

Climate-related Information

Disclosure based on China National ETS Data Management Mechanism

| Uniform standards

| High quality

| Continuity

| Effectiveness



Abstract

Climate-related information disclosure is key for addressing climate change risks and promoting climate investment and finance. In recent years, more and more countries and regions have carried out researches and practices on climate-related information disclosure, while carbon emission data disclosure acts as the cornerstone. In the context of achieving goals of carbon peaking and carbon neutrality, China has gradually explored the approaches to promote corporate carbon information disclosure (CID). In July 2021, the People's Bank of China (PBoC) issued the *Guideline on Environmental Information Disclosure for Financial Institutions* to provide methodological rules for Chinese financial institutions' environmental information disclosure; in December of the same year, the Ministry of Ecology and Environment (MEE) of People's Republic of China issued the *Administrative Measures for Disclosure of Environmental Information by Enterprises*, stating that the annual disclosure of enterprise environmental information should include carbon emission data, and this initiative has provided policy support for climate-related information disclosure.



However, there are still multiple challenges for climate-related information disclosure in China, such as inconsistent disclosure standards, gaps in disclosure quality, and the enterprises' low enthusiasm for participation. Therefore, it is necessary to further establish and improve the standard system and the platform construction to ensure the standardization and consistency of climate-related information disclosure.

Climate-related information disclosure based on the carbon market data reporting system is conducive to ensuring the completeness and accuracy of the data and improving the standardization of information disclosure, and it is of great significance to promoting the development of climate-related information disclosure. This report analyzes the experience and characteristics of carbon market information disclosure in China, the European Union (EU), and the U.S., and puts forward relevant policy recommendations from the aspects of the standard system, disclosure platform, capacity building, and supervision and management under the current situation and challenges.



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Introduction

According to the latest international trend, climate-related information disclosure will gradually transform from voluntary to mandatory. The main initiatives on climate-related information disclosure are voluntary methods including the Task Force on Climate-related Financial Disclosures (TCFD) framework and the carbon disclosure project (CDP) project. However, voluntary climate-related information disclosure methods have posed problems such as inconsistent disclosure standards which lead to disorder in disclosure content, and lack of industry comparability. To better regulate and encourage enterprises to disclose climate information, the EU, Japan, and other countries have enacted legislation to ask for mandatory reporting. In the future, improving the quality of information disclosure will be the focus and major challenge.

Carbon emission information is the foundation for climate-related information disclosure, and the carbon market data reporting platform is an effective “tool” to collect and disclose high-quality carbon information. To better serve the construction of the carbon market’s data foundation, the authority in charge of the carbon market has collected the carbon emission data of entities in eight key emission industries for years and has accumulated extensive experience in data reporting and verification since the initial launch of the 7 pilot carbon markets. Compared with other forms of information disclosure such as Corporate Social Responsibility (CSR) Reports, Environmental, Social, and Governance (ESG) Reports, and annual reports, the Monitoring, Reporting, and Verification (MRV) system for the carbon market focuses on the greenhouse gas (GHG) emissions and can be used to obtain unified and continuous quantified results that are comparable vertically and horizontally. This will help to improve the effectiveness of climate-related information disclosure.

Chapter I

International experience–Information Disclosure based on ETS mechanism



1. EU

The EU Emissions Trading Scheme (EU ETS) has established an emission data monitoring and reporting system which is open to the public. EU Directive 2003/87/EC¹ stipulates that the entities covered by the EU ETS need to obtain GHG emission permits approved by the competent authorities, and monitor and report emission data as required. The emission reports need to be audited by an independent verification authority. In addition, to ensure transparency, Directive 2003/4/EC² about public access to environmental information, which was released by the European Parliament and the Council of the European Union on 28 January 2003, stipulates

that the public has the right to access information related to emission allowance allocation and emissions monitoring results.

In 2012, the European Commission established a union registry³ (UR) of carbon emission allowances, covering all member states of the EU ETS. The EU UR acts as an online database, covering the accounts involving stationary installations (data transferred from the registration system of each state to the UR before 2012) and aviation operators (incorporated in the EU ETS since January 2012). The information recorded in the UR is mainly classified into the following categories:

- National implementation measures (listing the installations in each member state that are subject to the EU ETS Directive, and the free allocation of emission allowance for each installation received from 2013 to 2020);
- Entities' or individuals' accounts holding free emission allowance;
- The transfer of emission allowance (market transaction);
- Certified annual carbon dioxide emissions reports from each installation and air route;
- Annual account reconciliation between the emission allowance and certified emission. During annual account reconciliation, all enterprises must pay for a sufficient amount of emission allowances to cover all certified emissions.

¹ <https://eur-lex.europa.eu/eli/dir/2003/87/2018-04-08>

² https://www.legislation.gov.uk/eudr/2003/4/pdfs/eudr_20030004_adopted_en.pdf

³ Union Registry | Climate Action (europa.eu)

In addition, the EU ETS also sets up the European Union Transaction Log (EUTL) for the automatic check, recording, and approval of all transactions between UR accounts to ensure that all transactions comply with the rules of the EU ETS. The annual emission allowance allocation-related information of each stationary installation is public and can be inquired through EUTL, including the ID, name, location, account holder, account status, license ID, emission allowance allocation, installation-specific details and historical performance, enhancing the system’s transparency.

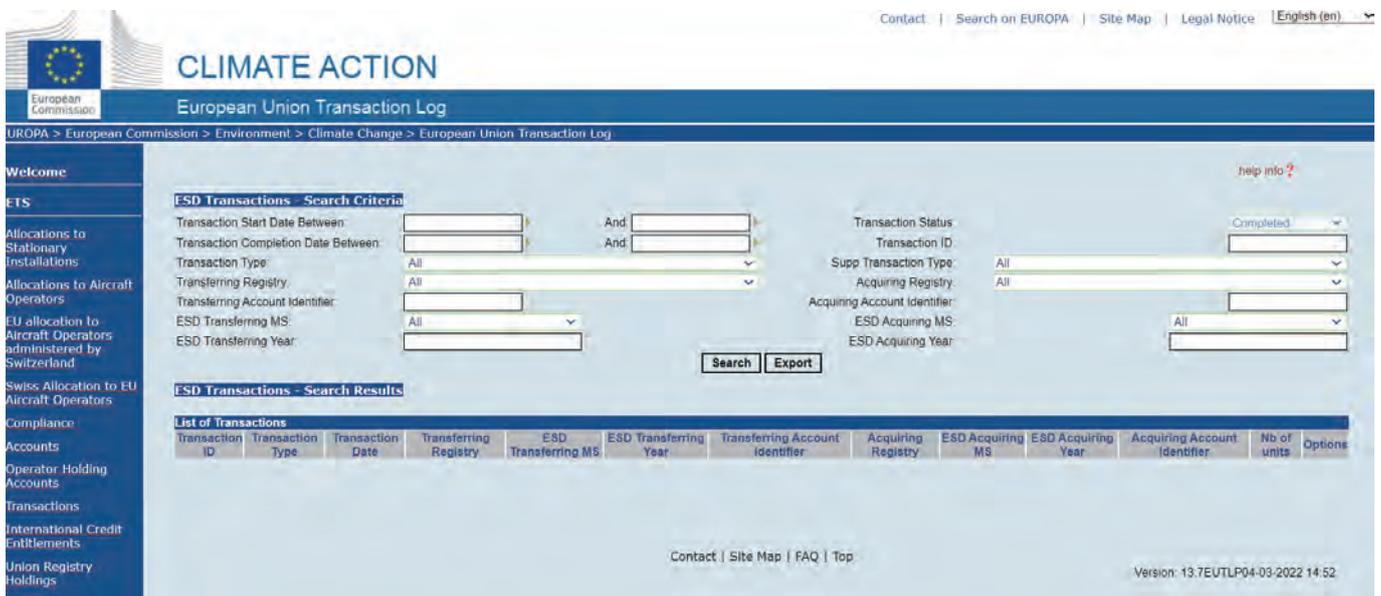


Figure 1: EUTL⁴ Web Page

2. The U.S.

The U.S. Environmental Protection Agency (EPA) GHG Reporting Program uses an electronic reporting system (ERS) to ensure efficiency and transparency. The emission data is collected and reported through the Electronic-GHG Reporting Tool (e-GGRT), enabling real-time reporting, accurate verification, and efficient release to ensure consistent and effective information collection. Meantime, the public can also obtain and consult the relevant GHG

emission data from this online reporting system. The data are available to the public through the online tool Facility Level Information on GHG Tool (FLIGHT) provided by EPA. This tool presents the information and emission data of facilities on a website, including facility basic information (such as the specific name of each facility and its affiliation), total emissions, various types of GHG emissions, fuel combustion types, geographical locations, etc., and supports the automatic creation and download of charts as well as facilitate the user to locate, inquire and make analysis on the data.

e-GGRT Greenhouse Gas Data Reporting (2019)
Select Facility

ANNUAL GHG DATA REPORTING
 Use this page to access the annual reports for each of your facility(s) and supplier(s).
 Note that the page defaults to the most recent reporting year, but you can access previous years by using the REPORTING YEAR drop down menu and then selecting GO.

Batch Review and Certification
 REPORTING YEAR: 2019 **GO**

FACILITIES EXPECTED TO REPORT for 2019¹

GHGRP ID	Facility or Supplier	Annual Reporting Status	Facility Overview
529417	MHReporter Test MultiSubpart 2 (Rivervale, NJ)	Submitted, pending certification and signature	OPEN
537757	Test Facility MLH Production Test 420 Fort Worth Syncline (Sanuary, TX)	Not generated	OPEN
544405	MLH XML Test Facility (Olde Tine, WA)	Not generated	OPEN
544406	Foghorn Test Facility (Washington, DC)	Not generated	OPEN
567521	Test Facility 2 for User (Carlsbad, CA)	Not generated	OPEN

FACILITIES NOT EXPECTED TO REPORT for 2019¹

GHGRP ID	Facility or Supplier	Reason for Not Reporting
No facilities found.		

¹ If EPA's expectation is incorrect for any facility, use the blue OPEN button to access its Facility or Supplier Overview screen; then see the ANNUAL REPORT IS or IS NOT EXPECTED section for more information about changing the Facility or Supplier's reporting status.

Figure 2: The U.S. e-GGRT⁵ Web Page (requiring corporate registration and login)

⁵ <https://ghgreporting.epa.gov/ghg/login.do>

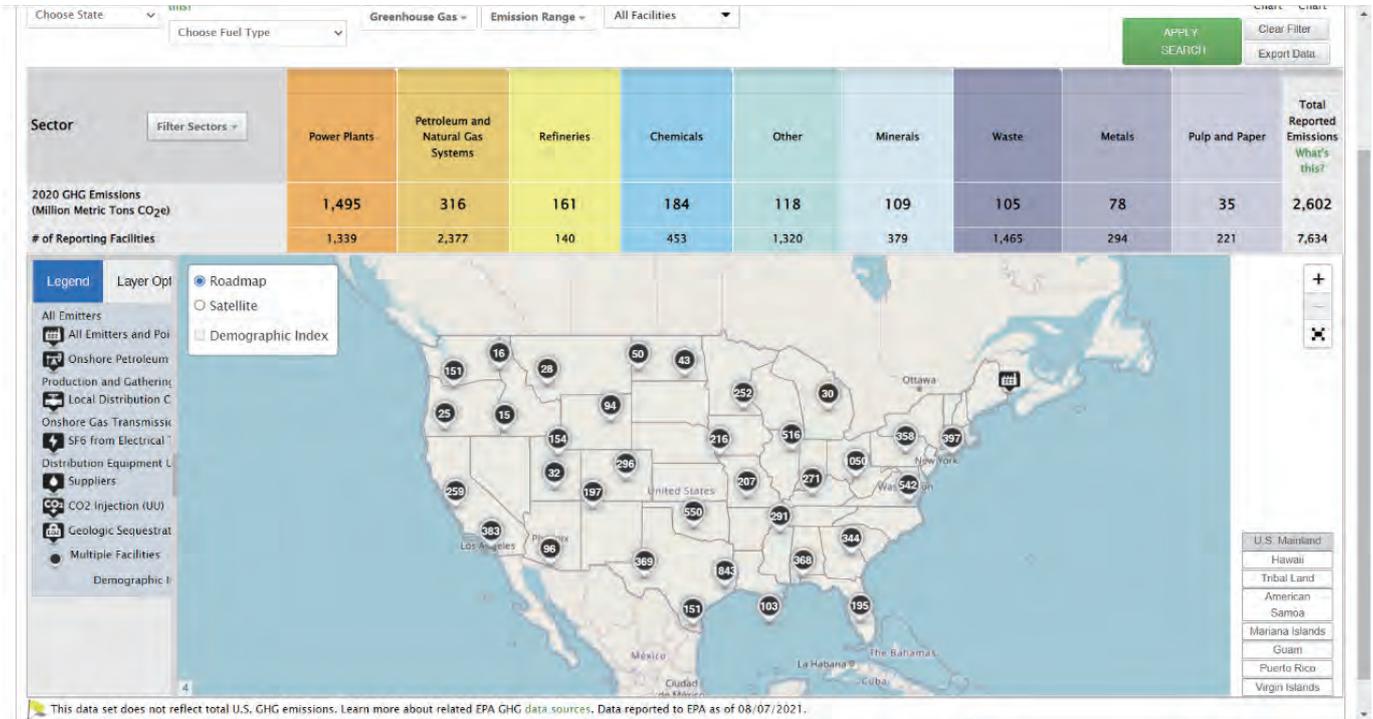


Figure 3: U.S. Emissions Facility GHG Information Tool FLIGHT⁶ Web Page

To ensure the efficiency and transparency of the carbon market, the California Air Resources Board (CARB) has issued mandatory GHG reporting regulations, which requires disclosure of all information related to the total emission control and carbon trading market, including emission reports, third-party verification reports, and the allocation, offset, compliance of emission allowances, auction announcements, and results, market data, etc. In addition, government departments not only release the list of emission enterprises and emission information, but also establish several advisory committees, invite relevant stakeholders to participate in the policy design, and hold online seminars to interact and communicate with the public⁷. At the same time, California has also developed an Integrated Emission Visualization Tool (IEVT) to display air pollutants and GHG emission data of large equipment. This platform allows users to locate, search and analyze emission data.

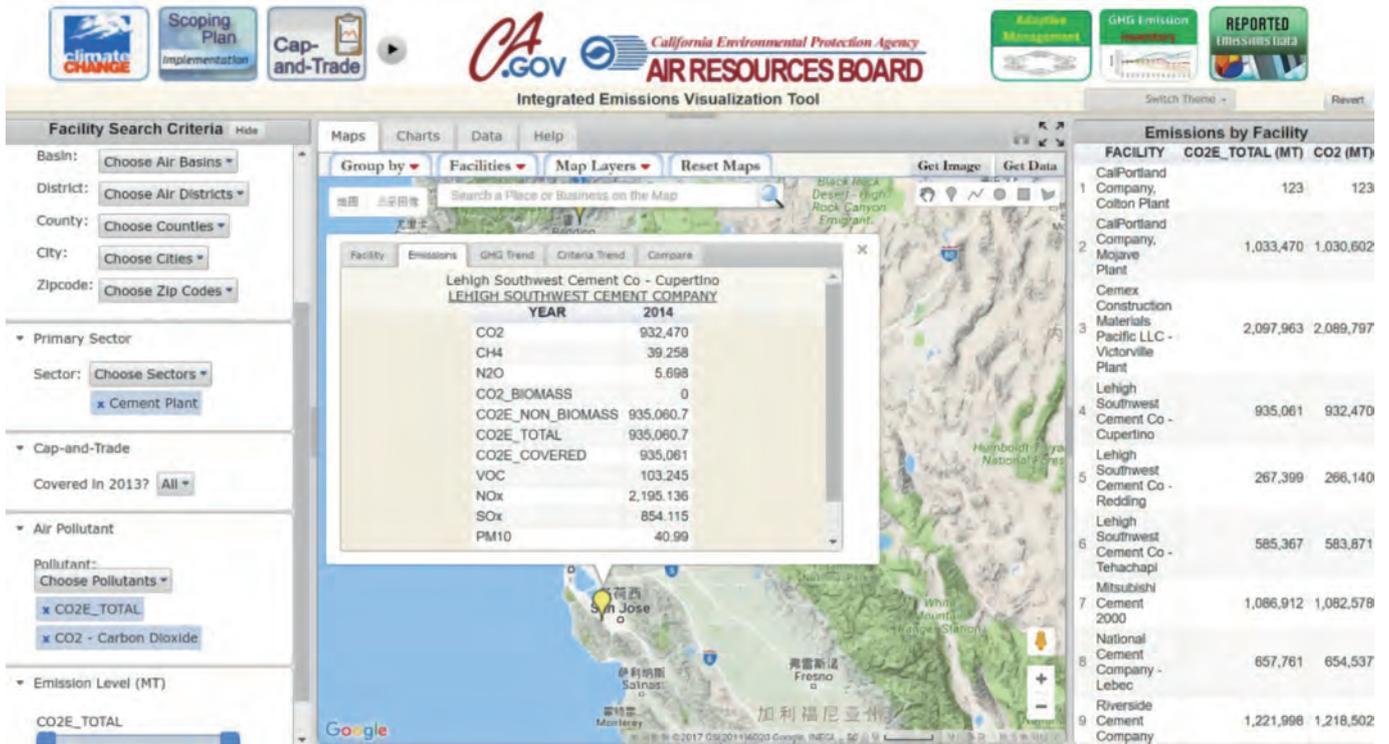


Figure 4: California Emissions Data Visualization Web Page⁸

⁸ https://www.arb.ca.gov/ei/tools/pollution_map/v30beta.htm

Chapter II

Information disclosure in China's carbon market



1. Regulations

China's policy of carbon peak and carbon neutrality has repeatedly emphasized the importance of carbon emission disclosure. In October 2021, the *Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy* was jointly released by the Central Committee of the Communist Party of China and the State Council, pointing out that the construction and enhancement of the national carbon emission trading market need to be accelerated; the carbon emission reporting and information disclosure systems of enterprises and financial institutions need to be improved as well. In October of the same year, the State Council issued the *Action Plan for Carbon Dioxide Peaking Before 2030*, requiring relevant listed companies and bond-issuing companies to regularly disclose carbon emission information following the legal disclosure requirements for environmental information.

China has planned a clear roadmap for environmental information disclosure to provide institutional-guarantees for climate-related information disclosure. In May 2021, the MEE issued the *Reform Plan for the Legal Disclosure of Environmental Information System (abbr. Plan)* to make a detailed plan for the

roadmap of environmental information disclosure. According to the Plan, in December of the same year, the MEE would issue the *Administrative Measures for the Legal Disclosure of Environmental Information and the Guidelines on the Form of Legal Disclosure of Environmental Information of Enterprises*; in 2022, the format of documents related to information disclosure of listed companies and bond issuing enterprises will be revised; in 2023, the evaluation of the legal disclosure system of environmental information will be carried out. By 2025, the mandatory disclosure system of environmental information will be basically formulated, enterprises will disclose environmental information on time in accordance with the law; the multi-party cooperation and co-management mechanism will be implemented effectively; supervision and punishment measures will be strictly implemented; the construction of the rule of law will be continuously improved; the technical specification system will serve as strong support, and the public participation will significantly increase. In July 2021, the *Guidelines for Environmental Information Disclosure of Financial Institutions* issued by the People's Bank of China is of pioneering significance to promote financial institutions actively conducting environmental information disclosure.

2. Information disclosure in China National ETS

During the construction of China's pilot carbon markets, each pilot has established and gradually improved its own MRV system and released the standards of GHG accounting and reporting for different industries, including the development of industry-specific carbon emission accounting and reporting guidelines, the GHG emission reporting format, the establishment of electronic reporting system, the formulation of third-party verification procedures and report preparation guide

lines, etc., providing invaluable experience for reference in the construction of the MRV management mechanism of the national emission trading system (ETS). During the construction of the national ETS, more attention has been paid to the requirements for climate-related information disclosure. In order to enhance the data management system, industries including petrol, chemical, building materials, non-ferrous, paper making, and aviation are asked to submit the updated Supplementary Data Statement annually.

Table 2.1: GHG emissions accounting methods and reporting guidelines for enterprises in key industries

Batch	Industrial enterprise reporting guidelines
The first batch (2013)	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Power Generation Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Power Grid Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Iron and Steel Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Chemical Production Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Electrolytic Aluminum Manufacturers (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Magnesium Smelting Production Enterprises in China (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Flat Glass Manufacturers (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Cement Manufacturers (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Civil Aviation Enterprises (for Trial Implementation)
The second batch (2014)	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Petroleum and Natural Gas Manufacturers (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Petrochemical Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Independent Coking Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of China's Coal Manufacturers (for Trial Implementation)
The third batch (2015)	Accounting Methods and Reporting Guidelines of GHG Emissions of Papermaking and Paper Product Manufacturers (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of Other Nonferrous Metal Smelting and Rolling Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of Electronic Equipment Manufacturing Enterprises (for Trial Implementation)

Continued Table 2.1: GHG emissions accounting methods and reporting guidelines for enterprises in key industries

Batch	Industrial enterprise reporting guidelines
The third batch (2015)	Accounting Methods and Reporting Guidelines of GHG Emissions for Machinery and Equipment Manufacturing Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of Mining Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of Food, Tobacco, Alcohol, Beverage and Refined Tea Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions for Public Building Operating Units (Enterprises) (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of Road Transportation Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of Fluorine Chemical Enterprises (for Trial Implementation)
	Accounting Methods and Reporting Guidelines of GHG Emissions of Enterprises in Other Industries (for Trial Implementation)

Table 2.2: National Standards for GHG Management

Serial Number	Title	Implementation Date
GB/T 32150-2015	General Guidelines for Accounting and Reporting of Greenhouse Gas Emissions for Industrial Enterprises	2016-06-01
GB/T 32151.1-2015	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 1: Electricity Generators	2016-06-01
GB/T 32151.2-2015	Greenhouse gas emissions accounting and reporting requirements Part 2: Grid companies	2016-06-01
GB/T 32151.3-2015	Greenhouse gas emissions accounting and reporting requirements Part 3: Magnesium smelters	2016-06-01
GB/T 32151.4-2015	Greenhouse gas emissions accounting and reporting requirements Part 4: Aluminum smelters	2016-06-01
GB/T 32151.5-2015	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 5: Steel Producers	2016-06-01
GB/T 32151.6-2015	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 6: Civil Aviation Companies	2016-06-01

Continued Table 2.2: National Standards for GHG Management

Serial Number	Title	Implementation Date
GB/T 32151.7-2015	Greenhouse gas emissions accounting and reporting requirements Part 7: Flat glass producers	2016-06-01
GB/T 32151.8-2015	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 8: Cement Manufacturing Companies	2016-06-01
GB/T 32151.9-2015	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 9: Ceramic Producers	2016-06-01
GB/T 32151.10-2015	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 10: Chemical Manufacturing Companies	2016-06-01
GB/T 32151.11-2018	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 11: Coal Producers	2019-04-01
GB/T 32151.12-2018	Greenhouse Gas Emissions Accounting and Reporting Requirements Part 12: Textile and Apparel Companies	2019-04-01

Table 2.3: Information disclosure requirements for different entities in the national ETS

Competent authorities	The provincial competent authorities of ecological environment should promptly disclose the compliance of key entities.
Registration and trading institutions	Information such as carbon emission registration, trading, and settlement should be promptly released, and relevant information that may induce major changes in the market should be disclosed.
Key emission entities	The GHG emissions of the previous year should be disclosed promptly after the compliance.

The *Measures for the Administration of Carbon Emissions Trading* (for Trial Implementation) also states the requirements for information disclosure: key emission entities shall regularly disclose the annual GHG emission reports; the MEE and the provincial competent authority of ecological environment shall regularly disclose the information including the compliance key emission entities; national carbon emission registration and trading institutions shall establish a risk management mechanism and information disclosure system, formulate risk management plans, and promptly release information such as carbon emission registration, trading, and settlement; key entities and other trading entities shall, in accordance with the relevant regulations of the MEE, promptly disclose information on relevant activities of the national ETS, and accept the public supervision. *The Interim Regulations on the Administration of Carbon Emission Trading* (Revised Draft) clarifies the requirements of information disclosure and makes relevant stipulations for different stakeholders such as competent authorities, registration and trading institutions, and enterprises.

3. The operation of information disclosure digital platform

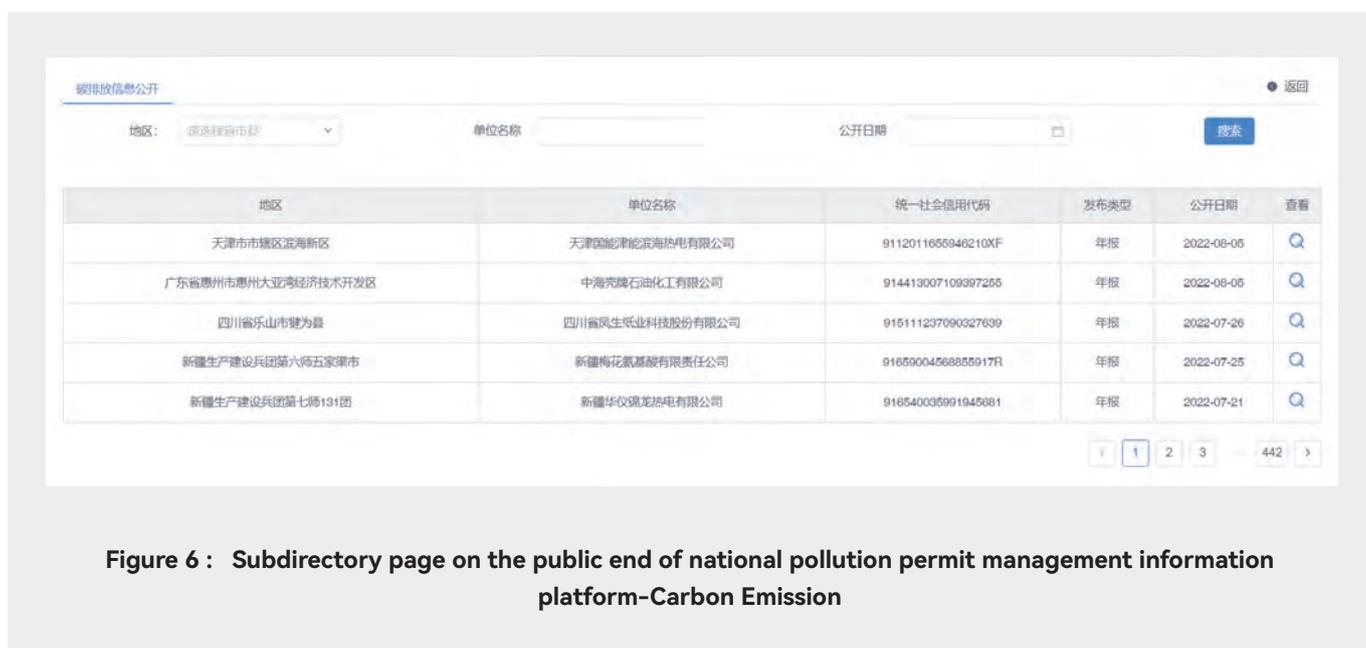
Leveraging the “National Pollutant Discharge Permit Management Information Platform” , the national carbon market data reporting platform is built to give full play to the synergistic effect of pollution reduction and carbon reduction. The carbon emission data reporting system is incorporated at the platform’s enterprise end, which includes the data quality control plan and carbon emission reporting. The carbon emission data management system is incorporated at the platform’s management end to allow the competent authority of the environment and carbon verification service agency to realize functions such as online verification, entrusted verification, supervision and management, and statistical analysis.



Figure 5: National Pollutant Discharge Permit Management Information Platform Public End⁹ Web Page

⁹ <http://permit.mee.gov.cn/permitExt/defaults/default-index!getInformation.action>

Key emission entities submit data in a unified form(annual report) through the platform. Through the data reporting platform, key entities covered by the national ETS need to fill in the permit application form and implementation report with information such as the basic production situation of the enterprise(such as the enterprise name and industrial categorization), machine set information(including the type of fuel and unit, installation capacity, type of boilers and turbine exhaust cooling method and so on), production facility information, and the method to determine the monthly low-level heat generation and elemental carbon content of the corresponding unit, etc. At present, 2216 key entities data (as of September 2022) can be found on the “Pollutant Discharge Permit Management Information Platform” , which includes the enterprises’ total annual carbon dioxide emissions and their compliance performance. Typically, raw data submitted by reporters (e.g., actual electricity generation or heat supply, etc.) is not made public directly; reported data can be generalized and released, or detailed data can be released through an online database.



附录 D
温室气体重点排放单位信息公开表

D.1 基本信息											
重点排放单位名称											
统一社会信用代码											
排污许可证编号											
法定代表人姓名											
生产经营场所地址及邮政编码（省、市、县、详细地址）											
行业分类		黑色金属冶炼和压延加工业									
纳入全国碳市场的行业子类		自备电厂									
D.2 机组及生产设施信息											
机组名称		信息项				内容					
1#2#机组合并填报		燃料类型		燃煤		机组类型		300MW 等级以下常规燃煤机组			
		装机容量 (MW)		10+15MW		锅炉类型		煤粉锅炉			
		汽轮机排汽冷却方式		其他							

续表

D.3 低位发热量和元素碳含量的确定方式											
机组	参数	月份	自行检测				委托检测				未实测
			检测设备	检测频次	设备校准频次	测定方法标准	委托机构名称	检测报告编号	检测日期	测定方法标准	缺省值
1#机组	低位发热量	2019年1月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					
		2019年2月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					
		2019年3月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					
		2019年4月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					

续表

D.3 低位发热量和元素碳含量的确定方式											
机组	参数	月份	自行检测				委托检测				未实测
			检测设备	检测频次	设备校准频次	测定方法标准	委托机构名称	检测报告编号	检测日期	测定方法标准	缺省值
1#机组	低位发热量	2019年1月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					
		2019年2月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					
		2019年3月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					
		2019年4月	量热仪5E-C5 500	每批次	每年	GB/T213-2008					

Figure 7: Example of corporate GHG emission information disclosure table

Chapter III

Advantages and challenges of promoting climate-related information disclosure in China leveraging the carbon market mechanism



At present, climate-related information disclosure in China is still at the initial stage, and the relevant mechanism needs to be further improved. Leveraging the carbon market to promote climate-related information disclosure is of great significance for improving data quality and promoting disclosure standardization, and also laying a foundation for the enhancement of a climate-related information disclosure system in turn. However, there are still some challenges and difficulties, including inconsistent disclosure standards, unclear disclosure platforms, unprecise disclosed subject levels, and the enterprise's low enthusiasm for participation.

1. The disclosure quality has been improved but a unified standard system has yet to be established

According to the current situation of climate-related information disclosure, the content of disclosure is relatively subjective and difficult to make horizontal comparisons, and the disclosed information is not widely utilized. One of the main reasons is that climate-related information disclosure is mainly described qualitatively and generally lacks quantitative information; the other is that there are large differences in information disclosure among industries without unified standards and third-party verification mechanisms.

Climate-related information disclosure based on the carbon market ensures the accuracy and reliability of the data being disclosed. The *Measures for the Administration of Carbon Emissions Trading (for Trial Implementation)* clearly requires that the GHG emissions of covered entities will be reported and verified under the supervision and management of the MEE, indicating that the data submitted according to the unified indicators, guidelines, and methodology, is

consistent and comparable. The verification of a third-party institution and the competent authority required by subsequent Monitoring, Reporting, and Verification (MRV) has also greatly improved the reliability and accuracy of data.

China's current national standards for GHG emissions accounting and reporting requirements and the guidelines for carbon emissions accounting and reporting by industry were released earlier, although supplementary data tables are updated annually on the basis of the guidelines, the content of the guidelines and standards still needs to be updated. At the same time, as the current national carbon market in China only includes the power generation industry, a climate-related information disclosure standard system covering multiple industries has not yet been formed, and the accounting standards and other quantitative indicators and statistical caliber for corporate carbon emissions still need to be further standardized.

2. The degree of standardization of disclosure has been improved but the unified information platform still needs to be improved

Currently, due to the lower standardization of climate-related information disclosure and a lack of standardized disclosure processes, data consistency and continuity are still at a lower level, affecting the comparability of information. One of the main reasons is that voluntary disclosure is still the mainstream, indicating the content and form are more flexible; the other is that the structure of information disclosure is not unified, and the carbon emission data is stated in different parts of different kinds of report.

Climate-related information disclosure leveraging the national ETS data reporting platform has effectively improved its standardization in the following ways. First, the competent authorities have clearly stipulated the time and cycle of carbon emission information disclosure of enterprises¹⁰, and the national ETS data reporting platform has also adopted standardized measures for the carbon emission disclosure of covered entities in the power industry. Second, the carbon emission data reporting consists of the monitoring plan and the emission report, and the above files will be submitted by enterprises to the provincial competent authority of ecological environment for review. This standardized the enterprise's carbon emission information disclosure to a certain extent, endowing disclosed climate information with comparability.

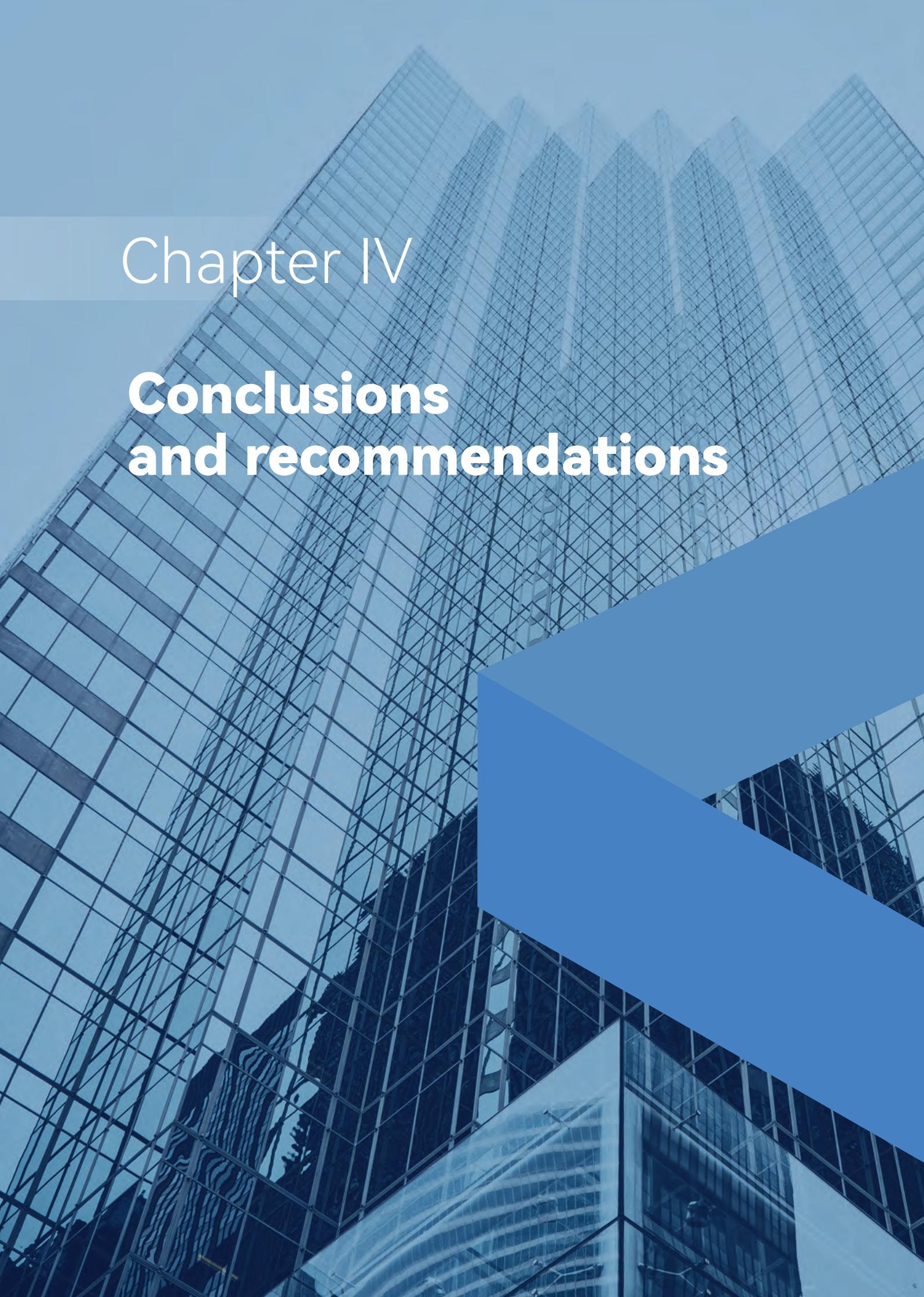
However, the carbon emission report of the national ETS is based on the "National Pollutant Discharge Permit Management Information Platform", and the disclosure and release of climate information need to be further improved and upgraded through the platform. On the one hand, it is necessary to clearly define which kind of data belongs to the climate information, for example, setting up an exclusive on the disclosure platform for public climate-related information disclosure; on the other hand, it is important to prepare the climate-related information disclosure to the public. In addition to providing reporting channels for key emission entities in the carbon market, compatibility with non-compliance enterprises should also be considered to improve the operability of their data reporting.

¹⁰ The Measures for the Administration of Carbon Emission Trading (for Trial Implementation) requires that "Major emitting entities shall develop their previous year's GHG emission reports in accordance with the technical specifications for enterprise GHG emissions accounting and reporting issued by the MEE as well as their filed Monitoring Plan and submit them to the competent provincial ecology and environment authorities of the location where the entities are operating. Emission reports shall be submitted by March 31 of each year through the environmental information management platform or other methods specified by the MEE".

3. The scope of the subject is gradually expanding and the cross-level convergence and enterprise capacity building still need to be strengthened

The subjects of climate-related information disclosure are mainly listed companies or enterprise groups, while the carbon market data reporting system not only covers the listed entities but also the non-publicly listed companies at the same time, facilitating the expansion of entities of climate-related information disclosure and compulsorily incorporates entities which meet specific emission amount in climate-related information disclosure system. However, the data reporting based on the carbon market is only intended for covered entities, thus there are certain limitations in the coverage of industries and enterprises; from the perspective of coverage, the MRV system focuses on Scopes 1 and 2 carbon emissions of regulated entities, which means a relatively limited scope of application comparing with the demand of economy-wide climate disclosure. In addition, emission data reporting and climate-related information disclosure are relatively separated without robust linkage and interaction in the current operation of the ETS. The carbon market information reporting is based on independent legal entities (such as a power plant), while climate-related information disclosure is mainly conducted by listed companies or enterprise groups as a whole. Due to the gap just mentioned above, the data reporting system cannot be fully utilized by the listed companies to implement climate-related information disclosure at the corporate level.

Climate-related information disclosure involves competent authorities at various levels such as ecological environment, financial supervision, and industrial informatization, and the disclosure work relies on the cross-departmental and cross-platform work of the corresponding data information platform, including the data reporting, review, disclosure, supervision of data, while coordination mechanism needs to be further established and improved. In addition, due to the lack of unified disclosure rules and standards to guide enterprises to conduct climate-related information disclosure, enterprises are cautious about carbon emission information disclosure, and their relevant capabilities also need to be enhanced. Data security and confidentiality management is also a critical issue that enterprises pay more attention to, especially enterprises covered by the carbon market. The risk of sensitive information divulgement due to information disclosure is also one of the reasons why enterprises are not willing to disclose. In addition, capacity building is still highly needed, and it is also necessary to further improve the business environment of domestic certification agencies and third-party service agencies.



Chapter IV

Conclusions and recommendations

Developing information disclosure based on the carbon market MRV system and the mature carbon accounting methodologies is conducive to ensuring the accuracy, consistency and standardization of data. To further promote the information disclosure mechanism leveraging the carbon market, the following recommendations are proposed.

1. To improve accounting standards and disclosure specifications, and establish implementation rules

Finance is essential for achieving carbon neutrality goal, and climate-related information disclosure will lay a solid foundation for relevant policy design and facilitate investment by financial institutions. To ensure the clarity and consistency of data disclosure, it is necessary to establish a unified mechanism, standard, and method for climate-related information disclosure.

Establish a unified carbon accounting standard system. Scientific and effective accounting methods can improve the quality of information disclosure of enterprises, and help to enhance their motivation and confidence in this area. And carbon accounting and climate investment of financial institutions mainly depend on the climate-related information disclosure of entities. At present, quantitative indicators such as accounting standards for corporate carbon emissions still need to be further standardized. For example, whether to adopt the international standards or the domestic standards based on local experiences need to be considered, and the finally issued standards should be based on the industry-specific accounting and reporting guide

lines, and need to be optimized and updated on time to form a system as soon as possible.

Improve the standard system with specific implementation rules. The *Administrative Measures for the Legal Disclosure of Corporate Environmental Information* (abbr. *Measures*) issued by the MEE at the end of 2021 is by far the only top-level document to regulate the relevant activities of corporate environmental information disclosure and to strengthen public supervision. The Measures was implemented on February 8, 2022. However, the file does not clarify specific requirements for the form, content, and standard of disclosure. Although enterprises have made various voluntary attempts at information disclosure, there are still some problems, such as inconsistent formats, unclear data, and the lack of unified methodology and robust endorsement, so the implementation rules need to be further standardized.

To establish a coherent and detailed management system of information disclosure based on the carbon market mechanism. To achieve carbon

peaking and carbon neutrality, high-quality climate-related information disclosure is highly demanded by different stakeholders. At the same time, climate-related information disclosure has become increasingly critical to support the operation of the carbon market. The operation of the carbon market mechanism and the establishment of the climate-related information

disclosure system complement each other, so it is necessary to establish a coherent and detailed management system taking both into consideration, to coordinate all departments through a unified and standardized platform, and to promote information disclosure effectively by consistent, stable, and detailed management rules.

2. Promote climate-related information disclosure leveraging the carbon market and establish a unified disclosure platform

Corporate climate-related information disclosure includes multiple elements such as timeliness, low cost, resource sharing, and technology empowerment. The establishment of a unified information disclosure platform will help optimize resource sharing and thereby provide better services for market stakeholders.

Implement climate-related information disclosure based on the environmental information management platform. China has established a relatively complete data accounting system for the carbon market, and the reporting platform also provides strong support for future information disclosure. It is recommended to establish a climate-related information disclosure platform based on the “National Pollutant Discharge Permit Information Management Platform” and clarify the authority in charge of different processes, and conduct climate-related information disclosure based on the work and management system of the ecological and environmental department. Gradually transform the environmental information

management platform to become the foundation of enforcement, and continuously improve the platform functions including screening, checking, summarizing, and analyzing data so as to facilitate the supervision of competent authorities and forward-looking data analysis of enterprises.

Establish a “transform” mechanism between carbon market information reporting and corporate climate-related information disclosure. As carbon emission data is a kind of business secret, it is necessary to establish an effective “transform” mechanism for highly sensitive information to ensure corporate information security. Furthermore, technologies including big data, the Internet of Things, and blockchain should be fully used to reduce the cost of corporate information disclosure.

3. Establish a phase-by-phase disclosure mechanism and strengthen enterprise data security

Climate-related information disclosure is a process which needs to be developed and further improved according to different phases. It is recommended to implement it step by step from the aspects of different areas, industries, subjects and contents.

It is recommended to start climate-related information disclosure from regional pilots carbon market, considering their abundant experiences on emission data accounting and reporting. The climate investment and financing pilots, low-carbon cities and other areas is recommended to be incorporated by stages.

1-2 key emission industries in the carbon market with a good data base (such as power, steel) are suggested to be selected for first trial. As the other key industries will be gradually incorporated into the national carbon market, the scope of climate-related information disclosure will be enlarged accordingly, and eventually become a mechanism covering high carbon emission industries, finance and other high value-added industries.

Talking about the subject, it is recommended that to first start with and the subjects of different sizes and goals should be incorporated to gradually expand the scope of disclosed subjects, and regulate the disclosure methods of different enterprises with a unified framework. For the entities not included in the carbon market, it is necessary to further refine the disclosure requirements, rules and formats based on the methodology developed by the carbon market and relevant data statistics rules, and it is also neces-

sary to clarify whether the relevant data needs to be certified by a third-party verification agency.

It is essential to fully consider the enterprise data security and management costs to determine the content need to be disclosed. Corporate climate-related information disclosure is a process from the qualitative method to the combination of the qualitative and the quantitative. Data related to industrial stability and business secrets needs to be seriously considered. At the same time, the management cost and transition pressure should also be taken into account to reduce enterprises' burdens. Furthermore, it is recommended that enterprises gradually establish an internal management mechanism for climate-related information disclosure, mapping out their carbon emissions situation, strengthen data quality management through informatization, and strengthen the accuracy and consistency of data statistics, to lay a foundation for quantitative disclosure in the future. In addition, since Scope 3 disclosure involves the upstream and downstream supply chains, relevant data is difficult to be obtained, and the data accuracy needs to be improved. At present, most domestic enterprises do not have the conditions to disclose accurate and complete Scope 3 carbon emission information, and the Scope 3 disclosure of financial institutions mainly relies on the Scopes 1 and 2 information disclosure of other industries. Therefore, the climate-related information disclosure of enterprises still mainly involves Scopes 1 and 2 by now, and financial institutions should strengthen the connection and communication with other industries to gradually include the disclosure of Scope 3 emissions information when conditions permit.

Table 3.1: Phased disclosure recommendations based on the carbon market

	Initial stage (until 2023)	Middle stage (until 2025)	Later stage (after 2025)
Areas	Start with a local pilot carbon market.	Expand to climate investment and financing pilots, low-carbon city pilots and other regions by stages.	Gradually expand to the whole country.
Covered industry	Select 1-2 key emission industries in the carbon market (such as power, steel, etc.).	Gradually expand to the eight key industries in the carbon market.	Cover high carbon emission industries, finance and other high value-added industries.
Subjects	Focus on carbon market regulated enterprises.	Gradually include enterprises that implement mandatory cleaner production audits, listed companies and bond-issuing companies that meet the prescribed conditions.	Cover carbon market regulated enterprises, listed companies, bond issuers, financial institutions and other diversified disclosure entities.
Content	Basic information of the enterprise (unit name, legal representative, registered address, contact person and contact information, main products, etc.); information on emission facilities; total annual carbon dioxide emissions; changes in production and operation; carbon market compliance, etc.	In addition to the content disclosed in the initial stage, carbon accounting boundaries and accounting methods are added, including activity level data and emission factor source descriptions, etc.; annual changes in total carbon emissions and intensity (mainly Scope 1 and Scope 2 carbon emissions).	In addition to the contents disclosed in the initial and mid-term stages, Scope 3 carbon emissions and the non-CO2 emissions will be gradually included when conditions permit.

4. Consider cross-industry convergence and improve comparability of information disclosure

From an investment perspective, financial institutions pay more attention to the completeness and effectiveness of information disclosure. At present, investment institutions mainly rely on the annual reports of listed companies to find out climate-related data, and cannot obtain complete, verified and comparable information.

To achieve carbon peaking and carbon neutrality, it is key for investment institutions to assess the carbon emission risk of listed companies, and the disclosure of carbon emission data and carbon emission performance of enterprises also plays a key role in the risk assessment.

Considering the cross-industry convergence and the characteristics of different industries, it is suggested to establish a set of specific industry standards under the unified climate-related information disclosure framework. Information disclosure requires cross-industry convergence, thereby increasing data comparability, helping companies to further upgrade carbon emission management, and facilitating horizontal and inter-industry comparisons which is important for investment institutions. In general, companies disclose climate information from their own interests, which is

not quite useful for investors to compare among industries. It is suggested to, on the basis of the carbon market's requirements, clarify the definition of climate-related information disclosure, build a standard system, and standardize the uniform technical requirements for climate-related information disclosure across industries (such as emission reduction actions and related assessments which focus on emission reduction performance and relevant quantitative data). At the same time, the accounting methods of different industries and the scope of disclosure of different enterprises shall be uniformly stipulated, and the boundaries and scope of responsibility shall be clarified. Through the establishment of an information disclosure expert committee, the top-level design of information disclosure will be strengthened, and the framework construction of the climate-related information disclosure system will be promoted.

5. Promote the capacity building of enterprises and third-party institutions, and gradually improve the level of disclosure

Strengthening the publicity and training of climate-related information disclosure. Through capacity building, the awareness and ability for enterprises on climate-related information disclosure will be enhanced. For carbon market regulated enterprises, it is recommended to strengthen their awareness of participating in carbon trading and climate risk management, encourage them to voluntarily

disclose climate related information, and promote the mutual promotion of carbon market and information disclosure system. For non-regulated enterprises, it is suggested to strengthen policy guidance, encourage them to actively carry out information disclosure related work, systematically improve their climate-related information disclosure capabilities, and further improve the enforceability.

Cultivating third-party professional service teams and strengthening supervision. It is suggested to cultivate and guide third-party institutions to provide professional information disclosure market services and compliance consulting, so as to better support enterprises to improve the quality of information

disclosure. In addition, government also need to refine information disclosure rules and guidelines at the policy level, and at the same time to strengthen third-party audit supervision to ensure the objectivity, authenticity and integrity of disclosed information.

6. Strengthen supervision and information sharing, and deepen communication and coordination

Clarifying the responsibilities of all parties and building a diversified regulatory system. While optimizing the quality of information disclosure, the information security of participants should also be assured. It is also crucial to coordinate the relationship between confidentiality and disclosure; to define the scope of internal information, information disclosure only available between government departments, and the content disclosed to the public; to ensure the security of corporate business secrets and sensitive information; and to strengthen the data security management of the unified disclosure platform. It is also recommended to build a diversified supervision and management system of “enterprise autonomy, industry self-discipline, public oversight, and government supervision”.

Promoting information sharing and establishing a communication and collaboration mechanism. It is suggested to create a collaborative mechanism among relevant departments, open up cross-departmental information sharing channels, and jointly

promote climate-related information disclosure. At the same time, it is necessary to make overall planning and strengthen the in-depth communication between the demand side and the supply side of climate information, that is, the financial sector or investors and enterprises. The national carbon market exchange and registration system can serve as an effective carbon emission management information platform to facilitate carbon information sharing among ecological environment authorities, departments of development and reform, and departments of financial supervision.

INTRODUCTION

About EDF



Founded in 1967 and headquartered in New York, Environmental Defense Fund (EDF) is one of the world's leading environmental organizations. EDF has more than 3 million members and a staff of more than 1000 professionals. Areas that EDF works in include: climate and energy, oceans, ecosystems, health, etc. EDF has been working in China since 1991. In 1997, according to China's overseas NGO law, EDF registered and became the first foreign NGO under the supervision of China's Ministry of Environmental Protection.

About SEEE



Established on August 5, 2008, Shanghai Environment and Energy Exchange Co. Ltd. (SEEE), approved by the Shanghai Municipal People's Government, is the first professional environment and energy trading platform in China. To achieve the targets of carbon peak and carbon neutrality of China, while ensuring the orderly construction and operation of China's national carbon market, SEEE promotes carbon trading, carbon financing and innovative work in other green and low-carbon fields.



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