

上市公司 **CATI** 气候行动CATI指数2023

LISTED COMPANY CLIMATE ACTION INDEX 2023

About IPE

The Institute of Public & Environmental Affairs (IPE) is a non-profit environmental organization based in Beijing, China. Since its establishment in 2006, IPE has developed and operated the Blue Map Database (wwwen.ipe.org.cn), and launched the Blue Map app in 2014, promoting environmental information disclosure, facilitating green supply chain and green finance, empowering the green transition and growth of enterprises, and boosting multi-stakeholder participation in environmental governance.

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Note

1. This round of evaluation was performed from October 1, 2022, to September 30, 2023.
2. The information used for evaluation was obtained from official websites of corporations; annual reports, corporate social responsibility (CSR) reports, environmental, social, and governance (ESG) reports, and other regular reports; information released in public channels, such as on official websites; data released by credible sources collected by the Blue Map database; and responses to CDP climate change questionnaires publicly disclosed by companies.
3. If any divergences arise between the English and the Chinese versions of this report, please refer to the Chinese version, which is the official version of the report.

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I. Introduction

In November 2023, the United Nations Environment Programme released the *2023 Emissions Gap Report*, stating that “as greenhouse gas emissions hit new highs, temperature records tumble and climate impact intensify”. Unless countries take more robust actions beyond their current commitments—specifically, reducing projected 2030 emissions by 28% to align with the 2°C target of the Paris Agreement, and by 42% to have a chance of achieving the 1.5°C target—the world will face temperature increases far above the goals set by the Paris Agreement. The report also noted that despite record growth in solar power capacity and the fact that the increase in global net electricity demand in 2022 was primarily met by renewable energy (excluding hydropower), most governments worldwide continue to invest in fossil fuel extraction and use. Fossil fuel production is expected to more than double by 2030, contrary to the long-term temperature goals of the Paris Agreement.

In response to climate change, an increasing number of companies and financial institutions have publicly committed to reducing greenhouse gas emissions and engaging in climate finance to help achieve the goals of the Paris Agreement and the Glasgow Climate Pact. However, many of the companies that have made commitments have yet to implement them effectively; more companies with significant greenhouse gas emissions have not yet initiated or accelerated climate actions, such as developing decarbonization roadmaps covering emission hotspots, disclosing information and data related to climate change, and promoting low-carbon transitions within their operations and value chains.

As key participants in economic activities, listed companies need to play a leading role in identifying climate change risks and opportunities, planning, and accelerating the implementation of carbon reduction measures. They also need to build trust with stakeholders through comprehensive information disclosure. Since 2022, organizations such as the International Sustainability Standards Board (ISSB), the European Commission, and the U.S. Securities and Exchange Commission (SEC) have successively issued or enhanced standards for disclosing climate-related information, particularly for listed companies. In China, the Supreme People's Court issued the *Opinions on Fully, Accurately, and Comprehensively Implementing the New Development Philosophy to Provide Judicial Services for Actively and Prudently Promoting Carbon Peaking and Carbon Neutrality* in 2023, which explicitly states that companies should be guided to proactively adapt to green and low-carbon development requirements, strengthen environmental responsibility awareness, and disclose environmental information in a timely, truthful, accurate, and complete manner. The Hong Kong Stock Exchange has also actively responded to the ISSB's IFRS S2 Climate-related Disclosures, proposing mandatory climate-related disclosures in ESG reports and has begun consultations on optimizing climate-related information disclosure under the ESG framework.

At the beginning of 2024, under the unified deployment of the China Securities Regulatory Commission, the Shanghai Stock Exchange, Shenzhen Stock Exchange, and Beijing Stock Exchange respectively solicited public comments on the *Guidelines for Sustainable Reports* (hereinafter referred to as the “Guidelines”) on February 8. Regarding climate change, the Guidelines propose that listed companies disclose information on climate change governance, strategy, impact, risk and opportunity management, indicators and targets, as well as climate adaptation, transition plans, total greenhouse gas emissions, emission reduction measures, and carbon emission-related opportunities. The Guidelines also encourage listed companies with capacities to disclose Scope 3 greenhouse gas emissions, conduct climate adaptation assessments using scenario analysis, and engage third-party verification or assurance. According to the Guidelines, listed companies required to disclose sustainable development reports must publish their 2025 sustainability report prepared in accordance with the Guidelines by April 30, 2026.

In addition to the increasingly “mandatory” disclosure requirements, mechanisms such as the Carbon Border Adjustment Mechanism (CBAM) and the *Regulation on Batteries and Waste Batteries* passed by the European Council also send clear signals to companies. These include actively setting emission reduction targets, continuously reducing the carbon emission intensity of industrial production activities and product carbon footprints, enhancing greenhouse gas emission accounting and management capabilities, and disclosing climate-related information according to mainstream international standards.

To guide Chinese companies, especially listed companies, in accelerating their low-carbon transition, IPE launched the Climate Action CATI Index evaluation for A-share and H-share listed companies in 2022, with the guidance of the China Forum of Environmental Journalists and technical support from the Chinese Research Academy of Environmental Sciences. In 2023, IPE upgraded the CATI Index to version 3.0, expanding the evaluation coverage to 880 listed companies. These companies come from industries such as power generation, petrochemicals, chemicals, building materials, steel, non-ferrous metals, paper, and civil aviation, which are included in the national carbon market, as well as strategic emerging industries like batteries and battery materials, electric vehicles, wind and photovoltaic equipment, and renewable energy. Based on the CATI Index 3.0, IPE and partner organizations Green Jiangnan Public Environment Concerned Centre, Jiangxi Environment Communication Center, and Wuhu Ecology Center conducted quantitative evaluations of listed companies’ climate actions across five dimensions: governance mechanisms, measurement and disclosure, carbon target setting, carbon target performance, and climate actions. This evaluation was based on publicly disclosed information from annual reports, ESG reports, sustainability reports, company websites, official information platforms, and credible sources collected in the Blue Map database.

As an independent evaluation system based on publicly available data, we believe the CATI Index can objectively reflect the progress and status of Chinese listed companies in climate action and their position in the “dual carbon” strategy. It helps all parties understand the “baseline value” of Chinese listed companies’ climate actions and reach a consensus on accelerating climate governance and implementing energy conservation and emission reduction measures.

On this basis, we hope that the CATI Index evaluation can guide Chinese listed companies to actively respond to the Guidelines for Sustainable Reports, improve climate governance and management mechanisms, understand their emission baselines through carbon accounting, set science-based emission reduction and carbon neutrality targets, accelerate energy conservation and emission reduction measures, and build trust with stakeholders through comprehensive carbon data disclosure.

We also hope that the CATI Index evaluation can provide decision-making references for investors, helping them identify and mitigate “greenwashing” risks in companies’ development and transition processes, and efficiently allocate financial capital to credible, effective, and executable green development processes. This includes the low-carbon transition of high-carbon industries and companies, as well as the continuous development of strategic emerging industries with low material resource consumption and a leading role in green and low-carbon development, thereby effectively contributing to China’s “dual carbon” goals and global climate governance.

Sources:

1. UNEP, 2023 Emissions Gap Report: <https://www.unep.org/zh-hans/resources/2023nianpaifangchajubaogao>
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3. Supreme People's Court, *Opinions on Fully, Accurately, and Comprehensively Implementing the New Development Philosophy to Provide Judicial Services for Actively and Prudently Promoting Carbon Peaking and Carbon Neutrality*: <https://www.court.gov.cn/zixun-xiangqing-389351.html>
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II. Climate Action CATI Index

At the beginning of the 14th Five-Year Plan period, China's ecological development entered a critical phase, such that achieving carbon emission reductions as the key strategic direction, promoting synergistic reduction of pollution and carbon emission, boosting green transformation in economic and social development to achieve quantitative and qualitative improvement of ecology and environment. Meanwhile, an increasing number of multinational companies have made commitments to reduce GHG emissions in this post-Paris Agreement era to contribute to limiting global warming to 1.5°C.

Against this backdrop, and with technical support from the Chinese Research Academy of Environmental Sciences (CRAES), IPE upgraded the Supply Chain Climate Action SCTI Index to Corporate Climate Action Transparency Index (CATI) in 2018, which quantitatively evaluates the climate actions of Chinese and global companies across five dimensions: governance, measurement and disclosure, carbon targets setting, performance against carbon targets, and climate action.

In 2023, IPE once again upgraded the CATI Index by adding the indicator "Measurement and disclosure of product carbon footprint", which aims to guide companies to pay attention to GHG emissions at all stages from raw material extraction, production, distribution, storage, use to disposal/recycling; and to account for GHG emissions based on the identification of lifecycle emission hotspots, to set GHG emission reduction targets and to establish credible monitoring, reporting and verification (MRV) to achieve green and low-carbon development.



CATI Index Aligns with Chinese and International Policies and Mechanisms

- **SBTi** (Science Based Targets Initiative)
- **GHG Protocol** *The GHG Protocol Corporate Accounting and Reporting Standard*
- **GRI Standards**
- **ISSB IFRS S2** *Climate-related Disclosures*
- **ISO 14067** *Carbon footprint of products*
- **ISO 14025** *Environmental labels and declarations — Type III environmental declarations — Principles and procedures*
- **PAS 2060** *Specification for the demonstration of carbon neutrality*
- **European Union** *Corporate Sustainability Reporting Directive*
- **National Development and Reform Commission** *Guidelines for Greenhouse Gas Accounting and Reporting for 24 industries*
- **Shanghai Stock Exchange** *Guidelines No. 14 for Self-Regulation of Listed Companies—Sustainability Report (Trial)*
- **Shenzhen Stock Exchange** *Guidelines No. 17 for Self-Regulation of Listed Companies—Sustainability Report (Trial)*
- **Beijing Stock Exchange** *Guidelines No. 11 for Continuous Regulation of Listed Companies—Sustainability Report (Trial)*
- **Hong Kong Exchanges and Clearing Limited** *The Environmental, Social and Governance Reporting Guide*

China's climate policies, including:

- *The Guiding Opinion by the Supreme People's Court aims to provide robust judicial protection to achieve the 'dual carbon' goals in response to climate change* (Supreme People's Court, 2023)
- *Implementation Plan for Carbon Dioxide Peaking in the Industrial Sector* (MIIT, NDRC and MEE, 2022)
- *Implementation Plan for Synergizing Reduction of Pollution and Carbon Emission* (MEE and 6 other Ministries, 2022)
- *Measures for the Administration of Legal Disclosure of Enterprise Environmental Information* (MEE, 2021)
- *Guiding Opinions on Coordinating and Strengthening the Work related to Climate Change and Ecological Environmental Protection* (MEE, 2021)
- *Action Plan for Carbon Dioxide Peaking before 2030* (State Council, 2021)
- *Measures for the Administration of National Carbon Emission Trading (Trial)* (MEE, 2021)

As an independent evaluation system based on data, we hope that the CATI Index can objectively reflect the progress of companies' climate action performance and their status in "dual carbon" action. We also hope that the CATI Index provides a roadmap for corporate climate action, guiding companies to start with GHG accounting and creating GHG inventories on the basis of climate governance mechanisms and top-level design, identify hotspot emission sources, set quantitative emission reduction targets and formulate targeted emission reduction plans, break down the emission reduction targets into key production links and value chains, track and disclose their progress towards their targets, and encourage and empower upstream and downstream partners to launch their own climate action initiatives.

Given that the CATI Index incorporates the proportion of Scope 1&2 (own operations) and Scope 3 (value chain) upstream emissions in different industries into its scoring methodology, it can be used for inter-industry comparisons of climate actions and has the potential to guide more industries and types of companies to accelerate low-carbon transitions.

In addition to providing a roadmap for companies' low-carbon transitions, we believe that the CATI Index can also serve as a decision-making reference for investors, particularly institutional investors, guiding them to support industries and companies in accelerating their decarbonization processes while reducing the greenhouse gas emissions of their investment portfolios.

Amidst the backdrop of extreme weather events such as high temperatures, heatwaves, wildfires, droughts, and floods occurring worldwide, and with global greenhouse gas emissions increasing for two consecutive years, achieving a comprehensive low-carbon transformation of the economy and society requires substantial financial support. According to a report released in 2023 by the International Renewable Energy Agency (IRENA) and the Climate Policy Initiative (CPI), to achieve the 1.5°C scenario set by IRENA, a total investment of \$150 trillion is needed globally for energy transition from 2023 to 2050.

Although investors have traditionally focused on investment returns, recent studies indicate that an increasing number of investors are becoming aware that climate-related physical and transition risks could affect the performance of their investment portfolios, leading to adverse financial impacts. The Task Force on Climate-related Financial Disclosures (TCFD) has analyzed climate-related risks, opportunities, and financial impacts, showing that climate change exacerbates extreme weather and sea level rise, which could affect real estate and infrastructure investments, disrupt supply chains, and consequently reduce corporate revenues, asset and liability values, and/or the availability and cost of capital.

In addition to physical risks, TCFD and organizations such as the World Economic Forum also point out that climate change may bring various transition risks. These include policies and regulatory mechanisms related to greenhouse gas emission reduction and neutrality at international, national, and regional levels, technological innovations and changes driven by the socio-economic low-carbon transition, shifts in market demand, and impacts on corporate reputation.

On the other hand, new climate governance regulations, low-carbon and negative-carbon technologies, and the demand from buyers and consumers for low-carbon or even zero-carbon products present opportunities for companies and investors and help enhance supply chain resilience. In this context, investors, especially institutional investors, can help accelerate the decarbonization process of high-energy-consuming and high-carbon-emitting industries and companies by reducing the GHG emissions of their investment portfolios while promoting the rapid development of strategic emerging industries such as renewable energy.

Nevertheless, investors face multiple challenges in promoting the implementation of climate mitigation measures by companies. These challenges include obtaining sufficient and reliable information (including baseline data), monitoring and evaluating the emission reduction effects of existing investment strategies, measuring and tracking the progress of low-carbon transformation, identifying and preventing "greenwashing" risks, and prospectively assessing the future emission reduction contributions of investment strategies.

As an independent evaluation system based on data, the CATI Index aligns with major domestic and international climate change mechanisms. It objectively and comprehensively shows the progress, shortcomings, and potential of companies in climate action, particularly whether they have set science-based targets during the low-carbon transition, publicly disclosed annual carbon emission data, and tracked the performance of their targets. This helps drive emission reduction measures at key emission sources within the value chain and provides decision-making references for investors.

To facilitate investors' understanding of the evaluation results, we categorize the evaluation results of listed companies' CATI Index into three levels and nine grades, with scores represented as AAA, AA, A, BBB, BB, B, CCC, CC, and C. Level A indicates high levels of information disclosure and greenhouse gas emission reduction in their operations and supply chain, Level B indicates a certain degree of information disclosure and emission reduction, and Level C indicates significant deficiencies in information disclosure and emission reduction. Investors can also disaggregate the five primary indicators, 13 secondary indicators, or even tertiary indicators of the CATI Index according to their risk model characteristics or incorporate them into existing evaluation models to assess the low-carbon transformation trends of listed companies.

In addition, the CATI Index serves as a roadmap to guide companies in setting and implementing more ambitious, feasible, and credible emission reduction targets and paths. By fully disclosing information, companies can build trust with investors, enhance the credibility of their low-carbon transformation, assist investors in assessing transformation progress, and identify and prevent "greenwashing" risks during the company's development and transformation process. This will help attract more financial capital to efficiently invest in credible, effective, and executable green development processes, support high-carbon-emitting industries and companies in accelerating their low-carbon transformation, and continuously support the development of strategic emerging industries that consume fewer material resources and play a leading role in green and low-carbon development. This will fully leverage the positive role of sustainable finance and jointly achieve the climate goals proposed by the Paris Agreement.



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- https://mc-cd8320d4-36a1-40ac-83cc-3389-cdn-endpoint.azureedge.net/-/media/Files/IRENA/Agency/Publication/2023/Feb/IRENA_CPI_Global_RE_finance_2023.pdf?rev=8668440314f34e588647d3994d94a785
- <https://news.mit.edu/2022/investors-awake-risks-climate-change-0204#:~:text=Increasingly%2C%20Allonby%20said%2C%20investors%20are%20opening%20their%20eyes,beneficiaries%2C%20they%20are%20taking%20action%20to%20fight%20it>
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III. 2023 Listed Companies CATI Evaluation Results

TOP 50

01 002475 A	02 00992 A	03 002938 A	04 601012 A	05 600019 BBB	06 02020 BBB	07 601231 BB	08 601138 BB	09 600028 BB	10 00293 BB
11 00002 BB	12 000063 BB	13 00175 BB	14 002352 BB	15 600027 BB	16 02618 BB	17 000717 BB	18 02232 BB	19 688472 BB	20 600219 BB
21 601857 BB	22 002466 BB	23 02686 BB	23 600660 BB	25 00384 BB	25 02688 BB	27 000875 BB	28 000825 BB	29 600808 BB	30 601005 BB
31 02380 BB	32 02319 BB	33 00135 BB	33 600938 BB	35 00836 BB	35 01810 BB	35 600011 BB	38 300207 BB	39 01972 BB	40 00101 BB
41 603626 B	42 600438 B	43 00636 B	43 09988 B	45 603605 B	45 002241 B	47 600803 B	47 01193 B	49 600567 B	50 02233 B

2023 CATI TOP 10

002475



00992



002938



601012



600019



02020



601231



601138



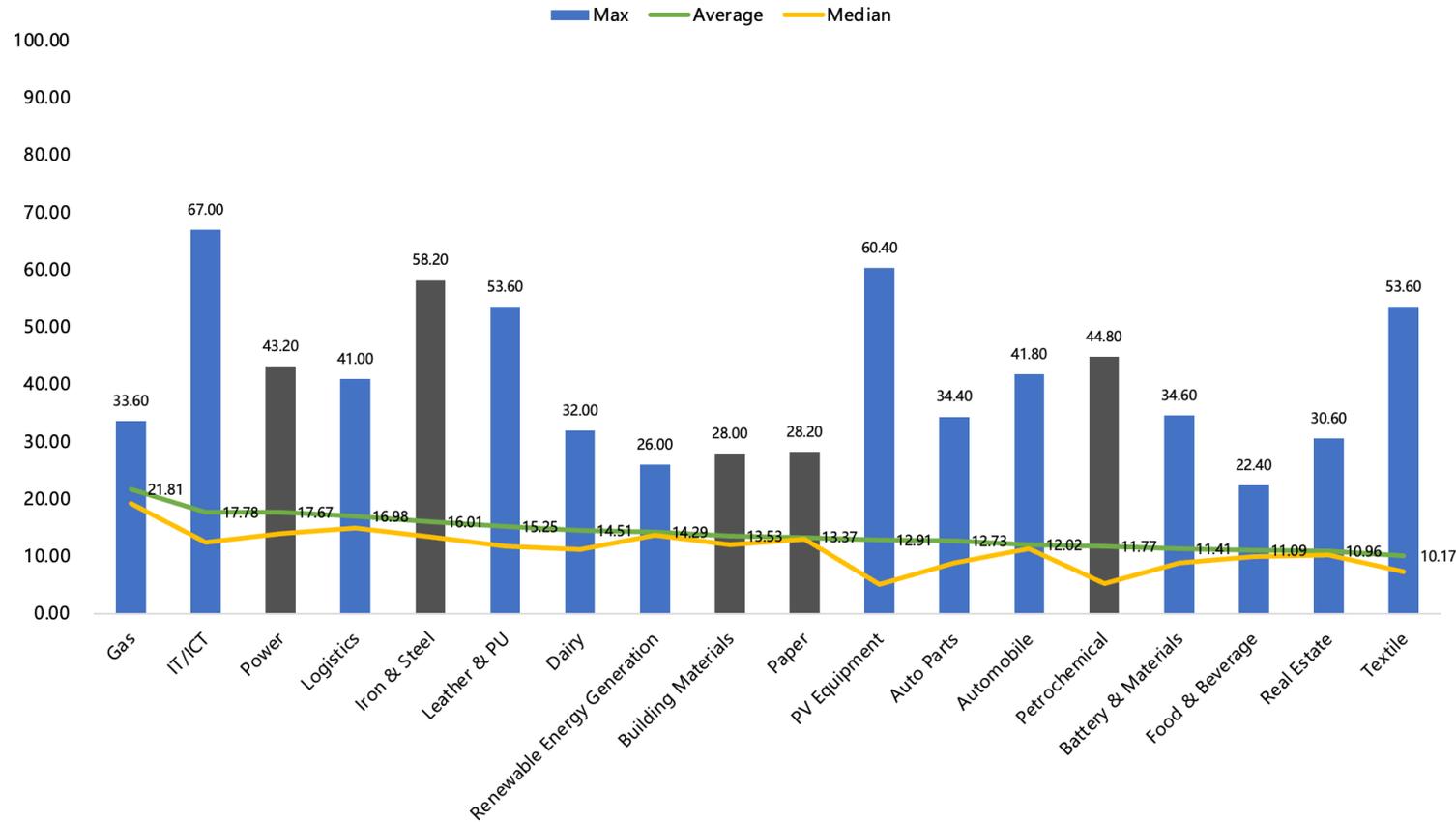
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00293



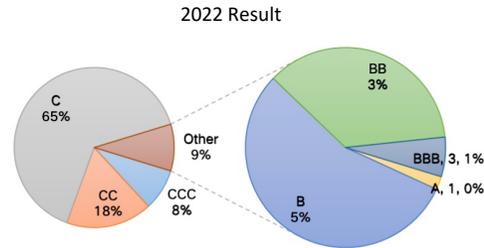
2023 CATI Evaluation Results by Industry



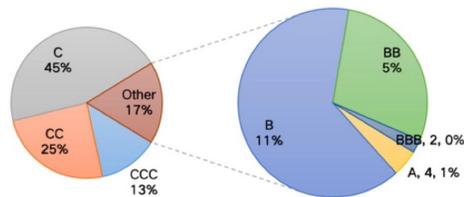
- The IT/ICT, steel, power, logistics, and gas industries are in a relatively leading position;
- The interior decoration, household appliances, chemicals, environment and waste management industries are in a relatively lagging position;
- The industries included in the carbon market have an average score of 12.9, which is 2 points higher than the average score of all evaluated companies. The steel industry, facing "carbon barriers" in international trade, and the power industry included in China's national carbon market mechanism, are leading in climate action

2022-2023 Evaluation Results Comparison

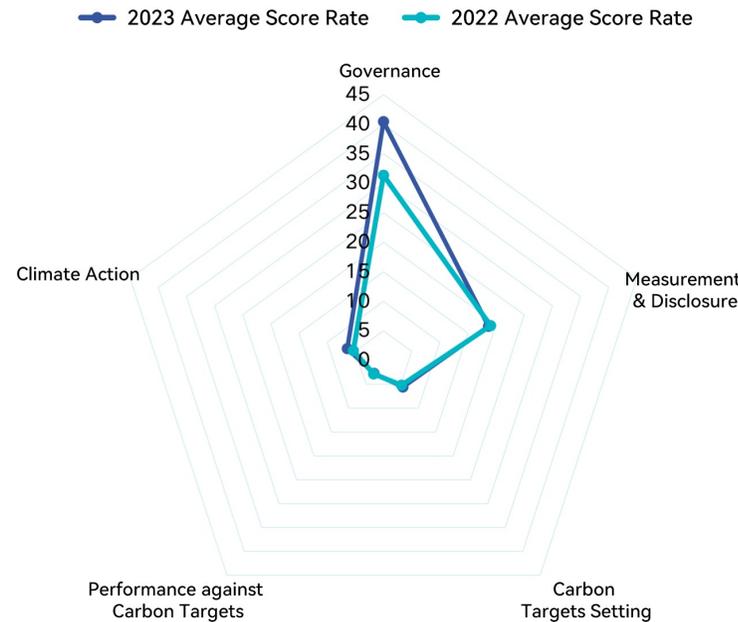
- Leading companies continue to expand the depth and breadth of climate governance. There are four A-level companies: Luxshare Precision (002475), Lenovo Group (00992), Avary Holding (002938), and LONGi Green Energy (601012).
- The proportion of companies rated B-level and above increased from 9% to 17%. Companies rated CCC and CC grew by 5% and 7% respectively, while C-level companies, which are relatively lagging, decreased from 65% to 45%, indicating that more companies are accelerating their climate governance.



2023 Result (for listed companies evaluated for two consecutive years)



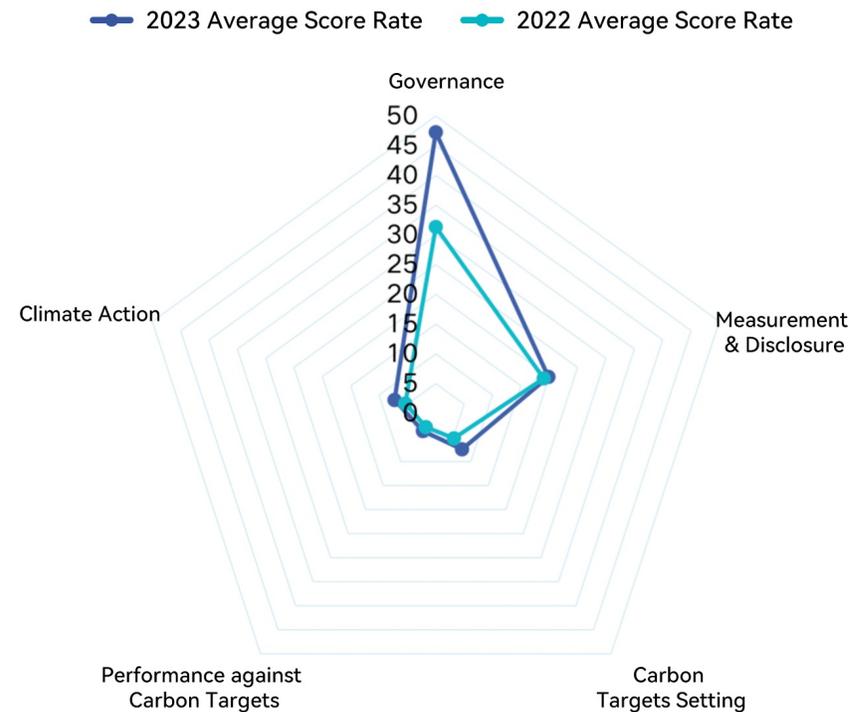
Comparison of Average Scores for All Evaluated Companies



- Companies have made significant progress in establishing climate governance mechanisms, with 94% of companies conducting disclosures, and the average score rate increased by 29% year-on-year.
- **Most companies are currently at the stage of formulating low-carbon transition policies**, with limited disclosures or no quantifiable, trackable climate targets proposed.
- In 2023, **nearly 70% of companies** conducted GHG measurement and disclosures, and 11% disclosed target performance. The average score rates for these two dimensions slightly decreased (by 2% and 4% year-on-year, respectively), indicating that most companies need to strengthen the disclosure of information related to the baseline year, GHG inventory, and Scope 3 emissions.
- **30% of companies have published climate targets, and 90% have undertaken emission reduction actions.** The average score rates for these two dimensions have slightly increased, but the average scores for 2023 are still insufficient, accounting for only 10% of the total score in these dimensions. Most companies urgently need to quantify their climate commitments and implement large-scale emission reduction projects.
- **30% of companies have published climate targets, 90% have carried out emission reduction actions.** The average score rates of these two dimensions increased slightly, but the average score in 2023 is still insufficient, accounting for 10% of the total score of this dimension. Most companies urgently need to quantify their climate commitments and undertake projects to reduce emissions at scale.

2022-2023 Evaluation Results Comparison

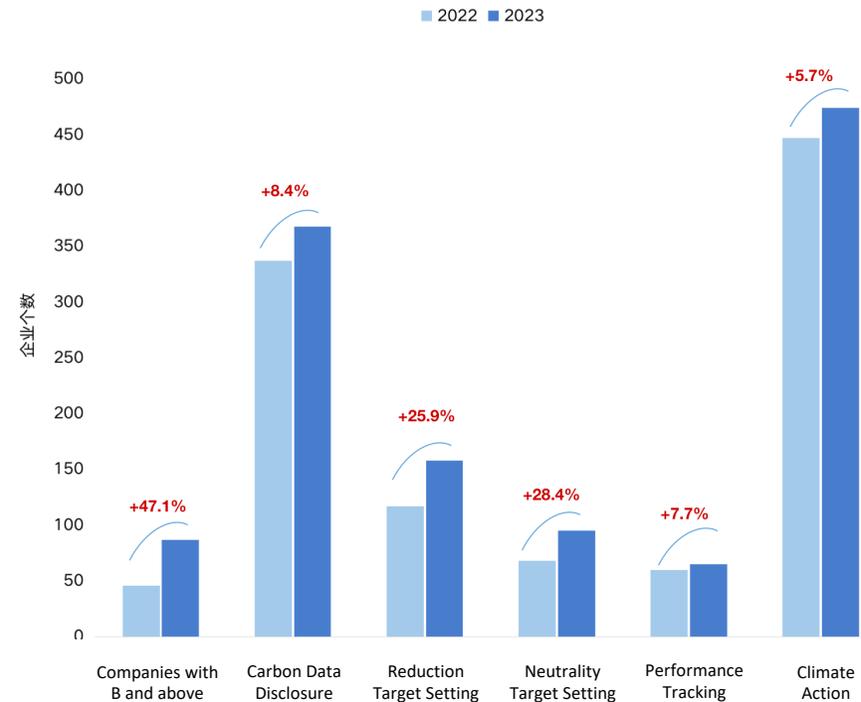
Comparison of Average Scores for Companies Evaluated for Two Consecutive Years



- The average score of the **497 companies** evaluated for two consecutive years increased by more than 3 points compared to 2022, showing progress in all evaluation dimensions.
- The **governance mechanism** dimension showed significant progress, with the average score rate increasing by **50%** year-on-year.
- The number of companies that started **measuring and disclosing** carbon emission data increased by 10%, and the average score rate increased by nearly **20%** year-on-year. More companies began disclosing indicators such as carbon intensity and Scope 3 emissions.
- **The dimensions of target setting and emission reduction actions grew by 44% and 35% year-on-year, respectively**, indicating that leading companies are gradually quantifying their emission reduction commitments, breaking down targets, and implementing emission reduction actions. However, the number of companies publicly disclosing target performance and the average score rate are still insufficient.

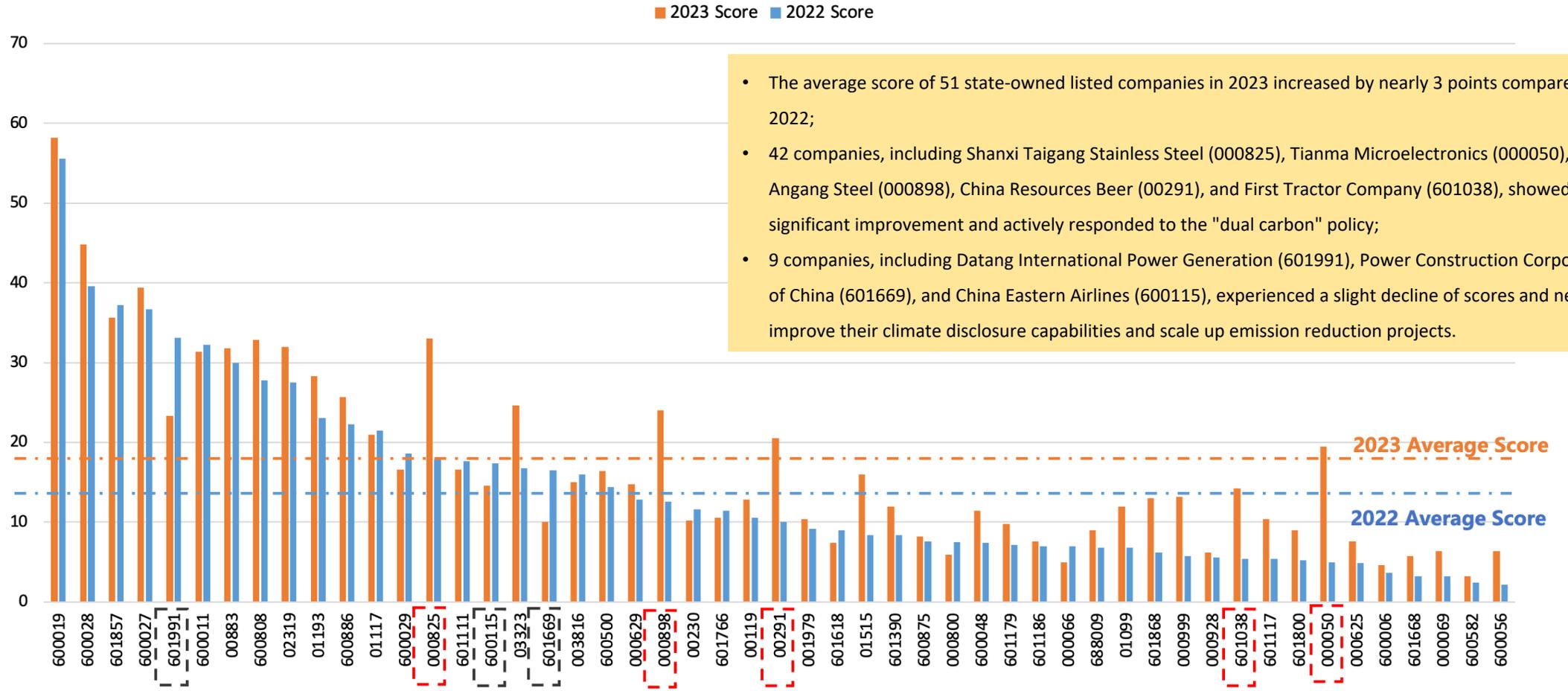
2022-2023 Evaluation Results Comparison

Comparison of Key Indicator for Companies Evaluated for Two Consecutive Years



- The number of companies with evaluation results of grade B or above increased by nearly 50% year-on-year.
- The number of companies **setting and publicly disclosing carbon neutrality targets and emission reduction targets** saw the most significant growth, with **year-on-year increases of 28% and 26%**, respectively.
- Companies **measuring and publicly disclosing carbon data** increased by **8% year-on-year**;
- The number of companies disclosing target performance and reduction actions grew limitedly. **About 95% of companies have publicly disclosed their energy-saving and emission reduction actions, but less than 20% of companies have disclosed their target performance**, which urgently needs to be strengthened.

2022-2023 Evaluation Results Comparison for State-owned Listed Companies Evaluated for Two Consecutive Years



2022-2023 CATI Outstanding Progress TOP 10

02020



688472



002459



000717



01810



603605



688223



01117



600581



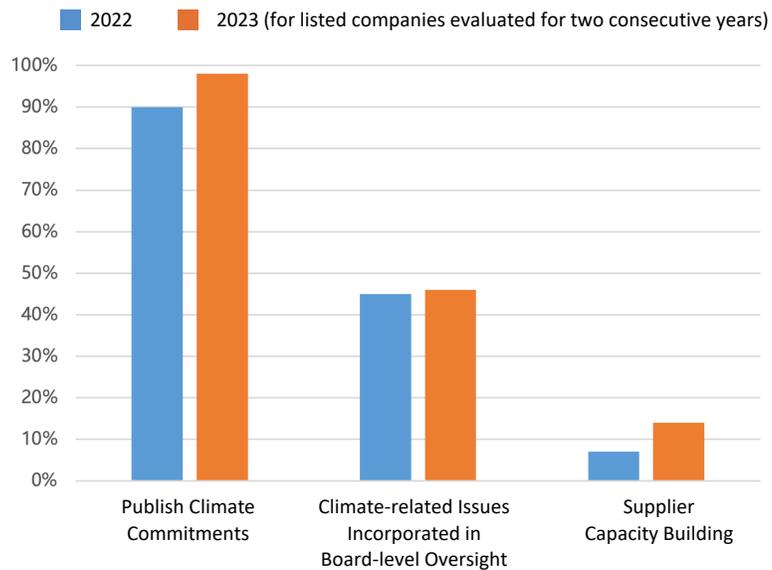
603626



Finding 1 Climate Governance and Management

Among the 880 listed companies evaluated in 2023, over 90% have issued climate declarations and formulated climate-related policies

- 43% have incorporated climate change into business decisions and have risk management procedures targeting climate-related risks;
- 36% have included climate-related issues in the supervisory responsibilities of the highest decision-making level of the board of directors, addressing investors' concerns about how companies respond to climate change risks and the allocation of personnel for climate issues.
- Comparison of 497 companies evaluated for two consecutive years:

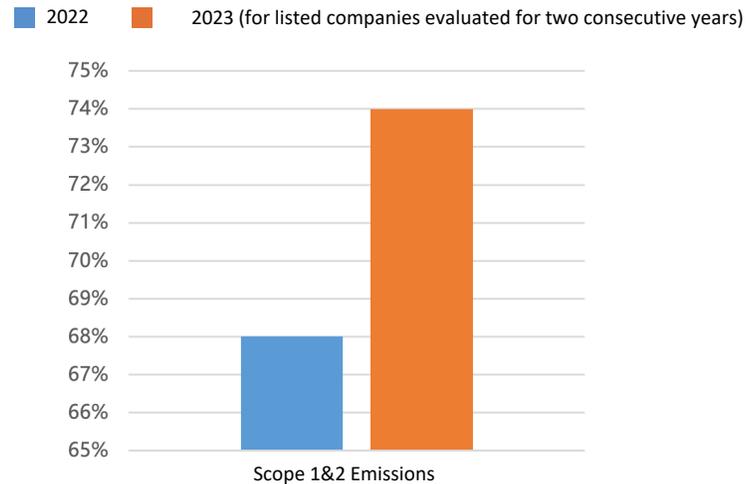


Finding 2 Emission Measurement and Disclosure

Among the 880 listed companies evaluated in 2023, over 70% have calculated and publicly disclosed carbon data, with a total emission of approximately 3.76 billion tons of CO₂e in the past year.

Driven by the new regulations on mandatory environmental information disclosure:

- 1,234 affiliated enterprises of 321 listed companies disclosed their carbon emissions through annual reports.
- The total GHG emissions in the past year exceeded 2.4 billion tons of CO₂e.
- A comparison of 497 companies evaluated for two consecutive years:



39 companies calculated and disclosed their product carbon footprints, including 11 from the steel industry, 8 from the IT/ICT industry, 6 from the photovoltaic equipment industry, 4 from the non-ferrous metals industry, and 2 from the automotive industry.

Case

- In the steel industry, 10 listed steel companies or their affiliated enterprises publicly disclosed Environmental Product Declarations (EPDs) through the steel industry EPD platform, all of which included product carbon footprint information. The product types covered include iron concentrate, hot-rolled ribbed steel bars, and cold-rolled stainless steel plates.



Finding 2 Emission Measurement and Disclosure

Eight IT/ICT companies release product carbon footprint reports, identifying emission hotspots in product lifecycles

Case

➤ **Lenovo Group (00992)**

Released product carbon footprint reports for thousands of products.

Lenovo Product Carbon Footprint (PCF) Information Sheet
PC/Notebook/Monitor/Tablet

Commercial Name	ThinkPad 8	
Model Number	MIT-20BN/20BQ	
Issue Date	August 21, 2015	

Product Environmental Attributes

(a) Product Carbon Footprint Value: **220 kg of CO₂e** (see Note 1 below)

(b) Product Picture:

(c) Life Cycle Detail by Component & Life Stage (Pie Chart):

Component / Life Stage	Percentage
Display	27%
Mainboard and other boards	20%
Battery	13%
Power Supply	9%
Case	3%
Hard Drive	2%
Optical Drive	0%
Transportation	0%
Packaging	0%
Use	0%
End of Life	0%

Note 1:
All estimates of carbon footprint are uncertain. Lenovo reports the 95th percentile of the carbon footprint estimate to reflect that uncertainty. For this product, that estimate has a mean of 159 kg of CO₂e and standard deviation of 37 kg of CO₂e. Other organizations might report this value as 159 +/- 37 kg of CO₂e. This PCF was generated using the Product Attribute to Impact Algorithm model, Version 5, Date: November 2012 (Product Type: Notebook). © Massachusetts Institute of Technology's Materials Systems Laboratory, August 2012. Please refer to the Intended Uses and Limitations of the PAIA Model. © Massachusetts Institute of Technology's Materials Systems Laboratory, August 2012 for further details. [Link to Document](#)

This calculation was based upon a Lenovo ThinkPad 8 with the assumptions and configuration described in the calculation assumptions in the next page.

This pie chart provides the percent contribution of the mean value for each element of the analysis for the full life cycle CO₂e impacts of the product. Individual elements displaying 0% are less than 0.5%.

Case

➤ **Kersen (603626)**

Released product carbon footprint verification certificate.

声明书编号 CN23/00001937

SGS

产品碳足迹核查声明书

产品碳足迹研究:

1个耳机塑料前壳(规格 A0802-B494)
由以下公司开展:

昆山科森科技股份有限公司
中国江苏省苏州市昆山开发区新景南路 155 号

经核查符合
ISO 14067:2018

1个耳机塑料前壳(规格 A0802-B494)的碳足迹为
0.11904 kg CO₂e eq.

被核查产品的生命周期阶段为
插塞到大门

签署
David Xin
Sr. Director - Knowledge
日期: 2023年4月19日

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Photovoltaic companies publicly release Environmental Product Declaration (EPD) reports

➤ **France mandates product carbon footprint calculation for the photovoltaic industry.**

The French Energy Regulatory Commission (Commission De Régulation De L'énergie, CRE) requires photovoltaic power projects over 100kW exported to the French market to submit a "Simplified Product Carbon Footprint Report (Evaluation Carbone Simplifiée, ECS)." The carbon footprint of photovoltaic modules must be below 550kgCO₂e/kWp. The carbon impact of bidding products is scored based on how much their product carbon footprints fall below this benchmark.

EPD®
THE INTERNATIONAL EPD SYSTEM

EPD PLATFORM
EPD VERIFIED

Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15043:2012/A2:2019AC: 2021

Programme: The International EPD System, www.environdec.com
Programme operator: EPD International AB
EPD registration number: S-P-09079
Publication date: 18/04/2023
Revision date: 29/05/2023 (version 2)
Valid until: 18/04/2028

LONGI

Product name:
Solar photovoltaic module

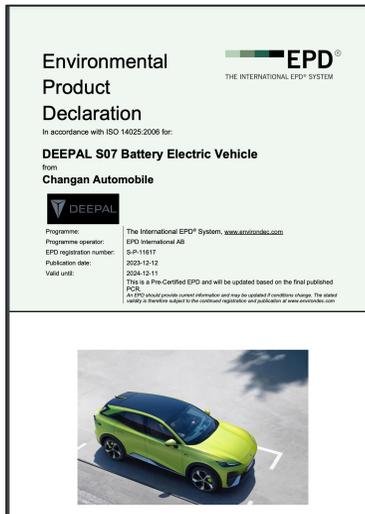
LRS-54HH
LRS-54PH
LRS-54PH
LRS-54HTB
LRS-54HTH
LRS-66HH
LRS-66PH

Finding 2 Emission Measurement and Disclosure

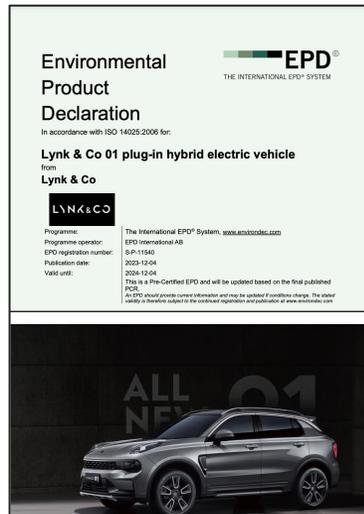
Automotive companies conduct product carbon footprint and lifecycle environmental impact assessments and disclosures

- Actively responding to international market trade requirements to enhance green competitiveness.
- On December 15, the "China Automotive Industry Dual Carbon International Cooperation Seminar" was held in Beijing. The international EPD system awarded EPD certificates to Geely and Changan.

➤ Changan Automobile



➤ Geely Automobile



China Automobile Industry Chain Carbon Publicity Platform (CPP), the first carbon footprint disclosure platform for the automotive industry chain, published the lifecycle carbon footprint data for 1,400 vehicles in 2023.

- CPP aims to strengthen local automotive carbon data, promote international mutual recognition of carbon footprint information, and excel in the new international trade centered on "carbon emissions."
- As of the end of September 2023, the CPP platform has disclosed carbon emission data for nearly 1,400 products from over 20 companies, including passenger cars, their components, and automotive materials. The data includes carbon footprints, carbon reduction amounts, carbon labels, and more.
- CPP conducts evaluations of low-carbon vehicles and supports green consumption through publicly available data.

China Products Carbon Footprint Factors Database (CPCD)

Open-source platform, trusted carbon labels, helping enterprises tackle climate challenges

中国产品全生命周期温室气体排放系数库
CPCD, China Products Carbon Footprint Factors Database

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矿石和矿物; 电、气和水 Ores and minerals; electricity, gas and water (344)	农业、林业和水产品 Agriculture, forestry and fishery products (658)	其他可运输货物, 金属制品、机械和设备除外 Other transportable goods, except metal products,... (777)	商业和生产服务 Business and production services (63)
社区、社会和个人服务 Community, social and personal services (85)	食品、饮料和烟草; 纺织品、服装和皮革制品 Food products, beverages and tobacco; textiles, apparel an... (540)	碳移除 Carbon dioxide removal (69)	核心数据库 Core Data Base (130)

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中国产品全生命周期温室气体排放系数集 (2022) 正式发布 (附数据下载)

原创 碳中和中心

生态环境部环境规划院

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核算、计量和评估产品全生命周期温室气体排放, 对于从消费端管理温室气体排放和基于产业链推动碳减排具有重要意义, 是推动中国实现碳达峰碳中和的重要数据支撑。

Product Carbon Footprint Disclosure and Catalogue (PCFD)

Promoting product carbon footprint disclosure and application, enhancing data mutual recognition and international benchmarking

蔚蓝0碳
blue map for zero carbon

产品碳足迹披露与检索平台
20679

请输入您要搜索的产品名称、企业名称、品牌名称 搜索

[全部](#) 衣 食 住 用 行 工业 农业 服务

共20679 个产品碳足迹数据

编号	产品名称	碳足迹	核算边界	数据时间
1	DEEPAL S07 Battery Electric Vehicle	0.17kgCO ₂ e/1千米, 运送...	摇篮到坟墓	2023
2	Lynk & Co 01 plug-in hybrid electric ...	0.20kgCO ₂ e/1千米, 运...	摇篮到坟墓	2022
3	MacBook Pro (13-inch, M2, 2022) 25...	167.00kgCO ₂ e/台	摇篮到坟墓	2022
4	ThinkStation P340 SFF	897.00kgCO ₂ e/每台五年...	摇篮到坟墓	2022
5	iPhone 14 Pro 1TB	116.00kgCO ₂ e/部	摇篮到坟墓	2022
6	HP 27-inch All-in-One	343.00kgCO ₂ e/每台五年...	摇篮到坟墓	2023
7	黑松茶花绿茶580ml	260.00gCO ₂ e/每瓶580ml	摇篮到坟墓	2022
8	Lenovo ThinkSystem DE6600F/H an...	11310.00kgCO ₂ e/每台五...	摇篮到坟墓	2022
9	Running shoes	2.94kgCO ₂ e/双	摇篮到坟墓	2022
10	Polestar 2 - european (EU28) electri...	42.00tCO ₂ e/一辆行驶20...	摇篮到坟墓	2020

Polestar
Polestar 2 - european (EU28) electricity mix

产品碳足迹
42 tCO₂e
更新时间: 2023-10-10

基本信息 产品分类

度量单位: 辆
功能单元/声明单元: 一辆行驶200,000公里的特定极星车辆

核算方法学: ISO 14040, ISO 14044
核算边界/系统边界: 摇篮到坟墓

数据时间: 2020
产品产地: -

数据来源: Polestar官网披露

生命周期各阶段碳足迹 (单位: tCO₂e/一辆行驶200,000公里的特定极星车辆)

阶段	碳足迹 (tCO ₂ e)
Materials production	17
Li-ion battery modules	7
Manufacturing	2.2
Use phase	15
End-of-life	0.5

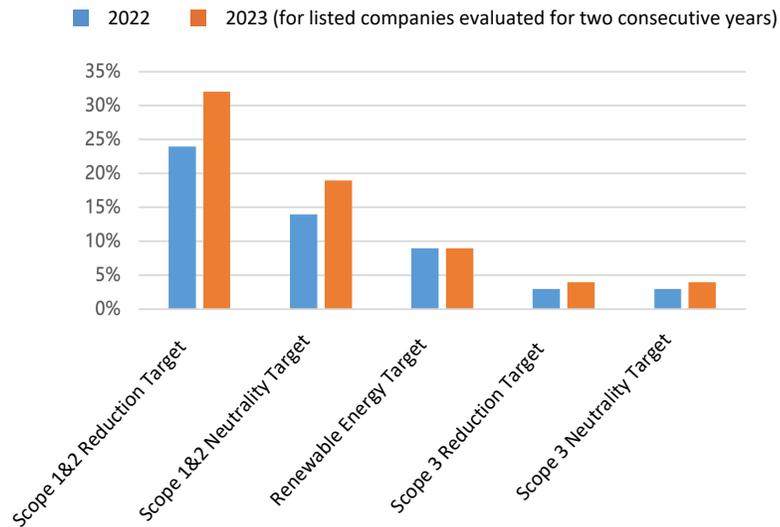
Screenshot taken on 02/18/2024

Finding 3

Carbon Target Setting

Among the 880 listed companies evaluated in 2023, there has been a significant increase in the proportion of companies setting and disclosing emission reduction targets:

- 23% of the evaluated companies have set and disclosed Scope 1&2 emission reduction targets.
- 14% have specified the timeline for their own operations (Scope 1&2) to reach peak emissions or achieve carbon neutrality.
- Comparison of 497 companies evaluated for two consecutive years:

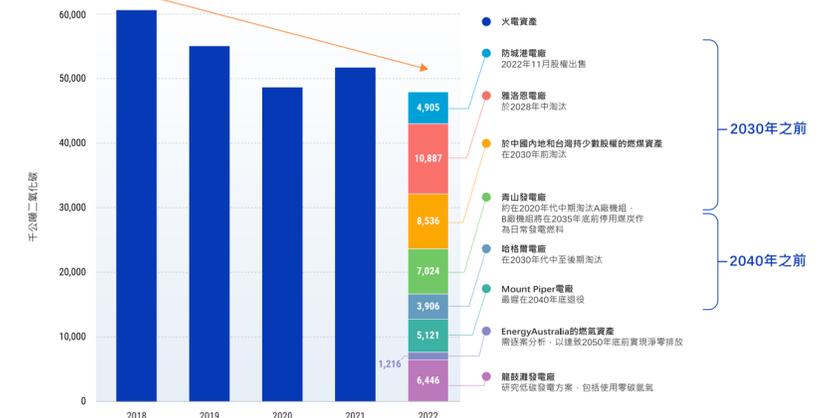


Committed to achieving net-zero emissions by 2050 and continuously tracking corporate carbon intensity.

Case

CLP Holdings (00002)

- Achieve 0.3 kg CO₂e per kWh by 2030; achieve 0.1 kg CO₂e per kWh by 2040.
- Develop a coal phase-out plan: gradually retire or sell coal-fired power assets in mainland China and overseas.



Source: CLP Holdings, 2022 Climate Disclosure Report

Finding 3 Carbon Target Setting

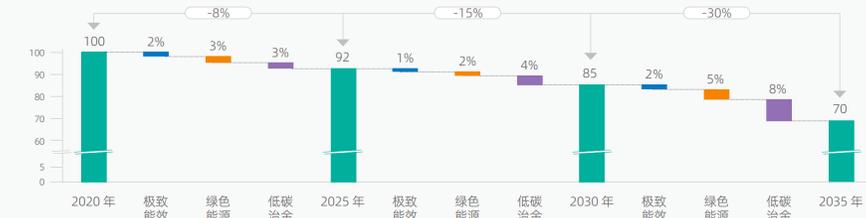
LONGi (601012), ZTE Corporation (000063), SF Holding (002352), and 30 other companies have announced Scope 3 emission reduction targets. Lenovo Group (00992), Avary Holding (002938), Baosteel (600019), and 26 other companies have further committed to Scope 3 carbon neutrality targets.

Case

Baosteel (600019)

Identified emission reduction baselines and set emission reduction targets for the entire value chain and scrap steel utilization:

- Strive to peak carbon emissions by 2023 and achieve carbon neutrality by 2050.
- Using 2020 as the base year, reduce carbon emissions by 8% by 2025, 15% by 2030, and 30% by 2035; aim to reduce carbon emissions from the bulk raw material supply chain by 30% by 2035.
- By 2030, add 2.3 million tons/year of low-carbon-emission high-grade steel production using electric arc furnaces with 100% scrap steel.



宝钢中长期减碳规划

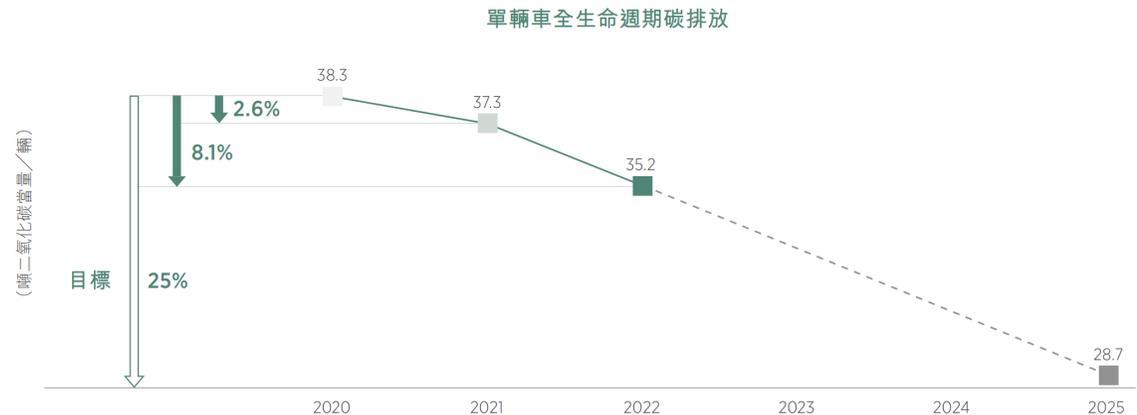
Source: Baoshan Iron & Steel Co., Ltd., 2022 Sustainability Report

Case

Geely Auto (00175)

Established a full lifecycle carbon footprint management mechanism and set clear targets for suppliers to replace low-carbon raw materials:

- Announced vehicle lifecycle carbon emission reduction targets.
- Clearly disclosed procurement targets for low-carbon steel and low-carbon aluminum.
- By 2025, primary core suppliers will use 20% recycled steel and 30% recycled aluminum



Source: Geely Auto, 2022 Environmental, Social, and Governance Report

Finding 3 Carbon Target Setting

Eight companies' climate targets approved by the Science Based Targets initiative (SBTi):

Lenovo Group (00992)

LONGi Green Energy (601012)

JD Logistics (02618)

Swire Properties (01972)

Hang Lung Properties (00101)

Shanying International (600567)

Tencent (00700)

Shui On Land (00272)

Case

LONGi (601012)

Set science-based targets and empower suppliers to reduce Scope 3 emissions

- Committed to reducing Scope 1&2 greenhouse gas emissions by 60% by 2030, using 2020 as the base year; aiming to reduce the carbon intensity per ton of purchased raw materials by 52%; joined RE 100, EP100 and EV 100 initiatives.
- To address the challenge of reducing embedded carbon emissions in major purchased raw materials (Scope 3), LONGi Green Energy launched the "Supply Chain Green Partner Empowerment Program" in 2022.
- Assisting suppliers to establish corporate carbon management systems, empowering suppliers to conduct carbon inventories, set carbon reduction targets and pathways, implement energy-saving and emission-reduction actions, and increase the proportion of renewable energy investments.

倡议



承诺目标

到 2027 年实现 70% 可再生电力使用，2028 年实现 100% 可再生电力使用。

2022 年达成情况

2022 年，隆基实现绿电用电占比达 47.18%，绿电使用量较 2021 年增长 38.21%。

倡议



承诺目标

在 2025 年前完成能源管理系统的部署，并以 2015 年为基准年提高 35% 能源利用效率。

2022 年达成情况

截至 2022 年，共有 8 家生产基地完成能源管理信息化系统建设，2022 年新增 1 家生产基地完成系统建设；2022 年全集团整体能源使用效率较 2015 年提高 66.64%。

倡议



承诺目标

到 2030 年在 100% 生产经营场所安装充电设施。

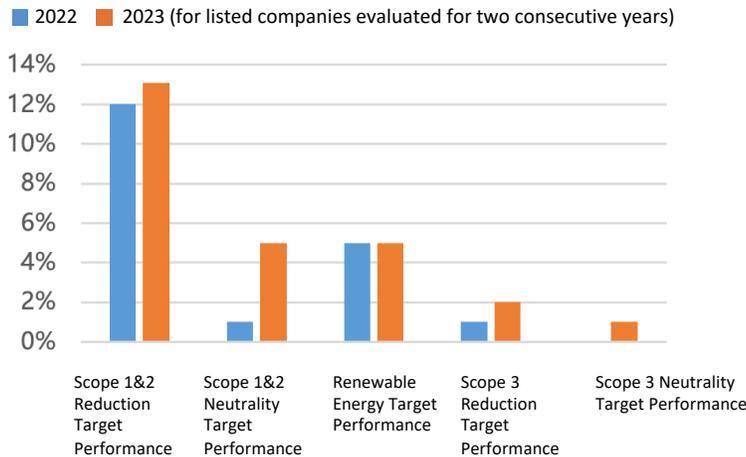
2022 年达成情况

在全集团范围内组织了充电桩的集中采购，涉及 7 个省份，13 个城市，23 个经营场所，预计 2023 年内“EV 100”规划的首批充电桩将投入使用。

Finding 4 Target Performance Evaluation

Among the 880 listed companies evaluated in 2023, only 11% disclosed their performance towards climate targets:

- Corporate carbon management capabilities need improvement: many companies have not established emission reduction baselines, and there is insufficient disclosure regarding these baselines.
- Climate targets are not quantifiable through emission data over multiple years: The types (intensity/absolute) and boundaries (including emission source categories) of the targets are unclear.
- Disclosure standards for most listed companies do not yet specify requirements for baseline disclosure: companies should disclose emission reduction baselines when setting targets and provide supplementary explanations when baselines are adjusted.
- Comparison of 497 companies evaluated for two consecutive years:

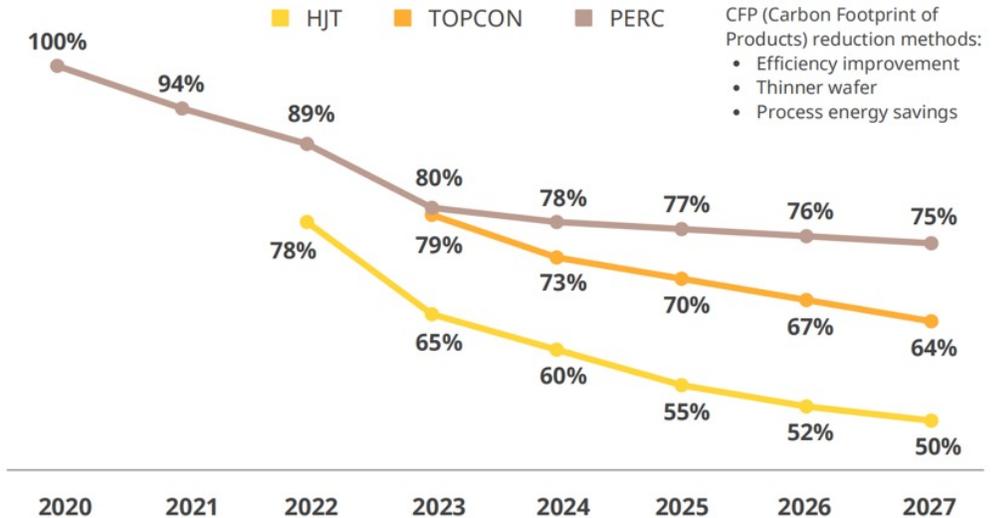


Case

Canadian Solar (688472)

- Set product carbon footprint reduction targets, continuously track reduction progress, and publicly disclose Environmental Product Declaration (EPD) reports to enhance market competitiveness.
- Continuously reduce carbon footprint by improving energy efficiency, reducing energy consumption, and product weight. The current product carbon footprint of the company is significantly lower than the photovoltaic industry average (500-550 kgCO₂e/kWp).
- Below figure shows the product carbon footprint reduction targets for three different types of photovoltaic cells: HJT, TOPCON, and PERC.

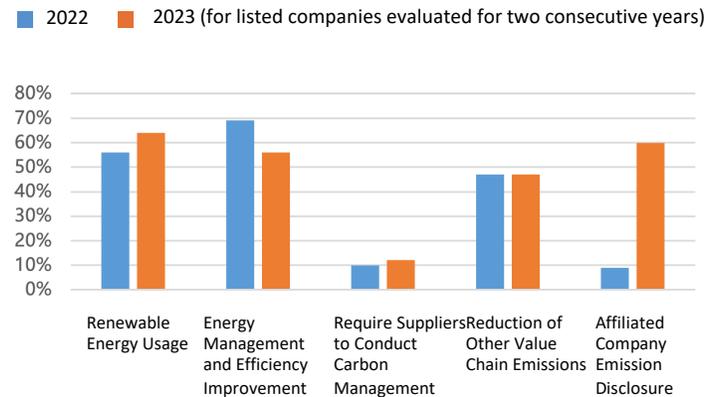
Product Carbon Emission Reduction Roadmap (%)



Finding 5 Climate Actions - Reducing Emissions in Owned Operations

Among the 880 listed companies evaluated in 2023, over 70% have undertaken actions to reduce emissions in their own operations:

- More than half of the companies have purchased green electricity, installed rooftop photovoltaics, or replaced fossil fuels with biomass and other non-fossil fuels.
- Seventy percent of the companies have improved energy efficiency by replacing low-energy-consuming equipment and utilizing energy in a cascading manner.
- One-fifth of the companies have undertaken emission reduction actions through technological innovation, reducing direct emissions, and reducing emissions from mobile sources.
- Comparison of 497 companies evaluated for two consecutive years:



A report released by the International Energy Agency (IEA) shows:

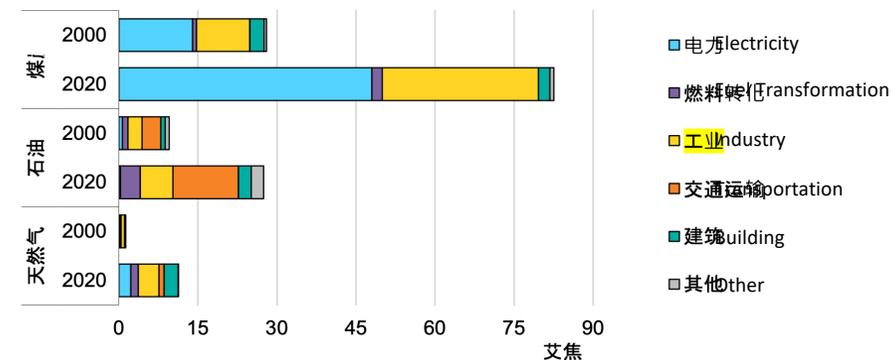
- In 2022, China's greenhouse gas emissions decreased by 0.2% compared to 2021.
- The industrial sector is a major consumer of fossil fuels, especially coal.

Article published by China Development Observation indicate:

- More than 70% of China's CO₂ emissions come from industrial production or process emissions.
- According to estimates, since 2005, the carbon emissions from six high-energy-consuming industries, including ferrous metal smelting and rolling processing, and non-ferrous metal smelting and rolling processing, have accounted for more than 70% of industrial carbon emissions.

Fossil Fuel Consumption by Sectors in China

图 1.3 中国各部门的化石燃料消费量



国际能源署，2021。 IEA, 2022

注：电力部门包括发电和供热。 Note: Electricity sector includes heat generation

Finding 5 Climate Actions - Reducing Emissions in Owned Operations

The use of "short process" steelmaking (electric arc furnace + scrap utilization) to replace "long process" steelmaking (blast furnace + converter) is one of the key pathways for low-carbon transition in the steel industry

Case

Baosteel (600019)

Increasing the proportion of short process steelmaking using scrap and establishing a scrap recycling mechanism

- Target: "By 2030, add an additional 2.3 million tons per year of high-grade low-carbon emission steel produced entirely from scrap using electric arc furnaces".
- Collaboration: Engaged in scrap recycling cooperation with 18 customers, continuously improving the classification management of scrap recycling, procurement, and usage.
- Achievements: Achieved 251.9 thousand tons of scrap recycling, with the quantity of purchased scrap increasing annually from 5.22 million tons in 2019 to 7.56 million tons in 2022.

Case

Product carbon footprint analysis highlights the role of short process steelmaking in carbon reduction

Comparison of the carbon footprint of three "Hot-Rolled Ribbed Rebar" products:

- Both companies Y and Z use long process steelmaking, but Z's production process includes an additional Ladle Furnace (LF), resulting in 1,720 kg CO₂e less emissions per ton of product compared to company Y.
- Company X uses a short process steelmaking with an electric furnace as the core equipment. Producing one ton of hot-rolled ribbed rebar emits 1,180 kg CO₂e less compared to long process steelmaking, achieving a reduction rate of over 50%.



Sources:
 1. Baoshan Iron & Steel Co., Ltd., 2022 Sustainability Report.
 2. Steel Industry EPD Platform.

Half of the non-ferrous metal companies utilize non-fossil energy, leading companies begin to establish non-ferrous metal recycling mechanisms

- Carbon emissions from electricity consumption in aluminum smelting account for nearly 70% of the lifecycle emissions of aluminum products.
- Companies urgently need to develop and apply inert anode technology, as its emissions in the electrolytic process have a 15% reduction potential..

Case

Yunnan Aluminium Co., Ltd. (000807)

Clean energy utilization reached 88.6% in 2022

- Actively participated in green power trading with China Southern Power Grid.
- Built its own photovoltaic power generation projects to further expand the use of clean electricity.



绿电铸绿铝：云铝股份昆明阳宗海光伏发电项目

Green power forges green aluminum: Kunming Yangzonghai PV Power Generation Project of Yunnan Aluminium



绿电铸绿铝：云铝股份鹤庆溢鑫光伏发电项目

Green power forges green aluminum: Heqing Yixin PV Power Generation Project of Yunnan Aluminium

Source: Yunnan Aluminium Co., Ltd., 2022 ESG Report

Case

Aluminum companies establish recycled aluminum production lines and promote the scale of recycled aluminum production

再生铝保级综合利用项目

2022年，南山铝业持续推进再生铝保级综合利用项目建设。我们采用先进的再生铝生产工艺并实现保级利用，生产出高品质铝产品的同时实现节能减排和清洁生产。再生铝保级综合利用项目每年可实现回收10.69万吨废铝并产生10万吨再生铝水，在减少固体废物产生的同时，可实现可观的经济效益。



Nanshan Aluminum (600219)

2022 Environmental, Social, and Governance Report

贵州分公司建成再生铝示范线

本年度，公司在贵州分公司建成5万吨/年再生铝示范线，通过分级处理、熔炼及合金化过程控制等技术研究，降低再生铝的综合损耗，提高了产品质量，将为其他生产企业建设再生铝生产生产线提供借鉴。

Aluminum Corporation of China Limited (601600)

2022 Environmental, Social, and Governance Report

公司于2017年前瞻性布局**再生铝领域**，开发再生铝保级利用技术。2018年开展年处理20万吨再生铝项目、2020年建设再生资源综合利用项目、2021年投建年产36万吨再生铝合金扁锭项目、2022年**开展义瑞新材70万吨绿色新型铝合金材料项目**，不断扩大再生铝生产规模，提高再生铝对原铝的替代使用，降低碳排放量，实现资源循环利用。

Mingtai Aluminum (601677)

2022 Environmental, Social, and Governance Report

More than 80% of power companies are transitioning to renewable energy generation or using green electricity instead of coal power in their operations

- In 2023, non-fossil energy accounted for 17.5% of China's energy consumption. By the first half of 2023, the installed capacity of renewable energy reached 1.322 billion kilowatts, accounting for approximately 48.8% of the total installed capacity, surpassing coal power for the first time.
- At COP28, multiple parties reached the "UAE Consensus," calling for a just, orderly, and equitable transition of energy systems away from fossil fuels and emphasizing the acceleration of zero-emission and low-emission technology development.
- In the future, as various industrial sectors gradually achieve electrification, the overall electricity demand of society will continue to increase. Currently, China's carbon market (power generation facilities) covers 5 billion tons of CO₂e, accounting for about 40% of the country's annual carbon emissions. The low carbon transition of thermal power companies is crucial for China to achieve its dual carbon goals.

Case

Jilin Electric Power Co., Ltd. (000875)

Expanded new energy business, with the total installed capacity of renewable energy exceeding 70% in 2022

新能源装机占总装机的比重

单位：%



风电机组装机量

单位：万千瓦



光伏总装机容量

单位：万千瓦



Sources:

1. Ministry of Ecology and Environment, https://www.mee.gov.cn/ywgz/ydqhbh/wsqtkz/202310/t20231027_1044178.shtml
2. UN News, <https://news.un.org/en/story/2023/12/1144742>
3. Jilin Electric Power Co., Ltd., 2022 Environmental, Social, and Governance (ESG) Report

The Performance Evaluation of Low-Carbon Transition of China's Listed Thermal Power Companies under the Carbon Neutrality Target 2022 points out that:

- The future development of coal power needs to balance the dual requirements of low-carbon emission reduction and secure supply. On one hand, it should gradually transition from high-carbon power sources to low-carbon or zero-carbon power sources, exiting in an orderly manner to align with the clean and low-carbon development of the economy and society. On the other hand, it should shift from being a primary power source to a foundational and system-regulating power source.
- The [Low-Carbon Transition Index \(LCTI\)](#) of listed thermal power companies mainly uses publicly disclosed information to evaluate the low-carbon transition measures implemented by these companies during the "13th Five-Year Plan" period and their effectiveness. The evaluation and ranking aims to guide companies in accelerating their low-carbon transition process and help the power industry achieve carbon peaking as soon as possible.

Source: Yuan Jiahai, Xu Chuanbo, Lin Mingche, Huang Hui, Wang Yang, et al. Report on the Performance Evaluation of Low-Carbon Transition of China's Listed Thermal Power Companies under the Carbon Neutrality Target 2022 (Brief Version), May 2023:
<https://www.ipe.org.cn//Upload/202305250607431171c0dc421948d747f4b16c035a6a03b6c8.pdf>

The screenshot displays the IPE website's 'Thermal Power Transition Map' interface. At the top, there is a navigation menu with categories like Home, Air, Water, Carbon, City, Enterprise, Brands/Suppliers, Waste, Soil, Ecology, Radiation, and Vehicle. The main header includes the IPE logo and a 'Thermal Power Transition Map' title with a search bar. Below the search bar, a grid of 12 company logos is shown, each with a corresponding LCTI grade (represented by stars). The map on the right shows China with various company locations marked by their logos. A detailed view for JIPSC (000875) is open, showing a bar chart of its power generation mix from 2016 to 2020. The chart indicates a decreasing trend in thermal power and an increasing trend in wind and photovoltaic power.

Company Logo	Grade
[Logo 1]	★★★★★
[Logo 2]	★★★★★
[Logo 3]	★★★★★
[Logo 4]	★★★★★
[Logo 5]	★★★★★
[Logo 6]	★★★★★
[Logo 7]	★★★★★
[Logo 8]	★★★★★
[Logo 9]	★★★★★
[Logo 10]	★★★★★
[Logo 11]	★★★★★
[Logo 12]	★★★★★

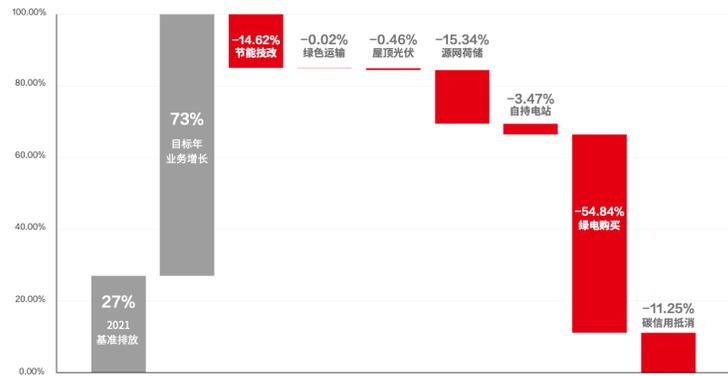
Year	Thermal power (%)	Wind power (%)	Photovoltaic (%)
2016	65	15	20
2017	55	20	25
2018	55	25	20
2019	50	25	25
2020	40	25	35

Case

TCL Zhonghuan Renewable Energy Technology Co.,Ltd (002129)

Released the 2050 Carbon Neutral Roadmap, and actively promoted energy-saving technological transformation to reduce its own operational carbon emissions

- TCL Central's production bases primarily use **electricity, accounting for more than 95% of the total energy use**. The clean energy accounted for only 2% of all energy use at the moment, with green power purchase at the core of emissions reduction;
- In 2022, TCL Central saved more than 50,000 MWh of electricity through more than 40 energy-saving and efficiency projects, such as adding capacitor compensation cabinets to the voltage apparatus, recovering waste heat for heating, and advancing the large-size and thin-waferization of silicon wafers.



Source: TCL Central, Carbon Neutral White Paper

Petrochemical industry establishes methane recovery system, explores CCUS carbon negative technology

- SINOPEC (600028), CNOOC (600938), PetroChina (601857), Meijin Energy (000723), Jiaying Gas (09908) carried out methane emission monitoring, recovery and utilization system construction.

Case

PetroChina released seven actions for methane emission control and set methane emission intensity targets, striving to reduce methane emission intensity by 50% to achieving 0.25% by 2025 compared to 2019, and by 2035, methane emission intensity will be reduced by 20% to achieving 0.20% compared to 2025.

Case

China National Offshore Oil Corporation's Shouyang Songta Project's SYE-06 well set is connected to a skid-mounted CNG compressor with a daily capacity of 15,000 cubic meters, compressing and pulling fractional gas in real time, and by the end of 2022, it will have reduced methane flaring emissions by a total of 2.37 million cubic meters.

- A total of four enterprises, namely Sinopec (600028), Sinopec Shanghai Petrochemical (600688), PetroChina (601857) and Huajin (000059), have promoted the demonstration for CCUS and explored the industrialization of its application.

Case

In 2022, **SINOPEC's** refining and chemical enterprises continued to carry out the recycling of high-concentration carbon dioxide emitted from hydrogen production, ammonia synthesis and other devices, capturing 1.534 million tons of carbon dioxide, and injected 657,000 tons of carbon dioxide-driven oil.

Finding 5 Climate Actions - Reducing Emissions in Value Chain

8% of firms use life cycle analysis to collaborate with production suppliers to carry out emission reduction projects and disclose the project's emission reductions

- The reports disclosed by Geely, Mercedes-Benz, Volkswagen, Volvo, General Motors and many other car companies show that **key raw materials such as steel and aluminum are hotspots for greenhouse gas emissions. To fulfill their climate commitments, automakers need to incentivize and drive the upstream industry chain to implement energy-saving and emission reduction measures, and reduce carbon emissions from raw material production.**

Case Geely Auto (00175)

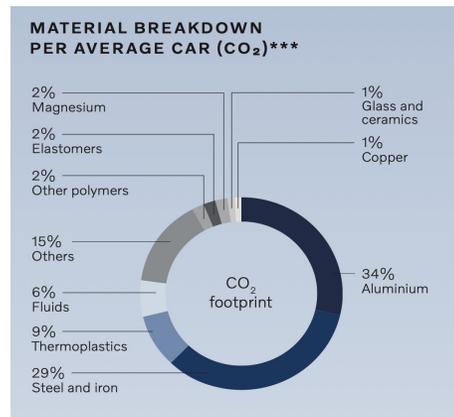
- More than 50% of the total life cycle emissions of electric vehicles come from upstream raw materials such as steel, aluminum, and battery components;
- Set target: Promote suppliers to develop green power and recycled steel and aluminum applications.

單輛車碳排放主要來源

純電動車全生命週期碳排放中有將近一半以上的二氧化碳來自於鋼、鋁等關鍵原材料及動力電池重要零組件，高碳排放的原材料是我們必須考慮的環節。就此而言，有必要通過提升供應商降碳能力來確保構建可持續的供應鏈體系，如我們已設立至2025年一級核心供應商可再生電力使用比例達100%以及使用可循環鋼20%、可循環鋁30%的行動路線。電氣化改造和提升光伏等可再生電力比例是降低整車基地的主要降碳措施，我們同樣注重在工廠引入工藝節能及餘熱回收等低碳技術；本集團目前銷售仍以燃油車為主，因此燃料燃燒排放依舊是溫室氣體排放的主要來源，我們將持續優化產品結構比例，努力降低使用階段的排放水平。

Source: Geely Automobile, ESG Report 2022

Overseas Case



Source: Volvo Cars, Sustainability Report 2022

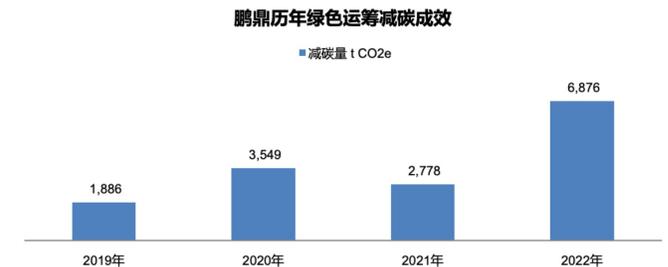
5% of companies work with logistics providers on emission reduction projects and disclose project emission reductions

Case

Avary Holding (002938)

- In 2022, Avary Holdings promoted the consolidation of freight demand in Shenzhen, Qinhuangdao and Huai'an Parks, and rationalized the merging of suppliers' vehicles, reducing the overall number of loads by a total of 13,100 vehicle trips, saving a total of 3,083,264 liters of diesel and gasoline, and **reducing emissions by 6,876 tons of CO₂-equivalent, which represents a year-on-year increase of nearly 150% in emission reduction effectiveness.**

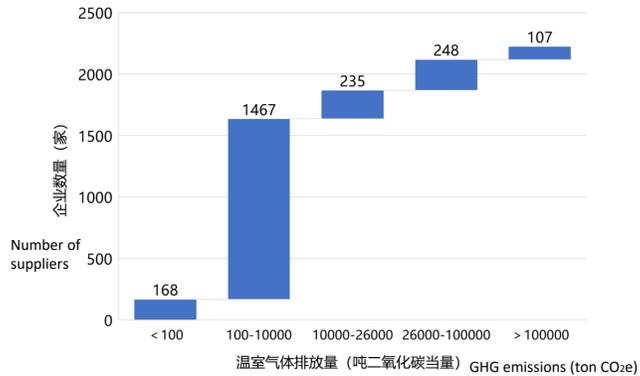
GHG emissions reduction achieved through promoting green logistics



Source : <https://www.ipe.org.cn/GreenSupplyChain/BrandStoryDetail.aspx?id=89>

33 Chinese and foreign companies, including Luxshare Precision (002475), Avary Holding (002938), Anta Sports (02020) required 2,225 suppliers to disclose carbon emissions data and climate targets

Distribution of carbon emissions disclosed via the Blue Map in this evaluation period



- These suppliers' most recent year carbon emissions (Scope 1&2) totaled **56,188,500 tons of carbon dioxide equivalent**;
- Luxshare Precision, Avary Holding, FOXCONN INDUSTRIAL INTERNET, Kersen, Lens, etc. required their suppliers to conduct supply chain carbon management.

Case Luxshare Precision (002475)

- Launched the Green Supply Chain Initiative to advocate environmental and social responsibility among suppliers;
- Joined the Zero Carbon Supply Chain Initiative launched by IPE and required **253** supplier companies to carry out carbon data disclosure through the Blue Map website.



Source: Luxshare Precision, 2022 CSR Report

Pioneers who required suppliers to measure and disclose PRTR and carbon data

领先企业将碳和 PRTR 数据测算和公开披露纳入供应链环境管理要求						
adidas	ANTA	Apple	ARCHROMA	AVARY HOLDING	BESTSELLER	Carrefour
C&A	CISCO	DANONE	DELL Technologies	ESPRIT	FOXCONN	Gap Inc.
H&M Group	INDITEX	intel.	花王 KAO	KONTOOR	LEVI STRAUSS & CO.	LINDE
LI-NING	LUXSHARE ICT	M&S	new balance	NIKE	PRIMARK	PUMA
SAMSUNG	SCHAEFFLER	TARGET	VF	維他奶 Vitasey		

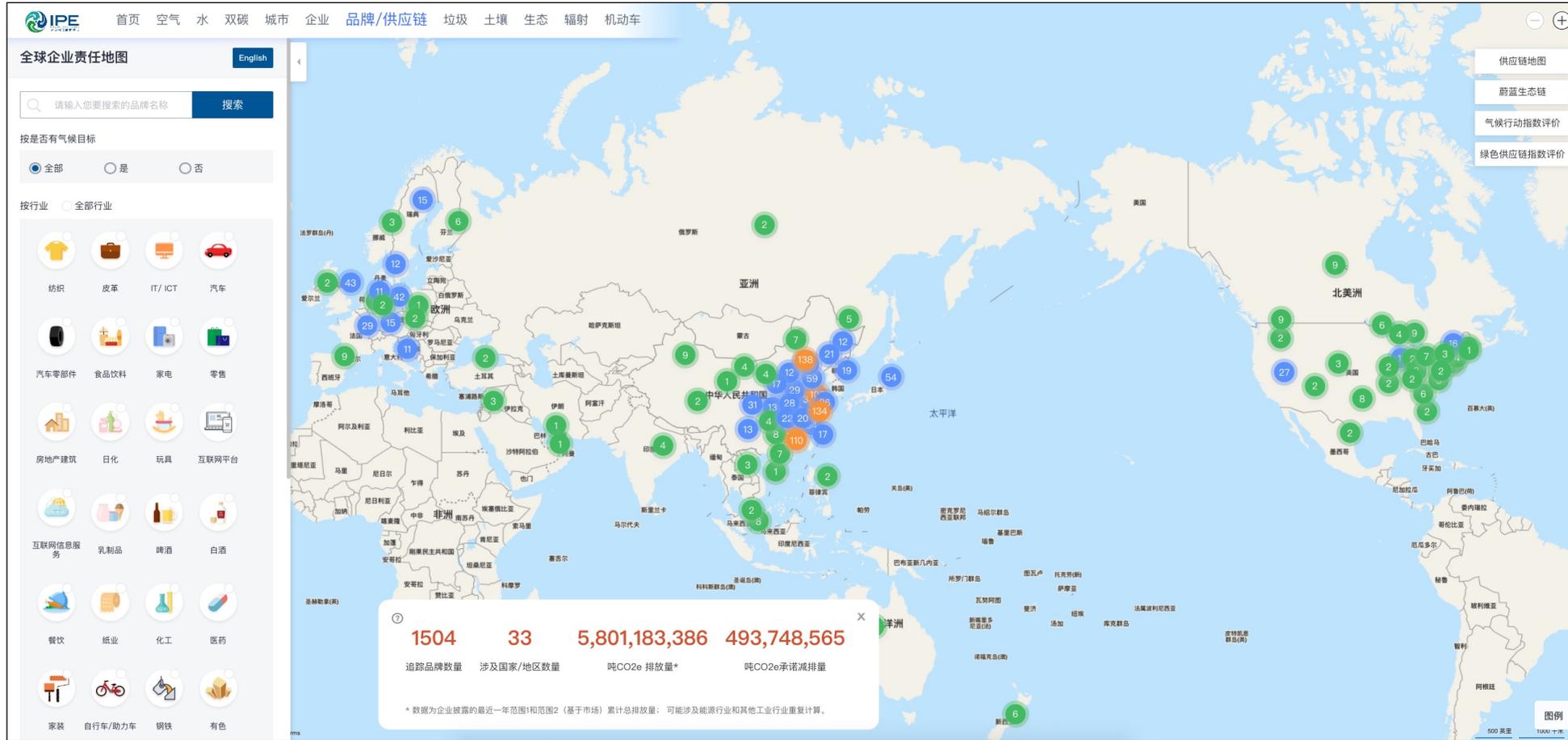
Chinese Enterprise GHG Emissions Accounting Platform

Under the "dual carbon" strategy, an increasing number of Chinese companies are required to conduct carbon accounting and report or disclose carbon data to regulators, government agencies or stakeholders. To address the lack of accounting capacity and high cost of outsourcing for SMEs, IPE developed the "Chinese Enterprise GHG Emissions Accounting Platform" with its partner organisation in 2020. Developed in accordance with the Corporate GHG Accounting Methodology and Reporting Guide (Trial) for 24 Industries issued by China's NDRC, the platform incorporates different types of fossil fuel, electricity and heat emission factors applicable to Chinese enterprises into the automatic parameters of the calculator, and guides suppliers to identify their emission sources through the settings of the calculation process to improve the completeness and accuracy of the accounting data, which can help suppliers to "map the bottom line" in a cost-effective and efficient manner.

Corporate Carbon Emission Reduction Target Setting Tool

To assist companies in setting climate targets based on climate science and benchmarking against international mainstream mechanisms such as the Science Based Targets initiative (SBTi), IPE has developed and launched the Corporate Carbon Emission Reduction Target Setting Tool (CERTST) in 2023. Based on the methodology of the Science Based Targets initiative, the tool enables SMEs to set appropriate science-based emission reduction targets aligned with the 1.5°C, well below 2°C and 2°C temperature control pathways. By entering base year emissions data, combined with industry, region, policy requirements, etc., the tool helps companies to easily simulate their Scope 1 & 2, and Scope 3 reduction targets.

IPE has developed and launched the "Global Business Accountability Map" to encourage companies to assume their primary responsibility in reducing pollution and carbon emissions, and to curb "climate washing".



IPE has developed and launched the “Global Business Accountability Map,” which includes a total of 1,504 well-known brands, listed companies, and large companies in China and abroad. The map displays their public commitments to address climate change, reduce pollution, and protect biodiversity. The map also shows their progress toward achieving specific targets, their disclosed GHG emissions, and their implementation of concrete actions to reduce GHG emissions in their supply chains in China.

(Updated by 2024/02/18)



ZERO CARBON SUPPLY CHAIN INITIATIVE

In order to help accelerate the pace of supply chain decarbonization for meeting global climate targets, we have launched the Zero Carbon Supply Chain Initiative.

Responding to the pressing climate challenge, more than 130 countries and regions have made carbon neutral pledges in line with the Paris Agreement. Nearly 9,000 companies and financial institutions have joined the United Nations Race to Zero campaign by committing to net zero emissions no later than 2050. This, however, is in sharp contrast to the emissions reduction gap outlined in the UN Environment Programme (UNEP) 2022 report. Strategies for fulfilling these pledges through concrete actions is now the new focal point.

Leading industrial companies, particularly consumer-facing brands, find greenhouse gas emissions intrinsic to procured goods and services often accounts for the bulk of their carbon footprint. Consequently decarbonizing the entire supply chains is central to delivering climate neutral commitments.

Best practice in recent years indicates that brands have a unique and critical leveraging opportunity for improving supply chain performance by introducing carbon sensitive sourcing criteria. This will motivate key suppliers to join in the Race to Zero and help bring small and medium-sized suppliers into the global climate governance loop, while also contributing to low-carbon transition in developing and emerging markets, where the majority of the global supply chains reside.

We recognize that decarbonizing the supply chain is challenging. The supplier base is often large and dispersed, while the “hotspots” are often located with suppliers further up the supply chain, making it difficult to reach and obtain reliable data. Moreover, some decarbonization technologies are still being developed or optimized.

Motivating the entire supply chain to decarbonize relies on the collaborative efforts across the industry and multiple value chains, as well as support from financial institutions, governments, research institutions, and public awareness.

To accelerate the pace of supply chain decarbonization, we have committed to work with major stakeholders to jointly launch the Zero Carbon Supply Chain Initiative.

AS PART OF CORPORATE AND INDUSTRY COALITIONS, WE ARE PLEDGED TO UNDERTAKE AND SUPPORT THE FOLLOWING ACTIONS FOR EFFECTIVELY BUILDING ZERO CARBON SUPPLY CHAINS THAT PROVIDE ZERO CARBON PRODUCTS AND SERVICES:

- Recognize the importance of carbon emission reduction in supply chains, and integrate it into corporate governance and supplier management mechanisms;
- Calculate and disclose corporate-level carbon data, and gradually integrate supplier-specific activity data into the calculation of Scope 3 purchased goods and services. Embark on the measurement and disclosure of product-level carbon data;
- Set corporate carbon neutrality targets in line with the Paris Agreement and Nationally Determined Contributions (NDCs), and publicly disclose progress annually;
- Incorporate supplier climate actions into procurement considerations, require suppliers to measure carbon emissions, set science-based emission reduction targets and disclose progress;
- Promote research on industry-specific decarbonization pathways and technologies, so as to empower suppliers to take effective carbon reduction actions;
- Support the exploration of nature-based solutions to reduce supply chain footprint, and promote synergized efforts on biodiversity conservation and climate action.

AS FINANCIAL INSTITUTIONS, WE COMMIT TO SUPPORTING BUSINESS AND INDUSTRY EFFORTS TOWARD A ZERO CARBON SUPPLY CHAIN WITH THE FOLLOWING ACTIONS:

- Set science-based carbon neutrality targets for investments, and measure and disclose progress annually;
- Strengthen the climate information disclosure requirements for investees and guide them in building zero carbon supply chains;
- Support the development and application of key technologies for supply chain carbon neutrality;
- Provide sufficient financing for large-scale projects with long borrowing horizon.

AS FOUNDATIONS, RESEARCH INSTITUTES AND ENVIRONMENTAL NGOS, WE COMMIT TO CREATING AN ENABLING ENVIRONMENT FOR ZERO CARBON SUPPLY CHAINS WITH THE FOLLOWING ACTIONS:

- Promote the construction of climate data infrastructure and quantitative evaluation of supply chain climate actions;
- Motivate incorporation of supply chains in carbon neutrality commitments and effectively curb climate “greenwashing” ;
- Promote the full consideration of supply chain climate performance in ESG evaluation;
- Identify, disseminate and promote zero carbon supply chain best practices;
- Support the development of innovative solutions to empower supply chain decarbonization;
- Track the construction of zero carbon supply chains and promote the development of policies and regulations that facilitate decarbonization.

We call on leading companies, industry coalitions and key institutions that influence supply chain and climate ambition to lead in joining the Initiative. We also look forward to attention and support from all sectors of society to jointly advance the decarbonization of supply chains, accelerate the global Race to Zero, and protect our planet Earth.

V. Outlook and Recommendations

We advocate for a multi-stakeholder approach, including:

Promote corporates to publicly disclose carbon information:

- Enterprises should strengthen the measurement and disclosure of carbon emission information, set carbon targets based on climate science, promote the disclosure of climate information on themselves, their affiliates, suppliers and products, put the progress of emission reduction and neutralization of the value chain under social supervision, promote a more substantial low-carbon transformation of the supply chain, eliminate climate washing and stimulate the joint efforts to implement emission reduction actions.

Improve carbon data accounting and disclosure standards:

- Building on existing standards for corporate carbon data and product carbon footprints, all parties should jointly improve the accounting boundaries, life cycle division, core data statistical caliber and other requirements to enhance data comparability. All parties should work towards establishing a unified product disclosure standards, vigorously promote product carbon footprint disclosure, promote data application, and form a representative LCA factor to enhance the efficiency of product carbon footprint accounting.

Advance towards a zero-carbon supply chain :

- Leading enterprises, industry organizations and key institutions with supply chain influence and climate ambition should drive core supply chain enterprises to join the race to zero, and engage small and medium-sized enterprises to join the global climate race. All sectors of society should pay attention to and support supply chain decarbonization, help developing countries and emerging market countries where the global supply chain is located to undergo low-carbon transformation, accelerate the global race to zero, and jointly safeguard the Earth's homeland.

Listed Companies:

- In line with the dual-carbon target, **improve governance and management mechanism**, and benchmark against the global temperature control target and nationally determined contributions (NDCs), set corporate carbon neutral targets based on climate science and publicly disclose annual progress;
- Strengthen **carbon data management and information disclosure capacity**, promote credible monitoring, reporting and verification (MRV) of themselves, their affiliates and suppliers, pay attention to changes in disclosure requirements set by securities, environmental regulators, exchanges and international organizations such as ISSB, carry out carbon data disclosure in accordance with laws and regulations, accept public supervision, and build trust with stakeholders;
- Strengthen **product-level carbon accounting and disclosure** to enhance the green competitiveness of Chinese listed companies in the international market; and promote the formation of international mutual recognition of accounting and standard criteria by cooperating with professional organizations and strengthening the exchange of international standards;
- Promote research on **industry decarbonization pathways and decarbonization technologies, drive the upstream and downstream of the industrial chain to accelerate low-carbon transformation**; attach importance to the coupled development of bulk raw materials and consumer goods industries, and collaborate with cross-industry enterprises to carry out climate action, form an industry chain that is connected to each other, and avoid climate risks and explore energy-saving and carbon-reducing potentials in the collaboration;
- Support the exploration of **nature-based emission reduction options**, synergizing biodiversity conservation and climate action.

Regulators and stock exchanges:

- Improve the **norms for building green and transformational financial infrastructures**, and sound policies for disclosure of environmental and carbon information by listed companies;
- **Formulate a framework and standards for climate information disclosure that are in line with international standards and suitable for Chinese enterprises**, promote the effective disclosure of enterprises' climate-related data and management measures, and strengthen the building of enterprises' carbon management capacity;
- Promote the application of the latest digital science and technology to empower listed companies' climate management capacity building and promote the quantitative measurement of climate risk;
- Establish a joint working platform for regulators, exchanges, listed companies, and third-party professional rating agencies, as well as a public communication and monitoring channel to address climate change.

Investors:

- Improve the **climate information disclosure requirements for financing enterprises**, and guide enterprises to regularly and publicly disclose relevant climate information about themselves, their value chains and the projects they seek financing; pay attention to the climate actions of listed companies, and **identify and quantify climate risks and track changes in greenhouse gas emissions** through professional tools;
- In view of the production processes and emission characteristics of different industries, formulate corresponding climate investment and financing programs, and develop **diversified financing mechanisms and tools** to support enterprises in accelerating their green and low-carbon transformation; and provide financial needs of large-scale projects with long borrowing periods in the process of zero-carbon transformation of the supply chain;
- **Measure the impact of their investments on climate change** and contribute to multi-stakeholder participation in achieving "dual carbon" targets and global climate governance.

Appendix I CATI 3.0

Dimension	Sub-dimension	Evaluation Indicator	Score
1. Governance (10%)	1.1 Policy Construction (5)	1.1.1 Company has committed to climate actions and made climate declaration(s)	2
		1.1.2 Company has developed corporate carbon neutrality plan and management system	2
		1.1.3 Company has incorporated supplier carbon accounting and reporting into written documents such as the supplier code of conduct (e.g. require suppliers to measure carbon emissions, set emission reduction targets and track emission reduction progress regularly)	1
	1.2 Mechanism Construction (5)	1.2.1 Company has integrated climate-related issues into its business strategy and has specific climate-related risk management procedures	2
		1.2.2 Company has integrated climate-related issues into board-level oversight	1
		1.2.3 Company offers capacity building and financial incentives, and/or launches innovative projects for suppliers to reduce emissions	2
2. Measurement & Disclosure (19%)	2.1 Scope 1 & 2 Emissions (9)	2.1.1 Company has publicly disclosed Scope 1 & 2 emission data	4
		2.1.2 Company has publicly disclosed comprehensive energy consumption and energy usage by energy types	2
		2.1.3 Company has publicly disclosed carbon intensity or energy intensity	2
		2.1.4 Company has publicly disclosed information on carbon emission trading (e.g. carbon allowances, renewable energy certificates and other certified emission reductions)	1
	2.2 Scope 3 Emissions (6)	2.2.1 Company has publicly disclosed Scope 3 emissions	4
		2.2.2 Company collects supplier carbon emission data on a regular basis	2
	2.3 Product Carbon Footprint (4)	2.3.1 Company has publicly disclosed product carbon footprint	4
3. Carbon Targets Setting (14%)	3.1 Scope 1 & 2 Targets (7)	3.1.1 Company has set and publicly disclosed its ongoing Scope 1 & 2 emission reduction targets	3
		3.1.2 Company has set and publicly disclosed its Scope 1 & 2 carbon neutrality target	2
		3.1.3 Company has set and publicly disclosed its renewable energy target	1
		3.1.4 Scope 1 & 2 climate targets are certified or approved by a third party, such as the Science Based Targets initiative (SBTi) or other initiatives	1
	3.2 Scope 3 Targets (7)	3.2.1 Company has set and publicly disclosed its ongoing Scope 3 emission reduction targets	3
		3.2.2 Company has set and publicly disclosed its Scope 3 carbon neutrality target	2
		3.2.3 Company has set specific objectives on promoting suppliers to set their own emission reduction targets	1
		3.2.4 Scope 3 climate targets are certified or approved by a third party, such as Science Based Targets initiative (SBTi) or other initiatives	1

Appendix I CATI 3.0

4. Performance against Carbon Targets (14%)	4.1 Scope 1 & 2 Emission Reduction Progress (7)	4.1.1 Company has publicly disclosed progress made towards its Scope 1 & 2 emission reduction targets	3
		4.1.2 Company has publicly disclosed progress made towards its Scope 1 & 2 carbon neutrality target	2
		4.1.3 Company has publicly disclosed progress made towards its renewable energy target	2
	4.2 Scope 3 Emission Reduction Progress (7)	4.2.1 Company has publicly disclosed progress made towards its Scope 3 emission reduction targets	3
		4.2.2 Company has publicly disclosed progress made towards its Scope 3 carbon neutrality target	2
		4.2.3 Company tracks its suppliers' target setting progress	2
5. Climate Action (43%)	5.1 Decarbonization in Company Operation (12)	5.1.1 Company has conducted non-fossil energy utilization projects (e.g. water, nuclear, wind, light, tidal, biomass) and/or green power procurement and disclosed associated emission reductions	4
		5.1.2 Company has conducted energy monitoring and energy management (e.g. energy management system certification)	1
		5.1.3 Company has conducted energy efficiency improvement projects (e.g. switching to LED lighting, waste heat utilization, technique adjustment) and disclosed associated emission reductions	4
		5.1.4 Company has conducted other types of emission reduction projects and disclosed associated emission reductions (e.g. direct emission reduction from manufacturing process, logistic optimization)	2
		5.1.5 Company has reduced emissions through carbon offsets, and disclosed associated emission reductions (e.g. Carbon Capture, Utilization and Storage (CCUS), Nature-based Solutions (NbS), market-based carbon offset mechanisms)	1
	5.2 Decarbonization in Value Chain (7)	5.2.1 Company promotes suppliers to conduct corporate greenhouse gas and energy management (e.g. third-party verification of greenhouse gas accounting, product carbon footprint certification, energy management system certification)	1
		5.2.2 Company has launched emission reduction initiatives with raw material suppliers or suppliers related to production manufacturing, and disclosed associated emission reductions	2
		5.2.3 Company has launched emission reduction initiatives with logistics suppliers, and disclosed associated emission reductions	1
		5.2.4 Company has published best practices on supply chain carbon management annually (e.g. IPE Brand Story)	2
		5.2.5 Company has conducted emission reduction projects targeting other emission sources along the value chain and disclosed associated emission reductions (e.g. reducing emissions from business travel)	1
	5.3 Affiliated Company Engagement (8)	5.3.1 Affiliates have measured and publicly disclosed their carbon emission at facility level	4
		5.3.2 Affiliates have set carbon targets, tracked and publicly disclosed reduction progress at facility level	4
	5.4 Upstream Supplier Engagement (16)	5.4.1 Direct suppliers have measured and publicly disclosed their carbon emissions at facility level	2
		5.4.2 Direct suppliers have set carbon targets, tracked and publicly disclosed reduction progress at facility level	3
		5.4.3 Indirect suppliers have measured and publicly disclosed their carbon emissions at facility level	3
		5.4.4 Indirect suppliers have set carbon targets, tracked and publicly disclosed reduction progress at facility level	3
		5.4.5 Company employs the Blue EcoChain or other automated methods to empower upstream suppliers to manage their supply chain carbon emissions	5

Appendix II 2023 Evaluation Results

No.	Stock Code	Rating
1	002475	A
2	00992	A
3	002938	A
4	601012	A
5	600019	BBB
6	02020	BBB
7	601231	BB
8	601138	BB
9	600028	BB
10	00293	BB
11	00002	BB
12	000063	BB
13	00175	BB
14	002352	BB
15	600027	BB
16	02618	BB
17	000717	BB
18	02232	BB
19	688472	BB
20	600219	BB
21	601857	BB
22	002466	BB
23	02686	BB
24	600660	BB
25	00384	BB
26	02688	BB
27	000875	BB
28	000825	BB
29	600808	BB
30	601005	BB

No.	Stock Code	Rating
31	02380	BB
32	02319	BB
33	00135	BB
34	600938	BB
35	00836	BB
36	01810	BB
37	600011	BB
38	300207	BB
39	01972	BB
40	00101	BB
41	603626	B
42	600438	B
43	00636	B
44	09988	B
45	603605	B
46	002241	B
47	600803	B
48	01193	B
49	600567	B
50	02233	B
51	600581	B
52	600022	B
53	300274	B
54	002608	B
55	002459	B
56	002129	B
57	601600	B
58	600887	B
59	688223	B
60	01313	B

No.	Stock Code	Rating
61	002202	B
62	00581	B
63	688599	B
64	600886	B
65	002643	B
66	00579	B
67	600585	B
68	00968	B
69	02331	B
70	03323	B
71	00182	B
72	03377	B
73	00691	B
74	002340	B
75	02382	B
76	000898	B
77	00700	B
78	601865	B
79	00551	B
80	00681	B
81	000877	B
82	601991	B
83	600362	B
84	02313	B
85	01308	B
86	00013	B
87	300750	B
88	00019	B
89	600720	B
90	002078	B

No.	Stock Code	Rating
91	000002	B
92	09618	B
93	300999	B
94	01820	B
95	600795	B
96	000100	B
97	600688	B
98	000878	B
99	00090	B
100	01117	B
101	00332	B
102	000723	B
103	600315	B
104	900933	B
105	00272	B
106	06117	B
107	00291	B
108	688981	B
109	01381	B
110	601238	B
111	600549	B
112	00607	B
113	000333	B
114	00345	CCC
115	600449	CCC
116	000050	CCC
117	600399	CCC
118	00081	CCC
119	00743	CCC
120	601992	CCC

No.	Stock Code	Rating
121	600307	CCC
122	603885	CCC
123	06993	CCC
124	601869	CCC
125	600196	CCC
126	03933	CCC
127	00257	CCC
128	02060	CCC
129	000932	CCC
130	600941	CCC
131	002460	CCC
132	00297	CCC
133	601598	CCC
134	600699	CCC
135	00702	CCC
136	02337	CCC
137	002074	CCC
138	01292	CCC
139	000807	CCC
140	03800	CCC
141	03363	CCC
142	01044	CCC
143	01028	CCC
144	03989	CCC
145	00420	CCC
146	600956	CCC
147	000338	CCC
148	09999	CCC
149	00632	CCC
150	601633	CCC

No.	Stock Code	Rating
151	01853	CCC
152	02689	CCC
153	00827	CCC
154	00103	CCC
155	002600	CCC
156	00611	CCC
157	00106	CCC
158	00934	CCC
159	600126	CCC
160	09633	CCC
161	00884	CCC
162	06811	CCC
163	601111	CCC
164	600029	CCC
165	09908	CCC
166	01378	CCC
167	600023	CC
168	03900	CCC
169	600380	CCC
170	300726	CCC
171	600500	CCC
172	01958	CCC
173	02343	CCC
174	002909	CCC
175	000039	CCC
176	600010	CCC
177	01515	CCC
178	01600	CCC
179	03398	CCC
180	01910	CCC

No.	Stock Code	Rating
181	601727	CCC
182	600600	CCC
183	09888	CCC
184	00303	CCC
185	00171	CCC
186	01368	CCC
187	000513	CCC
188	002594	CCC
189	00425	CCC
190	600098	CC
191	06890	CCC
192	01316	CCC
193	000966	CCC
194	02877	CCC
195	001289	CCC
196	200725	CCC
197	00661	CCC
198	00726	CCC
199	603733	CCC
200	00695	CCC
201	300888	CCC
202	01927	CCC
203	00697	CCC
204	00528	CCC
205	000959	CCC
206	003816	CCC
207	01093	CCC
208	02326	CCC
209	600378	CC
210	00688	CC

No.	Stock Code	Rating
211	000629	CC
212	600115	CC
213	605183	CC
214	03883	CC
215	02314	CC
216	603501	CC
217	000960	CC
218	002497	CC
219	06969	CC
220	03333	CC
221	06193	CC
222	603737	CC
223	601038	CC
224	688185	CC
225	601607	CC
226	02019	CC
227	600578	CC
228	01177	CC
229	000301	CC
230	01252	CC
231	600021	CC
232	02096	CC
233	002206	CC
234	01266	CC
235	01529	CC
236	09868	CC
237	600863	CC
238	03320	CC
239	02772	CC
240	600433	CC

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No.	Stock Code	Rating
241	00978	CC
242	200761	CC
243	00305	CC
244	600690	CC
245	300726	CC
246	600346	CC
247	603369	CC
248	00321	CC
249	00346	CC
250	01713	CC
251	02698	CC
252	002493	CC
253	000708	CC
254	00560	CC
255	600282	CC
256	600635	CC
257	00603	CC
258	02015	CC
259	000999	CC
260	03692	CC
261	00817	CC
262	00852	CC
263	00960	CC
264	601588	CC
265	601003	CC
266	01628	CC
267	600702	CC
268	601330	CC
269	600782	CC
270	00123	CC

No.	Stock Code	Rating
271	000858	CC
272	02098	CC
273	00698	CC
274	601868	CC
275	300433	CC
276	000767	CC
277	600719	CC
278	00520	CC
279	02678	CC
280	00151	CC
281	00690	CC
282	00119	CC
283	09999	CC
284	688303	CC
285	03990	CC
286	00408	CC
287	02348	CC
288	01109	CC
289	00750	CC
290	600392	CC
291	000921	CC
292	00976	CC
293	000027	CC
294	03380	CC
295	600963	CC
296	02738	CC
297	200488	CC
298	00826	CC
299	01986	CC
300	001896	CC

No.	Stock Code	Rating
301	03690	CC
302	03331	CC
303	01388	CC
304	600483	CC
305	00867	CC
306	603659	CC
307	02111	CC
308	600104	CC
309	01099	CC
310	601390	CC
311	00334	CC
312	01532	CC
313	002415	CC
314	01996	CC
315	603456	CC
316	688660	CC
317	000059	CC
318	600732	CC
319	603713	CC
320	00503	CC
321	01889	CC
322	00322	CC
323	603983	CC
324	06839	CC
325	000977	CC
326	00586	CC
327	600519	CC
328	01480	CC
329	01717	CC
330	01636	CC

No.	Stock Code	Rating
331	002075	CC
332	01265	CC
333	600048	CC
334	000895	CC
335	00460	CC
336	603899	CC
337	02145	CC
338	600744	CC
339	603565	CC
340	301219	CC
341	00709	CC
342	002946	CC
343	688180	CC
344	02000	CC
345	09968	CC
346	002394	CC
347	01400	CC
348	600905	CC
349	01702	CC
350	01024	CC
351	600332	CC
352	02608	CC
353	002250	CC
354	00609	CC
355	002056	CC
356	002024	CC
357	01558	CC
358	688331	CC
359	00672	CC
360	00262	CC

No.	Stock Code	Rating
361	601766	CC
362	601615	CC
363	002304	CC
364	601117	CC
365	00377	CC
366	001979	CC
367	000600	C
368	000883	C
369	200539	C
370	01458	CC
371	600276	CC
372	600062	CC
373	600328	CC
374	000031	CC
375	03828	CC
376	00230	CC
377	900916	CC
378	601669	CC
379	002302	CC
380	01068	CC
381	002531	CC
382	02187	CC
383	000860	CC
384	03998	CC
385	688505	CC
386	00117	CC
387	01202	CC
388	00124	CC
389	600050	CC
390	600597	CC

No.	Stock Code	Rating
391	300498	C
392	601179	C
393	03818	C
394	000789	C
395	01285	C
396	688428	C
397	01749	C
398	00910	C
399	00604	C
400	601728	C
401	002947	C
402	200596	C
403	00327	C
404	600775	C
405	000652	C
406	600160	C
407	000731	C
408	02162	C
409	06978	C
410	000703	C
411	00832	C
412	06186	C
413	03799	C
414	01396	C
415	600267	C
416	002422	C
417	02222	C
418	603288	C
419	01203	C
420	06601	C

No.	Stock Code	Rating
421	03308	C
422	605007	C
423	01553	C
424	600231	C
425	06900	C
426	00570	C
427	900945	C
428	03983	C
429	000672	C
430	09626	C
431	600867	C
432	002773	C
433	03737	C
434	00858	C
435	900936	C
436	01735	C
437	601800	C
438	002003	C
439	688366	C
440	688009	C
441	01585	C
442	01321	C
443	600096	C
444	01188	C
445	603799	C
446	000423	C
447	00512	C
448	00546	C
449	01168	C
450	601717	C

No.	Stock Code	Rating
451	601828	C
452	600737	C
453	00674	C
454	02186	C
455	00095	C
456	002703	C
457	02117	C
458	000810	C
459	000568	C
460	600526	C
461	06133	C
462	00868	C
463	002236	C
464	000543	C
465	605020	C
466	000899	C
467	00505	C
468	002110	C
469	000756	C
470	06111	C
471	002032	C
472	300014	C
473	600309	C
474	01061	C
475	603181	C
476	02171	C
477	03383	C
478	600875	C
479	00627	C
480	601021	C

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No.	Stock Code	Rating
481	09877	C
482	01799	C
483	600475	C
484	603568	C
485	600388	C
486	000591	C
487	000709	C
488	600429	C
489	601233	C
490	002233	C
491	600129	C
492	02329	C
493	09992	C
494	02892	C
495	02007	C
496	00210	C
497	09863	C
498	601186	C
499	000962	C
500	200625	C
501	01090	C
502	002918	C
503	002648	C
504	000729	C
505	603588	C
506	002408	C
507	600493	C
508	002203	C
509	00509	C
510	00809	C

No.	Stock Code	Rating
511	601618	C
512	600063	C
513	002246	C
514	600642	C
515	002442	C
516	002332	C
517	600569	C
518	06830	C
519	01361	C
520	603833	C
521	600177	C
522	01066	C
523	02369	C
524	01058	C
525	601677	C
526	000630	C
527	600323	C
528	600507	C
529	600876	C
530	002378	C
531	00727	C
532	000949	C
533	600458	C
534	600111	C
535	00455	C
536	600425	C
537	002407	C
538	603010	C
539	605199	C
540	01652	C

No.	Stock Code	Rating
541	000635	C
542	600396	C
543	06862	C
544	600809	C
545	002042	C
546	603693	C
547	02299	C
548	600727	C
549	002709	C
550	002603	C
551	600056	C
552	688190	C
553	000069	C
554	002125	C
555	300772	C
556	200016	C
557	600521	C
558	002237	C
559	600839	C
560	06896	C
561	000928	C
562	01966	C
563	603867	C
564	003017	C
565	600802	C
566	02198	C
567	600667	C
568	601016	C
569	00098	C
570	002511	C

No.	Stock Code	Rating
571	03778	C
572	601200	C
573	600448	C
574	600533	C
575	02777	C
576	603056	C
577	600810	C
578	000566	C
579	000523	C
580	01122	C
581	000800	C
582	603225	C
583	600326	C
584	002092	C
585	601668	C
586	000538	C
587	603067	C
588	600780	C
589	603968	C
590	600668	C
591	600422	C
592	002066	C
593	600535	C
594	600398	C
595	603055	C
596	600779	C
597	002087	C
598	02358	C
599	002182	C
600	002099	C

No.	Stock Code	Rating
601	002734	C
602	600075	C
603	601212	C
604	603529	C
605	600150	C
606	600678	C
607	000637	C
608	000698	C
609	000545	C
610	000785	C
611	603515	C
612	00747	C
613	601011	C
614	301039	C
615	000565	C
616	300129	C
617	603948	C
618	603681	C
619	688036	C
620	603511	C
621	002461	C
622	300187	C
623	000066	C
624	000936	C
625	000401	C
626	600881	C
627	603332	C
628	600351	C
629	600420	C
630	600488	C

No.	Stock Code	Rating
631	000060	C
632	600085	C
633	600117	C
634	002563	C
635	600793	C
636	600235	C
637	002532	C
638	600955	C
639	002064	C
640	002427	C
641	601113	C
642	603360	C
643	600290	C
644	600961	C
645	600006	C
646	300037	C
647	300073	C
648	603001	C
649	000685	C
650	603365	C
651	002193	C
652	300692	C
653	002534	C
654	600400	C
655	600470	C
656	002287	C
657	600298	C
658	000651	C
659	000920	C
660	000572	C

No.	Stock Code	Rating
661	605566	C
662	002824	C
663	600089	C
664	002572	C
665	002399	C
666	600141	C
667	600078	C
668	002114	C
669	002333	C
670	600207	C
671	300116	C
672	002055	C
673	002083	C
674	002384	C
675	02118	C
676	01941	C
677	002242	C
678	002756	C
679	603260	C
680	002149	C
681	600746	C
682	002748	C
683	002489	C
684	603823	C
685	001218	C
686	000677	C
687	600800	C
688	600409	C
689	600993	C
690	600216	C

No.	Stock Code	Rating
691	601609	C
692	600182	C
693	603806	C
694	600792	C
695	603113	C
696	002007	C
697	603878	C
698	600233	C
699	600408	C
700	600997	C
701	603876	C
702	600595	C
703	002254	C
704	600889	C
705	605589	C
706	002001	C
707	603086	C
708	603661	C
709	300867	C
710	002034	C
711	002299	C
712	002616	C
713	000598	C
714	002015	C
715	002326	C
716	600537	C
717	603628	C
718	600110	C
719	688122	C
720	603995	C

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No.	Stock Code	Rating
721	601702	C
722	000933	C
723	002136	C
724	000782	C
725	000707	C
726	002584	C
727	000989	C
728	600255	C
729	200550	C
730	603366	C
731	300783	C
732	300118	C
733	600582	C
734	600418	C
735	002154	C
736	002120	C
737	002403	C
738	600331	C
739	000968	C
740	600759	C
741	603041	C
742	002805	C
743	002252	C
744	603686	C
745	600490	C
746	300034	C
747	300618	C
748	688102	C
749	300340	C
750	002570	C

No.	Stock Code	Rating
751	000885	C
752	000049	C
753	000035	C
754	603059	C
755	601827	C
756	002630	C
757	301109	C
758	605138	C
759	02030	C
760	002160	C
761	000525	C
762	603255	C
763	001217	C
764	002971	C
765	002038	C
766	601089	C
767	600200	C
768	603185	C
769	601778	C
770	300057	C
771	600456	C
772	603978	C
773	002610	C
774	002269	C
775	002081	C
776	002029	C
777	000612	C
778	002998	C
779	000751	C
780	688231	C

No.	Stock Code	Rating
781	600527	C
782	002172	C
783	002809	C
784	002166	C
785	600161	C
786	605507	C
787	002218	C
788	002988	C
789	002540	C
790	300337	C
791	002167	C
792	600249	C
793	002285	C
794	603551	C
795	002468	C
796	300697	C
797	300005	C
798	605208	C
799	601388	C
800	601137	C
801	603399	C
802	603527	C
803	300963	C
804	603630	C
805	603931	C
806	002753	C
807	300625	C
808	002020	C
809	000657	C
810	300855	C

No.	Stock Code	Rating
811	688257	C
812	603719	C
813	000420	C
814	603217	C
815	002037	C
816	002379	C
817	603808	C
818	000910	C
819	002210	C
820	900937	C
821	601015	C
822	600531	C
823	603078	C
824	000818	C
825	600740	C
826	002578	C
827	000850	C
828	600768	C
829	600156	C
830	06918	C
831	00467	C
832	01555	C
833	000819	C
834	600725	C
835	002778	C
836	603798	C
837	002215	C
838	002741	C
839	002919	C
840	002917	C

No.	Stock Code	Rating
841	002669	C
842	600568	C
843	002693	C
844	002864	C
845	01681	C
846	01011	C
847	02137	C
848	002309	C
849	300317	C
850	000821	C
851	603396	C
852	003038	C
853	002501	C
854	301398	C
855	300489	C
856	600883	C
857	000023	C
858	000633	C
859	002295	C
860	002842	C
861	002192	C
862	300648	C
863	002850	C
864	300438	C
865	300409	C
866	600606	C
867	02128	C
868	603877	C
869	600246	C
870	600743	C

No.	Stock Code	Rating
871	002959	C
872	300115	C
873	603787	C
874	605009	C
875	301305	C
876	000967	C
877	300190	C
878	000826	C
879	300299	C
880	00399	C

Appendix III Terms and Definitions

- 1. Supply Chain:** The chain or network of production and distribution processes through which products are ultimately provided to end users, and that includes multiple tiers of suppliers.
- 2. Supplier:** An entity that provides products and services to a brand, including but not necessarily limited to a brand's subsidiary factories and other affiliated enterprises, production subcontractors, raw materials providers, service providers for production processes (e.g. centralized wastewater treatment facilities, solid waste transportation and disposal entities) and logistics provider.
- 3. Direct Supplier:** A supplier that has directly signed a procurement contract with a brand.
- 4. Indirect Supplier:** A supplier that has not directly signed a procurement contract with a company, but is a part of the supply chain for the company's main products or services.
- 5. Affiliated enterprises:** According to the demarcation method of enterprise operation boundary, affiliated enterprises refer to the enterprises owned or directly controlled by the enterprise, including its own factories, stores, warehouses, subsidiaries, branches, etc.
- 6. Blue EcoChain:** Powered by IPE's Blue Map Database and AI technology, Blue EcoChain provides the most efficient means of supply chain oversight for environmental and carbon risks. What's more, by allowing multiple parties, including suppliers themselves, access to synchronized alerts, Blue EcoChain shifts the conventional dynamic of brands policing suppliers to one of equal participation, in which suppliers feel individually responsible for compliance problems as they arise, without the need for a push from their clients each time. Blue EcoChain thereby forges partnerships in environmental risk management centered on solving problems expeditiously.
- 7. Greenhouse Gas (GHG):** For the purposes of this report, GHGs are the six gases listed in the Kyoto Protocol: carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF₆).
- 8. Carbon neutrality /net zero emissions:** Carbon neutrality means that the total amount of greenhouse gas emissions directly or indirectly generated by nations, enterprises, products, activities, or individuals within a certain period of time being offset through afforestation, energy conservation and emission reduction etc., so as to achieve "zero emission" of carbon dioxide.
- 9. Scope 1:** Emissions from operations that are owned or controlled by the reporting company.
- 10. Scope 2:** Emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company.
- 11. Scope 3:** Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.
- 12. Value chain:** In this report, "value chain" refers to all of the upstream and downstream activities associated with the operations of the reporting company, including the use of sold products by consumers and the end-of-life treatment of sold products after consumer use.
- 13. Carbon intensity:** Ratios that express GHG impact per unit of physical activity or unit of economic value (e.g. tonnes of CO₂ emissions per unit of electricity generated). Intensity ratios are the inverse of productivity/efficiency ratios
- 14. Product carbon footprint:** The sum of greenhouse gas emissions and greenhouse gas removals in the product system, expressed in carbon dioxide equivalent, based on a life cycle assessment using the single impact category of climate change.
- 15. Life Cycle:** The continuous and interrelated stages associated with a product, including from raw material acquisition or from natural resource production to end-of-life treatment.
- 16. Carbon emission trading:** All purchases or sales of carbon emission allowances, offsets, and credits.
- 17. Carbon Data Disclosure Platform developed by IPE:** Suppliers can publicly disclose their annual greenhouse gas emissions data, energy consumption, climate targets and carbon asset management via IPE Carbon Data Disclosure Platform.