# Closing the Gap: The evolution of climate transition finance in China

December 2023

ARE
ASIA RESEARCH & ENGAGEMENT

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# Content

# Executive Summary

China is at the forefront of global efforts to combat climate change: It is the world's largest source of greenhouse gases; it is also taking enormous strides towards reducing them as part of its commitment to the Paris Agreement. But reducing carbon emissions from China's biggest polluters will require massive funding. Funnelling credit into new, green projects won't suffice. Cleaning up China will require that creditors finance brown industries and help the dirtiest companies make the uncertain transition to becoming sustainable businesses.

At the heart of China's challenge are its most energy-intensive sectors—steel, cement, and petrochemicals. They account for the lion's share of China's overall emissions. Adapting these industries to a low-carbon economy will require what Tsinghua University's Institute for Climate Change and Sustainable Development estimates is more than CNY100 trillion ($13.7 trillion) in investment over the next three decades. The World Bank puts the cost even higher: to achieve its goal of net-zero emissions by 2060, China will need to spend as much as $17 trillion, equivalent to over 1% of its economic output over that period, in its power and transport sectors alone.

The government has so far primarily used policy-driven approaches to meet its goals, including administrative targets and subsidies for cleaner technologies. Significant public investment and fiscal incentives have also been directed towards renewable energy, which has positioned China as a leader in climate-related finance. By the end of 2022, China had issued more green bonds than any other nation—raising an estimated CNY3.3 trillion.

Transition finance will need to play a much larger role. Whereas green or sustainable financing focus largely on funding environmentally safe projects, transition finance aims to fund the shift to sustainability from not only polluting projects, but also from entire companies and industries.

Transition finance is rapidly gaining momentum in China, with sustainability-linked bonds (SLBs) becoming increasingly popular since their introduction in 2021. China has so far issued an estimated CNY121.5 billion in SLBs, providing funds to high-carbon industries to reduce emissions and improve sustainability. But it has issued only CNY10.4 billion in dedicated transition bonds, mostly for natural gas-related projects.

Several challenges still confront China's transition to a low-carbon economy. Green finance products still represent a small fraction of the country's overall debt universe. Banks dominate the sector and prefer lending to state-owned enterprises, which leaves a funding gap for private companies seeking access to sources of sustainable finance.

A lack of standardisation around transition finance—in China and globally—has also hindered market development. Various taxonomies and definitions still exist, leading to uncertainty over what qualifies as transition finance. Not all products in China labelled "green" meet global standards, moreover, which increases the risk of greenwashing.

Climate-related finance in China has been limited largely to financing specific transition projects, which has created a funding gap for companies that need to borrow working capital to reduce emissions across their operations and supply chains.

A number of global organisations and governments have devised transition finance frameworks that provide direction. The International Capital Markets Association's handbook provides disclosure criteria for funding climate transition efforts with green and sustainability-linked bonds. The Climate Bonds Initiative offers five principles, divided into five economic activities, that can be used to apply the transition label across an entity's financial instruments. The European Union's taxonomy establishes criteria for determining whether an activity can be called sustainable for the purposes of funding. And the Organisation for Economic Cooperation and Development's "Guidance on Transition Finance" provides a conceptual framework designed to ensure that transition finance supports any entity trying to make its business operations, and its projects, sustainable.

China is also forging ahead. After introducing its first climate finance guidelines in 2012, China in 2021 issued a Green Bond Catalogue. The National Association of Financial Market Institutional Investors launched sustainability linked bonds the same year, and transition bonds in 2022. And in 2021, two of China's major state-owned banks and a city government introduced their own transition finance frameworks.

In this report, ARE compares those three transition finance frameworks with Singapore's DBS Bank, which defines sustainable and transition activities in 16 sectors and sets criteria for transition loans. Each framework supports financing in carbon-intensive industries, but most exclude coal-related activities.

Crucial guidance is due soon from the People's Bank of China, which is developing national standards for transition finance. The first standards will focus on China's most carbon-intense industries—agriculture, building materials, power, and steel—before being eventually expanded to help finance the transition of even more high-carbon, or "hard-to-abate," sectors.

The bank's policymakers will need to ensure that entities looking to fund their transition can demonstrate to creditors that they are genuine. They will also need to settle the ongoing debate—in China at least—over whether transition financing should be available for coal and natural gas projects.

As China delves further into transition finance, it can shape the market's development and expand its impact by providing vital support to companies seeking to transition to a sustainable, low-carbon future. Transition finance is already an important part of China's efforts to achieve its climate goals. By addressing the challenges facing this rapidly evolving market, China can solidify its leadership in climate finance and in achieving a more sustainable future for the planet.

# Recommendations

- China's financial institutions should move quickly to develop their own frameworks for transition finance so they can continue innovating rather than lose time waiting for a unified national framework.

- Drawing from international experience, China's companies and financial institutions should develop transition finance frameworks that can provide not just project finance, but also working capital, to brown industries going green.

- China's transition finance frameworks should define a pathway for the phasing out of coal-related projects.

- Learning from Europe's lessons, China should ensure that its transition finance frameworks are broad enough to embrace not only heavy polluting industries, but those with lighter environmental footprints.

# Introduction

## China's Emissions, a Global Problem

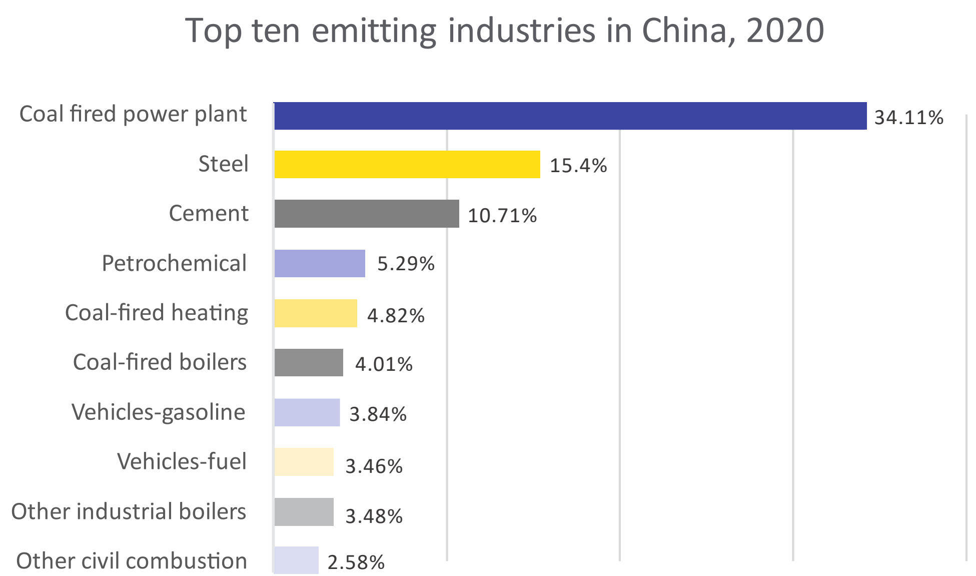
**China's emissions, particularly from its energy-intensive industries, pose a critical obstacle to achieving global climate goals.**

China emits 27% of the world's carbon dioxide emissions and a third of its greenhouse gases (GHGs).[1] Unless China can successfully make the transition to a low-carbon economy, it will be impossible to achieve the Paris Agreement's goal of limiting global warming to 1.5°C.

The Covid-19 pandemic only reinforced China's importance to global climate efforts. In 2021 and 2022, according to the International Energy Agency, China's emissions related to energy production were largely unchanged. But as lockdowns shut its factories and ports, China's industrial emissions dropped so precipitously that global industrial emissions fell by 1.7%.[2] As China's economy reopens and growth recovers, the danger is that its industrial emissions will do as well.

Almost half of the country's emissions come from heavy, energy-intensive industries such as building materials, chemicals, and steel that use carbon as an intrinsic part of their production. Steel production alone accounted for more than 15% of China's carbon emissions in 2020, followed by cement at almost 11% and petrochemicals at slightly more than 5%.[3]

*Fig. 1 China's top carbon emitting industries (2020)*




*Source: NetEase Carbon Neutral Report 2020, ARE calculations*

**Estimates for the cost of mitigating China's emissions vary, from between USD14 trillion to USD17 trillion.**

The cost of mitigating these emissions is formidable. Tsinghua University's Institute for Climate Change and Sustainable Development has estimated that China will need to invest more than CNY100 trillion (USD13.7 trillion) over the next 30 years to meet its commitments under the Paris Agreement.[4]

The World Bank puts the cost even higher. To achieve net-zero emissions by 2060, it projects, China will need as much as USD17 trillion in additional investments just to transform its power and transport sectors—an amount equivalent to more than 1% of its projected economic output over that period.[5]

That is only one item the World Bank says China needs to finance on a long list of recommendations for the country's largest emitters, including:

- Power and heat (45% of emissions)
    - Decarbonize demand by boosting the electrification of transport, buildings, and industry.
    - Expand low-carbon supply by increasing solar and wind generation, as well as energy storage, and steadily reduce coal usage.
- Industry (33% of emissions)
    - Reduce excess industrial capacity and improve energy efficiency by electrification.
    - Reduce emissions by implementing such innovations as sustainably produced hydrogen and CCUS (Carbon Capture, Usage and Storage).
- Transport (8% of emissions)
    - Expand electric mass-transit systems or, where electrification is unfeasible, public transport powered by low-carbon fuels.
- Buildings (5% of emissions)
    - Reduce $CO_2$ emissions from buildings through electrification, greater efficiency, and district heating/cooling.
- Agriculture and land use (6% of emissions)
    - Capture and store carbon by implementing, among other things, natural solutions such as expanding forests.

## China's Net-Zero Commitment

**China has committed to achieving peak $CO_2$ emissions by 2030 and carbon neutrality by 2060, mainly through policies and investments in cleaner technologies.**

China has made a firm commitment to reach two key emissions goals: achieving peak $CO_2$ emissions by 2030 and carbon neutrality by 2060—a twin objective often referred to in China as the "30-60" target. In its latest pledges to the United Nations Framework Convention on Climate Change, moreover, China pledged among other things to reduce its $CO_2$ intensity by more than 65% by 2030 from its 2005 level. In 2022, China released its "1+N" climate policy framework, an overarching plan for achieving the 30-60 targets.

Implementation has so far, according to the World Bank, relied primarily on policy rather than market incentives, including administrative targets for reducing energy consumption and air pollution that have become performance criteria for local government officials and managers of state-owned enterprises.

The government has in turn dedicated significant public investment and fiscal incentives, including direct subsidies and tax breaks, into developing and implementing cleaner technologies. China spent almost USD760 billion between 2010 and 2019 on renewable energy, more than any other nation, a sum that doesn't include its sizeable investment in low-carbon transportation and infrastructure.[6]

The World Bank's report expressed concern, however, that this combination of administrative closures of brown sites with investment in green ones might be yielding inefficient results with relatively high economic costs. The private sector contributed a significant amount to the investment in renewables, but it will likely need to shoulder more of the financial burden required to achieve China's 30-60 goals. That will mean finding ways for the private sector to finance the transition of China's worst polluters. China will need to develop ways to finance the transition away from unsustainable activities, not just bankroll new green projects.

# Transition Finance Takes Root

**China is the world's largest green bond issuer, with companies having raised CNY3.3 trillion by end-2022. By end-2021, China's banks had issued more than $2.3 trillion in green loans.**

China is already a world leader in climate-related finance. The China Banking Regulatory Commission (CBRC) issued its "Green Credit Guidelines" in 2012 to encourage financial institutions to finance the nation's decarbonization efforts,[7] and climate-related finance has been booming since late-2020 when President Xi Jinping announced China's 30-60 targets.

## Green Bonds

By the end of 2021, according to the World Bank, China's major banks had USD2.3 trillion in "green" loans outstanding—loans tied to environment-related, clean, or sustainable projects—up from only USD850 billion in 2016. The outstanding volume of green bonds (see Box 1) soared to USD254 billion, from USD37.6 billion. In 2022, green bond issuance by Chinese companies soared by 35% from the previous year, to CNY1 trillion (USD155 billion), according to the London-based international organisation Climate Bonds Initiative (CBI).[8] The CBI rates China the world's largest issuer of green bonds, with Chinese companies having raised a cumulative CNY3.3 trillion in bonds labelled "green" by the end of 2022.

## Sustainability-Linked Bonds (SLBs)

**Sustainability-linked bonds have also become popular, allowing China's carbon-intensive industries to fund emission reduction and sustainability efforts.**

Sustainability-linked bonds, or SLBs, have also caught on in China. SLBs are an increasingly popular class of bonds globally. According to the CBI, USD77.32 billion in SLBs were issued in the first quarter of 2021, 10% of all sustainably labelled bonds.[9]

SLB issuance took off in China after April 2021, when one of the bond market's main regulators, the National Association of Financial Market Institutional Investors (NAFMII), established the nation's first SLB framework. NAFMII based its "10 Q&A for SLBs" on the International Capital Markets Association's (ICMA) 2020 "Sustainability-Linked Bond Principles."[10] A month after its publication, seven Chinese companies—mainly coal-burning power companies—issued CNY7.3 billion in SLBs. In June 2022, the Shanghai Stock Exchange created terms for its own version of an SLB, which it dubbed a "low-carbon transition-linked corporate bond."

***A Bond by Any Other Name***

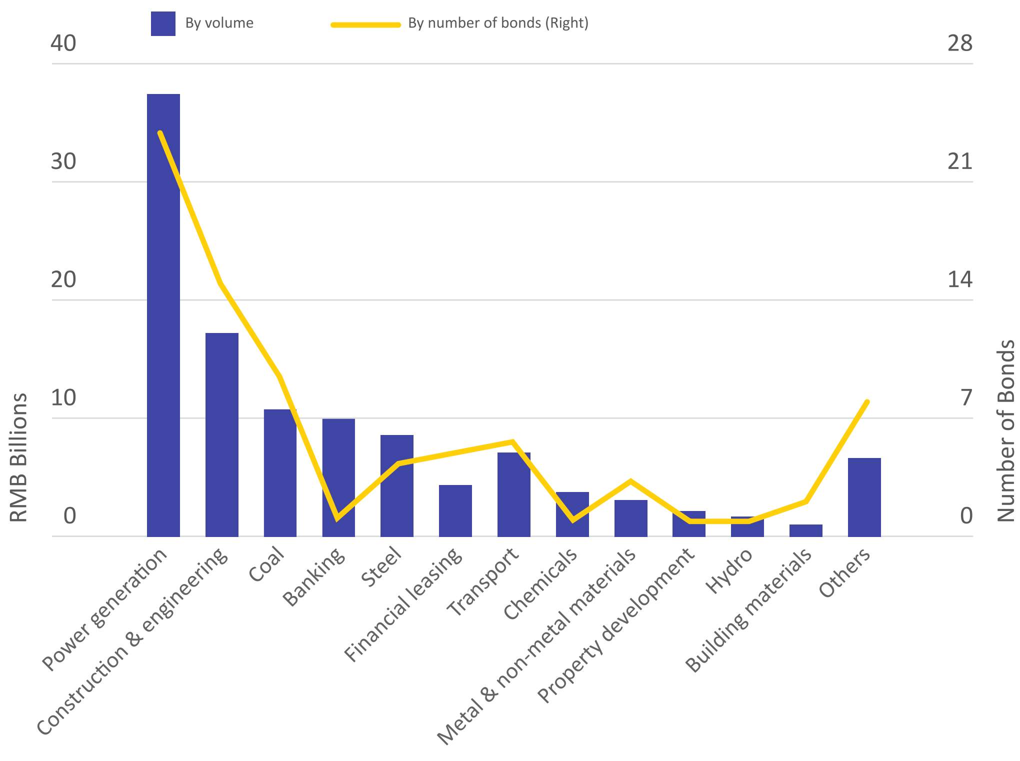
**Green Bond**: a bond issued to fund a specifically environment-related, clean, or sustainable project.

**Sustainability-Linked Bond**: Rather than fund a specific project, SLBs provide general-purpose funds on the condition the borrower meet specific targets, or key performance indicators (KPIs), for lowering GHG emissions, carbon intensity, or otherwise improve sustainability.

> **Transition Bond**: Definitions are still evolving. In some cases, bonds that finance the decarbonization of specific carbon-intense projects or assets are labelled "transition bonds." Increasingly, however, the term is being used to describe a new class of bonds that provide general-purpose funds to help a company or bank boost its sustainability and contribute to the Paris Agreement's 1.5°C goal by reducing GHG emissions both in its own operations and those up and down its supply chain.

China's SLB issuance rose 38% in 2022 to CNY68.7 billion in 83 separate deals, according to the CBI, raising cumulative SLB issuance to CNY121.5 billion. That has enabled a wide range of carbon-intensive industries without dedicated green projects—from construction materials and power to cement and steel—to raise money to reduce emissions and improve sustainability. Huaxin Cement, for example, raised CNY900 million last July selling 3-year and 5-year bonds linked to reducing the GHG emissions produced both in its own operations and in producing the energy it uses.

*Figure 2: China Onshore SLBs by Sector*




*Source: CBI "China Sustainable Debt State Of The Market Report," 2022.* [11]

## Transition Bonds

**China has also seen the emergence of transition bonds, primarily from Bank of China and China Construction Bank, to fund natural gas-related projects.**

Transition bonds are the latest class of bonds to emerge. With few guidelines in place and definitions still evolving, Chinese issuers had by the end of 2022 raised a cumulative CNY10.4 billion in bonds labelled "transition bonds," according to the CBI. Most of these appear to have come from sales in 2021 by just two issuers, Bank of China and China Construction Bank (see Figure 3).[12] Most of the proceeds were earmarked for natural gas-fuelled power projects.

*Figure 3: Transition Bonds Issued by BOC and CCB (end-2022)*

| Issue Bank | Issue Date | Maturity (year) | Currency | Amount (million) | USD Equivalent Amount (Million) | Use of Proceeds |
|---|---|---|---|---|---|---|
| BOC | 1/17/2021 | 3 | USD | 500 | 500 | 92.23%<br>Public utility industry: Natural gas-based co-generation projects |
| | 1/17/2021 | 2 | CNY | 1,800 | 257 | 7.77%<br>Cement industry: Waste heat recovery and power generation project at cement plant |
| CCB | 4/15/2021 | 2 | CNY | 2,000 | 286 | 57.75%<br>Natural gas-based tri-generation projects<br><br>42.25%<br>Natural gas-based, distributed energy station projects |

*Sources: Bank of China, China Construction Bank*[13]

## Taking Stock, Giving Credit

While China has demonstrated leadership in green finance, its market has developed several areas that need improvement for it to function properly.

**While growing rapidly, climate-related finance in China is a small portion of the overall market and is dominated by banks favouring state-owned enterprises.**

Despite rapid growth, green products still represent a small fraction of China's overall debt universe. The World Bank estimates that green loans represented about 8% of all bank lending at the end of 2021. According to the CBI, green-labelled bonds accounted for only 1.5% of the onshore market by the end of 2022.

Banks still dominate the sector. Bank loans account for roughly 95% of all green finance in China, according to the World Bank. And banks prefer lending to state-owned enterprises—with their implicit government backing—over riskier private companies. Bond investors show the same preference for state backing, however: private borrowers accounted for just over 3% of all the money raised selling climate bonds as of the end of 2021.

***One Country, Three Bond Markets***

Development of China's climate-related bond market is complicated by the fact that the corporate bond market has developed under three different regulatory regimes. While efforts are underway to unify them, they remain somewhat fragmented:

**Enterprise Bonds**: First issued in the 1980s by state-owned enterprises, enterprise bond issuance is regulated by the National Development and Reform Commission (NDRC), while trading is overseen by the People's Bank of China (PBoC) and NAFMII. Now just a tiny sliver of the overall bond market, enterprise bonds typically finance government-approved projects, are largely held by banks and domestic funds, and seldom trade hands.

**Exchange-Traded Bonds**: In 2007, companies listed on China's two stock exchanges were allowed to issue bonds through private placements, with rules eventually extended to include unlisted companies. These bonds are regulated by the China Securities Regulatory Commission (CSRC) and by China's two stock exchanges. With most owned by brokerages, institutional funds, and individual investors, exchange-traded bonds represent less than 10% of issuance and trade less than enterprise bonds.

**Interbank Bonds**: Introduced in 2004, these bonds (technically shorter-maturity, commercial paper and medium-term notes) are regulated by NAFMII under the PBoC. Traded over the counter in the interbank market through the China Foreign Exchange Trade System, interbank bonds account for roughly 90% of all issuance and trading.

*Sources: ICMA, International Monetary Fund, National Bureau of Economic Research, Thomson Reuters Practical Law*

**Risk aversion leads to shorter maturities: China's green and transition bonds typically mature in just 2-5 years.**

This risk aversion also results in lower maturities for climate bonds. While ICMA estimates the weighted-average maturity for a corporate bond traded on the interbank market is 5.4 years, the maturity for climate bonds is even lower.[14] The average green bond has a maturity of less than five years, according to the CBI, while new transition bonds mature in just two to three years.

**Lack of standardisation hampers market development, with voluntary principles and varying terms creating a high risk of greenwashing.**

Lack of standardisation is also hindering the market's development. NAFMII (which regulates interbank bonds, see Box 2) and the Shanghai Stock Exchange (which regulates exchange-traded bonds) have both issued guidance on climate-related debt instruments. Last July, a Green Bond Standard Committee under the People's Bank of China (the PBoC, China's central bank) published new China Green Bond Principles.[15] But the principles are voluntary, and most issuers rely on independent, third-party reviews to verify their green credentials.

With no national standards, terms for bonds vary widely. China's Ministry of Ecology and Environment is working to expand requirements for reporting emissions, but corporate data remains inconsistent and difficult to audit.

**China's heaviest polluters face a funding gap, especially in the energy sector.**

This leaves China's energy-intensive industries with a massive funding gap, particularly for cleaning up the power sector. While the World Bank estimates that 49% of all green-labelled financing needs to be directed into clean power, clean power receives less than 28% of China's climate-linked credit.

**China's banks lag in assessing climate risk, with 30% of loans exposed to transition-related losses. New sustainability re-linked bonds aim to address this.**

NAFMII's sustainability-linked bonds, with their specific KPIs, stood to help fill this gap. While NAFMII said there were no restrictions on issuers, the World Bank concluded that SLBs were not available to banks, however. That was contributing to another problem the Bank identified: China's banks have not yet included climate risk in their risk management or lending decisions. As a result, the World Bank estimates, nearly 30% of bank loans—with a book value of USD6.8 trillion—were exposed to losses stemming from a "disorderly transition scenario." It warned that almost 40% of loans—with a book value of USD9.1 trillion—could be exposed to losses due to flood and cyclone damage.

One bank, Bank of China, appeared to solve this problem in late-2021 by selling USD300 million in what it billed as the world's first "sustainability re-linked bonds." The bonds' proceeds are used to make Sustainability Linked Loans, which operate like SLBs and, depending on how those perform, determine the coupon of Bank of China's sustainability re-linked bonds.[16]

It remains unclear whether these sustainability re-linked bonds will gain acceptance in the market and become a new asset class enabling banks to finance the transition of their loan book. But the bonds underscore the need for climate-related financial instruments that provide working capital tied not to a single project or to rigidly defined KPIs, but instead to credible progress on enterprise-wide transition.

# Towards a Common Framework

## A Global Foundation

**Numerous organisations and governments have created transition finance frameworks.**

There is still no single, globally accepted definition, taxonomy, or framework for transition finance. But various governments, international organisations, and financial institutions have developed their own versions. Among those most used by international bond issuers are ICMA's "Climate Transition Finance Handbook," CBI's transition frameworks and the European Union Taxonomy.

## The International Capital Markets Association

**ICMA's updated handbook provides guidance on funding climate transition via green and sustainability-linked bonds, emphasising key disclosure criteria.**

ICMA first published its Handbook in 2020 and updated it in 2023.[17] The handbook does not aim to define transition projects or provide a taxonomy. Instead, it seeks to guide borrowers and investors on what steps and disclosures are needed to raise money for climate transition strategies, either through green bonds or sustainability-linked bonds. Issuers' disclosures should include four key elements:

- The proceeds are dedicated to reducing the issuer's GHG emissions in line with the Paris Agreement's goals.
- The borrower's transition strategy targets GHG emissions in its core activities, even as those activities evolve over its transition.
- The issuer's climate transition strategy references science-based targets and transition pathways to ensure it contributes to achieving the Paris Agreement goals; and
- The issuer should make as transparent as possible how it will invest the proceeds, both in operations and capital expenditure.

## The Climate Bonds Initiative

The CBI's white paper "Financing Credible Transitions," also published in 2020, aimed to define transition finance for investors who felt the transition label was being applied too broadly to be meaningful, and offered a framework for applying it.[18]

It introduced five principles for transition finance:

- *"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;.*
- *Established by science: All goals and pathways must be led by scientific experts and be harmonised across countries;.*
- *Offsets don't count: Credible transition goals and pathways don't count offsets, but should count upstream scope 3 emissions;.*
- *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;*

- *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."*

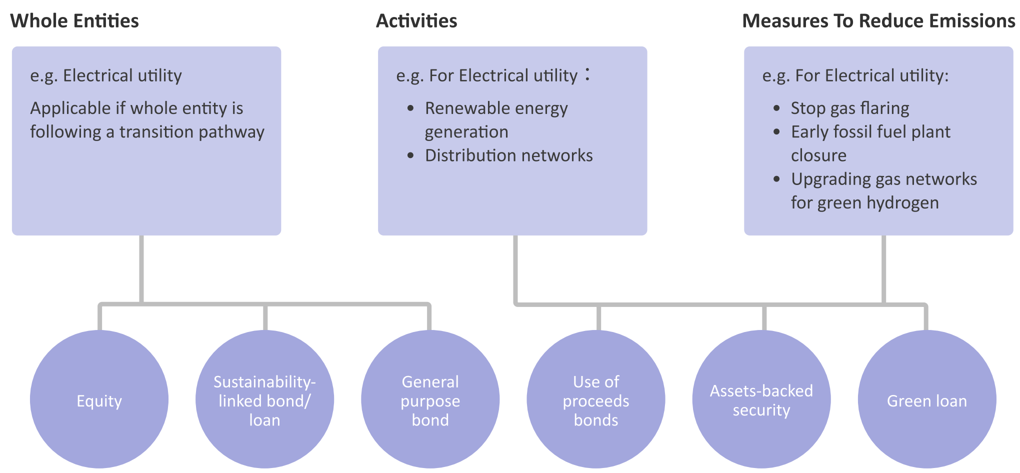
**CBI's 2020 white paper defined transition finance with five principles divided into five economic activities so the transition label could be applied across an entity's financial instruments.**

CBI further divided economic activities into five categories, based on how they align with the Paris Agreement and whether they would be needed beyond 2050: Near Zero, Pathway to Zero, No Pathway to Zero, Interim, and Stranded. It also introduced a transition label for eligible investments that:

- are making a substantial contribution to halving global emissions levels by 2030 and achieving net zero by 2050, but that won't have a long-term role to play; or
- have a long-term role to play, but no clear long-term pathway at present to achieving net zero emissions.

CBI said its transition concept could be applied to entire entities if that entity—whether a company or bank—could demonstrate that it was on a transition pathway. That means the transition label could, for such entities, be applied to a wide range of the entity's financial products, including SLBs and sustainability-linked loans, shares, or even general-purpose bonds. Likewise, any bonds or asset-backed securities could be labelled "transition" if the bonds financed that entity's transition, or if the underlying asset was part of its transition strategy.

***Figure 4: CBI's conditions for applying the "transition" label***




*Source: CBI "Climate Bonds White Paper," 2020.*

## The European Union

**The EU developed its taxonomy using a classification system that sets criteria for determining a sustainable activity.**

While the CBI offered a principles-based framework, the EU in 2020 developed a classification-based EU Taxonomy that sets out criteria for determining what activities are aligned with the Paris Agreement's 2050 net-zero goal.[19] The EU taxonomy served as the basis for the EU Taxonomy Regulation, which went into force in July 2020 and sets out the four conditions for labelling any economic activity—and any financial product funding that activity—as "environmentally sustainable."[20]

The regulation stipulates that *"an economic activity shall qualify as environmentally sustainable where that economic activity:*

- *contributes substantially to one or more of the environmental objectives*
- *does not significantly harm any of the environmental objectives*
- *is carried out in compliance with the minimum safeguards*
- *complies with technical screening criteria."*[21]

**The EU Platform on Sustainable Finance has proposed expanding the taxonomy to encourage cleaning up unsustainable activities.**

The regulation also established an advisory body, the EU Platform on Sustainable Finance. In 2022, the Platform recognised that the Regulation had created a blind spot in climate finance: by creating criteria for encouraging funding of activities that are positive for the environment, it had by default discouraged financing to environmentally harmful activities that needed clean-up or closing. It also meant that dedicated green finance would avoid low-carbon activities that do little harm to the environment but also do little to improve it. To correct that, the Platform in 2022 suggested that the EU Taxonomy be extended to embrace a wider range of activities for transition financing.[22]

## The OECD and G20

**The OECD in 2022 introduced "Guidance on Transition Finance," emphasising that transition finance should also support entities trying to make ongoing operations sustainable.**

In 2022, the Organisation for Economic Cooperation and Development published its "Guidance on Transition Finance," to solve the conundrum the EU encountered and to "unlock the flow of financing to corporates that have credible plans to decarbonize their business models towards net zero, while mitigating risks of greenwashing…."[23] The Guidance also offered a semantic distinction between "sustainable finance" and "transition finance." Transition finance is a subset of sustainable finance, it suggested, but sustainable finance generally refers to financing of activities and projects that are environmentally sustainable. Transition finance, by contrast, provides funding for efforts to make an existing, unsustainable project or entity sustainable.

This contrasts with other definitions, including that offered by the Group of 20 Sustainable Finance Working Group's "G20 Transition Finance Framework," also published in 2022. The G20 framework defines transition finance more broadly as "financial services supporting the whole-of-economy transition, in the context of the Sustainable Development Goals (SDGs), towards lower and net-zero emissions and climate resilience, in a way aligned with the goals of the Paris Agreement."

This is, the OECD Guidance points out, the major difference between most transition finance taxonomies. Transition is either defined "(i) activities that are currently transitioning towards a net-zero status, with the ultimate objective of being green, and (ii) activities that are enabling (activities in) the economy to transition towards sustainability." For a comparison of various taxonomies and frameworks, see Figure 5.

***Figure 5: Existing Frameworks/Guidelines for Transition Finance***

| Framework/Standard | Methodology | Content |
|---|---|---|
| ICMA: "Climate Transition Finance Handbook" (2023 new edition) | N/A | Doesn't provide definition or taxonomy for transition projects, but clarifies issuer-level practices, actions and disclosures that are recommended to credibly position the issuance of use of proceeds or sustainability-linked instruments to finance the transition, particularly of "hard-to-abate" sectors |
| OECD: "Guidance on Transition Finance" (2022 new edition) | N/A | Overview of transition finance, key challenges, and introduces 10 elements of credible corporate climate transition plans |
| CBI: "Financing Credible Transitions" (2020); | Principles-based | Eligible investments for transitions label:<br>- make substantial contribution to halving global emissions levels by 2030 and reaching net-zero by 2050, but no long-term role to play; or<br>- have long-term role to play, but "at present the long term pathway to net zero goals is not certain" |

| | | |
|---|---|---|
| ASEAN: ASEAN Taxonomy for Sustainable Finance | Classification-based | Taxonomy includes a traffic light system (green/amber/red) with three characteristics for transition (amber) activities |
| EU: Taxonomy for Sustainable Activities | Classification-based | Focuses on performance levels of activities that are making substantial contribution to the EU's environmental objectives while doing no significant harm to those objectives and meeting minimum social safeguards |
| G20: "Transformational Finance Framework" (2022) | Principles-based | 22 high-level principles under five key pillars:<br>1) Identification of transitional activities and investments<br>2) Reporting of information on transition activities and investments<br>3) Transition-related finance instruments<br>4) Designing policy measures<br>5) Assessing and mitigating negative social and economic impacts |
| Singapore: Fostering Green Finance Solutions White Paper | Classification-based | Uses a traffic-light system to distinguish between green, transition (yellow), and ineligible (red) activities.<br>"Transition" refers to activities that do not meet the 1.5 degree pathway but either:<br>• move towards a green transition pathway within a defined time frame; or<br>• facilitate significant emissions reductions in the short term with a prescribed sunset date. |
| Bank Negara Malaysia: "Climate Change and Principle-based Taxonomy" (2021) | Principles-based | Classification system with economic activities<br>1) Climate supporting<br>2) Transitioning<br>3) Watchlist |
| Financial Services Agency of Japan: "Basic Guidelines on | Principles-based | Uses ICMA handbook principles |

*Sources: various, ARE.*[24]

Japan's Financial Services Agency drew from ICMA's handbook to publish its 2021 "Basic Guidelines on Climate Transition Finance."[25] It later published transition finance pathways for several key sectors (cement, chemicals, oil and natural gas, paper, power, and steel).

Under the International Platform on Sustainable Finance (IPSF), the EU and China jointly developed a "Common Ground Taxonomy," which they published at the 2021 United Nations Climate Change Conference in Glasgow.[26] They updated their taxonomy in 2022 to cover 72 activities mitigating climate change that meet the "substantial contribution" criterion in the Common Ground Taxonomy, but didn't include transition activities.

# China's Evolving Frameworks

China's central bank is drafting transition finance standards for carbon-intensive industries.

China has yet to establish a national standard or framework for transition finance in China. The PBoC, however, has said it is developing transition finance standards for four fields, including agriculture, building materials, coal-fired power, and steel. It will release these standards to provide a basis for financing low-carbon transformation in high-carbon industries.

## Regulatory Guidance

After introducing its first climate finance guidelines in 2012, China in 2021 issued a Green Bond Catalogue. NAFMII launched SLBs the same year, and transition bonds in 2022.

As mentioned earlier, China issued its first regulatory guidance on climate-related finance in 2012 when the CBRC issued its "Green Credit Guidelines" to promote decarbonization. The green-bond market received a boost in May 2021 when regulators overseeing China's three main bond markets—the PBoC, the CSRC and the NDRC—issued a "Green Bond Catalogue."[27] The catalogue, which took effect in July 2021, codified specific business activities that a bond may finance to be labelled "green." Notably, it excluded projects that use coal and other fossil fuels and brought China's standards for green bonds into closer alignment with the EU Taxonomy.

The SLB market was created in April 2021, when NAFMII (which regulates the interbank bond market under the PBoC) published its "10 Q&A for SLBs." The Shanghai Stock Exchange (regulated by the CSRC) issued an equivalent set of guidelines in June 2022 for what it termed "low-carbon transition-linked corporate bonds" issued and listed there, inaugurating what CBI says are essentially SLBs.[28]

NAFMII kicked off the market for transition bonds the same month when it launched an "innovation pilot programme related to transition bonds."[29] The pilot outlined conditions for companies in eight carbon-intensive sectors—chemicals, civil aviation, construction materials, nonferrous metals, paper, petrochemicals, power, and steel—to issue bonds financing their own clean-up.

*Figure 6: China's Guidelines on SLBs and Transition Bonds*

| Introduction | Regulator | Title | Details |
|---|---|---|---|
| 2021.4 | NAFMII | "10 Q&A for SLBs" | Introduced SLBs and created a guiding framework. While setting no requirement for use of proceeds (UoP), it offered suggestions for setting KPIs and sustainable development performance goals:<br>1) Overall sustainable development goals of the enterprise<br>2) Key regional development goals<br>3) Development plans with high overall business relevance or accounting for more than 30% of revenue<br>4) Reflect the overall contribution and completion of the issuer in the field of sustainable development |

| | | | |
|---|---|---|---|
| 2022.6 | NAFMII | "[Notice on launching innovative pilot projects related to transformation bonds](#)" | 8 sectors: chemicals, civil aviation, construction materials, nonferrous metals, paper, petrochemicals, power, and steel<br>Activities supported:<br>1) Projects that have been included in the Green Bond Catalogue, but whose technical indicators do not meet the green bond standards<br>2) Other activities in line with China's Dual Carbon goals, including:<br>a) Clean production and efficient use of coal<br>b) Clean use of natural gas<br>c) Capacity replacement in the 8 heavy industries<br>d) Application of green equipment and technology<br>**e)** Other projects with low carbon transition benefits |
| 2022.6* | The Shanghai Stock Exchange | Guidelines on "low-carbon transition corporate bonds" and "low-carbon transition linked corporate bonds" | Low carbon transformation field, including but not limited to:<br>1) Advanced equipment catalogue in accordance with various industry-specific guidelines and equipment that contributes to pollution prevention, energy saving, and reduced carbon emissions.<br>2) Clean and efficient development and use of fossil fuels, such as green mining and efficient processing of coal, comprehensive use of coal, clean and efficient use of oil and gas.<br>3) Application of energy-saving and consumption-reducing technologies, transformation and upgrading of infrastructure, data centres, etc.<br>4) The overall optimisation of industrial park energy systems and pollution control.<br>5) Other areas that promote low-carbon transition. |

*Sources: various, ARE.*[30]
*updated March 2023

## Local Governments and Banks

**In 2021, two major state-owned banks and a city government introduced their own transition finance frameworks.**

Two of the biggest state-owned commercial banks, Bank of China (BoC) and China Construction Bank (CCB), in 2021 published their own transition finance frameworks.[31] And last year, the Zhejiang Province city of Huzhou published the first municipal transition finance catalogue[32]. All three use a classification system that lists activities considered appropriate for transition financing.

**ARE compared the three frameworks with DBS Bank, which defines sustainable and transition activities in 16 sectors and sets criteria for transition loans.**

To benchmark these three frameworks, we compared them to one developed in 2020 by Singapore's DBS Bank. When released in 2020, DBS' "Sustainable and Transition Finance Framework and Taxonomy" was the first by a commercial bank.[33] It remains a high watermark. DBS's framework, which it updated in 2022, defines sustainable and transition activities in 16 industry sectors. It allows not only for financing specific transition projects, but also for providing general-use funds to improve the overall, entity-level sustainability of the borrower.[34]

To earn this "corporate in transition" label, DBS' framework requires that a borrower has satisfied three criteria—"Three D's"—in the previous 12 months before receiving funding:

- Divest: It must be exiting or decommissioning carbon-intensive assets.
- Diversify: It must be reducing the proportion of revenue derived from carbon-intensive activities, whether by cleaning up existing activities or acquiring them.
- Decarbonize: It must have an independent verification that it has reduced its overall GHG emissions, not only over time, but also beyond the industry average for their country or region.

***Figure 7: Transition Finance Frameworks Compared***

| | | China | | | Singapore |
|---|---|---|---|---|---|
| | | City | Bank- | | |
| Issuers | | Huzhou | CCB | BoC | DBS |
| Standard/Framework Title | | "Huzhou Transition Finance Taxonomy" (2023) | "Transition Bond Framework" (2021) | "Transition Bonds Management Statement" (2021) | Sustainable & Transition Finance Framework & Taxonomy (2022) |
| International Framework Referenced | | G20 Transition Framework | ICMA Transition Finance Handbook (2020) and EU Taxonomy | ICMA Transition Finance Handbook (2020) and EU Taxonomy | Bank's own framework |
| Number of Industries Covered | | 9 | 8 | 5 | 10 |
| Project-level or Entity-level | | Project-level | Project-level | Project-level | Project- and entity- level |
| Support Projects | Chemical | Yes | Yes | Yes | Yes |
| | Cement | Yes | Yes | Yes | Yes |
| | Steel | Yes | Yes | Yes | Yes |
| | Production and Supply of Electricity and Heat | Yes | Yes | Yes | Yes |
| | Non-Ferrous Metals | Yes | Yes | Yes (Aluminium only) | N/A |
| | Pulp and Paper | Yes | Yes | N/A | N/A |
| | Petrochemical | N/A | Yes | N/A | N/A |
| | Aviation | N/A | Yes | N/A | N/A |
| | Textiles | Yes | N/A | N/A | N/A |
| | Chemical fibres | Yes | N/A | N/A | N/A |
| | Electrical Machinery and Equipment | Yes | N/A | N/A | N/A |
| | Food & Agri-Business | N/A | N/A | N/A | Yes |

| | | | | | |
|---|---|---|---|---|---|
| | Oil & Gas (including Offshore) | N/A | N/A | N/A | Yes |
| | Automotive | N/A | N/A | N/A | Yes |
| | Shipping & Coastal Vessels | N/A | N/A | N/A | Yes |
| | Telecoms | N/A | N/A | N/A | Yes |
| | Logistics | N/A | N/A | N/A | Yes |
| Coal-related projects | | Support Integrated Gasification Combined Cycle (IGCC) and Coal-to-Gas projects | Explicitly excluded coal-related projects, including clean coal power generation or other higher efficiency coal plant technologies | Explicitly excluded coal-related projects, including clean coal power generation or other higher efficiency coal plant technologies | No |
| Project Evaluation and Selection Process | | N/A | Yes | Yes | Yes |
| Reporting | | N/A | Yes | Yes | Yes |
| Monitoring & Management of Transactions | | N/A | No | No | Yes |
| External Review | | N/A | No | No | Yes |

*Sources: various, ARE.*[35]

Each of the frameworks above supports financing in four carbon-intensive industries: cement, chemicals, power and heat, and steel. That opens financing to China's three most carbon-intensive industries, as depicted in Figure 1. Huzhou also included financing for important local industries such as textiles and chemical fibres. DBS' framework supports finance to six more industries than the two Chinese banks: automotive, food & agriculture, logistics, oil and gas, shipping and coastal vessels, and telecommunications.

**Each framework supports financing in carbon-intensive industries, but most exclude coal. Chinese banks should consider transaction monitoring and external review systems.**

All three of the banks excluded coal-related projects from their transition finance frameworks. Huzhou's framework, however, allows for funding of integrated gasification combined cycle (IGCC) and coal gasification projects.

All three banks, moreover, have included a clear process for evaluating and selecting transition financing recipients, as well as a reporting scheme. Their next step will be to institute a system for monitoring and managing transition finance transactions and another for obtaining external reviews of their taxonomy.

Chinese banks' frameworks also remain focused on financing specific transition projects. They don't allow for providing general funds at an entity level for borrowers working to lower emissions across their operations and those of their supply chains. As they develop their transition finance frameworks, they will ultimately need to address this gap.

## Ongoing Debate

Despite the considerable progress being made towards closing the gap in financing brown industries' transition to green, consensus on how to define transition finance remains elusive.

**Transition finance remains contentious, amid greenwashing concerns and a debate over coal and gas.**

Two of the biggest sticking points remain whether transition finance should be available to coal- and natural gas-related projects and whether financing transition activities will increase the risk of greenwashing. Prominent voices can be found on both sides of the debate.

### I. Should transition finance support coal-related and natural gas-related activities?

**YES**

- ✓ **Ma Jun, President of the Institute of Finance and Sustainability:** "If financing is provided to these coal and electricity enterprises with the willingness and potential for transformation while helping them to develop transformation plans and implement mechanisms, the risks will not be too large, and the bad debts of banks can also be controlled."[36]

- ✓ **Climate Bonds Initiative, Climate Policy Initiative, and RMI**: In a joint report, "Guidelines for Financing a Credible Coal Transition," the groups call for coal transition mechanisms, or financial mechanisms that support an accelerated, managed transition from coal to clean energy, arguing that they can be critical tools for turning coal phaseout commitments into action.[37]

**NO**

- ✗ **International Finance Cooperation**: IFC's Green Equity Approach (updated 2023) stipulates that, as of Jan. 1, 2023, any financial institution in which IFC is a shareholder must not originate or finance any new coal projects.[38]

- ✗ **Katrin Ganswindt, head of financial research at German NGO Urgewald:** "Banks like to argue that they want to help their coal clients' transition, but the reality is that almost none of these companies are transitioning."

  "At the end of the day, it doesn't matter whether banks are supporting the coal industry by providing loans or by providing underwriting services. Both actions lead to the same result: Vast amounts of cash are provided to an industry that is our climate's worst enemy.[39]

## II. Would transition finance increase the risk of "greenwashing"?

**YES**

- ✓ **S&P Global**: "Growth of the transition finance market has elevated greenwashing (or 'transition-washing') concerns because such instruments are often characterised by a lack of clarity and common terminology on what is a transition activity or project."[40]

- ✓ **European Insurance and Occupational Pensions Authority (EIOPA)**: In a contribution to Eurofi magazine, EIOPA pointed to what it called limitations in both the EU's Sustainable Finance Disclosure Regulation and the Taxonomy Regulation. Their "complex and sometimes unfamiliar concepts" will be challenging to implement, it said. They also largely fail to address greenwashing in non-life insurance. "These limitations, coupled with a lack of clarity around what is and what is not greenwashing, can exacerbate potential greenwashing."[41]

- ✓ **Brian Ellis, fixed-income portfolio manager at Boston-based investment manager Eaton Vance**: "Part of the problem is that mainstream asset managers will continue to buy these products regardless of the underlying structure or expected impact."[42]

**NO**

- × **EU Platform on Sustainable Finance:** "Markets are … encouraged to recognise that the Taxonomy helps to establish a science-based, objective benchmark for sustainability, and that the Taxonomy is expected to evolve over time." [43]

- × **Ma Jun:** "Greenwashing is a risk that can be addressed from three aspects: standard setting, mandatory disclosure, and third-party certification."[44]

- × CBI China: As regulators, investors, and the media are increasingly monitoring greenwashing and fake transition, FIs are becoming more cautious about making transition commitments. CBI released a series of white papers starting in 2020, classifying transition activities according to their characteristics, and proposing a series of main characteristics of corporate transition activities. This helps provide reference for investors to evaluate the credibility of companies' transition plan. [45]

# Conclusion

While the market is still small and the number of deals still limited, an early picture of transition finance in China is starting to emerge:

1. Transition finance in China is primarily focused on the most energy-intensive industries, such as cement, power, and steel, which combined account for over half of China's emissions.

2. Transition finance in China is still limited to project financing and does not yet offer working capital to brown entities striving to become green. As the market grows, China will need to draw on international experience to fill this gap with entity-level transition funding.

3. China may need to consider making coal-related projects (such as IGCC or higher efficiency coal plant technologies) eligible for transition finance in future frameworks. Coal projects are excluded from the two frameworks adopted by Chinese banks so far. But Huzhou's framework includes them in its list of potential projects eligible for transition financing.

4. Despite initial progress at two of the largest banks, most of China's financial institutions have yet to develop their own taxonomies or criteria for transition finance. The PBoC's upcoming standards will likely provide Chinese banks with the standards and framework they need to embark more meaningly into transition finance. We expect Chinese regulators to introduce standards or criteria that align with the G20 Framework for Transition Finance to enhance the credibility and transparency of transition activities.

5. Instead of waiting for top-down policy from regulators, financial institutions, especially banks should start to participate in transition finance and improve the capability to innovate different products related to transition finance.

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