



## ChinaBond China Climate-Aligned Index Methodology

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## ChinaBond China Climate-Aligned Index Methodology

ChinaBond China Climate-Aligned Bond Index is constructed and maintained by China Central Depository & Clearing Corporation (CCDC), Climate Bonds Initiative (CBI) and CECEP Consulting. Qualified constituents of the index are identified by CBI and CECEP Consulting based on disclosed public information, issuer's industry and issuer's primary business.

### I. Introduction

#### 1. CCDC

China Central Depository & Clearing Co., Ltd. (CCDC) is the first central securities depository (CSD) approved by the State Council in China. It is a state-owned financial institution, which bears the national wills and represents market demands. CCDC is a financial market infrastructure characterized by neutrality, independence, and public interest. Since 2002, CCDC has prepared and issued ChinaBond Indices, reflecting domestic RMB bond market in multiple perspectives: representativeness, reproducibility and investability. Several index products have become the first choices for performance reference of many portfolios. ChinaBond Indices have been enriching and exploring different types of indices in terms of bond type, rating and weighting methods. All ChinaBond Indices have transparent methodology and users may acquire ChinaBond Indices data through many channels.

#### 2. CBI

The Climate Bonds Initiative (CBI), founded in 2009, is the only organization in the world dedicated to mobilizing the \$100 trillion bond market for climate change solutions. CBI is an investor-focused international not-for-profit that promotes investment in projects and assets necessary for a rapid transition to a low-carbon and climate resilient economy. The strategy is to develop a large and liquid Green and Climate Bonds market that will help drive down the cost of capital for climate projects in developed and emerging markets. CBI has established Climate Bonds Standard & Certification Scheme, aiming to provide trusted green definitions and make it easy for investors to identify and invest in green investments. Through its annual State of the Market report, CBI tracks and analyses the development of labelled green bond market and unlabelled climate-aligned bond market. The data from this report as well as daily tracking of the green bonds market is used by multiple indices, such as MSCI and S&PDJI. CBI has provided policy support for governments in various regions/countries including Europe, China, India, Brazil and Mexico, and has been working with regulators in China for over 3 years. CBI is a special member of the Green Finance Committee of China Society of Finance and Banking.

#### 3. CECEP



CECEP Consulting Co., Ltd. is a wholly owned subsidiary of China Energy Conservation And Environmental Protection Group specializing in environmental protection planning, consulting, monitoring and evaluation. As a comprehensive advisory services provider, CECEP Consulting Co., Ltd. is engaged in energy saving policy research and planning for Government, major international environmental protection and energy saving research as well as major energy saving project engineering and consulting. As a member of Green Finance Committee under China Finance Society (hereinafter referred to as "Green Finance Committee"), CECEP Consulting Co., Ltd. actively cooperates with the Committee to carry out green finance related researches; CECEP Consulting Co., Ltd. is main writer of "Directory on Green Bonds Supported Project (2015 Edition)", and is responsible for research work on "Green Project Environmental Benefit Assessment System" commissioned by Green Finance Committee. At the same time, CECEP Consulting cooperated with China Government Securities Depository Trust & Clearing Co in selecting and classifying sample bonds for "ChinaBond China Green Bond Index" and "ChinaBond China Green Bond Select Index". Beyond that, CECEP Consulting Co., Ltd. carries out third party certification services on green bonds, providing independent and professional third-party certification advice on green bonds for commercial banks, policy banks, as well as companies and other issuers.

## **II. Climate-Aligned Bond**

### **1. Screening process**

CCDC, CECEP and CBI have established the constituents screening procedure of the climate-aligned bonds as following

Firstly, for the constituents raising funds entirely invested in the green projects, they must conform to the China Green Bond Endorsed Project Catalogue and the Climate Bonds Taxonomy.

Secondly, if the funds are partially invested in the green projects, 95% or more of the issuers' main business income must come from green industry projects which are in line with the China Green Bond Endorsed Project Catalogue and the Climate Bonds Taxonomy.

The taxonomy of the constituents conforms to the Climate Bonds Taxonomy. In the specific recognition and classification process, CBI is responsible for the initial screening of the constituents and then the screening results are submitted to the CECEP to check and confirm them. When both sides have agreed on the recognition and classification results, they will put forward the results to the CCDC. CBI and CECEP adopt the same principles to recognize and classify the updated constituents and make commitments to the index maintenance responsibility.

## 2. Taxonomy

### 2.1 Energy

Issuer	CBI First Level	CBI Second Level	CBI Second Level	Selected Bonds Codes	Reasons for Selection
China Datang Corporation Renewable Power Co., Limited	Energy	Wind Power	Wind Power Plant	101478002	The issuer is in clean energy industry specializing in wind power generation business, and the proceeds of the bond will be used to pay back loans.
China Guangdong Nuclear Power Wind Energy Limited	Energy	Wind Power	Wind Power Plant	101551023、 101551087、 101464014	The issuer is in clean energy industry specializing in wind power generation business, and the proceeds of the bond will be used to pay back loans.
Xinjiang Goldwind Science & Technology Co., Ltd.	Energy	Wind Power	Facilities construction and equipment manufacturing	101556029	Proceeds will be used to buy raw materials and components to build fans and these fans will be equipped at 3 wind power plants. The bond has been certified as non-financial sector green bond by an independent third party certifier.

### 2.2 Transportation

Issuer	CBI First Level	CBI Second Level	CBI Second Level	Selected Bonds Codes	Reasons for Selection
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<b>Issuer</b>	<b>CBI First Level</b>	<b>CBI Second Level</b>	<b>CBI Second Level</b>	<b>Selected Bonds Codes</b>	<b>Reasons for Selection</b>
Beijing Infrastructure Investment Co.,Ltd.	Transportation	National Railway System for Passengers and freight	Facilities construction	1282479	Proceeds will be fully used to build Beijing Subway line 6,line 8(Phase II),line 9 and line 10(Phase II)
China Railways Corporation	Transportation	National Railway System for Passengers and freight	Facilities construction	088040	Proceeds will be fully used to build the following railway projects: new railways connecting Wuhan and Ankang, Guizhou - Guangxi Railway Expansion and Revamp, Beijing South Railway Station, Yichang-Wanzhou Railway, Harbin-Dalian Passenger Railway, Wuhan-Guangzhou Passenger Railway and new Zhengzhou-Xi'an Passenger Railway
Guangzhou Metro Group Co.,Ltd.	Transportation	Urban rail transport system	Facilities construction	1480169	Proceeds will be fully used to build Guangzhou rail transit Line 6(Phase I and Phase II), Rail Transit Line 7 Phase I and Line 9 Phase I.

### 2.3 Climate Adaptation

<b>Issuer</b>	<b>CBI First Level</b>	<b>CBI Second Level</b>	<b>CBI Second Level</b>	<b>Selected Bonds Codes</b>	<b>Reasons for Selection</b>
Nanjing Public Facility Holding Group Co.,Ltd.	Climate Adaptation	Water	Recycling	078074	Proceeds will be fully allocated to the following sewage treatment projects

					and water environment improvement projects: Chengbei sewage treatment project, Jiangxinzhou sewage treatment plant expansion, Chengdong Sewage treatment project, comprehensive water environment improvement project around Jinchuan River and comprehensive environment improvement project around Qin Huai River (Phase I, Phase II).
Taicang Urban Construction Investment Group Co., LTD	Climate Adaptation	Water	Climate Resilience Infrastructure	1380010	Proceeds will be fully allocated to comprehensive improvement of the flood control and drainage(along main rivers) for Taicang city
Pingdu State Assets Management co., LTD	Climate Adaptation	Water	Improve water use efficiency	1380352	Proceeds will be allocated to centralized water supply projects at rural areas in Pingdu, Farmland drainage projects and water saving projects at poor water areas.

## 2.4 Diversified Green Bonds

Issuer	CBI First Level	CBI Second Level	CBI Second Level	Selected Bonds Codes	Reasons for Selection
Bank of Qingdao Co., Ltd	Green Bonds in multi-fields	—	—	1620013 and 1620014	Two bonds issued by Bank of Qingdao are selected in the index which has been



					certified as green financial bonds by third party green bond certifier. Bank of Qingdao promises that proceeds will be allocated to projects in energy saving, pollution prevention, resources saving and recycling, clean traffic, clean energy, ecological protection and climate adaption.
Shanghai Pudong Development Bank	Green Bonds in multi-fields	——	——	1628001 and 1628007	Two bonds issued by SPDB are selected in the index which has been certified as green financial bonds by third party green bond certifier. SPDB promises that proceeds will be allocated to projects in energy saving, pollution prevention, resources saving and recycling, clean traffic, clean energy, ecological protection and climate adaption.



### 3. Index Methodology

#### 3.1 Eligibility Criteria

➤ Composition

Include but not limit to green finance bond, policy bank bond, corporate bond, enterprise bond, middle term note.

➤ Standard

*China Green Bond Endorsed Project Catalogue(2015 Edition)*, The Green Finance Committee of China Society of Finance and Banking  
*Climate Bonds Taxonomy*, Climate Bonds Initiative

➤ Market

Interbank Market, Shanghai Exchange, Shenzhen Exchange

➤ Minimum Credit Rating

Unlimited

➤ Minimum Size of Issuance

Unlimited

➤ Maturity

More than 1 month(include 1 month), maturity of embedded-option bond is based on ChinaBond Valuation

➤ Currency

Chinese Yuan(RMB)

➤ Interest Type

Unlimited

➤ Optionality

Bonds with embedded option are included



➤ Price Source

Taking ChinaBond valuation as reference, the primary pricing source is the average price of reasonable optimal bid-ask prices. If such price is not available, the reasonable weighted average settlement price in the interbank market or the closing price in the exchange market shall be selected; if none of above is available, ChinaBond valuation price shall be used.

### 3.2 Calculation

➤ Base Date

Dec 31, 2009

➤ Base Value

100

➤ Calculation Frequency

Each Business Day of Interbank Market

➤ Index Calculation

Total Return Index:

$$I_T^{TR} = I_{T-1}^{TR} \times \left\{ \sum_i \left[ \left( \frac{P_{i,T}^F + \text{Int}_{i,T} + \text{Pri}_{i,T}}{P_{i,T-1}^F} \right) \times mW_{i,T-1}^F \right] + (1 + R_T) \times \sum_i cW_{i,T-1}^F \right\}$$

$$mW_{i,T-1}^F = \frac{MV_{i,T-1}^F}{\sum_i (MV_{i,T-1}^F + \text{Cash}_{i,T-1})}$$

$$cW_{i,T-1}^F = \frac{\text{Cash}_{i,T-1}}{\sum_i (MV_{i,T-1}^F + \text{Cash}_{i,T-1})}$$

$$\text{Cash}_{i,T} = (1 + R_{T-1}) \times \text{Cash}_{i,T-1} + \text{Int}_{i,T} + \text{Pri}_{i,T}$$

Where:

$I_T^{TR}$  is total return index value on T day

$P_{i,T}^F$  is full price bond i on T day

$Int_{i,T}$  is interest payment of bond  $i$  on  $T$  day; it is 0 if there is no interest payment on  $T$  day.

$Pri_{i,T}$  is principal payment of bond  $i$  on  $T$  day; it is 0 if there is no principal payment on  $T$  day.

$mW_{i,T-1}^F$  is full price market cap weight of bond  $i$  on  $T - 1$  day

$cW_{i,T-1}^F$  is cash weight of bond  $i$  on  $T - 1$  day

$R_T$  is daily interest rate of demand deposit on  $T$  day

$Cash_{i,T}$  is the accumulated cash of bond  $i$  on  $T$  day

Full Price Index:

$$I_T^F = I_{T-1}^F \times \sum_i \left( \frac{P_{i,T}^F}{P_{i,T-1}^F} \times W_{i,T-1}^F \right)$$

Where:

$I_T^F$  is full price index value on  $T$  day

$P_{i,T}^F$  is full price bond  $i$  on  $T$  day

$W_{i,T-1}^F$  is full price market cap weight of bond  $i$  on  $T - 1$  day

Net Price Index:

$$I_T^N = I_{T-1}^N \times \sum_i \left( \frac{P_{i,T}^N}{P_{i,T-1}^N} \times W_{i,T-1}^N \right)$$

Where:

$I_T^N$  is net price index value on  $T$  day

$P_{i,T}^N$  is net price bond  $i$  on  $T$  day

$W_{i,T-1}^N$  is net price market cap weight of bond  $i$  on  $T - 1$  day

### 3.3 Weighting Methodology



Market Capitalization weighted.

### 3.4 Sub-index

Below 1 year, 1-3year(including 1 year), 3-5year(including 3 year), 5-7year(including 5 year),7-10year(including 7 year),7-10year(including 10 year) and above 10 year(including 10 year).

### 3.5 Rebalancing

Once a month on the first business day of the month. Bond data on 5 business days before rebalancing day are used for rebalancing.

### 3.6 Data Release

ChinaBond Index is calculated and released once on every interbank business day. ChinaBond China Climate-Aligned Index is released at about 18: 00 (Beijing time). ChinaBond Index is available through following channels:

Website: <http://yield.chinabond.com.cn/icbweb/index.htm?lx=yc>

ChinaBond Integrated Operation Platform: <http://www.chinabond.com.cn/Channel/11255992>

Data Download Channel: <http://www.chinabond.com.cn/channel/21840>.

Bloomberg Ticker: Reuters Ticker:

## III. Disclaimer

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