



China's Green Bond Issuance and Investment Opportunity Report



Climate Bonds INITIATIVE

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**UK
PACT**

Report prepared by Climate Bonds Initiative and SynTao Green Finance

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Climate Bonds INITIATIVE

Climate Bonds Initiative

The Climate Bonds Initiative (Climate Bonds) is an international investor-focused not-for-profit organisation working to mobilise the USD100tn bond market for climate change solutions.

It promotes investment in projects and assets needed for a rapid transition to a low carbon and climate resilient economy. The mission focus is to help drive down the cost of capital for large-scale climate and infrastructure projects and to support governments seeking increased capital markets investment to meet climate and greenhouse gas (GHG) emission reduction goals.

Climate Bonds carries out market analysis, policy research, market development; advises governments and regulators; and administers the Climate Bonds Standards and Certification Scheme.



SynTao Green Finance

SynTao Green Finance is a leading ESG service provider in China, that is dedicated to professional services in green finance and sustainable investment.

It is committed to providing professional services ranging from ESG data and rating, green bond assurance, to the consulting and researching services in the sustainable investment and green finance areas.

SynTao Green Finance is the initiator of the China Social Investment Forum (China SIF), a signatory of the UN Principles for Responsible Investment (PRI), and a founding member of the Green Finance Committee (GFC) of China Society of Finance and Banking. It advocates for the establishment of a responsible capital market in China and supports the country in policy research and practices to establish a green finance system.

1. Introduction

Green infrastructure presents a huge investment opportunity globally, with an estimated USD100tn (RMB707tn)¹ worth of climate compatible infrastructure required between now and 2030 in order to meet Paris Agreement emissions reduction targets.

However, there remains a lack of identifiable, investment-ready and bankable projects. There is also a lack of understanding of what types of assets and projects qualify for green financing.

In response to this challenge, this report aims to highlight green investment opportunities in China. By so doing, it aims to clarify what is green and promote green bond issuance as a tool to finance green infrastructure.

This report may also help to increase the supply of green investments to meet the growing demand of green investment opportunities and to support China's transition to a low carbon economy. It aims to facilitate greater engagement on this topic between project owners and developers, and institutional investors. Green opportunities and corresponding green finance instruments are explored in the report, with sector-by-sector investment options presented.

The report is intended for a wide range of stakeholders, including domestic superannuation funds and asset managers and their global counterparts, potential issuers, infrastructure owners and developers, as well as relevant government ministries.

Report highlights

- **Green has become an imperative for the transition and development of the economy** as one of China's five major development concepts. By 2030, China is expected to require RMB3tn- RMB4tn (USD424bn – USD566bn) in green investment annually. Green bonds are an ideal financing tool to support the required investment.
- **The 13th Five-Year Plan period has actively incorporated green assets** through different levels of sub-plans issued by different central ministries; the emphasis was on energy, transportation, sewage treatment, waste treatment and green buildings.
- **The post-Covid-19 era will see China support the construction of new infrastructure**, and the potential for green bond issuance will be broader.
- **As of July 2020, six provinces and nine regions were approved as green finance pilot zones.** The green finance pilot zone programme is unique to China and provides an opportunity to test specific strategies locally, before rolling them out nationally. Many opportunities for green investment have emerged in these zones.
- **There is a positive correlation between local green finance policies and green bond issuance** as shown by empirical research. The local experience of green finance policies in various regions continues to deepen and is beginning to flow among regions.
- **The Covid-19 pandemic will lead to a record number of government special bonds in 2020.** Many of these special bonds have the potential to be labelled as green bonds.
- **China has led the world in kickstarting a domestic green bond market** with robust policy support including clear definitions and strong regulatory guidance for green finance. The next phase of the market's growth will require local and global harmonisation as well as tightening of green definitions, credit enhancement to enable medium-sized issuers into the market and greater efforts at market awareness and transparency.

2. China's green investment potential

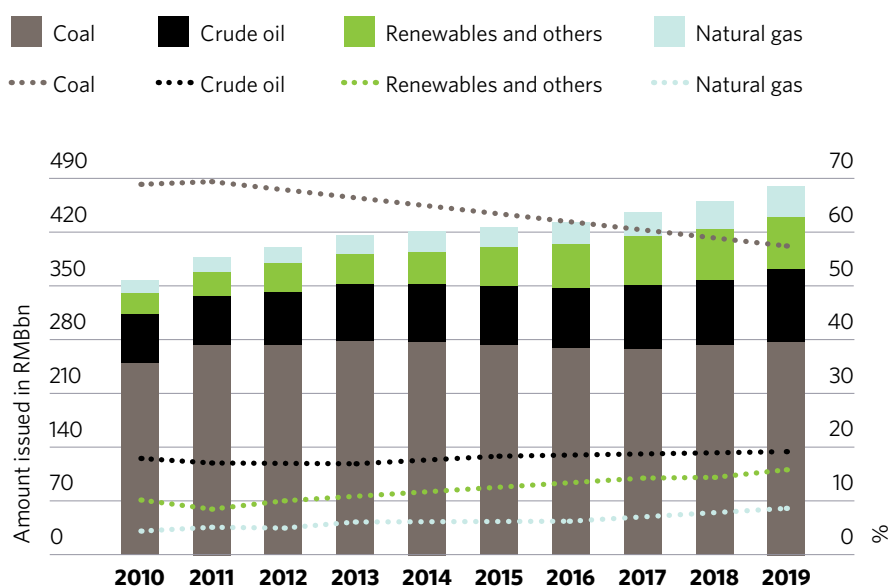
The Chinese economy is poised for a green transformation

Since the implementation of the reform and opening-up policy in 1978, China's economy has experienced rapid growth. As with other industrialised countries, such extensive growth has come at a cost to the environment and has put a strain on resources.

China's arable land per capita, freshwater resources per capita, and oil, natural gas and coal reserves per capita are all lower than the world average. With the expanding industrialisation and urbanisation, the per capita resource reserves are expected to decline further. At the same time, China's energy and resource consumption is still relatively high. Total energy consumption in 2019 (4.86bn tons of coal equivalent) increased 3.3% on 2018 while consumption of coal, crude oil, natural gas and electricity is also on the rise.^{2,3} Although the use of low carbon energy such as hydropower and wind power continues to grow, it only accounts for 15.3% of the total energy consumption with coal still being the main energy source (57.7% of total energy consumption).^{4,5}

China's economic growth has slowed since 2015, with the 6% economic growth rate seen in 2019, the lowest since 2000. Furthermore, 2015 data shows that the cost of China's ecosystem destruction and pollution has reached 2.1% of GDP.⁶ The impact of global climate change on natural ecosystems and the economy is accelerating. China faces increasing climate risks but it needs to build greater resilience to extreme weather and climate events.⁷ The extensive growth has been increasingly constrained by the lack of resources and environmental pollution, and there is an urgent need for transformation to a resource efficient and environmentally friendly economy.

Clean energy consumption is on the rise but coal still dominates



Data source: China Renewable Energy Industrial Association

The 13th Five-Year Plan is driving demand for new green investment

In this context, the Fifth Plenary Session of the Eighteenth Central Committee of the Communist Party of China, established five new development concepts of Innovation, Harmonization, Green, Openness and Sharing. In China's 13th Five-Year Plan (FYP) for Ecological and Environmental Protection (2016-2020), targets were also set for environmental indicators such as

air quality, water environment and total pollutant emissions. At present, China's eco-friendly industries still make up a relatively small proportion of the national economy. However, given the need to improve China's air, water and soil environment and, with more measures on controlling pollution, the required investment will also increase. Green investment has a pivotal role to play in the expansion of the green economy. The 14th Five-Year Plan (2021-2025) is under draft, and is expected to continue the push for a greener economy.

Environmental targets in China's 13th Five-Year Plan⁹

	12th FYP Targets (2010 baseline)	12th FYP Achievements	13th FYP's Targets (2015 baseline)
Energy consumption per Unit of GDP	-16%	-18.2%	-15%
Carbon emissions per Unit of GDP	-17%	-20%	-18%
Non-Fossil Fuel Percentage	11.4%	12%	15%
Sulfur Dioxide (SO ₂)	-8%	-18%	-15%
Nitrogen Oxides (NO _x)	-8%	-18.6%	-15%
Ammonia Nitrogen	-10%	-13%	-10%
Chemical Oxygen Demand (COD)	-10%	-12.9%	-10%
Forest Coverage	21.7%	21.63%	23.04%

Summary of investment estimates under the 13th Five Year Plan

Clean energy: investment will exceed RMB1.6tn (USD230bn)

In 2016, the National Energy Administration (NEA) and the National Development and Reform Commission (NDRC) released the 13th FYP on wind energy, solar energy, hydropower, geothermal energy, biomass energy and other renewable resources.⁸ The plan stated that the newly installed capacity of the above five types of renewable energy should exceed 200m kW by 2020. While the projected investment in solar energy is uncertain at this stage, investment in the remaining four types of renewable energy are expected to reach RMB1.656tn (USD230bn) by 2020.

	Newly installed capacity	Investment
Wind Energy	80GW	RMB700bn (USD99bn)
Solar Energy	2015: 43.18GW Cumulative by 2020 > 110GW	Unclear in the text of the original 13th FYP
Hydropower	60GW	RMB500bn (USD70.7bn)
Geothermal	0.5GW	RMB260bn (USD36.7bn)
Biomass	4.7GW	RMB196bn (USD27bn)

Low carbon transportation: investment will exceed RMB3.4tn (USD480bn)

In February 2017, the Ministry of Transport (MoT) and the NDRC jointly issued the *13th Five-Year Plan on the Development of a Modern Comprehensive Transportation System*, with a total investment of RMB15tn (USD2.2tn).¹⁰ This represented an increase of about 20% compared to the period of the 12th FYP. This included investment in rail, public transport, bicycle infrastructure and electric vehicles amounting to over USD480bn.¹¹

	Item	Target
Railway	Added operating mileage	29,000km
	Added electrification rate	9%
	Added passenger traffic	1460m passengers
	Added freight traffic	340m tonnes
Urban Rail Transit	Added operating mileage	2700km

Green buildings: investment will exceed RMB1.65tn (USD230bn).¹³

In March 2017, the Ministry of Housing and Urban-Rural Development issued the *13th Five-Year Plan on Building Energy Conservation and Green Building Development*, which advocated comprehensive promotion of building energy conservation and green building, green construction, and improvements to energy conservation systems for buildings.¹⁴ According to estimates by the Paulson Institute, the capital investment for new green buildings in China during the 13th FYP period will amount to around RMB224.8bn (USD31.8bn), and existing building energy-saving renovations required RMB1.43tn (USD202bn), in total about RMB1.65tn (USD233bn).¹⁵

	Additional Sqm	RMB	USD
New green buildings	3bn sqm	224.8bn	34bn
Existing building retrofits	2bn sqm	1.4tn	220bn

Sewage treatment: investment will exceed RMB564bn (USD80bn)

In 2016, the NDRC and the Ministry of Housing and Urban-Rural Development (HURD) issued the *13th Five-Year Plan on the Construction of National Urban Sewage Treatment and Recycling Facilities* which showed that the sewage treatment facilities would be expected to extend to all urban areas during the 13th FYP period.¹⁶ The targets stated that sewage treatment rates should reach 95% in urban areas, at least 85% in county towns, and at least 70% in built towns; the sludge harmless disposal rate should reach 90% in cities above prefectural level, 75% in other cities and 60% in county towns. Investments includes 27,700km of pipe renovations (RMB49.4bn/USD7bn) and increased capacity of recycled water treatment (RMB15.8bn/USD2.2bn) with total investment exceeding RMB564bn (USD77bn).

Solid waste treatment: investment will exceed RMB251.8bn (USD35.6bn)

In 2016, the NDRC and the HURD issued the *13th Five-Year Plan on the Construction of National Municipal Solid Waste Treatment Facilities*.¹² The plan specified that during the period of 13th FYP, in municipalities directly under the Central Government, cities with separate plans and provincial capital cities (built areas), the treatment rate of domestic waste should have reached 100%. It should have exceeded 95% in other cities, 80% in county towns, and 70% in built towns.

Item	Target
The waste incineration treatment capacity accounts for the total solid waste treatment capacity of all cities	> 50%
Recycling rate of domestic waste	> 35%
National plan to increase the treatment capacity of domestic waste (including the 12th FYP for the continued construction of 129,000 tons/day)	509.7 thousand tones/day
Adding capacity of disposing food waste	34.4 thousand tones/ day
Total investment	RMB251.8bn



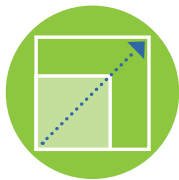
The green investment gap needs to be filled by private sector

It was estimated that the green investment needed to achieve China's green development in 2015-2020 would be approximately RMB2.9tn (USD409bn) per annum.¹⁷ After deducting government financial support and self-raised funds, a funding gap of about RMB2tn (USD283bn) a year has been identified which could be filled using instruments such as green loans and green bonds.^{18, 19} In September 2016, Ma Jun, who was the chief economist of the Research Bureau of the People's Bank of China (PBoC) at the time, said that achieving China's environmental pollution control goals and the international commitment of peaking carbon emissions by 2030 would require RMB3tn-RMB4tn (USD424bn-USD566bn) in green investment every year.

During the 13th FYP period, within the framework of China's Nationally Determined Contribution (NDC), different levels of sub-plans issued by different central ministries incorporated the content of green asset construction.

However, based on the gradual deceleration of government revenue growth in recent years, it is expected that only 10%-15% of the required green investment could be covered by fiscal expenditure, and the rest would need to be supported by private capital.²⁰ Since 2014, the growth of national fiscal revenue has remained in single digits, declining year-on-year. In this context, it is challenging for the government to allocate the required budget to green investments. In addition, pollution control, climate change and green urbanisation also face funding shortfalls. As green asset construction continues to expand at scale, the gap in green investment urgently needs to be met by the private sector.

Globally, there are multiple channels for green investments including green debt and equity instruments that leverage private sector financing (see Annex 1 for more information on green debt instruments and mechanisms). Green bonds are currently the most developed of the thematic instruments, owing to the simplicity with which they can be issued, identified, and incorporated into fixed income investment strategies.



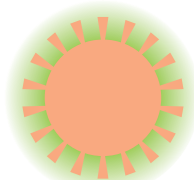
Green bonds can help to fill the financing gap

Green financial bonds were the first green labelled financial products to be deployed in China following the establishment of a green financial system being mentioned in the Overall Reform Plan of the System of Ecological Civilisation and the 13th FYP. Their relatively simple structure, low additional cost, and transparency requirements have contributed to their widespread recognition and adoption by the investment community.

Large scale capital is needed to transform China into a green economy, but some green industries and projects are faced with a series of sectoral problems, including low returns, and a long cycle of capital recovery. At the same time, most investors are not capable of identifying green industries and project by themselves.

As a source of long-term financing, bonds can help green industries and projects to match their liabilities to project progression. The green bond label enables simple identification. Many green bonds have the added attraction of the green credentials of the projects having been assessed by an external party.

Currently, the Chinese government's strong endorsement of green finance and green bonds may help green bond issuers to reduce issuance costs or to obtain financial subsidies. Some provincial governments already have subsidy programmes in place, and a single issuer can apply for reimbursement up to RMB6m (USD848,000) per year.²¹



Resilience needed for post COVID-19 economic recovery

The Covid-19 pandemic dealt a heavy blow to the Chinese economy in the first quarter of 2020. According to the National Bureau of Statistics, GDP in the first quarter fell by 6.8% year-on-year, of which secondary industry fell by 9.6%. Additionally, the halt in production and subsequent postponement of reopening to control the pandemic are expected to have a long-term impact on the economy. Conversely, the pandemic has encouraged market players to consider sources of more stable, long-term returns on investments and to build a more resilient economic system. The Ministry of Finance of the People's Republic of China issued a total of RMB44.9bn to support the construction of public health systems, major epidemic prevention, and treatment systems across the country in July 2020.²² In the post-epidemic period, sectors that contribute to enhanced systemic response to crisis and risks – such as healthcare, public health, and ecological conservation – are expected to attract more resources and investment. Chinese issuers have already issued over USD67bn of COVID-related bonds to support sectors such as healthcare.²³

Digital infrastructure has facilitated working from home and other business continuity functions such as online health care and education. Consequently, China's business activities have survived under lockdown conditions during the COVID-19 outbreak. In February 2020, the Central Committee for Deepening Overall Reform pointed out that China needs to build an efficient, reliable, green, and modern infrastructure system, while a meeting of the Standing Committee of the Political Bureau of the Communist Party of China Central Committee emphasised that China needs to increase investment in public health and emergency control and to improve the construction speed of 'new infrastructure' projects. In this instance 'new infrastructure' projects are focused in seven areas: 5G networks, industrial Internet, inter-city transportation and inner-city rail systems, data centres, artificial intelligence, ultra-high voltage, and new energy vehicle charging stations.

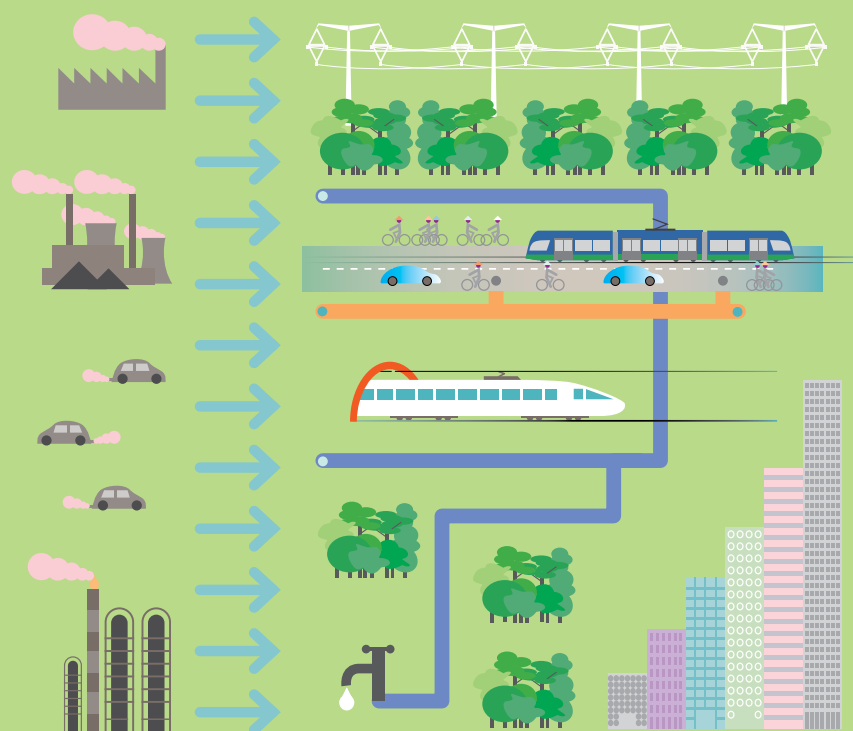
On April 20th 2020, NRDC clarified that 'new infrastructure' projects could be divided into three categories:

- 1. Information-based infrastructure** such as 5G, industrial Internet of things, AI, and blockchain;
- 2. Converged infrastructure** supported by applications of new technologies such as the Internet, big data, and artificial intelligence. These could include smart transportation and smart energy;
- 3. Innovative infrastructure** that supports scientific research, technology, and product development. Examples could be major technology infrastructure, science education infrastructure, industrial technology, and innovation infrastructure.

At least 13 regions in eight Chinese provinces released their key new infrastructure projects investment plans by April 2020 amounting to RMB33.83tn (USD4.78tn). For example, in Guangdong province, the development plan stated that new information technology, biotech, high-end manufacturing and new material are key sectors for the region, and that new telecommunication technology, 5G and mobile networks, biotech, and pharmaceuticals are key projects to incubate. The first batch of 73 "new infrastructure" projects was launched with an investment of RMB180bn (USD25.4bn). Thus far, only a handful of information technology projects have been financed with green bonds, however increased connectivity has huge potential for GHG emissions reduction, particularly through reduced transportation. We expect to see more transactions in this space across the world.

The outbreak of COVID-19 has also prompted a global re-evaluation of other crises faced by the world, among which climate change is a top priority. The Bank for International Settlements (BIS) has even proposed the notion of "green swans" for climate-related extreme events that pose a systemic threat to the financial market.²⁴ China's shift toward a green and low-carbon economy and the resulting green financing needs are an effective means to address climate change and improve economic resilience. New green infrastructure projects could reduce the impacts of the pandemic, while contributing to new growth opportunities which may help to reverse the economic downturn in China.

Brown to green transition in China



Climate Bonds Initiative has been active in promoting a brown-to-green (BtG) transition strategy in GHG-emissions intensive industries around the world. BtG reflects the fact that, in the short- to medium-term, large companies in many sectors will inevitably straddle both brown and green assets, progressively reducing exposure to brown assets and practices as they increase capital expenditure (capex) towards, and adoption of, greener modes of operation. It also embodies a recognition that, both globally and locally, the expectation of institutional investors is that progress towards low or zero-carbon business models, is increasingly indicative of corporate performance, hedging of climate risks and long-term value accretion.

Global green investment opportunities are growing and yet there remains a scarcity of offerings, pointing to a lack of supply of green bond issuance particularly from non-financial corporates, i.e. the real economy. Furthermore, segments of the real economy, that offer meaningful emissions reductions potential – such as cement and concrete, mining and metals, oil and gas transport and manufacturing – are yet to be activated towards a BtG transition. When such industry sectors start to align with a 2-degree emissions trajectory, new green financing opportunities could be created for assets

and projects with ambitious climate targets and an increased focus on low carbon production modes.

A national BtG strategy should require 'brown' organizations to commit to strategic change, undertaking tangible and verifiably climate relevant measures that relate to companies' core business activities. They would need to progress from broad statements of strategy or intent to disclosure of climate risk as envisioned by compliance with the Task Force on Climate-related Financial Disclosures (TCFD) and, ultimately, to a visible reflection of green investment on balance sheets, in capex plans and borrowing programmes.

Credible green bonds are a highly visible tool to support this transition from brown into green. Even a small initial share of green capital expenditure could be a credible indicator of more to come, if it is combined with a re-orientation and acknowledgment to investors that achieving low carbon targets and then zero carbon operating models are inevitable business destinations between now and 2050.

Transitioning to a green, climate resilient economy is paramount to ensure that the region can reduce its GHG emissions, better hedge against climate change risks and thrive in the long run.

3. China's policy on green finance and green bonds

China's policy on green finance

China has developed a comprehensive framework for green finance. The government's regulatory administration and stock exchanges have played a crucial role in promoting the development of green finance in China. The main pillars of the framework are:

1. Green Credit Guidelines for the banking system which were formulated by the China Banking Regulatory Commission (CBRC), and include a statistical system for measuring and evaluating green credits.^{25,26} The guidelines describe how banks should address environmental issues at the board/management level and how environmental considerations could be integrated into the lending process.

2. Guidelines for Establishing the Green Financial System were jointly issued by seven ministries including the PBoC in 2016.²⁷ This followed the inclusion of a 'green financial

system' being written into the national ecological civilization construction strategy in the 13th FYP and the *Guidelines for Establishing the Green Financial System*.^{28,29} Thus far, China's green finance policy framework has been extended to all financial markets including insurance and capital markets.

3. The Revised Code of Corporate Governance for Listed Companies in China was released by the China Securities Regulatory Commission (CSRC). It invites listed companies to take actions based on green development, to integrate ecological and environmental protection into development strategies and corporate governance processes, and to disclose related information.³⁰

4. The Green Investment Guidelines (Trial) were released in 2018 by The China Securities Investment Fund Industry Association to

encourage fund managers to pay attention to environmental sustainability, strengthen fund managers' awareness of environmental risks, and clarify the definition and implementation methods of green investment. It aims to promote green investment in the fund management industry, improve the environmental performance of investment activities, and promote green and sustainable economic growth.³¹

5. The Green Industry Guidance Catalogue (2019 Edition) (The GIGC 2019) issued in 2019 classified the definition and taxonomy of green industries and green projects.³² This guidance is also used as a basis for introducing policies relating to investment, finance and taxation providing strong impetus for green investment. The GIGC 2019 is divided into three levels. The first level includes six major industries, including energy conservation and environmental

Timeline of China's key green bond policies

2015

NDRC

Guidelines on Issuing Green Bonds

Kickstarted green bond market in China

PBoC

Notice of the People's Bank of China on Green Financial Bonds (PBoC Document No.39 [2015])

Kickstarted green bond market in China

2016

Seven Ministries including the Central Bank Guidelines for Establishing the Green Financial System
Indicated the direction of further development of the green bond market

Shanghai Stock Exchange Notice on Launching the Pilot Program of Green Corporate Bonds

Accelerated the development of the corporate bonds³⁴

Shenzhen Stock Exchange Notice on Launching the Pilot Program of Green Corporate Bonds

Accelerated the development of the corporate bonds³⁵

2017

CSRC

Guiding Opinions of the China Securities Regulatory Commission on Supporting the Development of Green Bonds

Encouraged the issuance of corporate bonds

National Association of Financial Market Institutional Investors Guidelines on Green Note of Non-Financial Enterprises

Green bond policy guidelines are available for all bond markets in China

PBoC and CSRC Guidelines on the Evaluation and Certification of Green Bonds (Interim)³⁶

Regulated evaluation and Certification of green bonds

2020

PBoC, NDRC, CSRC

Green Bond Endorsed Project Catalogue (2020 Edition) (Consultation Version)

Harmonized different standards of green bonds, and promoted the integration of the domestic green bond market

protection, clean production, clean energy, ecological environment industry, green infrastructure upgrade and green services.

The Chinese government played a leading role in ensuring that green finance was on the official agenda of the G20 Summit in 2016.³³ The G20 “Green Finance Research Group” (later renamed Sustainable Finance Research Group) has explored core topics pertaining to sustainable development. G20 country leaders reached consensus on the development of green/sustainable finance and it has been written into the G20 outcome document three for consecutive years. In 2017, the central banks and regulators of eight countries including China, France and the Netherlands jointly initiated the establishment of the “Network for Greening the Financial System (NGFS)”. The Network’s purpose is to help strengthen the global response to meet the Paris

Agreement and to enhance the role of the financial system to manage risks and to mobilise capital for green and low-carbon investments. Its membership has grown to over 66 countries.

China’s policy on green bonds

One of the most important recent developments in China has been the proposed changes to the *Green Bond Endorsed Project Catalogue (2020 Edition)*. Jointly released by the PBOC, NDRC and CSRC for public consultation in July 2020, it made news headlines as it proposed to exclude the clean utilisation of coal. This change takes a crucial step in efforts towards global harmonisation of green guidelines and criteria. Globally harmonised green definitions can simplify the process of identifying and preferencing green assets for regulators, issuers, and investors.

The 2020 Catalogue also makes an important contribution by harmonising guidelines domestically. Previously, green financial bonds, green corporate bonds and green debt financing instruments were guided by the 2015 edition of the Catalogue, while corporate bonds used NDRC guidance. The issuers and intermediaries don’t have to benchmark against two standards anymore. Any bond can now be recognised as green if it meets the criteria of 2020 Catalogue, no matter in which markets it is issued or what type of bonds it is. (See Appendix 1 for more details.)

The State of China’s green bond market

2019 China green bond market: a new milestone

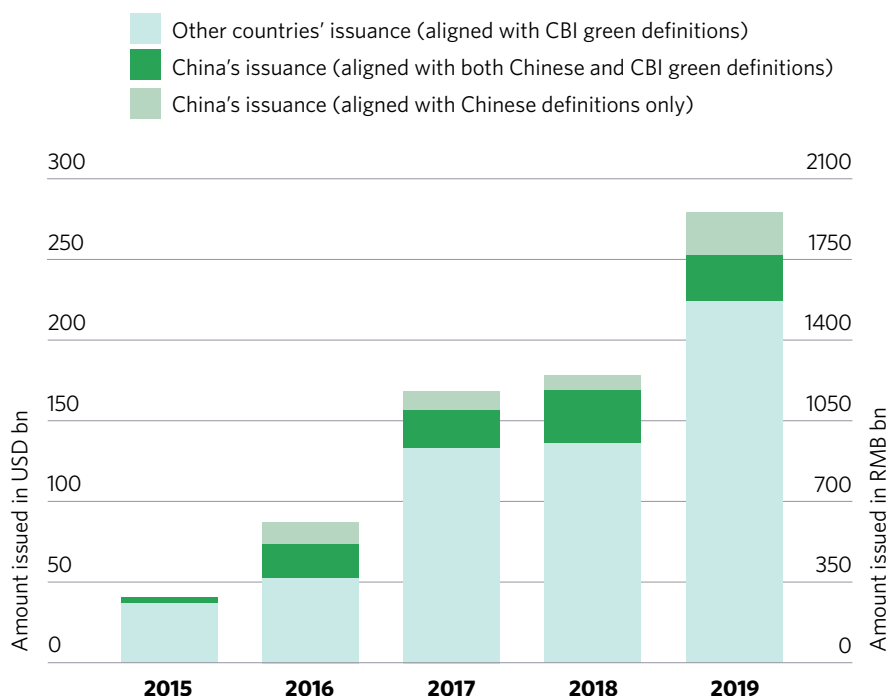
In 2019, Chinese issuers printed RMB386.2bn (USD55.8bn) of green bonds in domestic and overseas markets, a 33% increase from 2018 (RMB282.6bn/USD42bn) driven, in part, by the regulatory support and frameworks already described. The total amount of labelled green bonds issued in the Chinese domestic market in 2019 increased by 60% compared to 2016.

In overseas markets, green bonds from Chinese issuers have also rapidly increased. The first overseas green bond of a Chinese-funded institution was issued by Goldwind Technology on the Hong Kong Stock Exchange in 2015. By the end of 2019, a total of 36 Chinese issuers had issued green bonds overseas, with a total face value of USD33.8bn (RMB239bn).

China was the largest source of green bond issuance in 2019

In 2019, global green bond issuance meeting Climate Bonds definitions reached a record USD259bn. This represented a 52% year-on-year increase against the USD170.6bn issued in 2018. The green bond market has seen diversification in both Developed and Emerging Markets (DM & EM) with debut green bonds from countries as diverse as Barbados, Russia, Kenya, Panama, Greece, Ukraine, Ecuador and Saudi Arabia.³⁷

China’s green bond issuance in a global context



Data source: Climate Bonds Initiative

China, the United States and France were the largest sources of issuance with China leading the way with RMB386.2bn (USD55.8bn) in 2019.

The Industrial and Commercial Bank of China (ICBC) was the largest green bond issuer in 2019, and its Singapore and Hong

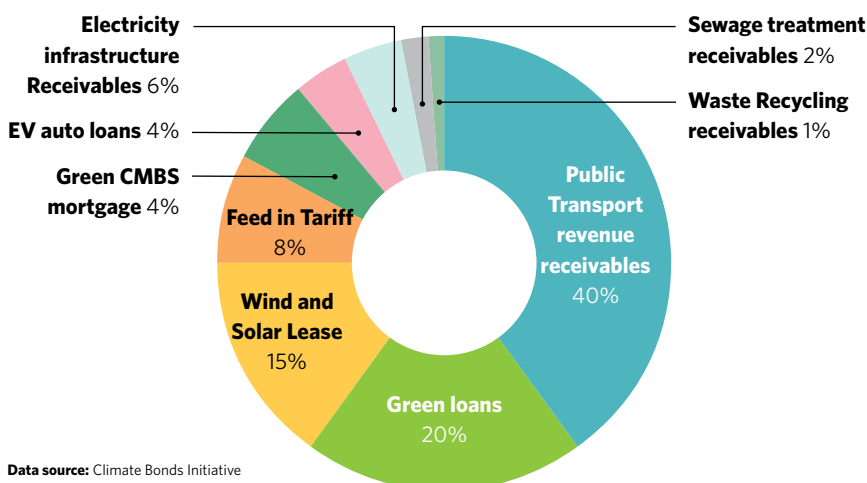
Kong branches issued green bonds worth a combined USD5.3bn (RMB36.7bn). In addition, ICBC Financial Leasing Co., Ltd., the subsidiary of ICBC, also issued USD600m (RMB4.2bn) of green bonds through the Hong Kong Stock Exchange.

ABS issuance more than tripled in 2019

Asset-backed securities (ABS) volumes tripled in 2019 rising to USD7.2bn (RMB50.3bn) and from 5% to 13% of the global total. An ABS instrument can be defined as “green” when the underlying cash flows originate from low-carbon assets or where the proceeds from the deal are earmarked to invest in low-carbon assets. Most green ABS volumes globally are backed by mortgages for homes that meet energy efficiency standards. This includes the largest single green bond issuer, Fannie Mae, in the U.S.

In China, public transport revenue receivables is the largest collateral type, accounting for 40% of all ABS deals. This is followed by green loans.

Green asset-backed securities (ABS) collateral types



The Climate Bonds Standard & Certification Scheme attracts international investors

The Climate Bonds Standard and Certification Scheme is a labelling scheme for bonds and other debt instruments. The Climate Bonds Sector Criteria provide specific eligibility conditions or thresholds which must be met to demonstrate that assets are in line with a rapid trajectory towards a 2050 zero-carbon future. The criteria are developed based on climate science by technical expert groups with input from industry.

Leading Chinese bond issuers are tapping into the international markets with green bonds conforming to the Climate Bonds Standard and Certification Scheme including:

1. China Three Gorges Corporation issued their first offshore green bond in July 2017, raising EUR650m for wind projects in Germany & Portugal. The bond was the first from a Chinese issuer to be certified by Climate Bonds.

2. China Development Bank issued their first Certified Climate Bond in November 2017. This was another landmark bond from a Chinese issuer as it represented China's first ever quasi-sovereign international Certified Climate Bond. The projects selected for the bonds were in a variety of locations that were instrumental to the Belt and Road Initiative.

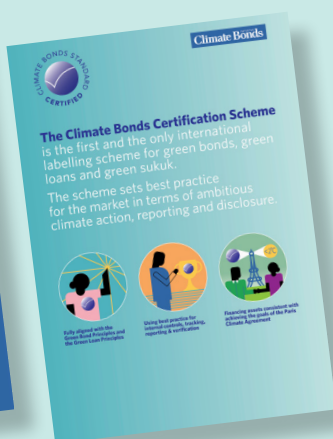
3. The Industrial and Commercial Bank of China London branch listed a USD1.58bn equivalent green bond on the London Stock Exchange (LSE) in June 2018. This was the second Certified Climate Bond from ICBC and the largest ever green bond listed on the LSE. The first was a USD2.1bn green bond issued in September 2017.

4. China Construction Bank Luxembourg Branch issued a EUR500m, 3-year Certified Climate Bond in September 2018. It was certified under the Marine Renewable Energy, Wind, Low Carbon Transport and Water Criteria.

5. Bank of China (BoC) issued its fifth green bond in November 2018 through the BoC Tokyo Branch. This USD379mn deal was the bank's third Certified Climate Bond, following the a USD1bn and USD1.45bn equivalent Certified Climate Bonds, through the London and Paris Branches respectively, in June 2018 and November 2017.

6. Industrial Bank Co., Ltd. issued a dual-currency (USD300m and EUR600m) Certified Climate Bond through its Hong Kong branch in November 2018. This was the first Certified Climate Bond to be issued and listed in Hong Kong.

7. Jiangsu Financial Leasing tapped the market with its RMB1bn (USD141bn) maiden Certified Climate Bond in April 2019 to support floating solar farms on freshwater bodies. This was the first Certified Climate Bond to be issued domestically in China.



SynTao Green Finance Study shows correlation between strong policies and scale of green bond issuance

SynTao Green Finance statistics show that from 2016 to 2019, governments at all levels in China issued a total of 623 policies relating to green finance, 361 of which are specific policies on green finance or specific implementation rules.^{44,45,46}

In order to more objectively reflect the efforts of local governments to promote green finance in the past four years, the research team has scored each policy based on the detail of the implementation guidelines and the scope of policy impact. The scores provide a measure of the strength of green finance policies for each municipality and province.

The linear regression analysis of the green policy strength score with the total number of bonds issued and the total scale of bond issuance concluded the following findings:

1. Regions with strong green policies have seen more green bonds issued. The number of bonds issued in 30 provincial-level administrative units other than Beijing have a significant linear relationship with the green policy strength score.⁴⁷ This shows that, except for the large number of green bonds issued in Beijing (where many large companies and financial institutions have their headquarters), the number of green bonds issued in other provincial administrative units is significantly affected by the implementation of local green financial policies. Each release of a green financial policy resulted in at least 0.785 green bonds being issued.

2. The overall scale of green bond issuance is strongly correlated to the strength of the green finance policy. Beijing and Shanghai, as financial centres, have more potential bond issuers which makes the scale of issuance larger; within the jurisdiction of Fujian Province, Industrial Bank, as the first bank that has signed the Equator Principles in China, has issued

a total of RMB130bn (USD18.4bn) of green financial bonds. The remaining 28 provincial-level administrative units have a strong linear relationship between the scale of green bond issuance and the green finance policy strength score.⁴⁸ This demonstrates that, except for Beijing, Shanghai and Fujian, the scale of green bond issuance is significantly affected by the implementation of local green financial policies. On average, every green financial policy will attract at least RMB900m (USD127m) in green bond issuance.

Overall, local green financial policies have contributed to the positive development of the green bond market and promoted the issuance of local green bonds. In addition, the green financial policies in various regions continue to deepen and flow among regions. It has been three years since the establishment of the first eight green finance pilot cities, and the rich experience and achievements they have accumulated will be applied more broadly, bringing more financing needs for green projects.

China's local policy on green finance and green bonds

One feature that is somewhat unique to China is that local governments are formulating their own plans to develop green finance in their regions. As of 2019, more than 500 policies related to green finance had been issued by provincial and sub-provincial governments nationwide, including more than 300 specific administrative measures to promote the development of green finance in their jurisdictions. Green bonds have been a major focus of these local plans.

Highlights include:

- **Beijing** issued a Memorandum in 2015, and began to promote the issuance of green bonds overseas.³⁸ In 2017, *Implementation Measures* were released to establish Beijing's goal of developing green bonds and green ABS products.³⁹ This promotes green bond standards, supports financial institutions in issuing green financial bonds and promotes third-party assessment. It also supports the development of green finance in government procurement, direct investment, and public private partnerships. For example, in 2019, the Zhongguancun Science Park released related policy to promote green bonds, and a single issuer can apply for subsidies up to RMB1m (USD141,000) annually.⁴⁰
- **Jiangsu Province** formulated a trial policy whereby 30% of the annual interest paid by non-financial entities that issue green bonds is reimbursed for two years.⁴¹ Annual reimbursement is capped at RMB6m (USD850,000) per issuer.
- **Lanzhou:** In 2019, Lanzhou New District became the ninth green finance pilot district in China.⁴² The policy proposes that green bonds should be used by green industries, particularly those in underdeveloped western regions of the country.
- **Guangdong-Hong Kong-Macao Greater Bay Area:** The development plan released in 2019 defines the goal of building a green finance centre in Greater Bay Area. This takes advantage of Guangzhou as a green finance pilot area and supports the development of green finance in districts and cities in the region to work with Hong Kong and Macao to build an international financial hub.
- **Yangtze River Delta:** The Integrated Plan for the region puts forward the strategic goal for green innovation and development.⁴³ Through the development of green finance, financial institutions and enterprises are encouraged to issue green bonds and to explore the establishment of a market-oriented mechanism for attracting social capital to ecological and environmental protection.

4. Opportunities for green bond issuance in China's green finance pilot zones

China's green finance pilot zones

In 2017, China's State Council approved the creation of green finance reform and innovation pilot zones. Originally, this included eight cities or districts in five provinces: Guangdong, Guizhou, Jiangxi, Zhejiang, and Xinjiang. In 2019, Gansu province was added bringing the total to six.

The pilot zone programme is unique to China and provides an excellent opportunity to test specific strategies locally, before extending them nationally. The programme was introduced to encourage regions to formulate and implement local green finance policies and explore green finance models based on their own resources and economic characteristics. Successful experiences can be replicated, and pitfalls avoided across the country. The pilot zones encompass a wide area including developed coastal provinces, Guangdong and Zhejiang as well as less developed areas Guizhou and Xinjiang. Jiangxi and Gansu are at the national average level of economic development in the central and western regions.

China is a vast country with considerable regional imbalances in economic development. As such, each pilot zone, in line with its local economic conditions and available resources, has a different sectoral focus for the issuance of green bonds. This section aims to identify and showcase demonstration projects that meet international definitions for green projects starting with an analysis of the features of the green sectors in each of these areas. The green sectors covered here include energy, transportation, water conservation, waste treatment, and green buildings.

Climate Bonds Taxonomy and Sector Criteria

This section uses case studies to highlight opportunities for the issuance of local green bonds in China's green finance pilot zones.

It uses the globally recognized Climate Bonds Taxonomy (the Taxonomy) to identify eligible green projects and assets. It features eight sectors - Energy, Buildings, Transport, Water, Waste, Land Use, Industry and ICT - and various sub-sectors. The purpose of the Taxonomy is to encourage common 'green' definitions across global markets to support the growth of a cohesive green bond market.

China has its own green definitions in the Green Industry Catalogue (2019) and Green Bond Endorsed Project Catalogue (2015 version). The Green Industry Catalogue also incorporates considerations of national industrial policy. As a result, China's green definitions are not fully aligned with the Taxonomy and sector criteria, which are purely based on climate science.

The Chinese government could adopt a best practice standard to identify green projects during infrastructure planning, collating these in a single list. It could then prioritise projects that comply with international definitions of green, and provide clear green labelling, when preparing future infrastructure pipelines.

Providing clear labels for green infrastructure investments may help to facilitate increased access to private sector capital for China's economic development, accelerate China's transition to a low carbon economy and meet global institutional investor demand for green assets.

Green project databases

To facilitate investment in green projects, several databases have been established. Each green finance pilot region has a database. Other examples include:

1. Sichuan Province has a database "Green Rong Rong" under development.

2. CBEX Green Asset Trading Platform contains 839 projects encompassing clean transport, clean energy, pollution prevention and control, energy efficiency, resource conservation and recycling, ecological protection, and climate response. It covers the six green finance pilot zones and references green standards including the Green Bond Principles, Climate Bonds Standard, Green Credit Statistics Forms, Green Bond Issuance Guidelines, Green Bond Endorsed Project Catalogue, and Green Industry Guiding Catalogue.⁵⁰

3. China Public Private Partnerships Centre has established a green PPP project library for green projects, green project experts and related project reports.⁵¹ The China Public Private Partnerships Centre database offers broader and more detailed categories of green projects. It features nearly 10,000 projects, classified into 19 categories such as affordable housing, urban integrated development, agriculture, forestry, transport, and energy.

A comparison of the green finance pilot regions in China⁴⁹

Project	Zhejiang	Guangdong	Jiangxi	Gansu	Guizhou	Xinjiang
GDP	RMB5.8tn	RMB99.5tn	RMB2.2tn	RMB810bn	RMB1.5tn	RMB1.3tn
GDP growth	7.01%	6.8%	8.7%	6.1%	9.1%	6.1%
GDP rank	4	1	16	27	22	25
Population	57 million	11.3 million	4.6million	26 million	36 million	24.9 million
Population growth	5.44%	8.24%	7.37%	4.42%	7.0%	6.1%
Urbanization Level	68.9%	70.7%	56.02%	47.7%	47.53%	50.9%
Local fiscal expenditure on environmental protection	RMB19.5bn	RMB56.7bn	RMB16.3bn	RMB12.8bn	RMB13.4bn	RMB9.4bn
Debt balance	RMB1.1tn	RMB1tn	RMB57.4bn	RMB249.2bn	RMB885bn	RMB398bn
Debt ratio	18.6%	10.0%	2.5%	30.8%	57.6%	31.1%

Zhejiang Province

Boasting a strong economy, a large private sector, and sophisticated secondary and tertiary sectors, Zhejiang Province is home to a vast number of industrial centres, industrial parks, and leading enterprises, covering advanced manufacturing, IT, household chemicals, and light industries. Huzhou and Quzhou are two cities in Zhejiang Province selected for inclusion in the pilot zone programme. The specific ambitions were detailed in The Master Plan of Zhejiang Province for Building Green Finance Reform and Innovation Pilot Zones in Huzhou and Quzhou which proposed industry restructuring and upgrade through green development. This Master Plan also proposed vertical integration to accelerate the transformation of traditional chemical industries. The Master Plan, identified Quzhou as the focus of the green transformation of traditional industries, while Huzhou was chosen to lead the innovation and upgrade of green industries.

President Xi Jinping made the famous remark “green mountains and clear waters are indeed mountains of gold and silver” in Huzhou. Some examples of the achievements of Huzhou include:

1. Huzhou was among the first cities in China to launch an online green finance platform, the Huzhou Green Finance Service Platform.⁵² In 2018, one of the sub-platforms – Green Loan (Lü Dai Tong) – helped 5,719 businesses obtain RMB47.914bn of bank loans.⁵³

2. In 2018, Huzhou developed China’s first local criteria for recognizing and evaluating green finance enterprises and projects.

3. In 2019, Huzhou Bank became the third Chinese bank to adopt the Equator Principles.



Examples of the achievements of Quzhou include:

1. The Quzhou regional office of the China Banking and Insurance Regulatory Commission has created a database for the green transformation projects of Quzhou-based private enterprises, and drafted the Methodologies of Quzhou for Evaluation of Green Enterprises to facilitate the aggregation of information from the local Development and Reform Commission, Environmental Protection Bureau, Economy and Information Technology Bureau, and other government agencies and to help high-quality projects obtain financial services.

2. In November 2019, Qu Rong Tong, the city’s online platform for financial services and sharing of credit information, was officially launched. The platform provides a wide range of green finance functions including compilation of credit information on market entities, green labelling, financing facilitation, and guarantee-based financing.⁵⁴

Hangqu Railway (Jianqu Section) Project	
<p>Proponent: Jiande City Government</p> <p>Location: Quzhou-Jiande City</p> <p>Status: Under construction</p> <p>Classification: Green Transportation</p> <p>Description: The railway starts from the Yangcun Bridge Line of the Hangzhou-Huangshan Railway in the east and ends at the Shanghai-Kunming High-speed Railway Jiangshan Station (inclusive) in the west. The new main line is 130.913km long and the designed driving speed is 350km/hr. The newly built Hangzhou-Quzhou Railway (Jianqu Section) is located in Jiande City and Quzhou City, Zhejiang Province, and has a connecting line to introduce the Shanghai-Kunming High-speed Railway.</p> <p>Cost: RMB23.6325bn (USD3.3768bn)</p>	<p>Project operation mode: Build Operate and Transfer (BOT)</p> <p>Project period: 33.5 years, including a construction period of 3.5 years and an operation period of 30 years.</p> <p>Project capital ratio: 30% of the total investment</p> <p>Return mechanism: The project company is responsible for the financing of the project’s construction funds (project capital and debt funds) while the government does not assume any obligation. The return of the project is realised by viability gap funding, a financial support mechanism in the form of subsidies, equity investment, preferential loans, and other preferential policies from government to meet the gap between customer payment and reasonable return of the social capitals or companies. The Zhejiang Provincial Government bears 40% of all subsidy costs, and the cities and counties along the line bear the remaining 60%.</p>



Guangdong Province

Guangdong is China's top province by GDP and a manufacturing powerhouse, helped by its close proximity to Hong Kong. In 2019, Guangdong's electronic and information, petrochemical, and home appliance industries achieved an output value of RMB4.31tn, RMB1.51tn, and RMB1.49tn respectively (USD608bn, USD214bn, and USD211bn).⁵⁵ Guangzhou and Shenzhen are cities in Guangdong and constitute major regional economic hubs. The development of the Guangdong-Hong Kong-Macau Greater Bay Area promises to increase Guangdong's lead in economic output. The Master Plan of Guangdong Province for Building a Green Finance Reform and Innovation Pilot Zone in Guangzhou anointed the Huadu District of Guangzhou as a pilot area for green finance reforms, with particular focus on developing a green financial market as well as innovative financial products and services with a low-carbon theme, such as the trading of emission, water, and energy consumption rights and other environmental rights. These innovations were proposed to support the province's new energy vehicle and other strategic industries to create a symbiotic relationship between green finance and the local economy.

Examples of the achievements of Guangzhou include:

1. The Guangzhou-based China Emissions Exchange set up a green finance service platform in 2016.⁵⁶
2. In May 2018, Guangzhou started the development of a new platform to connect green enterprises with financial institutions.⁵⁷
3. In September 2019, the Huadu District Government issued Administrative Measures⁵⁸ to ensure that green finance-related policies were effective at promoting regional green development.



Xinjiang Uygur Autonomous Region

Located in Northwest China, the Xinjiang Uygur Autonomous Region is a major inland province, home to many ethnic groups. Historically, Xinjiang has lagged the coastal provinces in economic development, but growth has picked up in recent years. Propelled by a tailwind from the Belt and Road Initiative, Xinjiang is leveraging its advantageous location (at a strategic section of the Silk Road) and natural resources to fuel economic development. Xinjiang is capitalising on its agricultural and energy-related advanced manufacturing industries, natural and clean energy resources, and environmental infrastructures.⁵⁹ Incentives and restrictions have been introduced to encourage financial institutions to offer differentiated financial policies, for R&D, equipment manufacturing, power grid construction, local consumption, and integrated utilization in relation to sources of clean energy including wind, solar, and biomass.

Examples of the achievements of Xinjiang include:

1. In 2019, Changji Prefecture's green project database featured 581 projects. Of them, 34 received loans totalling RMB9.271bn (USD1.324bn) from financial institutions.⁶⁰ By the end of July 2019, there were 95 pure green projects in the Hami's database. Total investment was estimated at RMB54.130bn, with RMB37.165bn of financing needs; RMB8.877bn of loans were received by these projects in 2018 alone.⁶¹
2. In 2019, Karamay issued Measures⁶² to periodically classify the investment projects forwarded by other government departments, submit them to the Xinjiang Green Finance Office for review – accompanied by third-party assessment as necessary – and launch the certification programme based on local green standards. The aim was to transform Karamay from a "single resource-based city" to a "mixed-industry city."⁶³



Lianzhou Xingzi Town, Longping Town 100MW Wind Farm Project

Proponent: Sungrow Power Co., Ltd.

Location: Lianzhou City, Guangdong Province

Status: Under construction

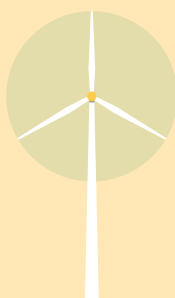
Classification: Clean Energy

Description: The Lianzhou Xingzi Town and Longping Town 100MW Wind Farm Project is located in the east of Lianzhou City, Qingyuan City, Guangdong Province, with Lianzhou City on the southwest side, Linwu County on the north side and Yizhang County on the east side. The general height of the mountain system in the wind farm is 200m to 500m above sea level, and the planned area is about 124 km². In this phase, the planned capacity is 100MW, and a total of 40 2.5MW wind turbines are arranged.

Cost: RMB871.8m (USD123m)

Financial Structure: Construction investment capital accounts for 20%, and the remaining 80% comes from bank loans

Output: The theoretical annual generating capacity of wind farm fans is 249,242 MWh, on-grid electricity is 189,710 MWh, and the average annual full-generation hours are 1,897 h.



50MWp distributed photovoltaic power generation project in Karamay, Xinjiang

Proponent: Xinjiang Shenneng Investment Co., Ltd.

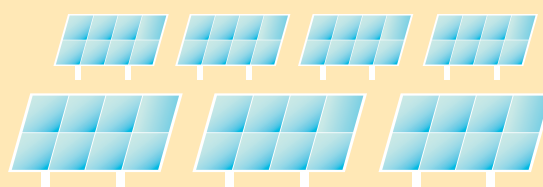
Location: Karamay City, Xinjiang Uygur Autonomous Region

Status: Completed

Classification: Clean Energy

Description: Newly built 50MWp distributed photovoltaic power generation project. The project is mainly composed of three parts: management area, production area, and 110KV transmission line. The main buildings in the management area are comprehensive offices, garages, gathering stations, access roads, etc.; the production area includes battery module arrays, inverter rooms, SVG rooms, box-type substations and maintenance channels, etc., 110KV transmission lines is an air transmission line from the power station to the 220KV Baikouquan Substation, with a total length of 11.64km, and the power station covers an area of 117 hectares.

Cost: RMB523m (USD75m)



Guizhou Province

Guizhou is an underdeveloped province in southwestern China, and one of the main targets of the country's poverty alleviation campaign. The province's mountainous terrain makes road transport particularly challenging. Guizhou has long been an agricultural economy; but with the greater reform and opening-up across the nation, its economy is taking off. Recently, it has been one of the leading provinces by GDP growth rate, with secondary and tertiary sectors becoming important components of the local economy. The Master Plan of Guizhou Province for Building a Green Finance Reform and Innovation Pilot Zone in the Guian New Area called for finding effective approaches for green finance to support the economic transformation of underdeveloped regions. The Master Plan contains the following initiatives:



- i. Developing innovative green credit products suitable for farmers;
- ii. Supporting urban agriculture, organic and ecologically friendly farming, rural water projects, agricultural waste collection and treatment, and other agricultural projects; and
- iii. Increasing the number of financing channels for enterprises in the big data, advanced equipment manufacturing, comprehensive health services, new medicine, modern service, new energy, green building, green mining, and green transport industries.

In June 2019, Guizhou issued the Standards and Evaluation and Certification Criteria of Guizhou Province for Green Projects (Trial) to accelerate the creation of the provincial green project database and integrated green finance service platform and to evaluate, support, and promote those green projects identified as significant.⁶⁴ The projects identified as such will have access to tax incentives, policy supports, priority in review, and financial supports.

Guiyang Rail Transit Line 3	
<p>Proponent: China Railway Group Corporation (Project Lead)</p> <p>Location: Guiyang City, Guizhou Province</p> <p>Status: Under construction</p> <p>Classification: Green Transportation</p> <p>Description: The total length of the project is 43.03km, of which the underground line is 41.672km, the elevated line is 0.710km, and the transition section is 0.648km. The starting point of the project is Tongmuling Station on the north side of Huaxi Huancheng Expressway, and the ending point is Luowan Station in Wudang District, passing through Huaxi District and Nanming District, Yunyan District and Wudang District. There are 29 stations, all of which are underground stations, including 7 interchange stations. The maximum station spacing is 2.965km, the minimum station spacing is 0.486km, and the average station spacing is 1.52km. There are 6 transfer lines with Line 3 and 7 transfer stations.</p>	<p>Cost: RMB31.3bn (USD4.5bn)</p> <p>Project operation mode: BOT</p> <p>Return mechanism: feasibility gap subsidy</p> <p>Output: After the project is completed and operated, the initial passenger traffic of Guiyang Metro is expected to be 515,100 passengers/day and the load intensity is 12,182 passengers/km; the recent passenger traffic has reached 845,234 passengers/day and the load intensity is 16,069 passengers/km; the long-term passenger traffic will reach 1,146,672 passengers/day, the load intensity is 22142 people/km.</p>

Jiangxi Province

Jiangxi Province has abundant ecological resources and is a major manufacturing hub in central China. Under its Master Plan of Jiangxi Province for Building a Green Finance Reform and Innovation Pilot Zone in the Ganjiang New Area, a green finance service system will be built in the pilot zone and replicable solutions for the green development of the real economy will be developed. The Master Plan proposes to support:



- Green agriculture such as eco-agriculture, traditional Chinese medicine, and the forest and under-forest economy;
- Green industries such as electronic and information, green lighting, aviation manufacturing, new energy, new materials, and energy efficiency and environmental conservation; and
- Green service industries such as elderly care, leisure, and tourism.

Examples of the achievements of Jiangxi include:

- Jiangxi's Ganjiang New Area released the green project database in 2018 and issued the *Green Finance Standard System* in January 2019.^{65,66}
- By August 2019, the green project database contained 696 green projects in the whole of the province, corresponding to a total investment of RMB748.2bn (USD106.9bn); 171 of these projects are in the Ganjiang New Area, with a total investment of RMB188.4bn.⁶⁷

Jiangxi Datang International Wumeishan Wind Farm Project

Proponent: Jiangxi Datang International New Energy Co., Ltd.

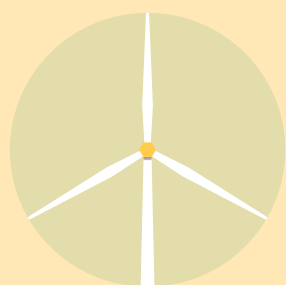
Location: Quannan County, Ganzhou City, Jiangxi Province

Status: Under construction

Classification: Clean Energy

Description: The construction of this project includes 50 wind turbines with a single-unit installed capacity of 2MW and an installed capacity of 100MW. A 220kV booster station will be built, and a 65KM on-site road will be newly built. The length of the newly-built operation and maintenance road will be 5km, and a 16KM on-site road will be rebuilt.

Cost: RMB880m (USD126m)



Gansu Province

Gansu, a province in the northwest of China, has a large impoverished population due to the dry climate, desertification, and other long-standing natural and geographical factors. It also has some heavily polluted areas, given the province's history as an old industrial centre. High-carbon industries, such as industrial manufacturing, petrochemicals, and construction, still make up a considerable share of the local economy, further slowing down the region's economic growth. In response, the Master Plan of Gansu Province for Building a Green Finance Reform and Innovation Pilot Zone in the Lanzhou New Area established the Lanzhou New Area as the pilot zone. The Master Plan stated that the Lanzhou New Area would harness green finance to support the green upgrade of industrial parks, green smart logistics, the eco-environmental industry, energy-efficient and green building projects, and energy conservation in the data and information industry, for the coordinated development of the local green industries. In addition, the Master Plan proposes the creation of a chemical production hub that showcases advanced, lean, safe, environmental, and sustainable production processes, as well as a demonstration zone for a low-carbon circular economy.



The Lanzhou New Area was only established as a green finance pilot zone at the end of 2019, and has already begun implementing green policies. In April 2020, the Lanzhou New Area started soliciting public bids for its Integrated Green Finance Service Platform Project.⁶⁸

Lanzhou New District Chemical Industry Park Sewage Treatment Plant Project (Phase I)

Proponent: Lanzhou New District Petrochemical Industry Investment Co., Ltd.

Location: Lanzhou City, Gansu Province

Status: Completed

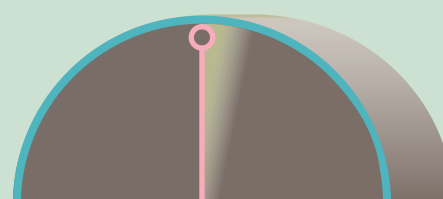
Classification: sewage treatment

Description: The project has recent treatment capacity of 12,500 m³/d, and a capacity of 50,000 m³/d in the later stage of the project. The quality of the effluent water shall comply with the Class A standard in the Pollutant Discharge Standards of Urban Sewage Treatment Plants (GB18918-2002). The sewage treatment plant mainly serves the east area of the Fine Chemical Park in the Lanzhou New District with wastewater and domestic sewage in the park.

Output: Designed capacity of 125,000 m³/d

Cost: RMB153.76m (USD21.97m)

Financial structure: Equity financing



The potential for issuing green local government bonds

Local government bonds have low issuing costs and can support longer tenors which make them suitable vehicles for financing green infrastructure projects which tend to be longer term in nature. Further, local government debt is usually guaranteed by the central government, thereby lifting its credit rating. This can help green industry projects with low income to increase their borrowing capacity. A “municipal special purpose bond” is issued by local government to raise money for specific purposes, which may include infrastructure projects, poverty-alleviation etc.

In 2019, Ganjiang New Area of Jiangxi Province issued a total of RMB1.25bn (USD177bn) green municipal special purpose bonds. These bonds were issued in three phases. The initial phase issued RMB300m (USD 42bn) with a term of 30-years. The proceeds were used for the construction of the Xingye Avenue Project, an intelligent urban underground utility tunnel project in Rulehu new town. Then, in 2020 Pearl River Delta Water Resources Allocation Project issued a RMB2.7bn (USD382m) green bonds. The proceeds were earmarked for engineering works to enable the centralised allocation of water from the Dong and the Xi Rivers as well as the integrated management of water resources in the Pearl River watershed.

In May 2019, the PBoC released Announcement on Supporting the Issuance of Green Debt Financing Instruments by Pilot Zones for Green Finance Reform

and Innovations, encouraging entities in the pilot zones to increase their financing amount and enrich their financing channels by registering and issuing different kinds of green debt financing tools, such as directional tools and asset-backed notes.⁶⁹ Enterprises in all nine green finance pilot areas have issued green bonds. As the first group of green finance reform and innovation pilot areas, Jiangxi Province took the lead in issuing green bonds. With the growth and development of various pilot provinces and cities, the construction and development of a green project library, and the continuous improvement of supporting measures, there are a large number of green industry projects that could be financed through green local government debt in the future.

Although there are only two green bonds among the special purpose bonds for local governments in China, many funds raised from special purpose bonds have been invested in green industry projects, such as wastewater treatment, green transportation, and water pollution control. However, these local special purpose bonds have not been evaluated and certified by third parties. Although the funds raised are closely related to green industry projects, they cannot be confirmed or identified as green bonds. If these bonds were labelled green, it would be easier to attract investors with green investment preferences.

The Covid-19 pandemic has made special-purpose local government bonds an important instrument for stable investment value. At the executive meeting of the State Council on 6th May 2020, it was noted that

on top of the RMB1.29tn (USD182bn) special-purpose local government bonds issued at the beginning of the year, the State Council would approve another RMB1tn (USD141bn) quota for such bonds ahead of schedule, pushing the issuance of local government bonds to a new historical record.⁷⁰ In 2020, most of the proceeds from these bonds were invested in municipal, transport, education, science and technology, cultural, public health, and other public welfare projects, as well as in traditional infrastructure projects including agricultural, forestry, water conservation, eco-environment protection, and energy projects. As noted above, special-purpose local government bonds are often closely associated with green projects and thus have the potential to become labelled green bonds.

It is worth noting the special-purpose local government bonds are also approved for accelerating the construction of new infrastructure projects, including 5G, data centres, artificial intelligence, smart transportation, and Internet of Things, etc. On May 12 2020, Guangdong Province issued four new infrastructure themed local government bonds with a combined face value of RMB8.66bn (USD1.2bn), supporting 33 new infrastructure projects such as an intercity railway, key laboratories, smart transportation, and smart parking systems.⁷¹

5. Moving forward: challenges and opportunities to financing green projects in China

Credit enhancement could support new green projects

Despite the size and high growth rate of China's green finance market, some green project types are not yet commercial and are unlikely to be suitable for bond financing. Additionally, some innovative green-tech projects with high-risk profiles may also be unsuited to conventional bond financing.



In the early stages of the market, local government and State-Owned Enterprises (SOEs) have played an important role in overcoming this barrier by stimulating the market using their balance sheets to attract financing for both commercial and less commercial projects.

To grow the market even further, the government could provide credit enhancement to high-priority green projects through policy support and fiscal subsidies. Although China has already introduced many incentives to support green credit and bonds, these are mainly aimed at large and higher-rated projects that use proven technologies. In contrast, small- and medium-sized green projects face challenges in accessing financing and policy support.

Creditworthiness of green projects could be enhanced through financial support at various levels. The Research Centre for Green Finance Development of Tsinghua PBCSF has noted that China may bring down the financing costs and risk premiums of green-tech enterprises by:

- i. Encouraging insurance companies to develop products supporting green technology;
- ii. Providing innovative green-tech enterprises with financial guarantees and other types of risk compensation; and
- iii. Offering certification, labelling, and assessment services for green products, technology, and assets.⁷²

Harmonization of green definitions will encourage deal flow

China's bond market is supervised by multiple regulators who reference different standards when approving green bonds or recognizing green projects or who apply the same standards to varying degrees. As an example, NDRC guidance allowed up to 50% of proceeds to be used for general purposes while PBoC guidance did not.



Furthermore, there are some differences between the Chinese and other international definitions of green projects meaning issuers must adopt venue- and investor-specific strategies when issuing bonds. Different definitions can create confusion in the market-place and act as a barrier to attracting international investors.

Differences in definitions means that each year some bonds from Chinese issuers are excluded from the Climate Bonds Green Bonds Database. In 2019, USD6.6bn (RMB46bn) worth of bonds were excluded from the Climate Bonds Green Bonds Database due to proceeds being used for general working capital or for projects that are not recognised as green according to the Climate Bonds Taxonomy.

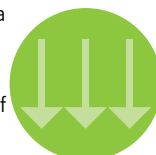
There are multiple efforts underway to increase harmonisation of green definitions both locally and globally. In China, this includes the jointly released 2020 Catalogue by the PBOC, NDRC and CSRC for public consultation in July 2020. While not yet finalised, if the consultation draft is approved, this will harmonise definitions of green locally by having a single set of definitions for all issuer types.

The 2020 Catalogue will also help to harmonise green definitions globally by proposing to exclude the utilization of 'clean' coal. 'Clean' coal falls under the current PBOC Catalogue but is not regarded as green by international investors. Further efforts at harmonisation between the EU Taxonomy and China green definitions have been mooted but are at an early stage.

De-risking could help to improve credit ratings of green industries

Green bonds issued in China in 2019 had a high average credit rating – AAA-rated bonds represented 80.9% of the total issuance volume, while the number of lower-rated ones dropped substantially.⁷³ While the ratings indicate a high-quality market for local investors, many international investors are still largely unfamiliar with the methodologies of Chinese rating agencies and sometimes cannot accept local credit ratings. This may limit the international market's acceptance of some of the green bonds or increase the price of issuance for issuers to get an international rating.

Credit enhancements, guarantees, and other de-risking mechanisms may help issuers to



attract capital from overseas in the short-term while international investors become more familiar with Chinese ratings agencies.

More transparency will attract investors

Climate Bonds' Green Bond European Investor Survey 2019 (Investor Survey) showed that the most important factor for making a green bond investment decision is satisfactory green credentials at issuance. The majority of respondents (79%) said they would not buy a green bond if, at issuance, the proceeds were not clearly allocated to green projects. And, over half (55%) of respondents said they would sell a green bond if post-issuance reporting was poor.



Transparency plays a crucial role for investors to judge green credentials. However, in China's green bond market, transparency is still a barrier to growth. According to a 2019 study by China Central Depository & Clearing Co., Ltd., China's green bond market is being held back by the depth, comparability, and completeness of information disclosure.⁷⁴ Insufficient information at issuance meant that RMB5.6bn (USD792m) of bonds from Chinese issuers were not included in the Climate Bonds Green Bonds Database in 2019.

Post issuance, inconsistency between the indicators disclosed makes it difficult to compare the impact of bonds, even those in the same sector. For instance, for industrial energy efficiency projects, some issuers disclose energy savings and comprehensive energy consumption, while others disclose power savings and fossil fuel savings.

This problem is not unique to China and various efforts are being undertaken across the world to improve comparability of disclosure metrics.

Increasing the transparency of green projects would help domestic and foreign investors understand and accept the green bonds offered in the Chinese market. Chinese regulators have already been encouraging issuers to give more information about their green bonds, including the use of proceeds and the progress and environmental benefits of the green projects. But at this point, regulators have not made such disclosure mandatory, or issued recommendations on the standards, consistency, and other aspects of disclosure.

The most effective way to enhance the transparency of green bonds is to put forward unified requirements, especially the quantitative descriptions of environmental performance and environmental risks. Moreover, since the Chinese regulators do not require all of the proceeds raised by green bonds to be invested in green projects, more information on the use of proceeds for other currently unspecified purposes, such as for supplementing the issuers' working capital, would be beneficial.

Better awareness will enable increased green investment

A survey conducted by the Asset Management Association of China (AMAC) in 2019 revealed that while 87% of respondents were interested in Environmental, Social, and Governance (ESG)/green investments, only 16% had taken action with the rest adopting a wait-and-see approach. While there is growing awareness of ESG issues, many remain unaware of green and climate risks with 17% saying that climate change was not a significant factor, making it the most overlooked environmental factor.⁷⁵

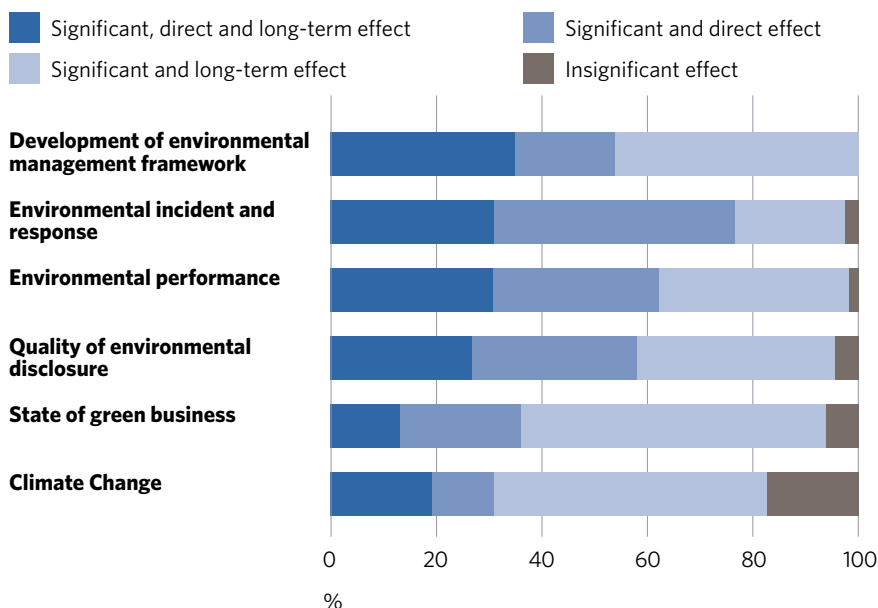


In China, strong policy support is the primary growth driver of the country's green finance market. This is a top-down growth model, in contrast with the bottom-up model of other markets where green investment is predominantly driven by the demands of responsible and green investors. There is currently limited understanding of and experience in green investment among Chinese institutional investors. The global investment community, encompassing China, has yet to give sufficient regard to climate risks as part of the investment decision making process.

Thus far, Chinese institutional investors have not shown any preference for green bonds; most green bonds are held by banking institutions. As of July 2020, there were two known green bond funds: Fullgoal Green Pure Bond Fund (005383.OF) and CIB Green Pure Bond Fund (009237.OF). Shin Kong 10 Years China Treasury Policy Bank Green Bond ETF, which tracks the ChinaBond 10-year Treasury and Policy Bank Bond Green Enhanced Index, was listed on the Taiwan Stock Exchange in February 2019, and is currently the only green bond ETF in the Chinese market.

This will change as awareness of climate risks increases for investors, particularly in the wake of the COVID-19 pandemic. Numerous efforts are underway to improve awareness of green finance issues. The steps

Significance of environmental factors perceived by securities investors



taken by the Chinese government to make green finance a policy priority was a bold first step in this regard.

Local currency bonds will support investing in EM

Issuance of green bonds from EM accounted for 24% of issuance in 2019 (RMB417bn/USD59bn). Meanwhile, EM currently contribute 63% to global GHG emissions. It is thus critical to determine how investors facilitate financial flows to EM using green bonds.



In the Investor Survey, respondents were asked to describe their appetite for EM green bonds and to outline what they could be receptive to buying. Most respondents (82%) indicated that they could buy EM debt however, most were restricted by credit rating (69%), currency (65%) and deal size (58%).

Limited opportunities in EM green bonds were greatly narrowed down after accounting for currency restrictions. Among the 65% of respondents that highlighted currency as a restriction, many said they were limited to USD and EUR, G7, or G10, i.e. unable to combine currency risk and asset risk. As of 30 April 2019, there was USD48bn outstanding of EM green bonds, or 42%, in G10 currencies, predominantly in USD (29% of the total).

For international investors, credit enhancements from multilaterals and/or public sector entities are the best option to make investing in EM green bonds more attractive and to bring scale to the market.

While the presence of international investors remains important, currency challenges are much easier to solve if there is a large and active local investor base. To ensure the continued expansion and increasing liquidity of the domestic market, China could develop local bond markets and further diversify the investor base by granting market access to insurers, asset management institutions, and pension funds. These measures will create opportunities for international investors and tap into the vast potential of domestic investors to support the growth of the market.

Although China's green bond market benefits from many guidelines and measures, its future growth demands more targeted regulations and policies. In terms of policies and incentives, what is needed may vary from one market participant to another – issuers wish for more comprehensive subsidies and a fast approval process; investors need more transparent information and policy incentives; and clearer and more consistent standards stand to benefit all.

Local governments may introduce more specific measures to help issuers apply for subsidies at provincial and municipal levels. Existing fast-track approval channels for green products should be made more accessible and efficient. Associations, such as AMAC and the Insurance Asset Management Association of China (IAMAC), may provide clear market guidelines on green debt instruments and incorporate green factors into the assessment and rating of institutional investors.

Appendix 1: Green debt instruments

Debt Instrument	Definition	Example
Supranational and sovereign green bonds	Proceeds are allocated to nominated projects and assets. Debt securities carry the credit rating of the issuing nation.	2017: Republic of France, EUR7bn Green OAT issued by the French Treasury
Sub-sovereign green bonds	Proceeds are allocated to nominated projects and assets within the sponsoring region. Credit rating is based on that of the issuing municipality and the credit quality of the underlying assets.	2019: Jiangxi Province of China, RMB300m (USD42m) The first municipal green bond from China, proceeds allocated to the construction of a comprehensive underground trench and intelligent urban underground utility tunnel project.
General obligation green bond	Proceeds allocated to nominated projects and assets within the sponsoring region. They are backed by balance sheet assets. The bond will carry the credit rating of the issuing entity.	2017: DBS Group, USD500m Proceeds allocated to green buildings, transport, renewable energy, energy efficiency, waste and adaptation.
Green revenue bond	Proceeds are allocated on nominated projects and assets. As the green bonds are backed at least partially by the issuer's revenue stream, bonds carry the credit rating of the issuing entity.	2014: State of Hawaii, USD150m ABS deal secured on the green infrastructure fee collected by utility companies via electricity bills. The bond raised funds to provide loans to finance renewable energy and for energy efficiency projects.
Green structured finance	Debt securities backed by a pool of underlying assets. Proceeds are allocated only to nominated projects and assets. The credit risk is dependent on the asset risks.	2018: National Australia Bank, AUD200m Secured notes for the refinancing of wind and solar assets. The structure is backed by loans to Australian renewable energy developers.
Green securitisation Green tranches in ABS and MBS deals	Debt securities backed by a pool of underlying assets. Proceeds are allocated only to nominated projects and assets. The credit risk is dependent on the asset risks.	2019: Guangzhou Metro Group Co. Ltd., RMB3bn in 6 tranches - RMB1.5bn for rail transit projects and RMB1.5bn to repay bank loans and to supplement general working capital. This deal is secured on subway ticket revenue receivables.
Green convertible bond	Proceeds are allocated on nominated projects and assets. The security can be converted into a predetermined amount of the company's common stock. The bond will carry the credit rating of the issuing entity.	2019: Jinneng Science & Technology Co., Ltd. RMB1.5bn, 1.5m pieces of convertible corporate bond with every piece valued RMB100.
Green exchangeable bond	A type of hybrid security consisting of a straight bond and an embedded option to exchange the bond for the stock of a company other than the issuer (usually a subsidiary or company in which the issuer owns a stake) at some future date and under prescribed conditions.	2019: China Three Gorges Corporation (CTG), RMB20bn issued green exchangeable bonds to individual investors online and to institutional investors offline. This was the first issuance of green exchangeable corporate bonds in the Chinese securities market, and the biggest so far.
Green project bond	Proceeds are allocated on nominated projects and assets. Credit rating is based on the quality of the backing green assets and the returns stream of the underlying project.	2016, AP Renewables, PHP10.7bn (USD226m) green bond, certified under the Geothermal Criteria of the Climate Bonds Standard. The Asian Development Bank provided credit enhancement by guaranteeing 75% of the bond.
Environmental impact bonds / pay-for-results green bonds	Proceeds allocated to nominated green projects/ assets. Part of the project's risk is transferred from the issuer to investors. The payments to investors are conditional to the project achieving an expected outcome after a third-party evaluation has been conducted.	2016: DC Water and Sewer Authority, USD25m private placement to finance the construction of infrastructure to slow surges of stormwater. If the outcome meets expectations, no contingent payment will be due to investors. If it exceeds expectations, investors will make a Risk Payment Share to DC Water. If it does not meet expectations, DC Water will make an outcome payment to investors.

Debt Instrument	Definition	Example
Private placement	Green bond placed directly with the investor/s. Details of the deal such as pricing and maturity may remain confidential, but the issuer is expected to disclose details on the nominated projects and assets to be financed.	2018: Sichuan Railway Investment Group Co., Ltd., RMB1bn (USD144m) private placement green bond for the construction of inter-city high-speed railway of 220.65km in length to will connect 4 cities in the Sichuan Province, with a maximum speed of 350km/h.
Green loans, syndicated loans and credit lines	Provide lending to encourage market development in climate-aligned sectors in line with the Climate Bonds Taxonomy and in compliance with the Green Loan Principles. Interest rates are based on borrower credit scores or an ESG score assigned by an ESG rating agency.	2019: Industrial and Commercial Bank of China, London Branch, USD400m BNP Paribas & HSBC signed a mandate letter on a dual currency green term loan facility.
Mezzanine and subordinated debt	Proceeds are allocated on nominated projects and assets. Hybrid capital investments, from development banks seeking to support private investment in the senior debt or from investors with a higher risk appetite.	2020: Energias de Portugal, S.A., EUR750m subordinated green notes. EDP priced the fixed to reset rate subordinated notes issuance with an early redemption option exercisable by EDP 5.25 years after issue, final maturity date in July 2080 and a yield of 1.75% (coupon of 1.7%) up to the first reset date to happen 5 years and 6 months after issuance.
Dual recourse	Unlike asset-backed securities created in securitization, the covered bonds (sometimes known as “dual recourse”) continue as obligations of the issuer; in essence, the investor has recourse against the issuer and the collateral.	2016: Bank of China, USD500m (RMB3.38bn, EUR451m) A three-year green issue backed by a portfolio of 11 green bonds from six issuers. The deal is the first from China to be marketed as a covered bond.

Appendix 2: Sample green pipeline

Green projects				
Sector	Project name	Location	Status	Total Investment (RMB m)
Buildings 	Tianfu International Airport	Sichuan	Under construction	71,860.00
	Trading land-International Innovation Center project	Sichuan	Completed	1,203.00
	Beijing Daxing International Airport	Beijing	Completed	80,000.00
	Jianyan Building Renovation Project	Gansu	Completed	-
	Ruituo Changan Summer Palace	Hebei	Completed	-
Renewable energy 	17.82 MW photovoltaic poverty alleviation project	Shaanxi	Under construction	127.43
	Geli Wind Farm Construction Project	Guizhou	Under construction	500.00
	Langchuan Wind Farm Project	Jiangxi	Under construction	641.01
	Laojunmiao Wind Farm Phase IV 200MW Wind Power Project	Xinjiang	Completed	1,500.00
	Photovoltaic Industrial Park 20MWp Grid-connected Photovoltaic Power Generation Project	Xinjiang	Completed	179.59
	Wumeishan Wind Farm Project	Jiangxi	Completed	880.00
	50MWp distributed photovoltaic power generation project	Xinjiang	Completed	523.05
	Liushuquan Farm 100MWp Grid-connected Photovoltaic Power Generation Project	Xinjiang	Completed	939.35
	Pumped storage power station project	Xinjiang	Under construction	7,963.38
	Qujiang Pumped Storage Power Station	Zhejiang	Under construction	7,300.00
	300MW photovoltaic parity grid project	Shaanxi	Under construction	1,500.00
	30MW Biomass Cogeneration Project	Shandong	Completed	314.00
	330,000 tons/year straw pyrolysis biofuel project	Shandong	Completed	508.00
	50MW Photovoltaic Power Generation Project in Zanhuan County	Hebei	Completed	173.86
	Beitashan Ranch 100MW Wind Power Project	Xinjiang	Under construction	756.88
	Dongping Jiangping Yuguang Integrated (Phase II) Photovoltaic Power Station Project	Guangxi	Under construction	100.00
	Gansu Jiuquan Guazhou County Runhao New Energy Co., Ltd. Tianrun New Energy Su Jiuquan Guazhou Anbei Second Wind Farm Area C 200MW Wind Power Phase II Project	Gansu	Under construction	1,524.00
	Gaojiabao 100MW Wind Power (Phase II) Project	Shaanxi	Under construction	420.00
	Gaojiabao 50MW Wind Power Project EPC Project (Phase III)	Shaanxi	Under construction	200.00
	Guangdong Hydropower Beitashan Wind Power Plant Phase I 50MW Project	Xinjiang	Under construction	338.57
	Guanyinshan Wind Farm Project	Guangdong	Under construction	450.00
	Heichifang 50MW Wind Power Project	Shaanxi	Under construction	460.00
	Henan Qixian 100MW Wind Power Project	Henan	Bidding	731.49
	Lianzhou Xingzi Town, Longping Town 100MW Wind Farm Project	Guangdong	Under construction	871.80
	Sunken Noble Biomass Power Generation Project	Heilongjiang	Completed	310.00

Green projects

Sector	Project name	Location	Status	Total Investment (RMB m)
Renewable energy 	Tongwei Wind Power Base Panlongshan (Phase I) (50MW) Wind Power Project	Gansu	Under construction	500.00
	Tongxin Wind Farm Zhangjiazhuang Wind Power Project	Ningxia	Under construction	799.87
	Turpan Wind Farm Phase I 49.5MW Project	Xinjiang	Under construction	400.00
	Wangwazi 50MW Wind Power Project	Shaanxi	Under construction	450.00
	Wind Farm of Maiduoshan 200MW Wind Power Project	Ningxia	Under construction	129.18
	Xiangshan Wind Power Project	Ningxia	Under construction	840.00
Sewage Treatment 	Changji City Chengbei Sewage Treatment Plant (Phase I) (PPP project)	Xinjiang	Under construction	340.00
	Mulei County Urban-rural Park Integrated Sewage Treatment Plant	Xinjiang	Completed	107.56
	Qitai County Wastewater Treatment Plant Project	Xinjiang	Completed	69.85
	Sewage Treatment Plant Project (Phase I)	Gansu	Completed	153.76
Transport 	Beijing Metro Line 16	Beijing	Under construction	49,500.00
	Guiyang Rail Transit Line 3 Phase I Project	Guizhou	Under construction	31,545.00
	Hangqu Railway (Jianqu Section) Project	Zhejiang	Under construction	23,630.25
	PPP project of the first phase of Tianjin Metro Line 11	Tianjin	Under construction	18,168.31
	PPP project of the first phase of Tianjin Metro Line 7	Tianjin	Under construction	18,866.65
	PPP project of the first-phase project of Lintong Line (Line 9) of Xi'an Metro	Shaanxi	Under construction	13,888.89
	Shunyi District Modern Tram T2 Line Project	Beijing	Under construction	3,141.09
	Tianjin Metro Line 8 Project	Tianjin	Under construction	17,622.00
	Anqing New Energy Electric Vehicle Charging Infrastructure Project	Anhui	Under construction	818.00
	Chengdu Rail Transit Line 30 Phase I Project	Sichuan	Under construction	12,931.00
	Hangzhou City Rail Transit Line 5 Phase 2 Project (Laoyuhang Station-Luting Road Station (excluding))	Zhejiang	Under construction	3,038.00
	Jiaxing City Tram T1 Line Phase I Project, Jiaxing City Tram T2 Line (Yuehebei Station-Huancheng South Road Station) Phase I Project	Zhejiang	Under construction	2,129.00
	New Energy Bus and Charging Station Facilities PPP Project	Fujian	Under construction	61.70
	New energy electric vehicle charging facility engineering project	Guizhou	Under construction	210.92
	Urumqi City Public Transport Optimization PPP Project in 2017	Xinjiang Uygur Autonomous Region	Under construction	2,972.22
Waste to Energy 	Guangdafeng County Domestic Waste Incineration Power Generation Project	Jiangsu	Under construction	559.36
	Kaihua County Domestic Waste Incineration Power Generation Project	Zhejiang	Completed	196.00
	Nanle County Domestic Waste Incineration Thermal Power PPP Project	Henan	Under construction	299.00
	Sheqi County Urban-Rural Integrated Domestic Waste Incineration Cogeneration Project	Henan	Completed	236.00

Appendix 3: Climate Bonds Taxonomy

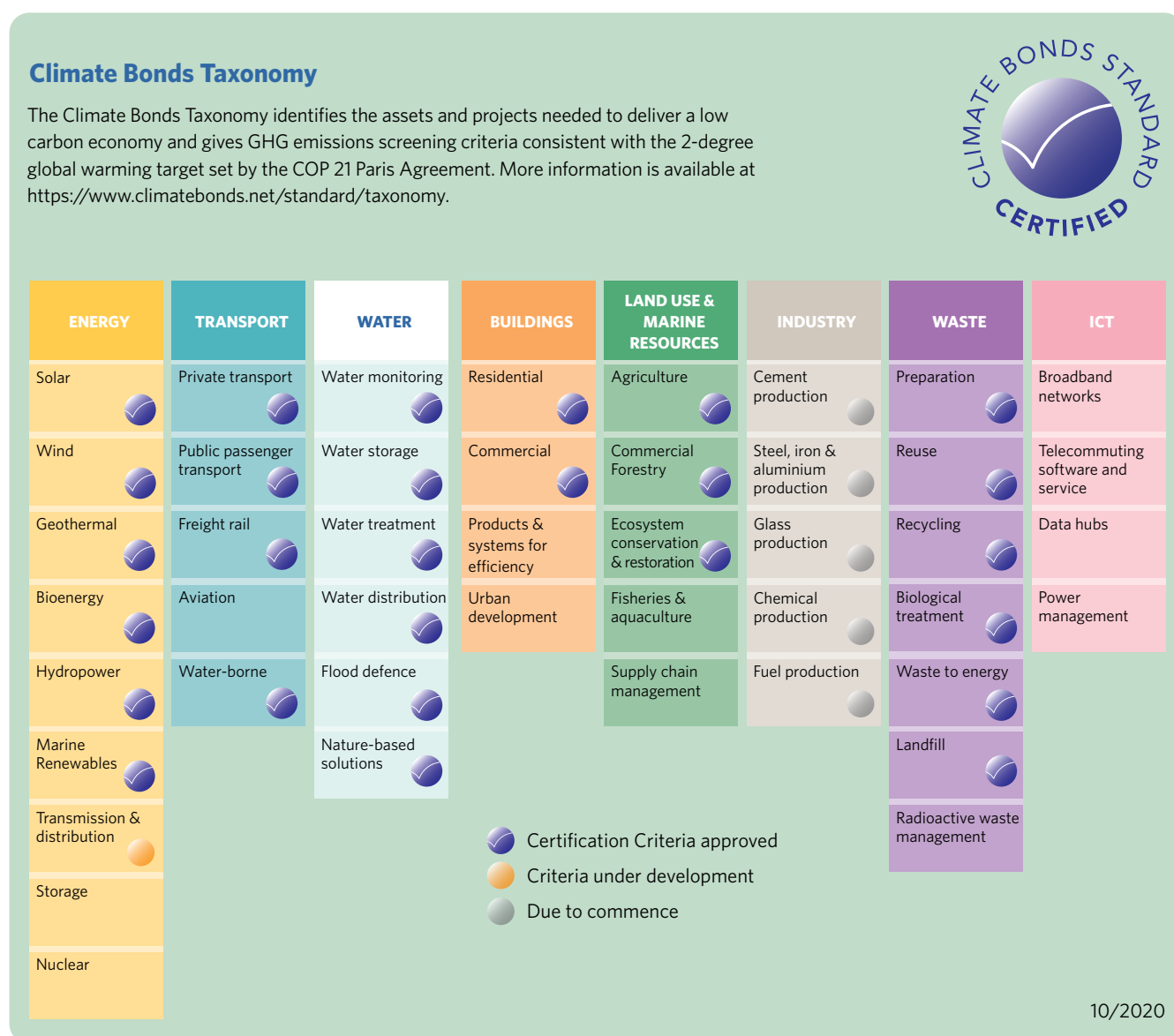
The Climate Bonds Taxonomy provides guidance for prospective green bond and climate bond issuers and investors. The current diagram summarising eligible sectors in the Taxonomy is reproduced below. The underlying Taxonomy document provides two levels of information:

1. broad guidance on eligible sectors and subsectors, and
2. metrics and other indicators designed to help identify assets and projects which are on a trajectory to zero carbon by 2050, i.e. aligned to the Paris Agreement target of limiting global warming to 2°C.

Guided by the Climate Science Advisory Panel, the aim of the Taxonomy is to encourage common definitions across global markets, in a way that supports the growth of a cohesive green bond market.

The chart below summarises the sectors and subsector Climate Bonds Initiative considers 'green'. Notably, what is recognised as eligible under each sector and sub-sector evolves over time as science, technologies and the economics of implementation progress. For the most up-to date version, please check the Climate Bonds website: <https://www.climatebonds.net/standard/taxonomy>.

The diagram also shows for which sectors there are Sector-Specific Certification Criteria, and which are under development. Sector Criteria are developed together with scientific and other technical and industry experts for the purpose of Certification under the Climate Bonds Standard, a labelling scheme for instruments that are 2°C-compliant.



For criteria under development see <https://www.climatebonds.net/standard/available-soon>

For criteria in public consultation see <https://www.climatebonds.net/standard/public-consultation/new>

Endnotes

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