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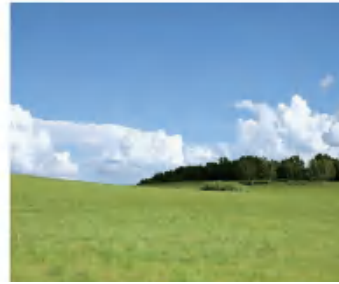
Progress Report on China's Green Finance Policy 2018

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Foreword »

🌿 Editor in Chief: Prof. WANG Jinnan



Since its opening-up and reform, China has been in the process of rapid economic development with its people enjoying an increasingly improved standard of life. Meanwhile accompanying this dramatic economic growth is the degradation of environment which has, to some extent, damaged the gains of the opening-up and reform and prevented the economy from a healthy and sustainable development. The Chinese government is increasingly aware of that without addressing the environmental issues it is facing now, will jeopardize its long term goal of the great rejuvenation of the Chinese nation. Given the magnitude and complexity of the environmental issues in China, there is no easy way in addressing them and the solution to them entails an equal priority being given to environmental protection, ecological conservation and economic development or even higher than the latter by mainstreaming the former into the

overall socio-economic decision-making process. As a matter of fact, China has been in the struggle against environmental pollution since the very beginning of its economic take-off and trying to explore a pathway that could help address China's environmental issues in the way most suitable to China's specific circumstances.

In recent years, especially since the 12th Five-Year Plan period, the enhanced measures including legislation, policy, regulatory and economic means have been taken by the Chinese government in dealing with environmental problems, of which environmental policies have played an important role in this regard. Corresponding to this situation and in meeting the demand of governments at different levels for environmental policy tools, the environmental policy research projects on topics of a wide range have been conducted by some Chinese environmental research institutions

including the Chinese Academy of Environmental Planning (CAEP).

CAEP founded in 2001, is a research advisory body supporting governments in the development of key environmental planning, national environmental policies, and major environmental engineering projects. In the past more than 10 years, CAEP has accomplished the development of the overall planning of national environmental protection for the 10th, 11th and 12th Five-Year Plan periods; water pollution prevention and control planning for key river basins; air pollution prevention and control planning for key regions; soil pollution prevention and control planning; and some regional environmental protection plans. In the same period of time, CAEP also actively engaged in research on such topics as green GDP, environmental taxation, emission trading, ecological compensation, green financing, etc. By so doing, CAEP has become an indispensable advisory body in the environmental decision-making in mainland China. According to *2013 Global Go To Think Tanks Report and Policy Advice* published by University of Pennsylvania, CAEP was ranked 31 in the field of environment in the world. Many of CAEP's research results and project outcomes regarding environmental policies have drawn great attention of decision makers and international institutions, and have been utilized to contribute to the formulation of national environmental policies concerned.

The Chinese Environmental Policy

Research Working Paper (CEPRWP) is a new internal publication produced by CAEP for the purpose of facilitating the academic exchange with foreign colleagues in this field, in which the selected research papers on environmental policies from CAEP are set out on the irregular basis. It is expected that this publication will not only make CAEP's research results on environmental policies be known by foreign colleagues but also serve as a catalyst for creating opportunity of international cooperation in the field of environmental policies, and environmental economics in particular, with a view of both the academic research and practical policy needs.

China has made noticeable achievements in the formulation and practice of green financial policies in 2018. First, green financial products and services grew steadily, with ceaseless innovation in green credit, green bonds, green insurance, green development funds and asset-backed notes and increasing diversification of green financial products provided by local financial institutions. Second, as relevant authorities further tightened project thresholds, public-private partnership projects concerning the ecological environment were better grounded and showed overall good momentum with the effective implementation of more projects. Relying on the national carbon market, the various pilot areas for the emissions trading scheme carried out policy practices in local contexts. Third, the unparalleled determination through unprecedented efforts to develop

an ecological civilization provide an extremely favorable policy environment for the vigorous development of green finance. In order to help the public to

keep abreast of China's policy system and practical progress in the field of green finance, the Progress Report on Green Finance in China 2018 is hereby prepared.



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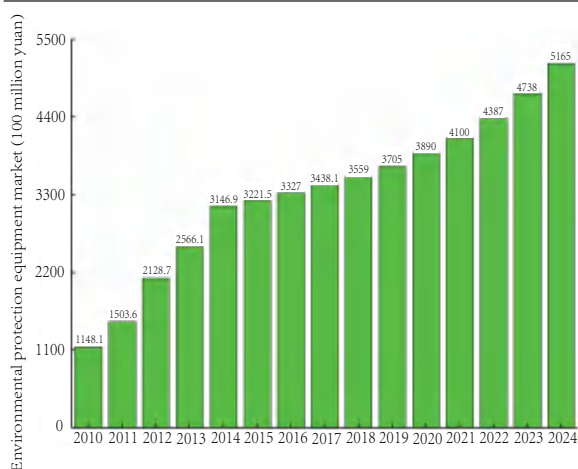
I. PERSISTENT DEMAND AND STRONG DEVELOPMENT

China's environmental protection equipment market tended to expand continuously. After years of development since start in the 1960s, the environmental protection equipment industry has become a vital material basis for environmental protection and occupied an important position in strategic emerging industries in China. At present, the system of environmental protection equipment has taken shape and reached certain scale, covering air pollution control, water pollution control and solid waste treatment. As shown Figure 1, the environmental protection equipment market has expanded as a whole since 2010. In particular, the market multiplied by 174.10% from 114.81 billion yuan to 314.69 billion yuan during 2010–2014, and remained relatively stable thereafter, arriving at about 355.9 billion yuan in 2018. It is predicted that the market will maintain the growth momentum in the next five years (2019–

2024), reaching 370.5 billion, 389 billion, 410 billion, 438.7 billion, 473.8 billion and 516.5 billion yuan respectively.

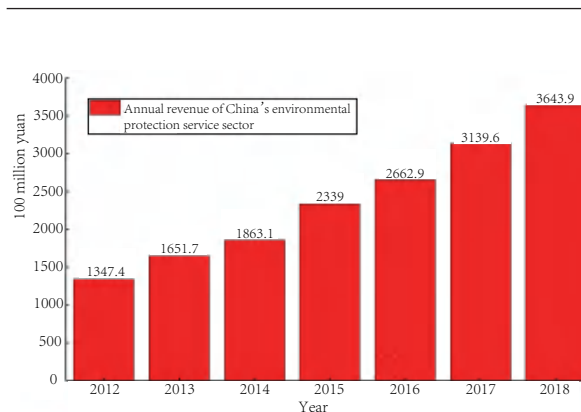
The environmental protection service market continued to grow in China. As indicated in Figure 2, environmental services increased year by year during 2012–2018. Given more support from the overlapping policies of upgrading environmental supervision and law enforcement as the supply-side structural reform deepens, the potential and vitality of environmental protection service market have been further unleashed and stimulated, making possible the continuous growth and a broad prospect. From 2012 to 2018, the environmental protection service market valued 134.74 billion, 165.17 billion, 186.31 billion, 233.9 billion, 266.29 billion, 313.96 billion and 364.39 billion yuan (forecast) respectively.

■ **Figure 1. China's environmental protection equipment market, 2010–2024**



Source: Qianzhan Industry Research Institute
 Note: Forecasts for the period 2019–2024

■ **Figure 2. Annual revenue of China's environmental protection service sector, 2012–2018**

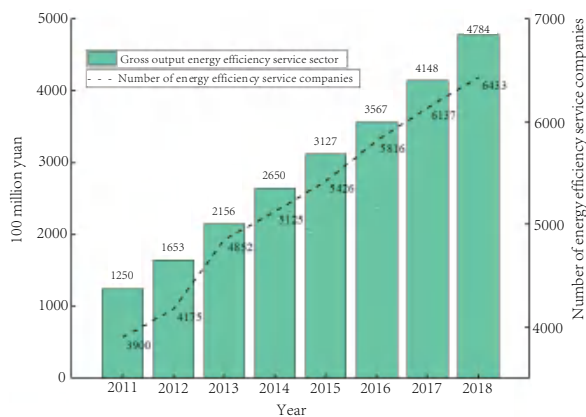


Source: Qianzhan Industry Research Institute
 Note: Forecast for the year 2018



China's energy efficiency service sector exhibited an upward trend. Both the size of market and the number of enterprises became larger in the energy efficiency service sector from 2011 to 2018, as shown in Figure 3. In specific, the market size increased from 125 billion yuan to 478.4 billion yuan, while the number of companies rose from 3,900 to

■ **Figure 3. Gross output and number of companies in China's energy efficiency service sector, 2011–2018**

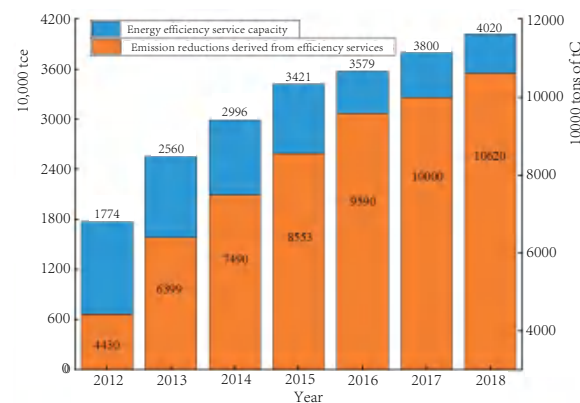


Source: Qianzhan Industry Research Institute
Note: Forecast for the year 2018

The tough fight against pollution on all fronts will create huge market space for the development of environmental protection industries. China has constantly intensified efforts to tackle pollution by launching three uphill fights and seven landmark campaigns for defending blue skies, lucid water and clean soil. This further unleashes the demand and stimulates the investment in environmental governance. In the field of air pollution control, the demand for investment in the uphill fight for defending blue skies (including two landmark campaigns for defending blue skies and controlling diesel

6,433. The energy efficiency service capacity was also improved from 17.74 million tons of coal equivalent (tce) to 40.2 million tce during this period, as shown in Figure 4, which contributed to the surge of emission reductions from 44.3 million tons of carbon (tC) to 106.2 million tC.

■ **Figure 4. Capacity and emission reductions of China's energy efficiency service sector, 2012–2018**



Source: Qianzhan Industry Research Institute
Note: Forecast for the year 2018

truck pollution) is estimated to be about 1.02 trillion yuan. The investment demand will approximately reach 1.80 trillion yuan for defending lucid water (encompassing water source protection, black-odorous water treatment, protection and remediation of the Yangtze River, comprehensive remediation of the Bohai Sea, and pollution control in agriculture and rural areas), and 0.66 trillion yuan for defending clean soil. The total investment will attain 3.48 trillion. (Data source: Report on Development of China's Environmental Protection Industries (2018))



II. RATIONAL PRACTICE AND POLICY IMPLEMENTATION

1 . Introducing macro-policies in strong support of green finance

The People's Bank of China (PBOC) gave policy support for the green credit evaluation system. The Plan for Green Credit Performance Evaluation of Banking Depository Financial Institutions (Trial), issued by PBOC on July 27, 2018, provided the basic reference for green credit performance evaluation of the PBOC branches. According to the Plan, green credit performance evaluation should be conducted on a quarterly basis. Indicators for the evaluation are classified into two categories: quantitative (weight: 80%) and qualitative (weight: 20%). The quantitative indicators include the proportion of green loan balance, the proportion of green loan balance share, the ratio of green loan increment, the year-on-year growth of green loan balance, and the non-performing green loan ratio. The score for qualitative evaluation is determined by the qualitative indicator system while considering the daily operation of banking depository financial institutions. The results of green credit performance evaluation will be reflected in the macro-prudential assessment (MPA) of banking depository financial institutions. The Plan was scheduled for trial implementation in 2018.

PBOC and the Asset Management Association of China (AMAC) launched policies to encourage green investment. In June 2018, PBOC decided to moderately expand the scope of guarantees for its

medium-term lending facility (MLF). The new types of guarantees include bonds of small-and-micro companies rated AA or higher, green bonds and agricultural financial bonds; corporate credit bonds rated AA+ and AA (priority given to bonds involving small-and-micro companies and green economy); and high-quality loans of small-and-micro companies and green loans. The move further enhances the incentives for institutional investors to allocate green bonds. In November, AMAC released the Guidelines on Green Investment (Trial), which stipulated theme-based green investment funds and/or investment policies covering green investment should proactively apply published industry green standards to screen subjects of investment, including the Guiding Opinions of China Securities Regulatory Commission on Supporting the Development of Green Bonds, relevant requirements of Shanghai and Shenzhen stock exchanges for green corporate bonds, Green Bond Endorsed Project Catalogue released by CSFB-GFC, Guidelines on Issuance of Green Bonds provided by the National Development and Reform Commission (NDRC), as well as international standards such as the Green Bond Principles (GBP) and the Climate Bond Initiative (CBI).

2 .Effectively advancing green finance reform and innovation in five pilot zones

Zhejiang Province provided local guidance on the construction of pilot zones. Huzhou



Municipal People's Government issued their Measures to Implement the Opinions on Building National Pilot Zones for Green Finance Reform and Innovation (Trial) on September 11, 2018. The Measures further clarified the incentives for green finance and the subjects, conditions and criteria of incentives. Among the incentives are the incentives given to financial institutions for expanding financing, serving as national headquarters, serving as national business headquarters or functional headquarters, serving as regional headquarters, conducting green transformation, and specializing in green finance, the support for corporate listing and equity financing, interest discount subsidies for green loans, risk compensation for green credits, subsidies for green bond issuance, incentives for green financial lease, incentives for green financial product and service innovation, and incentives for high-end talents in green finance. Quzhou City also made active efforts to push forward the pilot program. In addition to the exploratory establishment of green enterprise (project) identification system, the Quzhou Measures for Evaluation of Green Enterprises and the Quzhou Measures for Evaluation of Green Projects were adopted after expert review in Beijing, July, marking a solid step forward in building Zhangzhou a national pilot zone. Using these measures as guidance, a batch of green enterprises and green projects will be identified and published, and the existing green project database updated. Policy guidance will also be offered to motivate financial institutions to scale up support for green enterprises and green projects.

Jiangxi Province took a combination of measures to promote the pilot program for green financial innovation. Jiangxi Provincial People's Government printed and issued the Implementation Rules for Building a Pilot Zone for Green Finance Reform and Innovation in Ganjiang New District on January 2, 2018. The Implementation Rules set down ten initiatives for developing green finance: (1) Building the green financial organization system. Efforts will be made to attract various financial institutions and drive the development of innovative financial organizations; (2) Identifying the focus of green financial support. A library of key projects in green industries will be created to boost industrial green development, and support will be given to key projects that promote ecological progress; (3) Promoting green credit. Green credit will be developed, and the effects of green credit provided by banks will be evaluated; (4) Developing direct green financing. Green enterprises are invited to get listed, and green bonds, green funds, and innovative financing models and guarantee methods are supported; (5) Exploring the market for trading environmental rights and accelerating the establishment of factor-specific markets; (6) Encouraging the innovation of green insurance. Support will be given to engage insurance assets in the development of green industries and to innovate green insurance products and risk management organization systems; (7) Reinforcing the infrastructure and optimizing supporting services for green finance, and improving the credit environment; (8) Expanding the



cooperation in green finance. Domestic and international cooperation in green finance will be carried out to facilitate enterprises go global while bringing in green finance; (9) Guarding against green financial risks. Mechanisms will be put in place for green information sharing and supervision and green financial risk prevention; and (10) Fostering teams of financial talents. High-end financial talents will be introduced and nurtured, and the financial talent guarantee system will be improved. As of the end of June 2018, the green credit balance in Jiangxi Province reached 161.752 billion yuan, an increase of 21 billion yuan or 14.9% year on year. As direct green financing channels were broadened, 10 green companies from this province became listed in the main-board market and 36 listed in the New Third Board. A provincial library of green industrial projects was created according to the standards developed by Lianhe Equator Environmental Impact Assessment Co., Ltd., and it first included 248 projects.

Guangdong Province introduced policy measures in support of green finance. Guangdong Provincial People's Government issued the Implementation Rules for Building a Pilot Zone for Green Finance Reform and Innovation in the City of Guangzhou on May 5, 2018. Measures in eight aspects are brought forward to develop green finance: (1) Fostering the green financial organization system. Guangdong-based banking institutions, especially corporate banking institutions, are encouraged to set up agencies dedicated to green finance, such as green finance divisions and green bank branches

and sub-branches. Financial institutions are supported to upgrade established branches in the pilot zone into green branches. The green financial business system and rating system for financial institutions are explored. Qualified private capital will be supported to set up private banks in the pilot zone that focus support on innovation and entrepreneurship, eco-environmental development and green industries. Guidance funds, development funds and guarantee funds for green industries are favored in the pilot zone, so as to accelerate the green transformation of traditional industries; (2) Developing innovative green financial products and services. Green credit will be vigorously developed by expanding the scope of guarantees for green enterprises and green projects. Green financial products and services will be diversified, and green refinancing will be offered to financial institutions that provide green credit and green bonds in the pilot zone; (3) Helping green industries to broaden financing channels. Enterprises in the pilot zone are supported to issue green enterprise bonds, exchange-backed green corporate bonds, and non-financial corporate debt financing instruments that are mainly used for projects promoting green, circular and low-carbon development. Green enterprises in the pilot zone are supported to raise funds directly by listing overseas, and regional equity market operators are encouraged to set up green boards in the pilot zone, so as to provide specialized equity trading and financing services for green enterprises; (4) Establishing the environmental rights



trading market in a safe and orderly manner. Private capital is mobilized and supported to set up Guangdong Green Low-carbon Development Fund in the pilot zone. Exploration will be made in the trading of such products as emission rights and energy rights in the pilot zone, and the pricing mechanisms and trading rules will be refined; (5) Accelerating the development of green insurance. Insurance funds are encouraged to invest in key green projects and parks in the pilot zone, such as rail transit projects, green buildings, energy-saving renovation of public buildings, new energy automobile industrial bases, and green industrial parks. For pollution-intensive companies with high environmental risks, the participation in environmental pollution insurance will be preferably taken as an important reference for access to financial services such as green credit; (6) Strengthening the green financial infrastructure. A sound corporate environmental credit evaluation system has been built and the green payment project launched. The green credit evaluation mechanism was put in place, which encourages third-party rating agencies to develop credit rating products for green enterprises in the pilot zone; and (7) Enhancing foreign exchanges and cooperation in green finance, and establishing the mechanism for industrial transformation and upgrading driven by green financial services and the mechanism for financial risk prevention and resolution.

Guizhou Province devoted great energy to green finance in Gui'an New District. On July 6, 2018, Gui'an New District successfully

signed three typical green finance projects during the Green Finance Forum (Gui'an District) at the Eco Forum Global (EFG) Guiyang Annual Conference 2018. The projects involved the PV poverty alleviation loans provided by Guizhou Bank to Almalden Co., Ltd, the green orders backed financing provided by Guizhou Bank to Guiao Agricultural Technology Co., Ltd, and carbon finance agreement signed between Gui'an EIIP and Distributed Energy Center of China Beijing Environment Exchange. At the same time, Gui'an New District released the Guidelines for Supporting the Development of Green Finance in Gui'an New District and the Implementation Plan for Building a Pilot Zone for Green Financial Reform and Innovation in Gui'an New District which set forth incentives for organizations, talents, green industries, listed green enterprises and their criteria. In September, Guiyang Bank Co., Ltd. issued the first tranche of green financial bonds in 2018, which represents the first issuance of its kind since the pilot in Guizhou Province. The issuance was worth 5 billion yuan with a term of 3 years at an interest rate of 4.34%, and the raised funds will be all invested in pollution control, resource conservation and recycling, ecological protection and climate change adaptation, and other standards-compliant green projects involving sewage treatment, water conservancy, urban and rural environmental remediation, and nature and ecological conservation.

Xinjiang adopted multiple measures to promote the pilot of green finance. In January 2018, Xinjiang became the first pilot



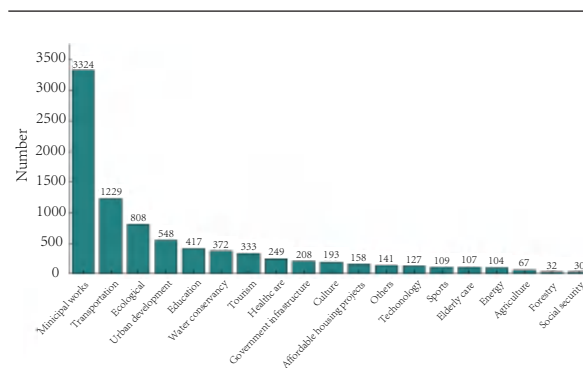
province to create a green project library by listing 365 pure green projects from three local pilot areas. In July, the Karamay Central Sub-branch of PBOC Xinjiang Branch successfully rediscounted green notes, the first to do so in pilot zones, making breakthrough in using monetary policy tools to support green finance. The Urumqi Central Sub-branch scaled up the support for green finance in Xinjiang by pooling financial resources to green industries and sectors. It developed and issued monetary policy tools to Hami, Changji and Karamay in support of the implementation rules for development of green economy in local pilot areas. These monetary policy tools have been integrated to produce combined efforts, so as to further improve the level of green financial services. In the same month, the Changji Central Sub-branch issued Xinjiang's first loans to refinance agriculture, which represented another breakthrough and created a precedent in the application of monetary policy tools in green finance among the pilot areas in Xinjiang.

3 . Maintaining sound PPP in ecological improvement and environmental protection

According to the official data of the Ministry of Finance (MOF), there were 8,556 PPP projects as of October 31, 2018, as shown in Figure 5. Among them, ecological improvement and environmental protection (808 projects) represented 9.44% of the total in the project library, ranking third to municipal works and transportation. As shown in Figure 6, PPP projects concerning

the ecological environment were on the rise, with the number up by 68.56% from 598 to 1,008 during the period from November 2016 to July 2018. Overall, eco-environmental PPP projects maintained good momentum as the number stayed above 900, despite small fluctuations under the impact of national destocking since October 2017.

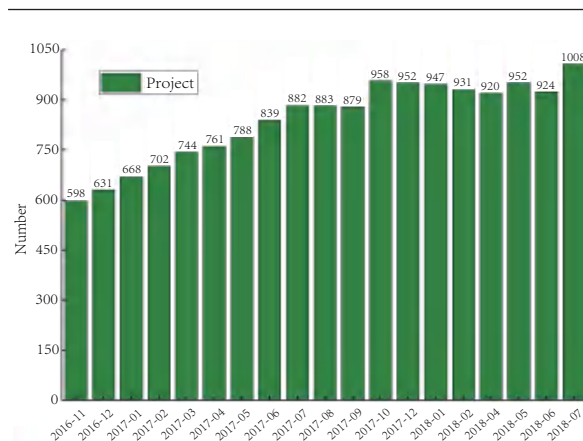
■ Figure 5. China's PPP projects by types



Source: Website of China Public-Private Partnership Center (CPPPC), MOF

Note: Data as of October 31, 2018

■ Figure 6. Eco-environmental PPP projects from November 2016 to July 2018



Source: Qianzhan Industry Research Institute

Note: Data unavailable for November 2017 and March 2018



4 . Injecting strong impetus to the national carbon market

Policies at local levels were launched to boost carbon market development. Table 1 describes policies in support of carbon market introduced in 2018, covering legislation, allowance allocation, emissions monitoring, reporting and verification, compliance mechanism and etc. For example, in January 2018, Hubei Provincial People's Government unveiled the 2017 Plan for the Allocation of Hubei Carbon Emission Allowances. The plan identified 344 enterprises from 15 sectors, including electricity, steel, cement and chemicals, subject to the management of carbon emission allowances which amounted to 257 million tons for the year 2017. In July 2018, Guangdong Provincial Development and Reform Commission issued the 2018 Implementation Plan for the Allocation of Guangdong Carbon Emission Allowances, which made clear the coverage of enterprises from the sectors of electricity, cement, steel, paper, petrochemicals and civil aviation in 2018. The carbon emission allowances for the year 2018 totaled 4.22 million tons, of which 399 million tons would be allocated to covered enterprises and 23 million tons reserved for market adjustment and paid allocation to enterprises with new projects.

China's carbon market made headway. In terms of trading volume in 2018 (Figure 7), 8.9076 million tons were traded in Hubei and 9.875 million tons in Guangdong, representing 32.04% and 35.52% of the national total respectively. The trading volume stood at 2.537 million tons in

Shanghai, 1.2406 million tons in Shenzhen, 3.063 million tons in Beijing, and 2.1 million tons in Fujian, accounting for 8.48%, 4.46%, 11.02% and 7.55% respectively. Chongqing and Tianjin saw only 0.94% and 0.003% of the national trading volume respectively. In terms of turnover (Figure 8), Guangdong and Hubei were large players by contributing 218.755 million and 200.113 million yuan respectively, which represented 28.82% and 26.36% of the total. The turnover attained 177.2415 million yuan in Beijing and 88.402 million yuan in Shanghai, accounting for 23.35% and 11.645% respectively. Fujian registered a turnover of 39.0348 million yuan, and Shenzhen 34.4508 million yuan, accounting for 5.14% and 4.54% respectively. Chongqing and Tianjin took up relatively small proportions of 0.15% and 0.001% respectively. In terms of trading price (Figure 9), the level was higher in Beijing than other regions, hitting 52.72 yuan/ton, while it stayed above 20 yuan/ton in Shenzhen, Shanghai and Fujian, reaching 27.89, 25.25 and 23.38 yuan/ton respectively. The price ranged from 10 to 20 yuan/ton in Hubei, Guangdong and Tianjin, reading 19.22, 16.35 and 13.7 yuan/ton, and it was as low as 4.01 yuan/ton in Chongqing.

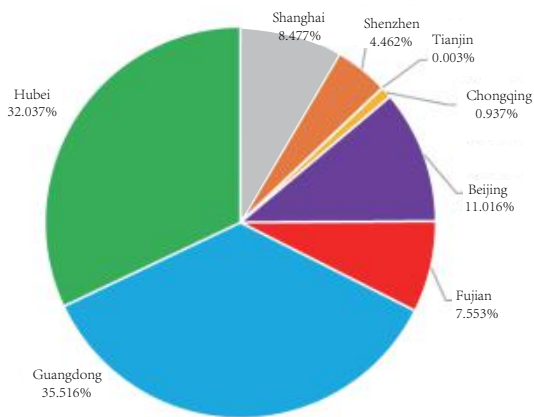


 **Table 1. National carbon market policies, 2018**

Time	Policy measures	Issued by	Description
January 2018	2017 Plan for the Allocation of Hubei Carbon Emission Allowances	Hubei Provincial People's Government	A total of 344 enterprises from 15 sectors were subject to the management of carbon emission allowances for the year 2017, including electricity, steel, cement and chemical industries; and the carbon emission allowances for the year 2017 amounted to 257 million tons.
January 2018	Proposal on Legislation for the Administration of Carbon Emissions Trading	Committee of Low Carbon and Emission Reduction, New Energy Chamber of the All-China Federation of Industry and Commerce	The Regulations on the Administration of Carbon Emissions Trading should be promulgated as soon as possible, to define, through legislation, the objective of the ETS program, the permit, distribution and transaction management of emissions, the rights and obligations of registered parties to transaction, and legal liabilities.
March 2018	Notice on Reporting Carbon Emissions of the Year 2017 by Enterprises Covered by Carbon Emission Allowance	Shanghai Municipal Development and Reform Commission	Enterprises covered by carbon emission allowance management were required to prepare and submit the 2017 annual report on carbon emissions before March 31, 2018.
	Management in the City		
April 2018	Work Plan of Sichuan Province for Implementing the Program for Building a National Emissions Trading Market (Power Generation Sector)	Sichuan Provincial People's Government	It is made clear to optimize and upgrade the provincial trading platform in 2018 so that it is aligned with the reporting, registration, trading and settlement systems of the national carbon market and with the national public resources trading platform; to study and develop the measures for carbon emissions trading administration, and to organize the covered power companies to join in the unified trading simulation, and enhance the capability and management of various entities such as the covered enterprises to improve the carbon market management system and support system. In 2020 and beyond, key entities in the power sector will be organized to participate in spot trading of carbon emission allowances. According to the national unified arrangement, the trading scope will be gradually expanded to other energy, pollution and resource-intensive industries and the trading varieties and methods will be diversified.
July 2018	2018 Implementation Plan for the Allocation of Guangdong Carbon Emission Allowances	Guangdong Provincial Development and Reform Commission	Enterprises from the sectors of electricity, cement, steel, paper, petrochemicals and civil aviation will be included in the ETS in 2018. The carbon emission allowances for the year 2018 will total 4.22 million tons, of which 399 million tons will be allocated to covered enterprises and 23 million tons reserved for market adjustment and paid allocation to enterprises with new projects.

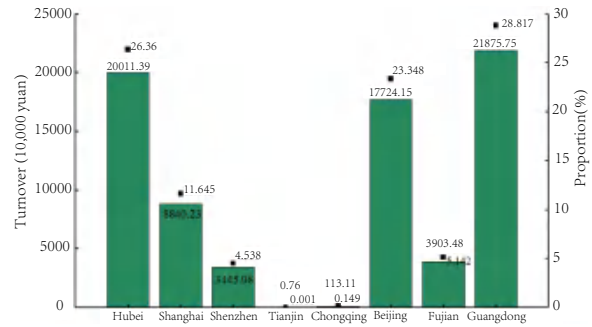


Figure 7. Trading volume of the carbon market by regions, 2018



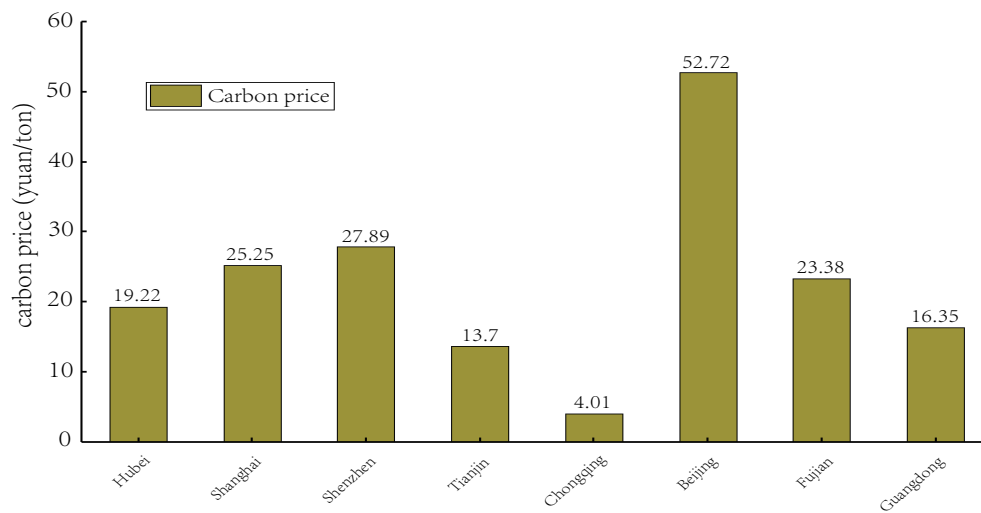
Source: <http://www.tan paifang.com/>

Figure 8. Carbon market turnover by regions and their proportion, 2018



Source: <http://www.tan paifang.com/>

Figure 9. Trading price in the carbon market by regions, 2018



Source: <http://www.tan paifang.com/>





III. DIVERSIFIED PRODUCTS AND STEADY GROWTH

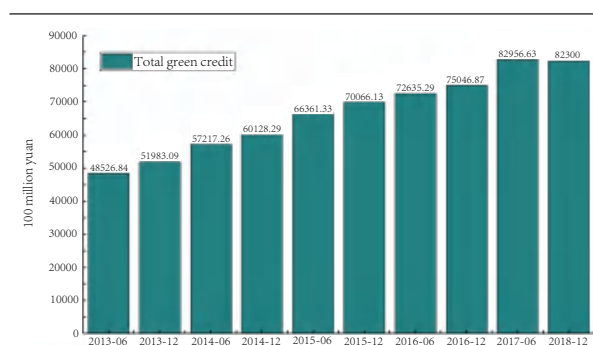
1 . Sustaining green credit market growth

China's green credit continued to expand in scale. As shown in Figure 10, the green credit provided by China's 21 major banking institutions exhibited an upward trend during the period from 2013 to 2017. The scale increased by 70.95% from 4.852684 trillion yuan at the end of June 2013 to 8.295663 trillion yuan at the end of June 2017, but stood at 8.23 trillion yuan in December 2018.

China's green credit has supported a wide range of projects. As shown in Figure 11, the various areas covered by green credit can be roughly categorized into energy efficiency & environmental protection services and strategic emerging industries. Green credit projects in support of energy efficiency & environmental protection encompassed green agriculture, green forestry, industrial energy and water efficiency, nature conservation & ecological restoration, resource recycling, waste treatment &

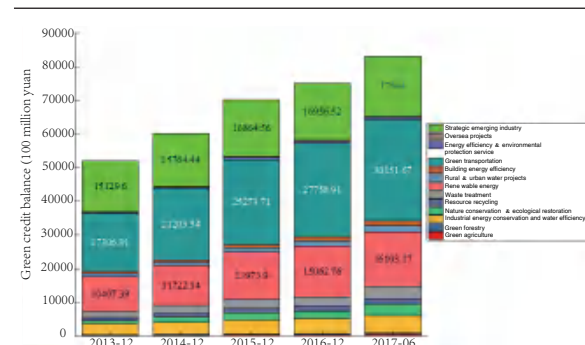
pollution control, renewable energy & clean energy, rural and urban water projects, building energy efficiency & green buildings, green transportation, energy conservation & environmental protection, and overseas projects. Among them, green transportation and renewable energy & clean energy took up large proportions, and their credit balances reached 3.01157 trillion and 1.610367 trillion yuan at the end of June 2017 respectively, representing 36.35% and 19.41% of the total. Strategic emerging industries obtained a substantial part of green credit. As of June 2017, the balance of loans for such projects hit 1.764.4 trillion yuan, accounting for 21.27% of the total green credit. Among them, as shown in Figure 12, energy conservation & environmental protection and new energy took a dominant position while new energy vehicles occupied a small share. Green credit for these projects registered 761.905 billion, 937.508 billion and 64.988 billion yuan respectively by the end of June 2017. From a historical perspective, green

■ **Figure 10. Green credit balance of China's 21 banking institutions, 2013–2017**



Source: Official website of China Banking and Insurance Regulatory Commission (CBIRC), Report on Investment of Loans by Financial Institutions 2018

■ **Figure 11. Green credit projects of China's 21 banking institutions, 2013–2017**



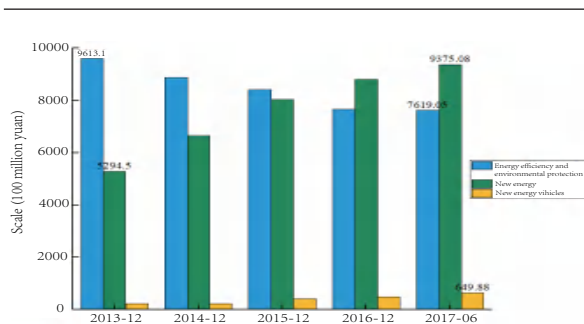
Note: Results for the year 2018 are not reflected in the figure due to difference in statistical caliber, and the relevant data are analyzed in the text.



credit dedicated to energy conservation & environmental protection declined over time, while that of new energy projects was on the rise and that of new energy vehicles increased slightly year by year. From 2013 to 2017, green credit invested in energy conservation & environmental protection decreased from 961.31 billion yuan to 761.059 billion yuan, while that invested in new energy projects climbed from 529.45 billion yuan to 937.508 billion yuan.

Results for the year 2018 were not reflected in Figure 11 due to difference in statistical caliber. Nevertheless, according to the Statistical Report on Investment of Loans by Financial Institutions 2018 published by PBOC on January 25, 2019, the balance of loans for transportation projects and renewable energy & clean energy projects attained 3.83 trillion and 2.07 trillion yuan respectively by the end of 2018, year-on-year increases of 18.1% and 12.7%. The balance grew by 19.4% to 3.66 trillion yuan for transportation, warehousing and postal services, and rose by 12.5% to 261 million yuan for electricity, heat, gas and water production and supply industry.

■ **Figure 12. Green credit for strategic emerging industries by projects, provided by China's 21 banking institutions, 2013–2017**



Source: CBIRC's official website

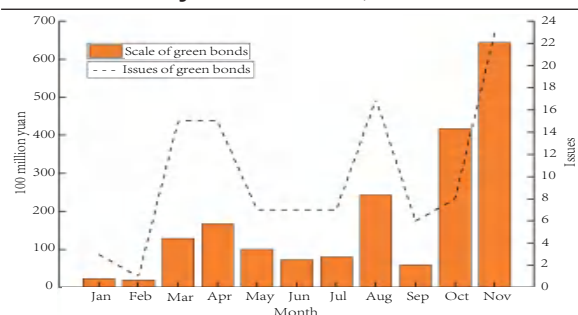
2. Deepening the green bond market

Based on statistics released so far, China's green bond issuance from 2016 to November 2018 is examined, with focus put on the period from January to November, 2018.

China's green bond market maintained strong momentum in 2018. As shown in Figure 13, a total of 109 green bonds were issued from January to November, 2018, with 15 in March and April each, 17 in August, 23 in November, 3 in January and 1 in February. They were cumulatively valued 196.309 billion yuan. The largest issuance occurred in October and November with a value of 41.828 billion yuan and 64.456 billion yuan respectively, representing 21.31% and 32.83% of the total, while January, February and June saw smaller issuance worth only 2.445 billion yuan (about 1.25%), 2 billion yuan (1.02%) and 7.38 billion yuan (3.76%) respectively.

China's green bond market has made progress while ensuring stability in the long run. As shown in Figure 14, the green bonds issued from 2016 to November 2018 amounted to

■ **Figure 13. Issuance of green bonds in China from January to November, 2018**



Source: China Lianhe Credit Rating Co., Ltd.

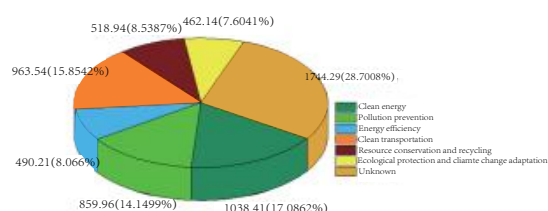
Note: December 2018 is not reflected as the data are not yet available, ditto.



607.749 billion yuan. Of the raised funds, 17.09% were invested in clean energy, 15.85% in clean transportation, 14.15% in pollution control, 8.54% in resource conservation and recycling, 8.07% in energy efficiency and 7.6% in ecological protection and climate change adaptation, and 28.70% remained unknown. In terms of types (Figure 15), financial bonds occupied a dominant share, totaling 399.45 billion yuan through 96

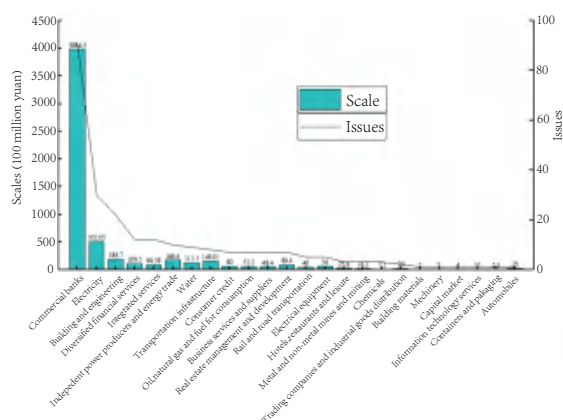
issues, while corporate bonds and enterprise bonds stood at 56.41 billion and 61.21 billion yuan respectively. In terms of sectors (Figure 16), the majority of green bonds were issued by commercial banks, which valued 399.45 billion yuan, accounting for 69.14% of the total. In terms of regional distribution (Figure 17), Beijing, Shanghai and Fujian saw the largest issuance worth 160.33 billion, 107.508 billion and 110 billion yuan respectively.

■ Figure 14. Issuance of green bonds in China from 2016 to November 2018



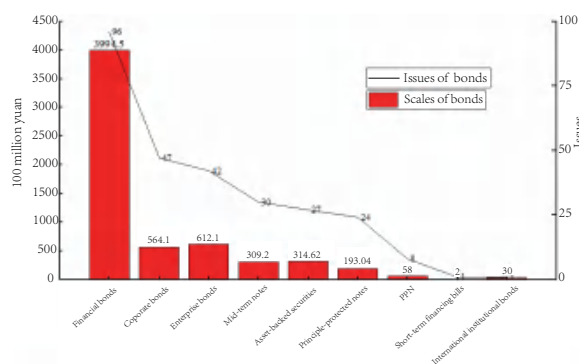
Source: China Lianhe Credit Rating Co., Ltd.

■ Figure 16. Sector distribution of green bonds issued in China from 2016 to November 2018



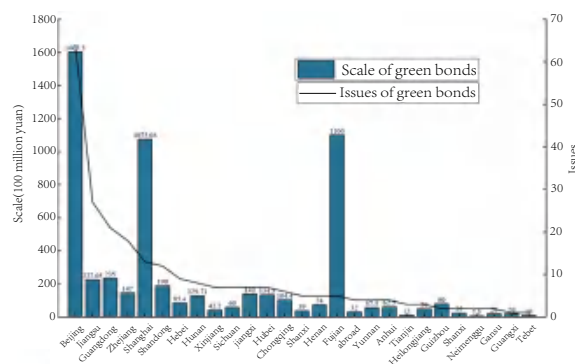
Source: China Lianhe Credit Rating Co., Ltd.

■ Figure 15. Types of green bonds issued in China from 2016 to November 2018



Source: China Lianhe Credit Rating Co., Ltd.

■ Figure 17. Regional distribution of green bonds issued in China from 2016 to November 2018





3. Steadily promoting green insurance

Policies and regulations underpinned the accelerated development of green insurance. On May 7, 2018, the Administrative Measures for Compulsory Environmental Pollution Liability Insurance (Draft) was considered and adopted in principle at the MEE ministerial affairs meeting presided over by Minister Li Ganjie. The draft, consisting of 6 chapters and 29 articles, defined the concept, scope of application and regulatory agencies of compulsory environmental pollution liability insurance, and set down the coverage of insurance, scope and limitations of liability, uniform terms and rate regulation, rate fluctuations, insurance contracts, underwriting and application methods, risk assessment and investigation, liabilities and fines. The regulation is conducive to the introduction of specialized market players and the internalization of external costs by assessing and pricing environmental risks. This will make environmental risk supervision and damage compensation more effective, and help further strengthen ex-ante prevention, in-process control and ex-post response and promote ecological and environmental governance.

Innovative products and safeguard measures in green insurance came out in various places. On September 27, 2018, the Green Guardian–Decoration Pollution Liability Insurance was jointly launched by the People's Government of Futian District, Shenzhen Insurance Regulatory Commission, Shenzhen Branch of Ping An Property &

Casualty Insurance Company of China, and Green Finance Committee of the Finance Society of Shenzhen Special Economic Zone. This innovative green insurance marked China's first insurance product to cover indoor air pollution, with focus put on green buildings. The insurer provides full-process services based on risk management and control, including pollutant assessment during construction, pollutant detection after completion and pollutant treatment after claims, and pays for personal injury and property damage associated with air pollution in buildings. In January 2018, the Insurance Regulatory Bureau of Jiangxi Province issued the Plan for Building the Pilot Zone for Green Insurance Innovation in Ganjiang New District, together with the Office of Finance of Jiangxi Provincial People's Government, PBOC Nanchang Central Sub-branch and Ganjiang New District Administrative Committee. The Plan encompassed the following content: (1) Improving the organization system. Industrial parks, product innovation labs and product and project libraries will be established in the field of green insurance; (2) Expanding green insurance services. The compulsory environmental pollution liability insurance will be piloted while strengthening innovation in agricultural insurance. Insurance funds will be used to support green industries and assistance offered to help green enterprises go global, and meanwhile, the diversification of pension insurance and health insurance will be promoted; and (3) Strengthening policy support. Preferential policies in funds, land and talents will be provided for insurance



institutions entering the new district. Funds will be created for guarding against risks and encouraging innovation in green insurance, and innovative protection mechanisms will be explored. In February 2018, Xiamen City issued the Opinions on Promoting the Development of Green Finance in the Insurance Industry of Xiamen City, which clarified the financial support such as premium subsidies, risk compensation and innovation incentives. The move provides an important guarantee for proactively fostering a green financial insurance system, strengthening green financial services and supporting the development of green industries.

4. Active practice in green development funds and green asset-backed notes

Local exploration in green development funds flourished to support ecological governance and environmental protection. In June 2018, a green development fund of 10 billion yuan was established in Shandong Province as initiated by Shandong Development Investment Holding Group Co., Ltd. It will leverage social capital by using national sovereign loan funds from the Asian Development Bank (ADB), French Development Agency (AFD), German Development Bank (KfW) and Green Climate Fund (GCF). In July, Jiangsu Eco-environmental Development Fund with a size of 80 billion yuan was jointly launched by Huarong Tianze Investment Co., Ltd. under the Huarong Group and Jiangsu Provincial Government Investment Fund, marking the

province's only fund dedicated to ecological protection. Under the umbrella of the Fund, several special or regional sub-funds were set up according to the fields and areas of investment and the contributors. Managed by Jiangsu-based Huarong Zhongcai Investment Fund Management Co., Ltd, the Fund has been committed to ecological improvement and environmental protection in Jiangsu Province and will focus support on such projects in various cities and counties of the province. In July, Gansu Province decided to establish the Gansu Green Eco-industrial Development Fund with a target size of 200 billion yuan to fully support the development of 10 eco-industries. Adopting a Fund-of-Funds model, the Fund aims to raise 40 billion yuan for the parent fund and leverage social capital to support the 10 eco-industries through 10 sub-funds. Gansu Provincial People's Government made an initial contribution of 2 billion yuan. In October, with the approval of Guizhou Provincial People's Government, the Economic and Information Committee, the Development and Reform Commission and the Department of Finance of Guizhou Province jointly issued the Green Development Fund Program for Industrial and State-owned Enterprises Run by Guizhou Province. According to the Program, the Green Development Fund for Guizhou's Industries and State-owned Enterprises with a total size of 30 billion yuan will be set up. Pursuing diversified investment, the Fund will select a number of banks as partners to obtain credit services.

Practice in green asset-backed notes was in full swing, giving rise to a stream of diverse



products. In March 2018, the Bank of China (BOC) successfully issued the First Tranche of 2017 RHZL Green Asset-backed Notes, totaling 2.484 billion yuan, in the interbank market. Among them, the Level A1-A3 notes were rated AAA and the Level B notes rated AA, registering 1.739 billion and 137 million yuan respectively. The notes feature green projects for both the basic assets and the investments. More specifically, the leased assets are all clean energy infrastructure projects and the raised funds are all invested in clean energy. According to independent third-party estimates, the supported projects will approximately reduce energy consumption by 214,000 tce and carbon dioxide emissions by 572,000 tons per year. In March, the notes backed by bus ticket revenue rights, the first of its kind in the country, were underwritten by CITIC Bank and successfully obtained the registration notice from the National Association of Financial Market Institutional Investors (NAFMII), representing China's first county-level ABN project. The green asset-backed

notes were sponsored by Kunshan Public Transport Group Co., Ltd., a wholly-owned subsidiary of Kunshan Transportation Development Holding Group Co., Ltd. Underpinned by the ticket revenue rights covering more than 200 bus lines in Kunshan, the funds are raised mainly to purchase new energy buses. In May, BOC successfully issued the First Tranche of 2018 CR Leasing Green Asset-backed Notes in the interbank market. The first green asset-backed notes of China Resources Leasing Co., Ltd. marked BOC's latest practice in investment banking and asset management to support green finance. The issuance amounted to 1.347 billion yuan, of which the priority notes were worth 960 million yuan. The contract rate for the first tranche is 6.50%. The proposed green projects are expected to cut annually energy consumption by 366,400 tce, carbon dioxide emissions 840,100 tons, sulfur dioxide emissions 7,744.57 tons, nitrogen oxide 3,232.63 tons, and soot emissions 12,086.05 tons.





IV. IN-DEPTH COOPERATION AND EXTENSIVE EXCHANGES

Green (sustainable) finance was once again incorporated into the outcomes of the G20 Leaders' Summit. From November 30 to December 1, 2018, the 13th G20 Summit were held in Buenos Aires, Argentina under the theme of "Building Consensus for Fair and Sustainable Development". Leaders discussed issues such as the world economy, trade and investment, sustainable development, infrastructure and climate change, and after the meeting, announced the G20 Leaders' Buenos Aires Declaration and the Buenos Aires Action Plan. Green (sustainable) finance was written into these outcome documents, the third time since the establishment of the G20 Green Finance Study Group (GFSG) in 2016. Under Argentina's presidency, the G20 kept its attention on green finance, but launched the Sustainable Finance Study Group (SFSG) to replace the GFSG in consideration of more factors of sustainable development, such as employment improvement and poverty reduction. Taking green finance as a core issue, the SFSG submitted the 2018 G20 Sustainable Finance Synthesis Report during the meeting, which addressed three issues: (1) Creating sustainable assets for the capital market; (2) Developing sustainable private equity and venture capital (PE/VC); and (3) Exploring the application of digital technologies to sustainable finance. According to the report, a range of debt capital market products can provide pathways for institutional investors to finance or refinance sustainable loans. Examples

of these products include sustainability targeting bonds, covered bonds, asset-backed securities (ABS), mortgage-based securities (MBS), and collateralized loan obligations (CLOs). The voluntary options to sustain PE/VC development include promoting the establishment of incubators/accelerators for sustainable start-ups, facilitating the work on interpretation of sustainability in investment obligations, supporting the launching of demonstration projects, and promoting the development of diversified products. To explore potential applications of digital technologies to sustainable finance, the voluntary options include raising awareness about the potential opportunities and risks, exploring the relevance of supervisory arrangements, and encouraging investment in digital technologies that advance sustainable finance.

Green investment principles for the Belt and Road were jointly released by Chinese and British research institutes. On November 30, 2018, the CSFB-GFC and the City of London's Green Finance Initiative (GFI) jointly published the Green Investment Principles for the Belt and Road (GIP) at the third meeting of the UK-China Green Finance Taskforce. By integrating low carbon and sustainable development into the Belt and Road Initiative, the GIP were outlined to strengthen the environmental and social risk management of investment projects, thus promoting green investment in the Belt and Road. The specific principles included: (1) Embedding sustainability into



corporate governance. They agree to embed sustainability into the corporate strategy and organizational culture. The boards and senior management will exercise oversight of sustainability-related risks and opportunities and set up robust systems; (2) Understanding environmental, social and governance (ESG) risks. They strive to better understand the environmental laws, regulations, and standards of the business sectors, as well as the cultural and social norms of the host countries. They will incorporate ESG risk factors into the decision-making processes, and conduct in-depth environmental and social due diligence; (3) Disclosing environmental information. They will conduct analysis of the environmental impact of their investments and operations, which should cover energy consumption, greenhouse gas (GHG) emissions, pollutants discharge, water use and deforestation, and explore ways to conduct environmental stress test of investment decisions. They will continually improve environmental/climate information disclosure and do the best to practice the recommendations of the Task Force on Climate-related Financial Disclosure; (4) Enhancing communication with stakeholders; (5) Utilizing green financial instruments. They will more actively utilize green financial instruments, such as green bonds, green asset-backed securities, emission rights-based financing, and green investment funds, in financing green projects. They will also actively explore the utilization of green insurance, such as environmental liability insurance, catastrophe insurance and green building insurance, to mitigate environmental

risks in their operations; (6) Adopting green supply chain management. They will integrate ESG factors into supply chain management and utilize international best practices such as life cycle accounting on GHG emissions and water use, supplier whitelists, performance indices, information disclosure and data sharing, in their investment, procurement and operations; and (7) Building capacity through collective action. They will allocate funds and designate personnel to proactively work with multilateral organizations, research institutions and think tanks to develop their organizational capacity in policy implementation, system design, instruments development and other areas covered in these principles.

The international cooperation and exchanges in green finance between China and the rest of the world became increasingly frequent. On May 8, 2018, the Paulson Institute, founded by Henry Paulson, the former US Secretary of Treasury and former CEO of Goldman Sachs, announced the launch of a new Green Finance Center, marking a significant step forward in its efforts to promote sustainable economic growth and environmental protection in China and the United States. The Green Finance Center will support the development of an open carbon market in China, promote the implementation of voluntary fair and transparent green finance standards in the Belt and Road Initiative, and focus on and encourage the sustainable application of financial technology. In November 2018, the International Green Finance Forum – Promoting International Cooperation in Green Finance and Building



the Capital Green Finance Center took place in Beijing, where experts and scholars from China and abroad carried out extensive in-depth exchanges on green finance. It was co-hosted by Beijing Green Finance Association,

Beijing Municipal Bureau of Financial Work, Tongzhou District People's Government and Tsinghua PBC School of Finance, with support from CSFB-GFC, US-China Green Fund, AVIC Trust, and CFA Institute.





V. CONCLUSIONS

Green finance injects an important impetus to green and low-carbon development and ecological progress. In 2018, China has made considerable progress in green finance and embraced steady growth in various sectors. This report summarized and reviewed the latest developments of green finance in 2018 from four aspects: market demand, rational practice and policy support, innovative products and services, and international cooperation.

First, the growing environmental protection market created a broad space for the development of green finance. China's environmental protection equipment market expanded from 114.81 billion yuan to 355.9 billion yuan during 2010–2018, while the environmental protection service market swelled from 134.74 billion yuan to 364.39 billion yuan during 2012–2018. Environmental protection and energy conservation industries also exhibited the upward trend. The total output value of these industries rose from 125 billion yuan in 2011 to 478.4 billion yuan in 2018, and the number of enterprises increased from 3,900 to 6,433 during the same period. From 2012 to 2018, the energy efficiency service capacity improved from 17.74 million tce to 40.2 million tce, which enabled emission reductions to increase from 44.3 million tC to 106.2 million tC.

Second, macro-policies provided a strong guarantee for the sustainable and rational development of green finance. PBOC and

AMAC developed respective policies to improve the green credit evaluation system and loan guarantee system, which supported the expansion of green credit business and the guarantee of green assets. The five pilot zones for green finance reform and innovation fully advanced the innovative practice, and set distinctive models for effective green finance through a variety of flexible and effective measures. The PPP projects for ecological improvement and environmental protection showed a sound momentum, with the majority rationally implemented. The national carbon market was launched in an all-round way and the pilot areas kept sound development based on a stream of innovative systems.

Third, increasingly diverse products and services offered effective pathways for green finance. The green credit market maintained steady growth for a long time. From 2013 to 2017, the credit for energy conservation and environmental protection projects shrank from 961.31 billion yuan to 761.059 billion yuan, but the credit for new energy projects rose from 529.45 billion yuan to 937.508 billion yuan. The green bond market saw strong growth. From 2016 to November 2018, the green bonds of various types amounted to 607.749 billion yuan, of which 17.09% were invested in clean energy, 15.85% in clean transportation, and 14.15% in pollution prevention and control. The green insurance market made headway. The Administrative Measures for Compulsory Environmental Pollution Liability Insurance (Draft) was



considered and adopted, providing policy support for the accelerated promotion of environmental pollution liability insurance. Localities including Shenzhen actively explored and developed various innovations in green insurance. Practices in green development funds and green asset-backed notes also became active. Green development funds with distinctive features were launched, and green asset-backed notes such as green assets of bus ticket revenue rights continued to emerge.

Fourth, international cooperation and exchanges created opportunities for increasing the international appeal of green finance. Green finance was once again written into the outcome documents of the G20 Leaders' Summit. The 2018 G20 Sustainable Finance Synthesis Report, which was led by China, has been recognized by all countries in the world and conveyed important principles for global sustainable development. Chinese and British research institutes jointly

published the GIP that incorporated low carbon and sustainable development into the Belt and Road Initiative, and the Paulson Institute has established the Green Finance Center. In addition, China conducted more frequently international cooperation and exchanges in green finance with the rest of the world.

Looking into the future, there will be more room for the development of green finance in China. China will move faster to build the system of green finance standards that are technically essential to the commercial sustainability of green finance; step up information disclosure, so as to provide accurate information reference for financial institutions in environmental risk management; deepen international cooperation that employs green financial means to promote global environmental governance and leverages international green capital to build China's green financial system.





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