch to EVs attractive despite the higher cost of production because consumers were happy to pay a premium for innovative technologies.

'Interim' activities and 'stranded' activities:

For the oil and gas sector, one asset owner said that “the challenge was not really transition but the elimination of these sectors”. With such stranded activities, we need to push for significant reductions in oil at least, as long as it doesn't lead to asset-life extension. Many interviewees thought that oil and gas exploration and production should not be included in 'transition' bonds as it 'watered down the entire concept'. Some banks and energy companies, which saw the need for the continued use of gas, were conscious that investment in new plants could extend the use of fossil fuels and delay investment in renewables. They suggested the definition of transition to include a significant improvement in emissions (e.g. from energy efficiency, or reduced flaring) and a plan to phase out the use of fossil fuels by the issuer. One investment manager thought that the transition label should be applied for breakthrough technologies like carbon sequestration, focusing on real additional investments that would not have been possible or happened in the absence of that (transition) funding. There was some support for energy efficiency investments, like small scale projects in the supply chain, to reduce emissions - think of petrol stations that replace diesel with solar PV or energy storage for powering the pumps or gas capture replacing gas flaring.

One investment manager thought that the transition label should be applied for breakthrough technologies like carbon sequestration, focusing on real additional investments that would not have been possible or happened in the absence of that (transition) funding.

The energy companies and some banks were conscious of the 'green funding gap'. This referred to the resources needed to finance a company's entire strategy, and not just the Paris Agreement aligned pockets of spending - which might only amount to a few per cent of investments to begin with. There were on-going needs to finance brown aspects of the transition strategy, even as a company reduced its emissions intensity. One NGO and the oil and gas interviewees said there were constraints on how quickly such companies could invest in the transition away from fossil fuels: oil majors were exposed to climate risks in all parts of the hydrocarbon value chain.

The oil and gas companies interviewed were, in theory, interested in a labelled bond that could be used to fund their decarbonisation strategies, but only if this bond be favourably received by stakeholders, and ideally if it lowered the cost of finance (though they had no expectation of this happening). One oil and gas representative argued that only the oil and gas super-majors possessed the technical knowledge, logistical/operational experience and equipment to rapidly scale-up carbon capture and storage as a climate change mitigation solution. But they were sensitive to any label backfiring and being negatively reported in the media. Reaction to Repsol's 2017 green bond had been duly noted.

One interviewee observed the phase-out of oil and gas should take into account countries' economic, social and development goals. He thought the debate in taxonomy circles was too dominated by carbon trajectories and thresholds, instead of the social and societal impacts of moving away from fossil fuels in terms of loss of jobs in stranded sectors and affected regions. There needed to be distinct strategies for coal (write-down of stranded assets), gas (seen by some interviewees as a 'bridging fuel'), vehicular transport and waste disposal. These should be context-specific.

Some people said transition should exclude new investments which lock-in continued carbon emissions. This formulation might work if the investment modifies an existing asset, but is difficult to apply to a new asset, which, by its nature, locks in a degree of new emissions.

There were opportunities for mitigation within O&G's business areas like replacing diesel operated petrol-pumps with solar.

Entity-level transition

Need for credible transition strategy:

There was strong support from industry participants that a transition label is only appropriate if the corporate strategy was aligned with the objectives of the Paris Agreement. One investment manager said: “[we] would not buy a green issuance for our green bond fund from a utility without a science-based target. The bond is otherwise incoherent.” He thought the debate should focus on what constitutes a meaningful transition and what is greenwash.

One NGO queried the use of proceeds model and thought it needed to be supplemented with a 'smell test' of the company as a whole. Another think-tank suggested that if there is to be a use-of-proceeds model at the asset level, there has to be consistency at corporate level: not with a token number of assets, but well with an articulated investment plan for reducing emissions in line with the Paris Agreement. This interviewee thought the 'transition' label could also be used for significant reductions in emissions by sectors where there is no economically viable Paris-agreement aligned alternative and the concept of this transition is present in the attitude, marketing, public messaging and general strategy of the firm.

Aspects of credible strategy:

Aspects of an enterprise level transition that were mentioned included:

- support for the Paris Agreement in the company's strategy;
- support for meaningful government policies like carbon taxes;
- short term KPIs to monitor whether the climate mitigation strategy was on track; and
- alignment with the TCFD's recommendations on adopting a strategic response to future climate risks.

KPI linked coupons:

Many interviewees commented on the ENEL bond's linking of the coupon with not attaining emissions intensity targets. Some approved. A few banks said they did not have a settled view on the merits yet. One interviewee noted that the 25 basis points “was trivial compared to the incremental costs for the company switching from oil and gas to renewables”. Another contrasted the “direct and measureable” commitments made by use-of-proceeds style green bond with the voluntary and less clear-cut attribution of carbon savings from KPI-linked coupons. One think-tank supported the switch of focus away from “stock of green assets” to “delivered performance on a scientifically determined trajectory”. Deployment of low carbon technology as a pilot was generally viewed as insufficient proof of corporate level transition, but more as a useful proof of technical feasibility needed to implement the transition strategy.

What's holding back strategy switches:

A number of issuers commented that in the absence of policy support, it was impossible for some sectors to manifest their strategic intent to make large-scale deployment of low energy solutions. Some think-tanks opposed rewarding corporate strategic intent without solid performance track-record, as too many future strategies were vague and aspirational.

Other research undertaken on the transition bond topic

There have been a number of surveys of investor attitudes to transition. For example, Natixis's Transition Tightrope project surveyed 75 investors for their views on transition.⁶² When asked about their understanding of transition bonds, 69% of interviewees supported “genuine and ambitious transition strategy of the issuer” and 47%

supported “2°C alignment potential of the UoP”. Fewer believed that using the Green Bond Principles or Green Loan Principles (35%) was sufficient. There was also muted support for allowing some flexibility about transition options in developing countries (32%).

Interviewees were also asked about sustainability-linked instruments - where the coupon or loan margin determination was linked to attainment of ESG KPIs. These proved quite popular with interviewees, with 56% saying they were useful, and they would invest. There was still queasiness, though: 12% of respondents thought the instrument useful but they would not invest, and 18% opposed the concept. Often proponents would look at the issuance on a case-by-case basis. On the plus side, the KPI could be tailored to the specifics of the company, but the worry was whether the KPIs were meaningful for the challenge and properly science-based.

On appropriate indicators for assessing the adequacy of transition ambition, the highest-scoring KPI was energy efficiency against a 2°C sectoral decarbonisation target (79%). Other high-scoring KPIs included share of low-carbon sources of energy supply (73%), carbon intensity reduction per unit of output (69%), decarbonisation medium/long-term targets at company or sponsor level (68%), share of products or revenues enabling the low carbon transition of others sectors (67%), and share of fossil fuel in energy supply (63%). There was scepticism about non-science based KPIs like energy efficiency gains against current baseline (57%) or low carbon certifications e.g. Aluminium Stewardship Initiative (29%). Respondents were keen to judge alignment against the overall objective of the 1.5°C target. One response mentioned: “Energy efficiency gains are not green if applied to coal power generation.”

Endnotes

1. <https://sustainabledevelopment.un.org/>
2. UN FCCC SCF 2018 Biennial Assessment and Overview of Climate Finance Flows Technical Report
3. <https://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/> (accessed 22 May 2020).
4. IPCC 2018. Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty
5. United Nations, Inter-agency Task Force on Financing for Development, Financing for Sustainable Development Report 2019 (New York: United Nations, 2019)
6. United Nations System Task Team on the Post-2015 United Nations Development Agenda, background paper 1; and the report of the Green Growth Action Alliance, “The Green Investment Report: the ways and means to unlock private finance for green growth” (Geneva, World Economic Forum, 2013).
7. As per ultimo April 2020 – counting transactions that are aligned with the Climate Bonds Taxonomy.
8. <https://www.climatebonds.net/resources/reports/green-bond-european-investor-survey-2019>. The total assets under management (AuM) of respondents was EUR 13.7tn, and their total fixed income AuM EUR 4.3tn, with an average of EUR 90bn and median of EUR 34bn. The focus of this study was on Europe, given the region's lead in terms of size and sophistication of responsible investment efforts. This survey and report [add link] study was supported by Crédit Suisse, Danske Bank, Luxembourg Stock Exchange and Lyxor Asset Management.
9. <https://www.climatebonds.net/standard/taxonomy>
10. https://ec.europa.eu/info/publications/sustainable-finance-teg-taxonomy_en#190618
11. <https://www.globalcapital.com/article/bhjdjnwkd1vjv/keep-transition-and-sustainable-bonds-separate>
12. <https://insights.nordea.com/en/sustainable-finance/transition-bonds/>
13. From Article 6(1a) which sets out the framework for evaluating transition activities in the EU Taxonomy: “For the purposes of paragraph 1, an economic activity for which there is no technologically and economically feasible low carbon alternative, shall be considered to contribute substantially to climate change mitigation as it supports the transition to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels including by phasing out greenhouse gas emissions, in particular from solid fossil fuels, where that activity: I. has greenhouse gas emission levels that correspond to the best performance in the sector or industry; II. does not hamper the development and deployment of low-carbon alternatives; and III. does not lead to a lock-in in carbon-intensive assets considering the economic lifetime of those assets.”
14. Special Report on Global Warming of 1.5°C (SR15), October 2018. <https://www.ipcc.ch/sr15/chapter/spm/>
15. For land management, crop production and forestry, for example, there is a high potential to reach net negative emissions and sequester significant carbon. Transition pathways for these activities should reflect this, not simply addressing reducing emissions but setting goals which maximise carbon sequestration opportunities. Conversely, other activities may not be able to reach net zero emissions. Impoundment hydropower reservoirs, for example, can emit methane, a potent GHG, but despite this can often be relatively low GHG emissions alternatives to fossil fuels, with the additional critical benefit that they also provide balancing and storage services to support intermittent renewables.
16. CCS solutions applied directly at an industrial facility can be accounted for when considering the emissions of that facility as they are directly reducing emissions within that activity and CCS is therefore not a distinct activity. However, on-site tree planting around that facility should not be counted, nor should purchased forestry offsets.
17. For corporates, banks and governments respectively for example.

18. https://www.enel.com/content/dam/enel-com/investors/greenbond/sdg-bond-sept_2019.pdf
19. <https://orsted.com/en/Investors/Debt/Green-Financing>
20. Circa two years after issuance of this bond in 2017, the share of green energy that Orsted had achieved was above 70%, compared to 50% in 2016.
21. <https://orsted.com/en/Sustainability/Our-strategy/A-world-that-runs-entirely-on-green-energy>
22. Some market observers express comparable thoughts in an analogy to other transactions, e.g. Innogy (linked to a fundamental restructuring of formerly heavily coal-reliant German electric utility RWE), GDF Suez / Engie or EnBW.
23. https://www.repsol.com/imgenes/global/es/Repsol_Green_Bond_Framework_tcm13-71041.pdf
24. Most of these doubts or criticism can also be applied - as an analogy to a different but related sector - to a much more recent green-labelled bond issued by Teekay Shuttle Tankers to finance hybrid (LNG-electric) oil shuttle tankers.
25. <https://cadentgas.com/nggdvsdev/media/Downloads/investor%20relations/DNVGL-Transition-Bond-Framework-review.pdf>
26. https://www.snam.it/en/Investor_Relations/debt_credit_rating/climate_action_bond.html
27. https://www.snam.it/en/Media/Press-releases/2020/Snam_new_Transition_Bond_Framework_published.html, accessed 22 June 2020
28. https://www.snam.it/export/sites/snam-tp/it/investor-relations/debito_credit_rating/file/Transition-bond-framework-2020.pdf, accessed 22 June 2020
29. http://www.marfrig.com.br/Arquivos/Marfrig_Sustainable_Transition_Bond_Framework.pdf
30. <http://www.ebrd.com/focus-on-environment.pdf>
31. <https://www.environmental-finance.com/content/analysis/supporting-transition-through-green-bond-issuance.html>
32. Isabelle Laurent and Carel Cronenberg. EBRD: <https://www.environmental-finance.com/content/analysis/supporting-transition-through-green-bond-issuance.html#pf=print/2/7>
33. <https://www.climatebonds.net/standard/taxonomy>. Since 2018, adaptation criteria are increasingly being introduced too.
34. The buildings criteria are location-specific purely to take account of different climatic factors affecting demand for heating, cooling and lighting, and the significant variability in building stock in different locations. The waste-to-energy criteria are location-specific as the advanced state of development of recycling and similar alternatives in the EU and the EU policy push for a circular economy means that waste-to-energy facilities are not eligible for certification in the EU - but they are in the rest of the world.
35. https://ec.europa.eu/info/publications/sustainable-finance-teg-taxonomy_en
36. This was the TEG's interpretation of Article 6(1a) which set out the framework for evaluating transition activities: “For the purposes of paragraph 1, an economic activity for which there is no technologically and economically feasible low carbon alternative, shall be considered to contribute substantially to climate change mitigation as it supports the transition to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels including by phasing out greenhouse gas emissions, in particular from solid fossil fuels, where that activity: I. has greenhouse gas emission levels that correspond to the best performance in the sector or industry; II. does not hamper the development and deployment of low-carbon alternatives; and III. does not lead to a lock-in in carbon-intensive assets considering the economic lifetime of those assets.”
37. https://ec.europa.eu/info/sites/info/files/business_economy_euro_banking_and_finance/documents/190618-sustainable-finance-teg-report-green-bond-standard_en.pdf
38. The PBOC categories can be seen in more detail in Appendix 2 of this Roadmap for China document <https://www.iisd.org/sites/default/files/publications/green-bond-guidelines-next-stage-market-growth-en.pdf>

39. Defined as: the construction and operation of devices or facilities conducting coal washing and processing, using coal by quality and classification, utilisation technologies such as gasification that are easy for pollution treatment.
40. <https://ieefa.org/china-disqualifies-clean-coal-technology-from-green-bond-funding/>
41. Other initiatives that also provide benchmarks or frameworks for defining whether emission reductions in a project or individual company are in line with the Paris Agreement include the Science-Based Targets Initiative and Cicero's shades of green approach. This may include reference to the UN SDG. To aid issuers, the GBP have published a “High-Level Mapping to the Sustainable Development Goals”.
42. <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Climate-Transition-Finance-WG-ToR-FINAL221119.pdf>
43. <https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-2017-TCFD-Report-11052018.pdf>
44. <https://www.unglobalcompact.org/library/5712>
45. <http://www.climateaction100.org/>
46. And to be covered in future: coal mining; chemicals; oil & gas distribution; services; consumer goods; other basic materials; other industrials.
47. <https://www.sasb.org/standards-overview/download-current-standards/>
48. SASB guidance for oil and gas extraction - https://www.sasb.org/wp-content/uploads/2018/11/Oil_Gas_Exploration_Production_Standard_2018.pdf
49. <https://globalinvestorcoalition.org/>
50. Description largely taken from (but shortened): <https://www.iigcc.org/download/iigcc-paris-aligned-investment-initiative/?wpdm=2292&refres=5e4bec2c6b67a1582033964>
51. Corporate Knights Inc. includes the sustainable business magazine Corporate Knights and a research division that produces rankings and financial product ratings based on corporate sustainability performance. The Council for Clean Capitalism was established in 2012 as a multi-industry group of Canadian companies dedicated to advocating economic and social policy changes supportive of responsible corporate behaviour.
52. <https://www.corporateknights.com/channels/climate-and-carbon/clean-transition-bonds-unlock-it-oil-sands-opportunities-15403846/>
53. For example, CTBG state that fossil fuel extraction will need to achieve a minimum 25% reduction in well-to-refinery lifecycle analysis GHG emission to qualify for allocation of proceeds. Similarly, 25% is the minimum reduction in GHG emission intensity, for GHG emissions within the company's control, expected for non-fossil fuel commodities
54. https://realassets.axa-im.com/content/-/asset_publisher/x7LvZDsY05VX/content/financing-brown-to-green-guidelines-for-transition-bonds/23818#useofproceeds
55. <https://www.blackrock.com/corporate/literature/whitepaper/viewpoint-towards-a-common-language-for-sustainable-investing-january-2020.pdf> & <https://www.environmental-finance.com/content/news/blackrock-weighs-in-on-taxonomy-debate.html>
56. <https://www.environmental-finance.com/content/analysis/sustainable-finance-its-all-about-transition-part-one.html>
57. <https://www.environmental-finance.com/content/analysis/sustainable-finance-its-all-about-transition-part-two.html>
58. <https://www.environmental-finance.com/content/analysis/green-bonds-a-different-take-on-additionality.html>
59. <https://2degrees-investing.org/wp-content/uploads/2019/06/2018-Green-bonds-updated-paper.pdf>
60. <https://www.axa.com/en/spotlight/story/forming-a-bond-supporting-the-energy-transition>. This is described further in Annex 2
61. See Annex 1 for a brief description of the SASB framework
62. https://gsh.cib.natixis.com/api_website_feature/files/download/9272/2019_investor_survey_transitioning_of_brown_industries_full_results_natixis_green_sustainable_hub.pdf

Report authors: Anna Creed, Manuel Adami,
Prashant Vaze and Bridget Boulle

We would like to thank all the people who had input into this paper
as interviewees and reviewers.

To discuss further, please contact Anna Creed
anna.creed@climatebonds.net

Find the full paper at:
<https://www.climatebonds.net/transition-finance>

Design: Godfrey Design

© Published by Climate Bonds Initiative, September 2020

www.climatebonds.net

Climate Bonds INITIATIVE

CREDIT SUISSE 

Written by Climate Bonds Initiative

Supported and funded by Credit Suisse

Disclaimer: The information contained in this communication does not constitute investment advice in any form and the Climate Bonds Initiative is not an investment adviser. Any reference to a financial organisation or debt instrument or investment product is for information purposes only. Links to external websites are for information purposes only. The Climate Bonds Initiative accepts no responsibility for content on external websites. The Climate Bonds Initiative is not endorsing, recommending or advising on the financial merits or otherwise of any debt instrument or investment product and no information within this communication should be taken as such, nor should any information in this communication be relied upon in making any investment decision. Certification under the Climate Bond Standard only reflects the climate attributes of the use of proceeds of a designated debt instrument. It does not reflect the credit worthiness of the designated debt instrument, nor its compliance with national or international laws. A decision to invest in anything is solely yours. The Climate Bonds Initiative accepts no liability of any kind, for any investment an individual or organisation makes, nor for any investment made by third parties on behalf of an individual or organisation, based in whole or in part on any information contained within this, or any other Climate Bonds Initiative public communication.