2023

供应链气候行动 CATI 指数

Supply Chain Climate Action CATI Index

Climate
Action
Transparency
Index

IPE 公众环境研究中心
Institute of Public & Environmental Affairs

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01

Summary

In recent years, human-caused climate change has intensified, with extreme weather events such as high temperatures, heat waves, floods and wildfires becoming more frequent. 2023 saw the end of the La Niña phenomenon, which had been occurring for three consecutive years, with rising sea temperatures in the east-central Pacific Ocean and "El Niño" conditions in July, contributing to the highest global temperatures ever recorded for that month.

Climate Change 2022: Climate Change Mitigation, the Sixth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC), suggests that the world needs to peak greenhouse gas emissions by 2025 at the latest, reduce them by about 43% by 2030, and reach net-zero emissions by early 2050 in order to limit temperature rise to around 1.5°C by the end of the century.[1]

In order to cope with the complex situation of climate change uncertainty, China proposed a "dual carbon" target in 2020 and gradually established a "1+N" policy system. In July, 2023, the second meeting of the Central Commission for Comprehensively Deepening Reform (CCCDR) reviewed and passed the Opinions on Promoting Dual Control of Energy Consumption and Gradually Shifting to Dual Control of Carbon Emissions,[2] which re-emphasised "carbon reduction as a key strategic direction" and "improving the regulation of the total amount and intensity of energy consumption and gradually shifting to dual control of the total amount and intensity of carbon emissions".

Internationally, the European Union has successively introduced a number of policies such as the Corporate Sustainability Reporting Directive (CSRD) and the Carbon Border Adjustment Mechanism (CBAM). The IFRS S2 Climate-Related Disclosures[3] issued by the International Sustainability Standards Board (ISSB) in June 2023 also explicitly states that companies should disclose Scope 1, 2 and 3 GHG emissions data, action plans and targets set to reduce emissions in the value chain, potential climate risks in the supply chain and countermeasures, etc., so as to enhance supply chain climate information transparency.

Since the signing of the Paris Agreement, some 150 countries and regions and nearly 1,000 major companies and financial institutions around the world have committed to carbon neutrality. At the same time, geopolitical tensions have intensified, major economies continue to focus on ensuring energy security, food security and industrial chain security, and global CO_2 emissions are once again at a record high in 2022 after a sharp rebound in 2021[4].

To guide and motivate Chinese and global companies to implement their climate ambitions, especially GHG reduction commitments in the supply chain, the Institute of Public and Environmental Affairs (IPE) launched a climate action transparency programme in 2018. In 2023, IPE upgraded the evaluation methodology of the Corporate Climate Action Transparency Index (CATI) for the sixth consecutive year and expanded the evaluation scope to 742 companies in 22 industries.

1. IPCC.Climate Change 2022: Mitigation on Climate Change[R/OL].2023:[2023-10-09]. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SummaryForPolicymak-ers.pdf.

2. Xinhua News Agency. 习近平主持召开中央全面深化改革委员会第二次会议强调 建设更高水平开放型经济新体制 推动能耗双控逐步转向碳排放双控 [EB/OL].2023-07-11:[2023-10-09]. https://www.gov.cn/yaowen/liebiao/202307/content_6891167.htm.
3. ISSB.IFRS S2 Climate-related Disclosures[S/OL].2023:[2023-10-09]. https://www.ifrs.org/projects/completed-projects/2023/climate-related-disclosures/
4. IEA.CO_2 Emissions in 2022[R/OL].2023:[2023-10-09].https://www.iea.org/reports/co2-emissions-in-2022.

In this round of CATI evaluation, we found that Chinese and global companies are accelerating their climate actions, with a significant increase in the number of companies publicly disclosing their climate strategy, operational-level carbon emissions data and climate targets across the value chain, while more companies are disclosing their own operations and supply chain emission reduction projects, and guiding their suppliers to implement carbon management on their own. Around 100 leading Chinese and multinational companies are using innovative solutions based on big data and the Internet to improve the efficiency of carbon management in their supply chains and promote the green and low-carbon transformation of their suppliers.

Highlights

2023 Corporate Climate Action Transparency Index (CATI) Evaluation:

Overall Performance	**Adidas, PUMA, Cisco, Dell, Foxconn, Apple, Nike, Inditex, Levi Strauss & Co., and Marks & Spencer** are among the CATI TOP 10; **Foxconn, Luxshare Precision, Lenovo, Avary Holding, LONGi Green Energy, and Anta Sports** are the top performers from the Greater China region.
Policy & Governance	648 companies have made climate commitments; more than 400 companies have begun to identify climate risks and integrate low-carbon considerations into business decisions and board-level oversight.
Measurement & Disclosure	**Ralph Lauren, Carrefour, Unilever, the Very Group,** and 518 other companies have calculated and disclosed their Scope 1 & 2 carbon emissions, which totaled 621 million tonnes of CO_2 equivalent (CO_2e) in the most recent year. **Adidas, Danone, Asics, Hang Lung Properties,** and 328 other companies have calculated and disclosed their Scope 3 carbon emissions. **PUMA, Dell, Apple, Lenovo, Polestar, LONGi Green Energy,** and 50 other companies have measured and disclosed product carbon footprint data.

Carbon Targets Setting	**Intel, C&A, Decathlon, BASF**, and 330 other companies have set Scope 1 & 2 carbon reduction targets, while Gap Inc., Lindex, Huawei, Oji Paper, and 224 other companies have set Scope 3 carbon reduction targets. **Lindex, Anta Sports, Nestlé, Amazon,** and 233 other companies have set carbon neutrality targets for their own operations (Scope 1&2), while **Marks & Spencer, Uniqlo, Walmart, Samsung**, and 153 other companies have set carbon neutrality targets for their entire value chain (Scope 1, 2, and 3).
Performance against Carbon Targets	**Bestseller, Panasonic, Toyota, Lululemon**, and 189 other companies track and disclose their progress against their Scope 1&2 targets. **Primark, Tesco, HP, Canon, Lego,** and 119 other companies track and disclose their progress against their Scope 3 targets. **Cisco, Apple, Nestlé, H&M**, and 30 other companies track and disclose progress against carbon neutrality targets across the value chain.
Climate Actions	More than 60% of the companies evaluated, including **Dell, Foxconn, New Balance, Target, and Schaeffler** have reduced their carbon footprint by using renewable energy, increasing energy efficiency, and reducing energy dissipation. In addition, companies such as **LONGi Green Energy, Kao, and Danone** have started to build zero-carbon factories. **Apple, Nike, Microsoft, Avary Holding**, and 161 other companies have started to promote energy saving and emission reduction actions among their suppliers. **Dell, Cisco, Inditex, Levi Strauss & Co., Luxshare Precision**, and other companies have motivated their suppliers to manage and calculate the carbon footprints of their own supply chains. Thirty-three companies, including **Adidas, PUMA, Dell, Marks & Spencer, and Inditex**, motivated **2,225** suppliers to disclose annual carbon emissions data in this round of evaluation, with Scope 1&2 emissions exceeding **56 million** tonnes of CO_2e in the most recent year and committed reductions totaling **2.72 million** tonnes of CO_2e.

However, most of the 742 companies evaluated this year still score very low, including many companies with high energy consumption in their supply chains and a high proportion of Scope 3 emissions; 153 companies with explicit Scope 3 carbon neutrality commitments have yet to implement effective measures to reduce emissions in their supply chains. Only 5% of companies are able to motivate suppliers to measure and publicly disclose emissions data, set emission reduction targets and track progress in reducing GHG emissions. In addition, some brands, while promoting carbon neutral products, are backtracking on promoting carbon disclosure in their supply chains.

To promote concrete climate action and curb "climate-washing," IPE has developed and launched the Global Business Accountability Map in 2022, visualizing the public commitments companies have made to address climate change, their progress in implementing these commitments, their GHG emissions levels, and the actions they have taken, especially in promoting emissions reductions in their supply chains. As of the end of September 2023, the total Scope 1 & 2 GHG emissions disclosed by the 1,504 companies tracked by the Global Business Accountability Map exceeded 5.161 billion tonnes of CO_2e (data refer to the total cumulative Scope 1&2 (market-based) emissions disclosed by companies in the most recent year; there may be double counting involving the energy sector and other industrial sectors), accounting for 9.78% of total global GHG emissions in 2022[5]; the total publicly committed GHG emission reductions amount to more than 549 million tonnes of CO_2e.

In response to the severe global climate situation, IPE conducted the CATI evaluation for the sixth consecutive year, aiming to effectively identify bottlenecks and shortcomings, discover progress, promote companies' best practices, enhance mutual trust among stakeholders, and promote international cooperation. We look forward to seeing more companies embarking on zero-carbon supply chain construction and low-carbon supply chain transformation, helping China achieve its "dual carbon" goal, advancing the global Race to Zero, and providing consumers with more green and low-carbon products.

5. IEA.CO_2 Emissions in 2022[R/OL].2023:[2023-10-09].https://www.iea.org/reports/co2-emissions-in-2022.https://www.ipe.org.cn/MapSCMBrand/BrandMap.aspx?q=6

Therefore, we call on a multi-stakeholder approach to

Promote public disclosure of corporate carbon information

Companies should strengthen the measurement and disclosure of carbon emissions information, set science-based carbon targets, promote the disclosure of climate information about their own operations, subsidiaries, suppliers and their products, and publicly report on progress towards emissions reductions and carbon neutrality across the value chain, so as to encourage a more substantial low-carbon supply chain transformation, put an end to "climate-washing", and stimulate concerted efforts by all parties to implement concrete emission reduction actions.

Improve carbon accounting and disclosure standards

Based on the existing standards for corporate carbon data and product carbon footprints, all parties should improve the accounting boundaries, life cycle division, core data statistical calibre and other requirements to enhance data comparability; at the same time, establish unified standards, vigorously promote product carbon footprint disclosure and data application, and form representative LCA factors to improve product carbon footprint accounting.

Build zero-carbon supply chains

Leading companies, industry associations and key institutions with supply chain influence and climate ambition should drive the core companies in their supply chains to join the Global Race to Zero, while encouraging more small and medium-sized enterprises (SMEs) to join the global climate process. All sectors of society should pay attention to and support the process of supply chain decarbonization, support developing countries and emerging economies where global supply chains are located in low-carbon transformation, accelerate the Global Race to Zero and work together to protect our planet home.

02

Corporate Climate Action Transparency Index (CATI)

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 accross 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.

Figure 2-1

CATI Index five evaluation dimentions
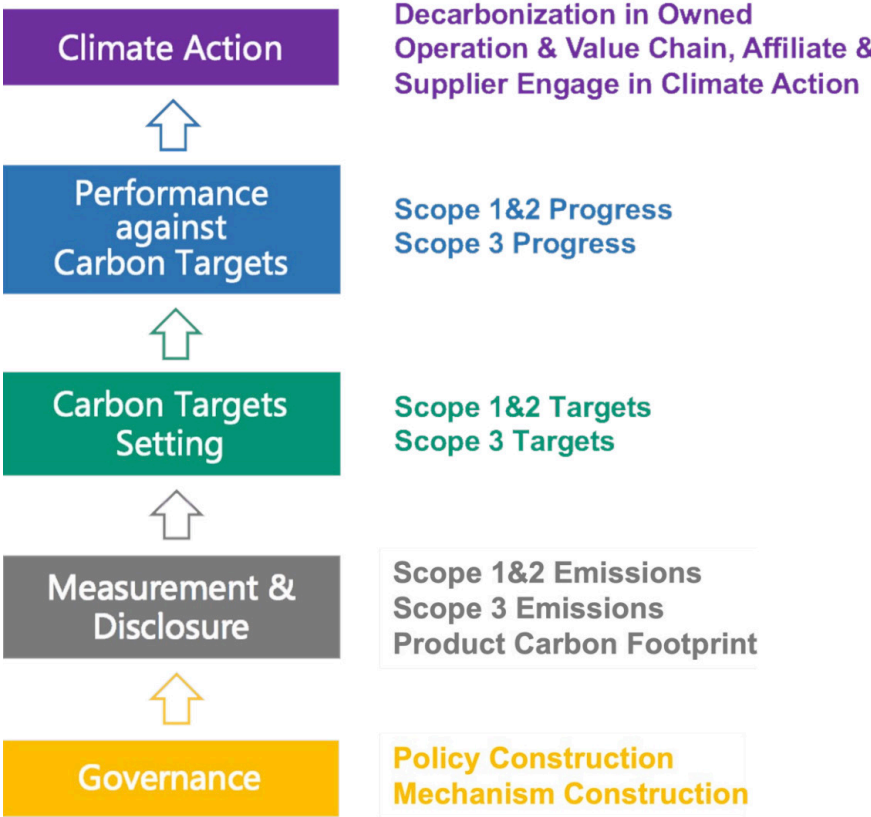
The upgraded CATI 3.0 is fully aligned with mainstream international standards, including but not limited to the UN Sustainable Development Goals (in particular, the Responsible Consumption and Production, and Climate Action goals); the Science Based Targets initiative (SBTi); the GHG Protocol Corporate Accounting and Reporting Standard; the Corporate GHG Accounting Methodology and Reporting Guide for 24 Industries issued by China's National Development and Reform Commission (NDRC); ISO 14067 Carbon Footprint of Products; ISO 14025 Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures; and PAS 2060 Specification for the Demonstration of Carbon Neutrality.

The CATI 2.0 is also aligned with information disclosure protocols: the GRI Sustainability Reporting Standard, the Task Force on Climate-Related Financial Disclosures' Recommendations on Climate-Related Financial Disclosures, IFRS S2 Climate-Related Disclosures issued by the International Sustainability Standards Board (ISSB), the CDP Climate Change Questionnaire, the Standards Concerning the Contents and Formats of Information Disclosure by Companies Offering Securities to the Public No.2 — Contents and Formats of Annual Reports (2021 Revision) issued by the China Securities Regulatory Commission, and the Environmental, Social and Governance Reporting Guide and Guidance on Climate Disclosures issued by Hong Kong Exchanges and Clearing Limited.

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.

01 adidas 81.2	02 PUMA 79.8	03 CISCO 79.6	03 DELL Technologies 79.6	05 FOXCONN 77.5	06 Apple 77	07 Nike 76.8	08 INDITEX 76.4	09 LEVI STRAUSS & CO. 76	10 M&S EST. 1884 75.6
11 Microsoft 69.4	12 LUXSHARE ICT 立讯精密 67	13 PRIMARK 66.4	14 new balance 65.8	15 Lenovo 65.2	16 鵬鼎控股 AVARY HOLDING 63.5	17 TARGET 63.4	18 LONGi 60.4	19 花王 Kao 58.3	20 LINDEX 57.8
21 VF 57.6	22 TESCO 57.4	23 intel 56.2	24 Gap Inc. 56	25 DANONE ONE PLANET. ONE HEALTH 54.8	26 SCHAEFFLER 54.6	27 ANTA 53.6	28 BESTSELLER 52.8	29 雀巢 Nestlé 51.8	30 asics 51.6
31 Panasonic 51	32 UPM 50.8	33 hp 50.4	34 L'ORÉAL 48.6	35 RALPH LAUREN 48.4	35 Canon 48.4	37 ZF 47.6	38 C&A 47.4	39 TENDAM GLOBAL FASHION RETAIL 47	40 Carrefour 46.6
41 Renault 46.3	42 CHANEL 45.8	43 MANGO 45.6	43 Colgate 45.6	45 UNI QLO 45.2	45 SEAGATE 45.2	47 storaenso 45	47 ERICSSON 45	49 TOYOTA 44.8	49 Coca-Cola 44.8

(See Appendix I for a full list of 2023 CATI scores)

3.2 2023 Industry Score Comparison

In this round of evaluation, industries such as Textile, Leather & PU, IT/ICT, Retail, Photovoltaic (PV) Equipment, Auto Parts, and Household & Personal Care are relatively leading in terms of climate action; industries such as Bicycles/Mopeds, Liquor, Interior Decoration, and Real Estate are relatively lagging in terms of overall performance.

The difference in scores between companies in the Real Estate, PV Equipment, Household Appliances, Paper, and Food & Beverage industries is relatively small, with a small number of leading companies scoring well above the industry average. The difference in scores between companies in Industrial Chemicals, Retail, Pharmaceuticals, IT/ICT and Auto parts is large and more polarised.

3.3 2023 Regional Score Comparison

Companies in Europe, America and Asia-Pacific (excluding Greater China) are early adopters of climate action and are converging in their level of climate governance. Although companies in Greater China started relatively late, Foxconn, Luxshare Precision, Lenovo, Avary Holding, LONGi Green Energy, Anta Sports, ZTE, Geely Automobile and Huawei are catching up and have started to establish a more comprehensive carbon management system, including carbon accounting, setting emission reduction targets and tracking performance, and implementing emission reduction measures for emission sources within their own operations, as well as empowering their suppliers to make the low-carbon transition.

Figure 3-1

Comparison of industry CATI scores

Figure 3-2

Comparison of regional CATI scores
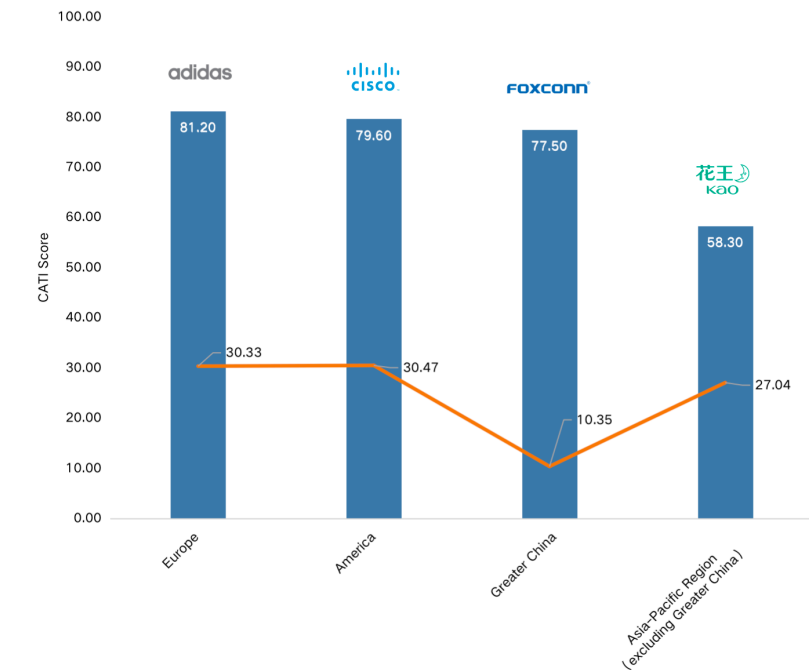
3.4 2022-2023 CATI Evaluation Score Comparison

During this evaluation period, we found that companies have gradually expanded the breadth and depth of their climate governance, driven by the global climate situation. The average CATI score increased from 14.68 in the 2022 evaluation period to 17.53 in this round of evaluation, with the highest score (81.2) slightly higher than last year's score (78) (Figure 3-3).

On the other hand, the standard deviation of the evaluation results for this evaluation period has slightly decreased compared to the 2022 evaluation period, indicating that the score gap between companies is narrowing and that companies that are relatively lagging behind are benchmarking themselves against leaders and accelerating their catch-up efforts, starting with the development of corporate climate policies.

A comparison of the average score rates[6] for the five CATI dimensions from this evaluation period to the 2022 evaluation period shows that, with the exception of carbon target performance, the other four dimensions show an upward trend, with the Governance dimension and the Measurement & Disclosure dimention showing the largest increases and the Climate Action dimension showing only a small increase (Figures 3-4).

6. Note: Average score rate = average score of 742 companies evaluated/total score

Figure 3-3

Comparison of 2022 and 2023 CATI evaluation scores

legend ● 2023 ● 2022
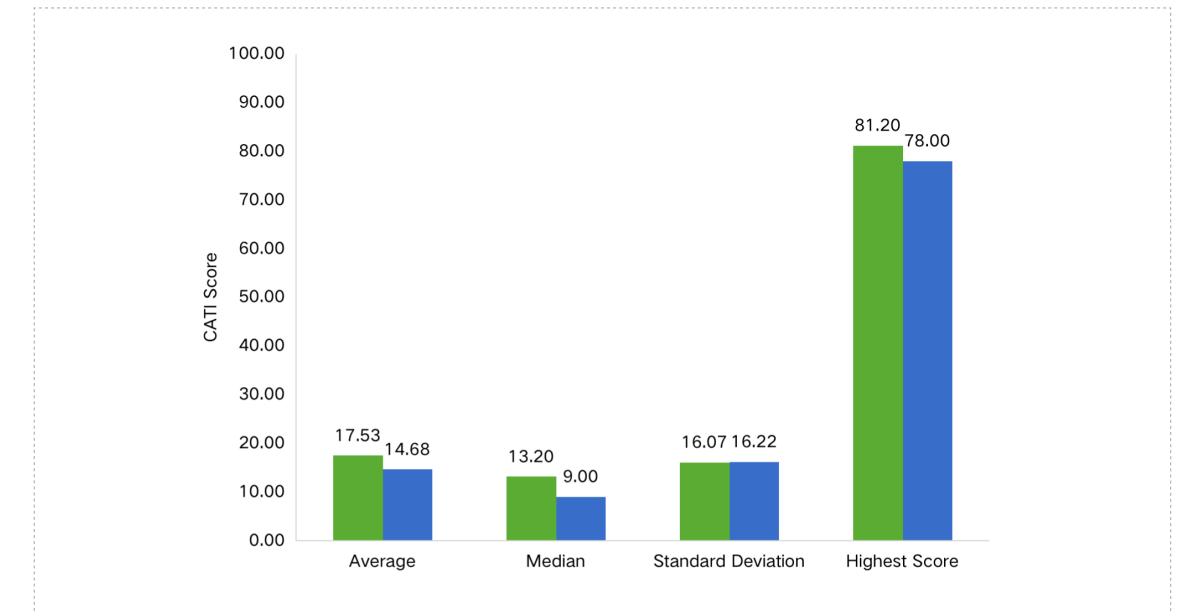
Figure 3-4

Comparison of 2022 and 2023 CATI evaluation score rates by dimension

legend ━ 2023 ━ 2022
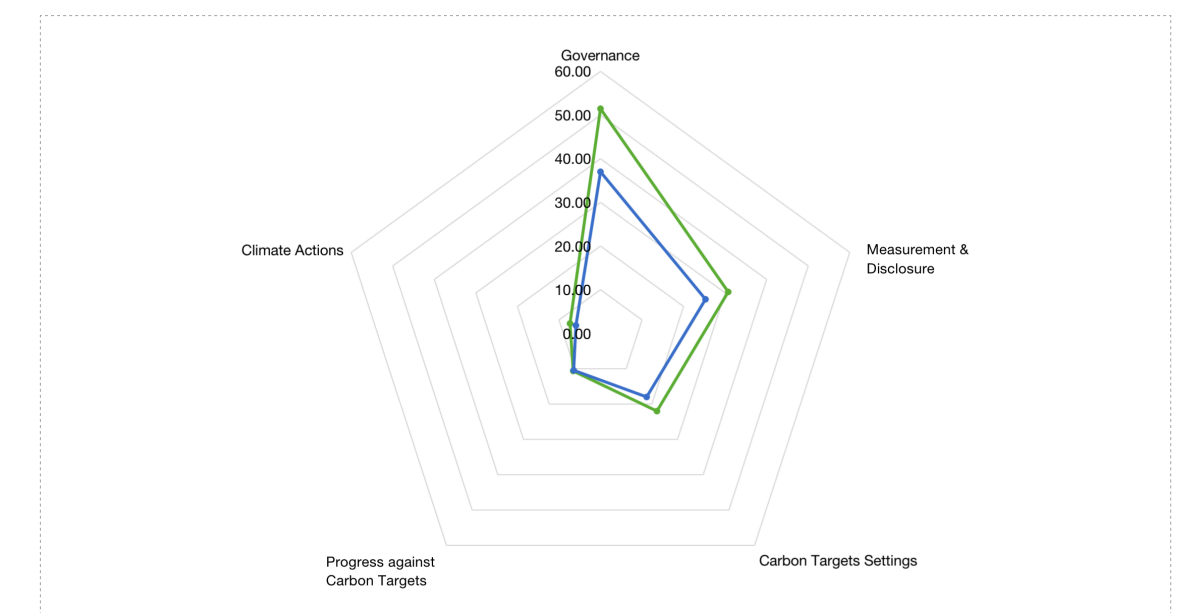
By comparing the scores on the five dimensions of the CATI evaluation in 2022 and 2023:

- **87.3% of the companies evaluated publicly disclosed their climate commitments during this round of evaluation, and the average score rate for the Governance dimension reached 51.5%, an increase of 39% compared to 2022**; more than 50% of the companies have integrated climate risks and opportunities into their corporate policies and have formulated policies and mechanisms to address climate change;

- More companies are carrying out operational-level carbon accounting, mapping their own emissions and identifying emission hotspots, and **the average score rate for the Measurement & Disclosure dimension has increased by almost 21% year-on-year, from 25.3% in 2022 to 30.7% in 2023**[7];

- **44.5% of the companies evaluated set Scope 1&2 emission reduction targets, 31.4% set Scope 1&2 carbon neutrality targets, 30.2% set Scope 3 emission reduction targets, and 20.6% set Scope 3 carbon neutrality targets**. The overall average score rate for the Carbon Target Setting dimension increased slightly compared to 2022, from less than 18% in 2022 to 22% in 2023;

- **Only a few companies track performance against carbon targets, and the Performance Against Carbon Targets dimension remains the weakest of the five CATI evaluation dimensions**, with an average score rate of only 10.6%, basically the same as in 2022 and in need of improvement;

- **82.9% of the companies have initiated energy saving and emission reduction projects, and about a quarter of them have extended their emission reduction actions to the value chain**. For carbon emissions from their own operations, the main actions taken by the companies include non-fossil energy substitution, energy efficiency improvement, process improvement, control of fugitive emission sources and carbon removal (including but not limited to Carbon Capture, Utilisation and Sequestration (CCUS) and Nature-Based Solutions (NbS), etc.). For carbon emissions in the value chain, companies focused on guiding key suppliers in carbon and energy data management, increasing the use of renewable energy use, and improving energy efficiency in production processes;

- **Most of the companies evaluated have not yet disclosed the emissions reduction performance of their own operations or value chain**; collaboration with suppliers on emissions reduction projects is still mainly on a pilot basis and the scale of projects has not yet been scaled up. Although the average score rate for the Climate Action dimension has increased by almost 25% since last year, the average score rate is still only at 7.3%, which means that companies still need to expand the scope and breadth of their climate actions and work with suppliers to extend climate management to the upstream supply chain and accelerate the process of reducing emissions throughout the lifecycle of their products.

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7. Note: As the indicator "Measurement and disclosure of product carbon footprint" is new in CATI 3.0, with a score weighting of 4%, it has not been included in the comparison of the two-year scores.

Figure 3-5

Comparison of 2022 and 2023 industry CATI average scores

legend ■ 2023 ■ 2022
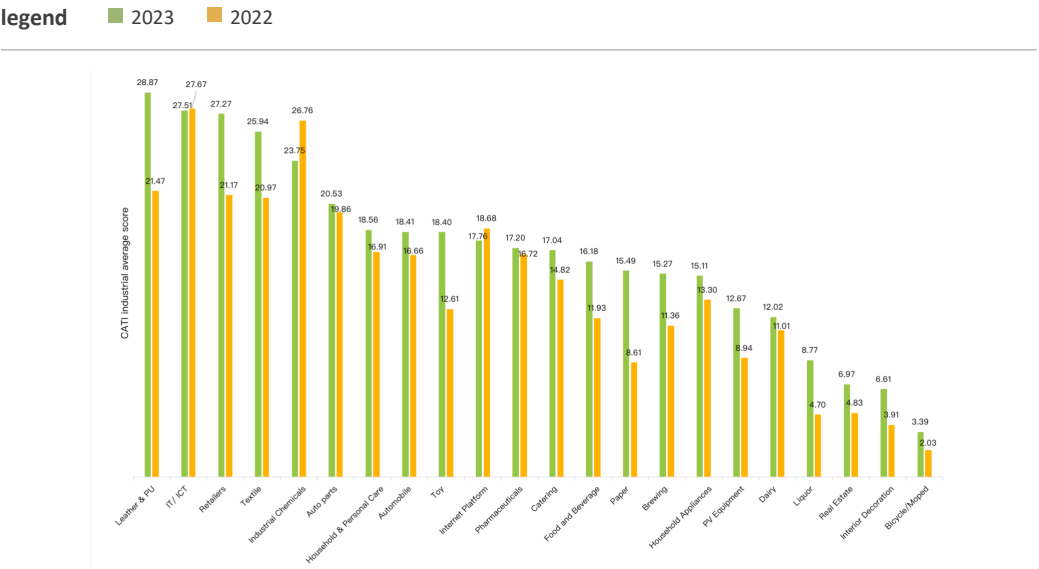
Figure 3-6

Comparison of 2022 and 2023 industry average scores by CATI dimension

legend
■ 2022 Governance ■ 2023 Measurement & Disclosure ■ 2022 Carbon Targets Settings
■ 2023 Governance ■ 2023 Measurement & Disclosure ■ 2023 Carbon Targets Settings
■ 2023 progress against Carbon Targets ■ 2023 Climate Actions
■ 2023 progress against Carbon Targets ■ 2023 Climate Actions
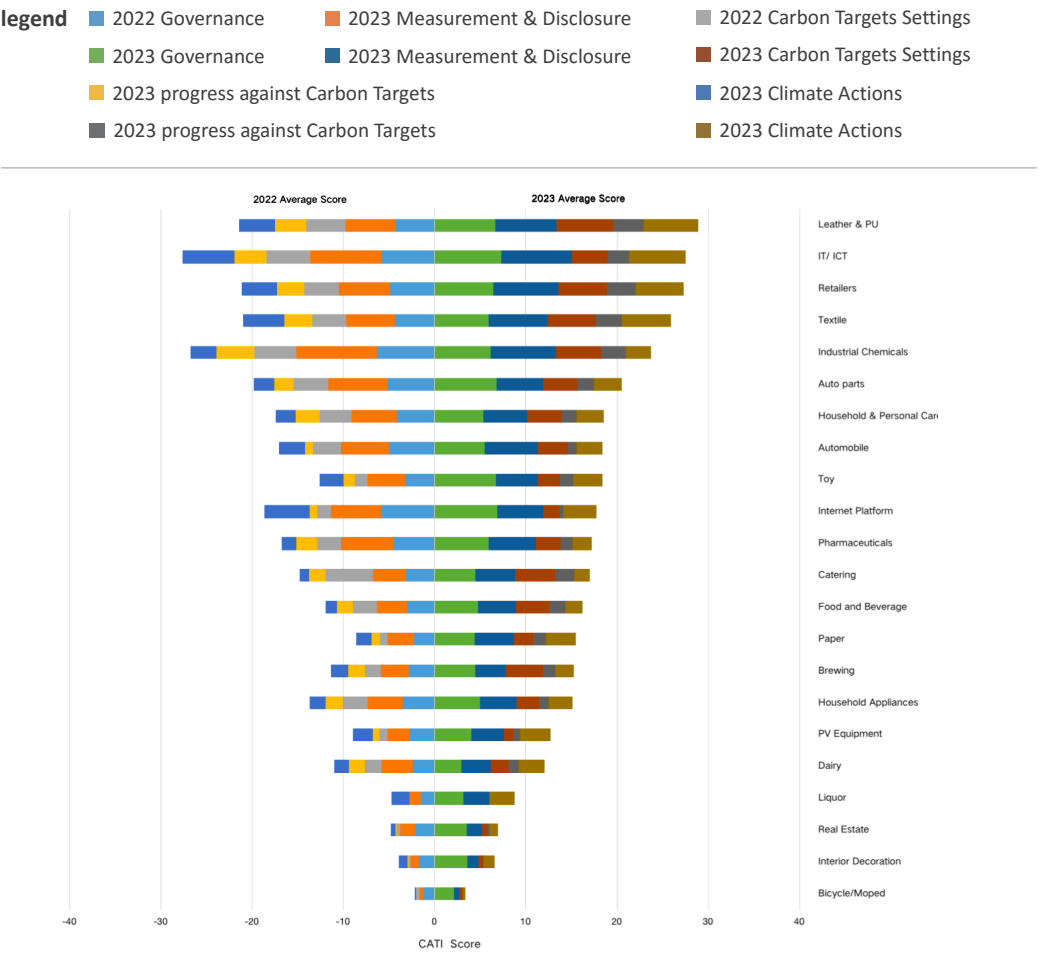
An industry comparison of the average scores for each dimension of the CATI evaluation in 2022 and 2023 shows that of the 22 industries evaluated in this round of evaluation:

- **The average score rate for 19 industries, including Leather & PU, Paper, Retail, and Toy, is trending upwards compared to the 2022 evaluation, with an average increase of 26%;**

- **In terms of measurement and disclosure, Retail, Industrial Chemicals, and Leather & PU industries ranked in the top three in terms of score rate[8] in the current evaluation**; compared to 2022, the number of companies in 11 industries, such as Liquor, Paper, and PV Equipment, that have mapped their emissions through measurement and disclosure has increased, and the average score rate has increased by 19.5% from 2022;

- **In terms of carbon target setting and performance against carbon targets, Retail, Textile, Leather & PU, and Industrial Chemicals performed better than other industries**; the average score rate of 17 industries, including Brewing, Food & Beverage, Automotive, and PV Equipment, increased by 34.4% compared to 2022 in the Carbon Target Setting dimension; and more companies in 11 industries, including Catering, Textile, and Paper, tracked and disclosed progress against carbon targets, with an average increase of 24.5% compared to the previous year;

- In terms of emission reduction actions, **industries such as IT/ICT, Leather & PU, Textile, and Retail have led the way in terms of their own operations and encouraging suppliers to implement actions and carbon accounting on their own, and continue to make progress, with their scores improving from last year.** The average score rate of 19 industries, including Paper, PV Equipment, Dairy and Household & Personal Care, has increased by 24.5% since last year, and companies in these industries are gradually implementing actions to reduce emissions.

8. Note: Average score rate = average score of 742 companies evaluated/total score

04

2023 CATI Evaluation Findings

Finding 1

More than 70% of companies have conducted carbon data measurement; overall disclosure is improving but still lacks granularity

Scope 1&2 measurement and disclosure

Measuring GHG emissions is the cornerstone of climate action. In this round of evaluation, around 70% of the companies evaluated have measured and disclosed their Scope 1&2 (their own operations) GHG emissions through public channels such as their official websites, annual reports, press releases and the Blue Map website, an increase of almost 13% compared to the 2022 evaluation period.

The total Scope 1&2 GHG emissions disclosed by the companies in the most recent year were approximately 621 million tonnes of CO_2e[9]. Almost 35% of the evaluated companies have annual emissions between 100,000 and 1,000,000 tonnes of CO_2e, and 13 companies have annual emissions over 10 million tonnes of CO_2e (Figure 4-1), mainly from the IT/ICT, Food & Beverage, Industrial Chemicals, and Paper industries. Scope 1&2 GHG emissions by industry are detailed in Figure 4-2.

Figure 4-1

Distribution of Scope 1&2 GHG emissions disclosed by the evaluated companies
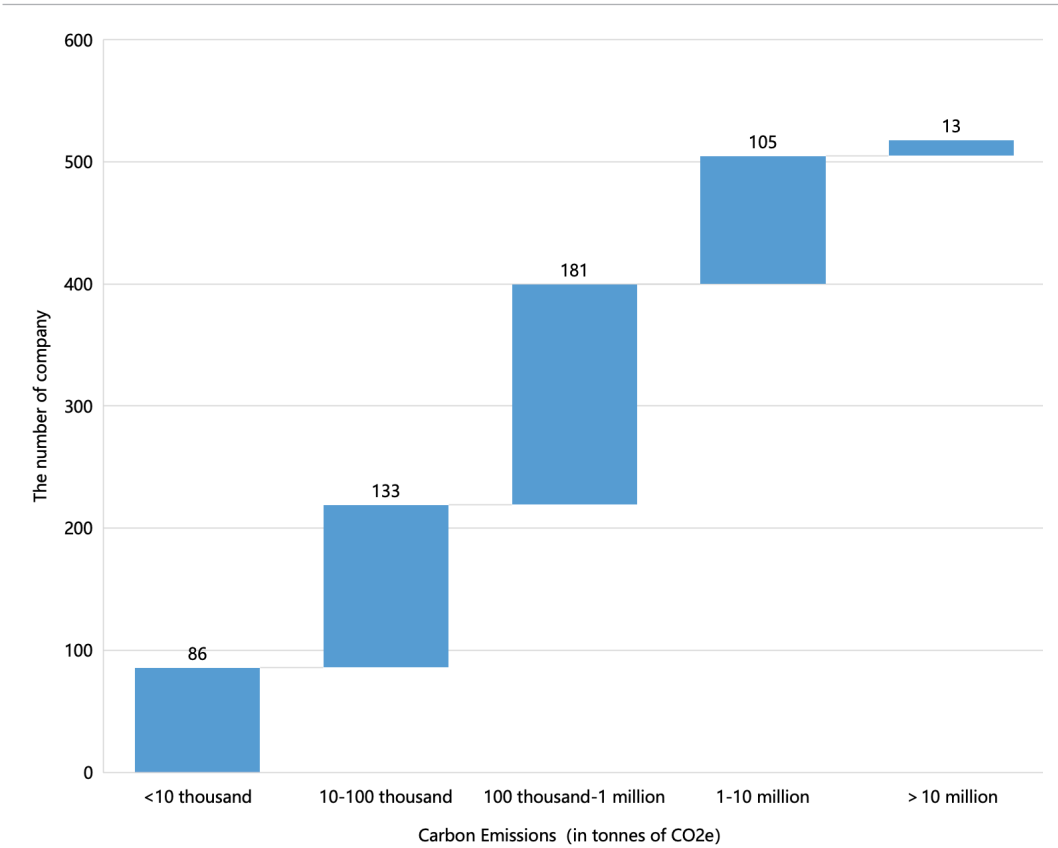
9. 2023 Corporate Climate Action Transparency Index (CATI)

Figure 4-2

Scope 1&2 GHG emissions by industry (unit:10,000 tonnes of CO$_2$e)
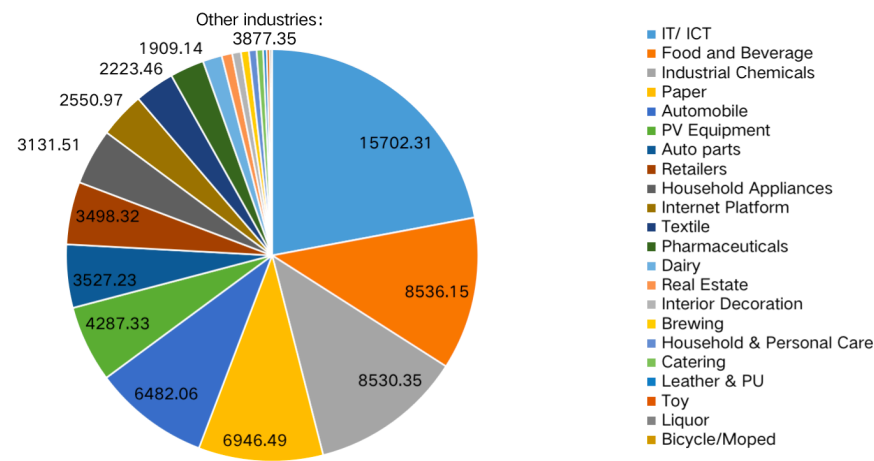
Based on the disclosure of Scope 1&2 emissions, 14% of companies disclosed the GHG emissions of their affiliates, such as factories, subsidiaries, logistics centres and data centres. By accounting and disclosing carbon emissions based on emission sources, companies can explore the emission reduction potential of their affiliates and target emission reduction actions based on the energy resource endowment of different regions and the differences in operations and processes of each factory. Companies can also learn from the experiences of their affiliates that are leading the way in low-carbon transformation, providing a replicable and scalable model to support the achievement of the group's overall emissions reduction commitment.

Scope 3 and supply chain measurement and disclosure

With globalisation and the increasing division of labour in industry, most companies are involved in the purchase of products and services, which means that GHG emissions from the supply chain generally account for a large proportion of a company's total emissions. To achieve net-zero emissions across the value chain, companies must not only reduce GHG emissions from their own operations, but also identify and measure Scope 3 emission hotspots and work with stakeholders in the value chain, especially suppliers, to reduce emissions.

In this round of evaluation, 44.2% of companies disclosed Scope 3 carbon emissions data, an increase of 6.8% compared to the 2022 evaluation period and more than double compared to the 2021 evaluation period. However, more than 60% of companies disclosing Scope 3 carbon emissions have not yet disclosed Scope 3 accounting methodology, third-party verification, and emissions data by category, and 53% of companies rely heavily on LCA database factors to complete Scope 3 emissions measurements and have not yet started collecting actual measured data from suppliers.

According to the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (hereinafter referred to as "GHG Protocol")[10], companies should first complete a systematic screening to identify emission hotspots in their value chain activities, and then calculate GHG emissions from each of the 15 categories separately. Although companies have the discretion to determine the categories to be disclosed in Scope 3 accounting, we recommend that companies focus on "those activities that are relevant to their business and goals" and activities "for which they have reliable information" and ensure that their Scope 3 data reflect their actual emissions and include the Scope 3 hotspot sources.

According to the GHG Protocol, GHG emissions from purchased goods and services can be calculated using one of the following four methods: Supplier-specific Method, Hybrid Method, Average-data Method, and Spend-based Method. Considering the need for accurate data and a practical accounting process, we suggest that companies use measured emission data (emission factors and/or activity level data) obtained from suppliers with emission factors obtained from product lifecycle assessment (LCA) databases. As such, companies need to encourage suppliers upstream to conduct carbon accounting, to ensure the quality of their accounting data, and to publicly disclose their scope 3 emissions data to enhance their credibility. In addition, due to differences in energy structures and industrial production patterns across countries and regions, we suggest that companies guide suppliers to use credible emission factors with minimal regional boundaries to reduce accounting errors.

10. WRI & WBCSD.GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Stand-ard[S/OL].2011:[2023-10-09].https://ghgprotocol.org/sites/default/files/standards/Corporate-Val-ue-Chain-Accounting-Reporing-Standard_041613_2.pdf.

Leading companies driving emissions reductions through product carbon footprint measurement and disclosure; international mutual recognition of PCF-related mechanisms urgently needed

For the first time in 2023, IPE has added the indicator of "Measurement and Disclosure of Product Carbon Footprint" to the CATI Index, which aims to guide companies to focus on GHG emissions at all stages of the lifecycle, while helping consumers make green choices. In this round of evaluation, 50 companies from 14 industries such as IT/ICT, Textile, Leather & PU, and PV Equipment, **including Lenovo, Dell, Apple, Adidas, PUMA, Microsoft, Luxshare Precision, LONGi Green Energy, Levi Strauss & Co**. and others, have measured and disclosed the carbon footprint of their key products.

Within an organisation's boundaries, a company's GHG emissions mainly come from the entire life cycle of its products (and services), including the acquisition of raw materials, design, production, transport, delivery, use and end-of-life treatment of products throughout the company's value chain. Life Cycle Analysis (LCA) is an internationally recognised environmental management tool and method for analysing environmental footprints. Based on the LCA methodology, a quantitative Product Carbon Footprint (PCF) can assist companies in sorting out the GHG emissions and removals at each stage of the life cycle of a single product, from the extraction of raw materials to the end-of-life disposal or recycling of the product, and locating the processes, techniques and materials with high carbon emissions. At the same time, the PCF can help companies understand the impact of their products on climate change at all stages of the product life cycle, and benchmark against industry averages and leaders to implement more targeted emission reduction measures.

Although the leading companies in this round of evaluation have already calculated and disclosed their product carbon footprints, the level of disclosure varies among the 50 companies that have disclosed their PCFs:

- Most companies have disclosed ISO 14047 certificates issued by third party organisations. Although the format of the certificates varies, most include basic product information, product and life cycle carbon footprint data, accounting methodology, system boundaries, and data validation information;

- A small number of companies have publicly disclosed complete LCA reports or Environmental Product Declarations (EPDs), covering detailed information on production processes, raw data collection methods, data representation descriptions, uncertainty analyses of PCFs, comparisons of similar products, etc., which provide a more comprehensive description of the carbon footprint of their products;

- Some companies only disclosed one figure for the carbon footprint of their products.

To assist various stakeholders in retrieving the product carbon footprint data publicly disclosed by companies, IPE developed and launched the Product Carbon Footprint Disclosure and Catalogue (PCFD) Platform in 2023. During this round of evaluation, the PCFD platform has collected a total of 1,983 records of PCF data from 37 evaluated companies. Among them, 1/5 of the data is dated 2022, and more than 90% of the product carbon footprint studies have a system boundary of the full life cycle stage (cradle to grave) and disclose information on accounting methodologies, carbon emissions at each stage of the life cycle, etc.

In addition, some companies in this round of evaluation did not disclose specific data, although they mentioned in their reports that they had carried out product carbon footprint measurements. Some companies indicated that product carbon footprint data includes confidential information such as product attributes, specific processes and customer specified raw materials, so they will only report to customers and stakeholders on a targeted basis and have decided not to disclose product carbon footprint data to the public for the time being.

With the introduction of policies and regulations related to product-level carbon accounting by Chinese and international regulatory agencies, the requirements for PCF data quality and transparency have gradually increased. However, companies still face problems of inconsistent accounting and verification standards (including accounting boundaries, screening of emission sources, raw data quality requirements, etc.) and inconsistent statistical approaches, resulting in a lack of comparability of PCF data for similar products. In addition, some companies also indicated that the emission factors of products in their production locations are not recognised by overseas customers or regulatory authorities of importing countries. These issues suggest that there is an urgent need for all parties to improve communication and enhance the international mutual recognition and effective convergence of PCF-related mechanisms.

In terms of disclosure, while the mainstream international standards on product carbon footprint accounting, environmental product declarations, product environmental footprints, life cycle assessments and other related standards all mention data reporting and stakeholder communication, and some also propose disclosure frameworks, they do not explicitly mention "public disclosure". Similarly, mainstream standards or guidelines related to global sustainable development and climate governance do not cover indicators related to the disclosure of product carbon footprints, and there are no laws or regulations requiring the public disclosure of product carbon footprints, with the exception of the EU Regulation on Batteries and Waste Batteries. As a result, some companies do not disclose product carbon footprint data, or only disclose one figure for the carbon footprint. Without detailed information on the production process and raw materials, it is difficult for buyers, investors and consumers to make a comprehensive and objective assessment of whether a product is 'low carbon' and 'green'. This suggests that there is an urgent need to promote the establishment of a unified disclosure standard for product carbon footprints and to enhance the credibility and comparability of product carbon footprints through adequate disclosure.

Featured:

Policies on product carbon footprint and product-level carbon data accounting and reporting

The Carbon Border Adjustment Mechanism (CBAM), which came into effect on 1 October 2023, specifies that companies exporting steel, cement, aluminium, fertilisers, electricity and hydrogen to the EU need to report information on carbon emissions of their products[11]. From 1 January 2026, exporters will also need to pay a carbon tariff based on the embedded carbon emissions, with the price of the tariff linked to the EU Emissions Trading System. A comparison of accounting methods of product carbon footprint and emissions embedded in the CBAM goods imported is shown in the table below:

Table 4-1

A comparison of accounting methods of product carbon footprint and emissions embedded in the CBAM goods imported

	Embedded emissions of CBAM goods	Porudct carbon footprint
Boundary	Facility boundaries, production process stages	System boundaries: by life cycle stage, including cradle-to-gate, cradle-to-grave
Emission source	**Direct emissions** associated with product manufacturing processes	**Direct and indirect emissions** that are transformed into products and carried through their life-cycle stages
Type of greenhouse gas	CO_2、 N_2O、 $PFCs$	All greenhouse gases from processes
Methodology	CBAM Proposal Annex III	ISO14067/PAS 2050/GHG Protocol, etc.
Accounting methodology	Carbon intensity of production process stages (cumulative), excluding emissions from mining and transportation processes; declared units in unit weights	All unit processes within the system boundary, following the "cut-off" criterion; functional/declared units in product units or output units, based on product characteristics such as function, lifetime, quality, etc.
Data report	Direct and indirect emissions associated with the product's manufacturing process; carbon price levied in the country of origin	Output of data and related metrics in accordance with certification standards and related party requirements

11.   THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION.Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism (Text with EEA relevance)[EB/OL].2023:[2023-10-09].https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX-%3A32023R0956&qid=1696504384958.

In addition to CBAM, the EU Regulation on Batteries and Waste Batteries[12] requires that from July 2024, battery operators in the EU market, including those exporting batteries to the EU, will have to provide and publicly disclose a carbon footprint declaration and labelling. Battery exporters will be required to collect and calculate carbon emissions data from upstream minerals and materials to battery production, recycling and reuse, and to record battery life cycle data through the Battery Passport to increase the transparency of the battery value chain and the credibility of the data.

The French Energy Regulatory Commission (Commission De Régulation Fe L'énergie, CRE) mandates that modules for PV projects of 100 kW and above must possess the certification of "Evaluation Carbone Simplifiée" (ECS).[13] The ECS requires PV modules to have a carbon footprint of less than 550kg CO_2e/kWp, and scores the "carbon impact" of products based on the carbon footprint of products below this benchmark.

In China, policies issued by national and local authorities, such as the Implementation Guidelines for Industrial Carbon Peaking by 2030[14], 14th Five-Year Plan for the Development of Certification, Accreditation, Inspection and Testing[15], have also repeatedly proposed the "green transformation of the whole lifecycle of products", "the establishment of carbon footprint standards for the whole lifecycle of key products" and "the establishment of a database on carbon emissions for the whole lifecycle of key products", etc.
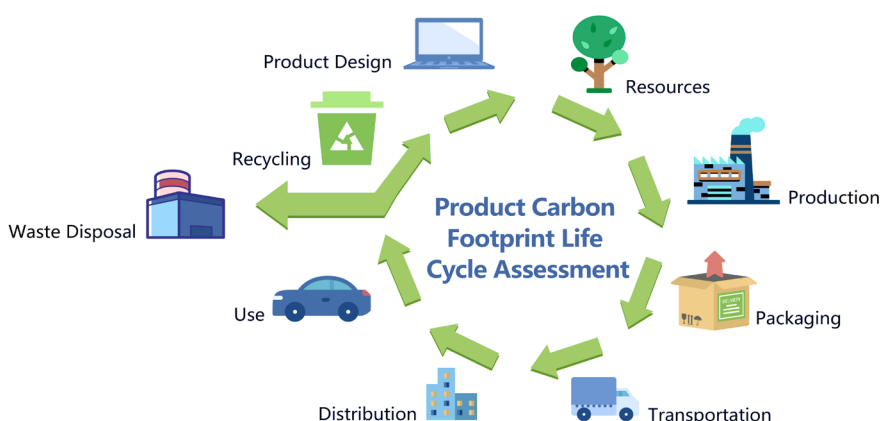
12. THE EUROPEAN PARLIAMENT AND THE COUNCIL.Regulation on batteries and waste batteries[S/OL].2023:[2023-10-09].https://data.consilium.europa.eu/doc/document/PE-2-2023-INIT/en/pdf.
13. French Energy Regulatory Commission.Appel d'offres portant sur la réalisation et l'exploitation d'Installations de production d'électricité à partir de l'énergie solaire « Centrales au sol »[EB/OL].2023:[2023-10-09].https://www.cre.fr/documents/Appels-d-offres/appel-d-offres-portant-sur-la-realisation-et-l-exploitation-d-installations-de-production-d-electricite-a-partir-de-l-energie-solaire-centrales-a2.
14. State Council . Circular of the State Council on the Issuance of the Action Plan for Carbon Dioxide Peaking before 2030 [EB/OL].2021-10-24:[2023-10-12].https://www.gov.cn/zhengce/content/2021-10/26/content_5644984.htm.
15. State Administration for Market Regulation.14th Five-Year Plan for the Development of Certification, Accreditation, Inspection and Testing [EB/OL].2022-07-29:[2023-10-12].https://www.samr.gov.cn/zw/zfxxgk/fdzdgknr /rzjgs/art/2023/art_6b55306125704c99b7db2fccd11825e4.html.

Finding 3

With more than 50% of the companies having announced emission reduction and/or carbon neutrality targets, and many covering Scope 3, there is an urgent need to empower suppliers to collaborate on supply chain climate targets

In this round of evaluation, about 55% of the companies set and disclosed climate targets, with an average score rate of 22% in the dimention of carbon target setting. Of the companies evaluated, 44.5% set Scope 1&2 emission reduction targets and 31.4% set Scope 1&2 carbon neutrality targets, representing an increase of 9.9% and 11% respectively compared to the 2022 evaluation period. 30.2% set Scope 3 emission reduction targets and 20.6% set Scope 3 carbon neutrality targets, representing an increase of 14.4% and 30.4% respectively, compared to the 2022 evaluation period.

With market demand gradually shifting towards "green" and "sustainable", more and more companies are integrating climate considerations into their strategic development plans, formulating climate policies, and setting quantifiable and enforceable climate targets that are aligned with their long-term strategic goals. In addition, leading companies are becoming more ambitious in setting emissions reduction and carbon neutrality targets, setting science-based targets with reference to the IPCC 1.5°C control target[16]. In this round of evaluation, 208 companies across 19 industries, including Inditex, Tesco, Schaeffler, Nestlé, Lego, Geely Auto, Ikea and LONGi Green Energy[17], have set targets that have been approved by the Science Based Targets Initiative (SBTi), representing more than a quarter of the total number of companies in this round of evaluation.

In addition to setting Scope 3 targets, 32 leading companies, including Adidas, PUMA, Cisco, Foxconn, Apple and others, have committed to push their suppliers

16. SBTi.Science Based Targets Initiative[EB/OL].[2023-10-09].https://sciencebasedtargets.org/.
17. LONGi Green Energy Technology Co.2022 LONGi Green Energy Climate Change White Paper [R/OL].2022:[2023-10-09].https://www.longi.com/cn/sustainable-development/promise/2022-climate-action- white-paper/.
18. Cisco.2022 Cisco Purpose Report[EB/OL].2022:[2023-10-09].https://www.cisco.com/c/dam/m/en_us/about/csr/esg-hub/_pdf/purpose-report-2022.pdf.
19. Adidas. Adidas Initiative to Address Climate Change Across the Supply Chain. [EB/OL].2023:[2023-10-09].https:// https://www.ipe.org.cn/GreenSupplyChain/BrandStoryDetail.aspx?id=91.

to set their own climate targets. For example, Cisco states in its 2022 Cisco Purpose Report[18] that "By FY2025, 80% of Cisco component, manufacturing, and logistics suppliers by spend will have a public, absolute GHG emissions reduction target", and disclosed its progress towards achieving this target in FY2022 (78% of suppliers have set targets). Adidas requires that strategic suppliers need to make SBTi commitments in 2022, set a base year and conduct a carbon inventory in 2023, and obtain SBTi approval of their targets by 2024. A brand story published by adidas[19] on the IPE website shows that by the end of 2022, 126 factories from 35 supplier groups have committed with SBTi to set science-based targets. In addition, 33 companies evaluated, including Adidas, PUMA, Cisco and Dell, have pushed nearly 1,000 suppliers to start setting carbon reduction targets and publicly disclose them through the Blue Map carbon data disclosure platform.

Of the suppliers that have set carbon emission reduction targets, 652 have set absolute emission reduction targets, but the committed emission reduction represents only 14.2% of these suppliers' total emissions in the most recent year; and nearly 40% of suppliers have an average annual emission reduction percentage of less than 1.23%, which is still not enough to meet the 2°C control target. This shows that suppliers still lack the capacity to set and implement emission reduction targets. Brands should encourage, empower, and motivate their suppliers to establish their own emission reduction policies, understand their emission profiles through accounting, quantify their climate commitments based on reasonable emission reduction baselines, set scientific, achievable and verifiable climate targets, track and disclose target implementation, and quantitatively assess their emission reduction performance.

In addition to setting carbon targets, we also observed in this round of evaluation that some suppliers, at the request of their brand customers, have committed to using 100% green electricity in their production for their brand customers in order to reduce the carbon emissions of specific production lines and to help their brand customers achieve 'carbon neutrality' for specific products. Globally, the energy transition remains a challenge. Although renewable energy installations continue to grow in countries and regions which host major global supply chains, the share of green electricity in the grid remains limited. This means that the supply chains of most industries are still struggling to achieve large-scale direct access to renewable energy or to achieve high levels of renewable energy substitution indirectly through the purchase of green electricity and green certificates. Reducing the use of fossil fuels and the carbon emissions embedded

in purchased electricity at individual production lines is not yet sustainable with limited renewable energy substitution and green certificate credits[20]. Suppliers are more likely to stop reducing their emissions as orders decline and customers change, and their annual carbon emissions may even increase significantly. Therefore, brands should guide their suppliers to consider energy management, production efficiency, technology upgrades and energy substitution in a holistic manner, establish a climate change transformation framework, integrate low-carbon transformation into their development strategies, set emission reduction and neutrality targets in a scientific manner, and track their performance to achieve a truly green and low-carbon transformation.

20. NewClimate Institute.REACTION: APPLE UNVEILS ITS FIRST CARBON NEUTRAL PRODUCTS[EB/OL].2023-10-09:[2023].https://newclimate.org/news/reaction-apple-unveils-its-first-carbon-neutral-products.

Although leading companies are extending supply chain emissions reductions upstream, the gap between slow progress and high-profile commitments by some is striking

Supply chain decarbonisation is the key and the challenge for companies to achieve net zero emissions across the value chain. Carbon emissions data disclosed by companies and academic literature show that supply chains are the main contributors to Scope 1, 2 and 3 emissions in most industries. However, supply chain carbon management has unique characteristics: global sourcing, layers of outsourcing, a large number of dispersed suppliers, and high-emitting links often upstream in the supply chain. Reliable emissions data is still difficult to access and obtain, and some key decarbonisation technologies across industries have yet to be developed or improved. Reducing emissions in the supply chain therefore requires not only leadership and demonstration by industry leaders, but also the involvement of end users and close collaboration between stakeholders to drive the low-carbon transformation of the whole industrial chain.

More than 1/5 of the companies in this round of evaluation have already taken action to reduce emissions in their supply chain. Among them:

- 21.8% of the companies evaluated have promoted suppliers to undertake carbon management or energy management projects, annual carbon data verification or energy management certification;

- 14.4% have identified upstream raw material hotspot suppliers through methods such as Life Cycle Assessment (LCA) and are implementing emission reduction projects accordingly;

- 21.7% have worked with logistics providers to reduce emissions from the transport and distribution of products;

- Thirty-three companies in the Textile, Leather & PU, IT/ICT, and Auto Parts industries, including Marks & Spencer, Anta Sports, Dell, Foxconn, Luxshare Precision, Schaeffler, and Vitasoy, have promoted their suppliers to measure and publicly disclose their annual GHG emissions data and climate targets through the Blue Map (Figure 4-3). Among them, Levi Strauss & Co.[21] not only pushed 103 suppliers in China to report and publicly disclose carbon emissions data during this evaluation period, but also piloted data disclosure by suppliers in Cambodia, and pushed Cone Denim (Jiaxing) Ltd.[22] and Yixing Lucky Textiles Group Co., Ltd.[23] to share their emission reduction cases and performance through the Blue Map website.

- Apple, Cisco, Dell, Levi Strauss & Co., New Balance, Tesco and 22 other companies have guided their suppliers to continuously extend supply chain carbon management upstream. Among them, Apple has successively promoted Foxconn, Luxshare Precision, Avary Holding, Kersen Technology and Lense Technology to carry out supply chain carbon management; under the impetus of its brand customer New Balance, Shanggao Chungjye Shoes Co., Ltd. has cumulatively promoted 39 of its suppliers to complete carbon disclosure[24].

21. Levi Strauss & Co. Ten Years Together, Looking Ahead: 2023 Levi Strauss & Co. Sustainability Efforts Reviewed and Shared [EB/OL].2023:[2023-10-09].https://wwwen.ipe.org.cn/GreenSupplyChain/BrandStoryDetail. aspx?id=92.
22. Cone Denim (Jiaxing) Ltd. Public Notice Regarding Carbon Leadership (CLP) Project [EB/OL].2023:[2023-10-09].https://wwwoa.ipe.org.cn/uploadzengxin/20230808025919408788898bce1d1374609b3047d3ff1a12706_616457.pdf.
23. Yixing Lucky Textiles Group Co.,Ltd. Energy Saving, Emission Reduction, Carbon Reduction and Water Saving Project Public Notice [EB/OL].2023:[2023-10-09].https://wwwoa.ipe.org.cn/uploadzengxin/20230821040647573913156966f21947a891fece587d079b19_ 617094.pdf.
24. Shanggao Chungjye Shoes Co., Ltd. 向绿而行 写好环境保护"答卷" [EB/OL].2023:[2023-10-09]. https://wwwoa.ipe.org.cn/UpLoadZengXin/ 2023092602423887108ca99903dee0487f9ae6162d0e-faaecd_717862.pdf.

Figure 4-3

Leading companies promoting supplier carbon data disclosure through the Blue Map website

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.	LINDEX
LI-NING	LUXSHARE ICT	M&S EST. 1884	new balance	Nike	PRIMARK	PUMA
SAMSUNG	SCHAEFFLER	TARGET	VF	維他奶 Vitasoy		

However, despite the efforts, only 5% of companies reported that they encourage suppliers to measure and publicly disclose emissions data through various channels (including official websites, annual reports, CSR reports, ESG reports and other regular reports, the Blue Map website, and publicly disclosed responses to CDP climate change questionnaires), set emission reduction targets and track progress in reducing GHG emissions. In addition, the number of suppliers reporting carbon emissions (Scope 1&2) on the Blue Map website during this evaluation falls short of that in 2022, one of the main reasons being that some key companies have started to backtrack on their stance on supply chain carbon data disclosure requirements.

05

2023 Corporate Climate Action Good Practices and Solutions

5.1 **Scope 1, 2 and 3 Emissions Measurement and Disclosure**

Conducting carbon accounting at the organizational level to establish the baseline and build an emissions inventory is the foundation for companies to implement carbon management and emissions reduction activities. For Scope 1, 2 and 3 GHG emissions data, CATI Index pays particular attention to whether companies disclose their emission inventories, accounting methodologies, third-party verification, etc., and whether they move toward disclosing data for facility-level or hot spot emission sources based on the disclosure of total emissions.

In terms of data disclosure at the operational level, companies such as Samsung[25] have not only disclosed their Scope 1&2 carbon emissions, but have also encouraged their subsidiaries in China to disclose data at the individual plant level through regular announcements, environmental reports, the provincial and

25. Samsung China. Green Factory [EB/OL].2023:[2023-10-09].https://green.samsung.com.cn/#/greenFactory.

municipal legal disclosure platforms for corporate environmental information, and the Blue Map website. Combining the requirements of legal disclosure of environmental information, national and local carbon markets, and other disclosure requirements, subsidiaries disclosed not only their annual carbon emissions, but also information on energy consumption, carbon emission reductions, and energy conservation and emission reduction measures.

Figure 5-1

Distribution of Samsung subsidiaries
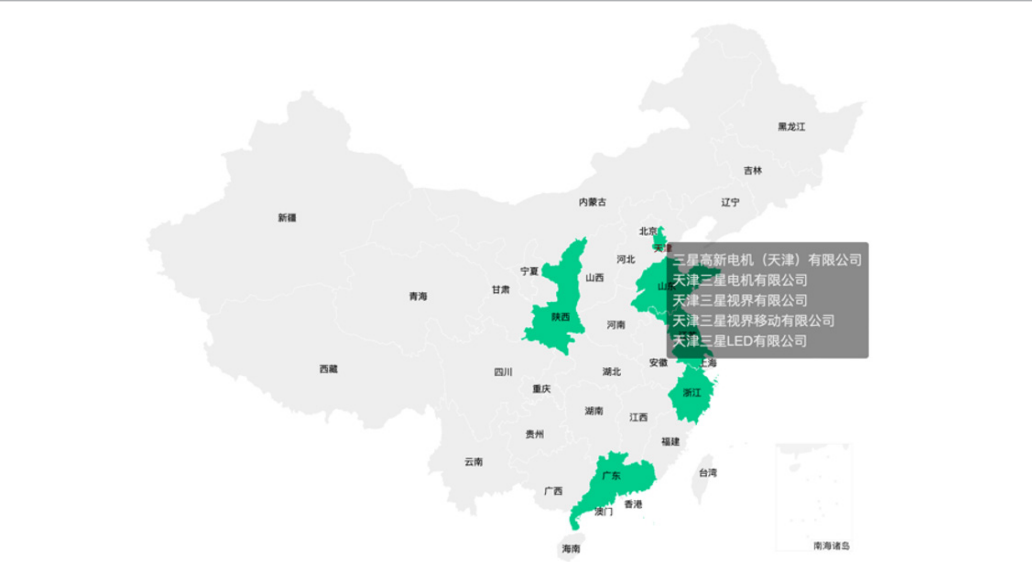
Figure 5-2

Environmental report and third-party verification statement for a Samsung subsidiary

In terms of value chain data disclosure, companies in different industries such as Danone[26], Kao[27], LONGi Green Energy[28], and Lenovo Group[29] have disclosed Scope 3 emission inventories covering emission hotspots such as the supply chain (Category 1, Purchased Goods and Services) and upstream and downstream transport processes (Categories 4 and 9, Upstream and Downstream Transportation and Distribution).

Figure 5-3

Scope 3 emissions inventory disclosed by Danone

[a] Greenhouse Gas scope, see section 5.10 *Methodology Note.*
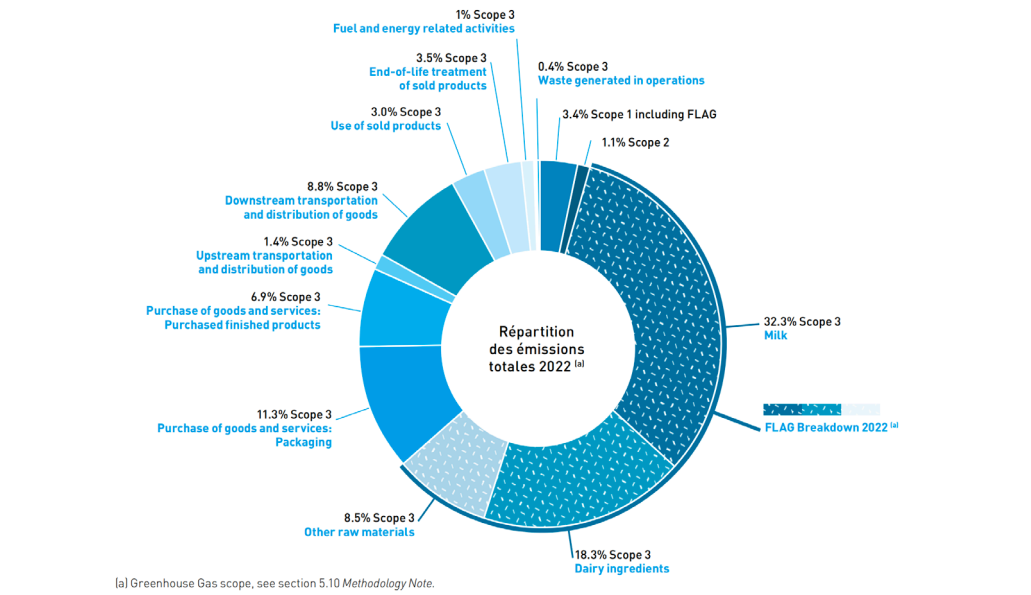
Figure 5-4

Scope 3 emissions inventory disclosed by Kao
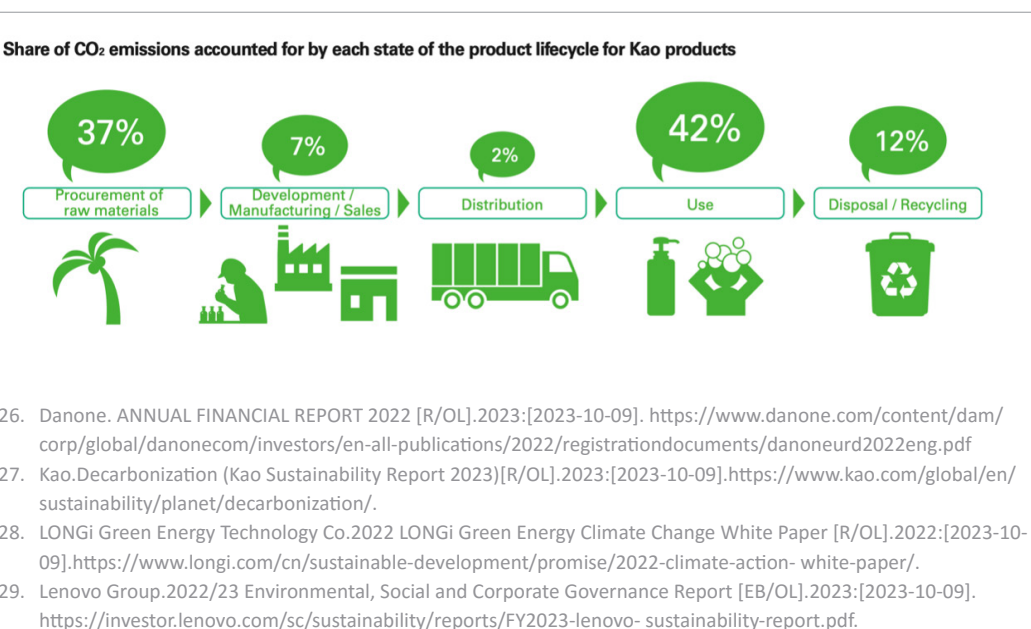
26. Danone. ANNUAL FINANCIAL REPORT 2022 [R/OL].2023:[2023-10-09]. https://www.danone.com/content/dam/corp/global/danonecom/investors/en-all-publications/2022/registrationdocuments/danoneurd2022eng.pdf

27. Kao.Decarbonization (Kao Sustainability Report 2023)[R/OL].2023:[2023-10-09].https://www.kao.com/global/en/sustainability/planet/decarbonization/.

28. LONGi Green Energy Technology Co.2022 LONGi Green Energy Climate Change White Paper [R/OL].2022:[2023-10-09].https://www.longi.com/cn/sustainable-development/promise/2022-climate-action- white-paper/.

29. Lenovo Group.2022/23 Environmental, Social and Corporate Governance Report [EB/OL].2023:[2023-10-09]. https://investor.lenovo.com/sc/sustainability/reports/FY2023-lenovo- sustainability-report.pdf.

Figure 5-5

Scope 3 emissions inventory disclosed by LONGi Green Energy

Value Chain Emissions: By Category

		Percentage
1. Purchased goods and services	21,619,240	95.3%
3. Fuel- and energy-related activities	112,689	0.5%
4. Upstream transportation and distribution	317,096	1.4%
5. Wastes generated in operations	302,212	1.3%
6. Business travel	3,228	0.01%
7. Employee commuting	1,448	0.01%
9. Downstream transportation and distribution	316,722	1.4%
12. End-of-life treatment of sold products	10,498	0.05%

(Unit: tCO$_2$e)

Figure 5-6

Scope 3 emissions inventory disclosed by Lenovo

	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	**FY 2022/23**
Scope 3					
Business Travel	53,500	46,900	11,900	20,255	**38,846**
Product Transportation[14]	580,363	616,416	815,262	737,979	**538,156**
Emissions from Waste[15]	1,920	2,110	1,770	1,810	**1,808**
Employee Commuting	23,600	24,900	39,800	41,043	**45,568**
Purchased Goods and Services[16, 17, 18]	6,475,009	7,032,426	6,495,779	7,798,826	**8,662,378**
Fuel-and-Energy Related Activities (not included in Scope 1 or 2)[19]	12,100	10,385	11,050	12,000	**12,924**
Use of Sold Products[20]	12,885,000	13,669,000	15,551,000	8,270,000	**8,451,000**
End of Life Treatment of Sold Products[20]	273,500	274,000	303,500	181,000	**157,000**
Capital Goods[21]	127,500	446,500	736,500	360,000	**833,800**
Total	20,432,492	22,122,637	23,966,561	17,422,913	**18,741,480**

5.2 **Product Carbon Footprint Measurement and Disclosure**

In this round of evaluation, a number of leading companies have measured and disclosed the carbon footprint data of their major products. Dell, Apple, Microsoft, Lenovo, HP and others in the IT/ICT industry have published the carbon footprint data of their core products on their official websites. Among them, Apple has published life cycle carbon footprint information for its major products, including emission reduction progress for each generation of product and related emission reduction measures[30]; Lenovo has published product carbon footprint reports for thousands of products on its official website, including detailed information on emissions at each stage of the life cycle, accounting methodology, functional units and uncertainty analysis, etc.[31].

Figure 5-7

Product environmental footprint information for iPhone 15 Series

Figure 5-8

Lenovo ThinkPad 8 product carbon footprint disclosure[32]
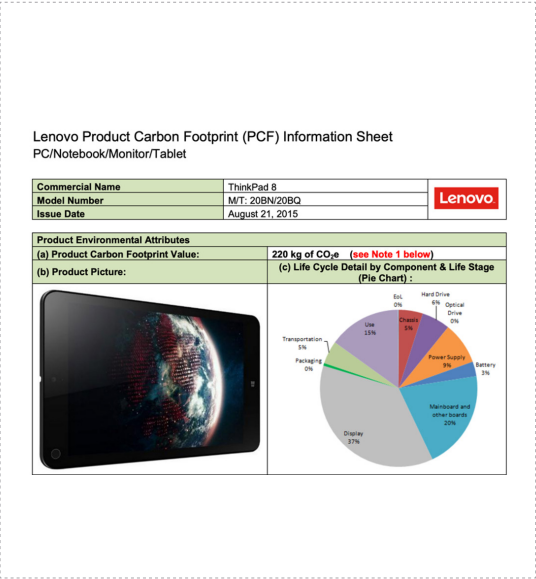
30. Apple.Product Environmental Report iPhone 15 Pro and iPhone 15 Pro Max[EB/OL].[2023-10-11].https://www.apple.com/environment/pdf/products/iphone/iPhone_15_Pro_and_iPhone_15_Pro_Max_Sept2023.pdf.

31. Lenovo.ECO Declarations[EB/OL].[2023-10-11].https://www.lenovo.com/us/en/compliance/eco-declaration/?orgRef=https%253A%252F%252Fshimo.im%252F.

32. Lenovo.Lenovo Product Carbon Footprint (PCF) Information Sheet[R/OL].2015:[2023-10-11].https://p4-ofp.static.pub/ShareResource/compliance/eco-

We have also noticed that several countries and regions have established EPD platforms or product carbon footprint disclosure platforms to assist companies and industries in measuring, disclosing and benchmarking product carbon footprints, for example:

China's iron and steel industry developed a public platform in May 2022 - the EPD Programme for China Iron and Steel Industry[33]. The platform is organized and led by the China Iron and Steel Industry Association, with the participation of China Baowu Group and other companies, and operated and maintained by Ouyeel Co. LTD., aiming to motivate Chinese iron and steel companies to accelerate their green and low-carbon development and proactively respond to the new international trade regulations, while helping customers to conduct lifecycle carbon emission accounting for steel products based on actual measurement data. By the end of September 2023, Baosteel and other listed steel companies or their affiliates have published 45 environmental product declarations through this platform, all of which include product carbon footprint information, with product types covering iron ore concentrates, hot-rolled ribbed steel bars, stainless steel cold-rolled sheets, etc;

China Automotive Carbon Digital Technology Center Co., Ltd. has developed the world's first carbon footprint information disclosure platform for the entire automotive industry chain - China Automobile Industry Chain Carbon Publicity Platform (CPP)[34], aiming to drive the automotive industry to improve its carbon emission management level, digitally empower low-carbonization, and help China achieve the "dual carbon" goal, while promoting international mutual recognition of carbon footprint information, so as to outperform in the new international trade centered on "carbon emission". As of the end of September 2023, the CPP platform has published the carbon emission data of nearly 1,400 models of passenger cars, parts and components, and materials sold by more than 20 companies, including carbon footprints, carbon emission reductions, carbon labels, and other data and information;

The International EPD System[35], led by the Swedish Environmental Protection Agency (SEPA), published more than 4,000 EPD reports on building materials, chemicals, metal products, etc.[36], as well as product carbon footprint data, and facilitates discussions between stakeholders based on open and credible product carbon footprint data.

33.   China Iron and Steel Industry Association, China Baowu Group, Ouyeel Co. LTD., and others. The EPD Programme for China Iron and Steel Industry [EB/OL]. [2023-10-10]. https://www.cisa-epd.com/.

34.   China Automotive Carbon Digital Technology Center Co., Ltd. China Automobile Industry Chain Carbon Publicity Platform (CPP) [EB/OL]. [2023-10-10]. http://cpp.auto-cices.com/.
35.   SEPA.The International EPD System [EB/OL]. [2023-10-10]. https://www.environdec.com/home.
36.   Note: EPD refers to Environmental Product Declaration, which is a quantitative analysis of the environmental footprint based on the Life Cycle Assessment (LCA) methodology and the Product Environmental Footprint (PEF) methodology and is designed to analyse the impact of the emissions of a product over its entire life cycle and to validate the environmental declaration of the product based on the ISO 14025 standard. The EPD includes the impact on climate change, measured by the Product Carbon Footprint (PCF).

In addition to the above platforms, the Building Materials Industry Green and Low Carbon Public Service Platform[37] operated by BGLS, the ChinaEPD platform[38] jointly constructed by a number of third-party organisations, and the Product Carbon Footprint Information Platform[39] developed by Taiwan Environmental Protection Agency continue to promote the measurement and disclosure of product carbon footprint data by companies, helping them to compete in the international market with high-quality, greener and lower-carbon products, while also helping downstream customers to perform lifecycle carbon emission accounting of end products based on actual measurement data.

IPE and China City Greenhouse Gas Working Group also jointly developed and launched the China Products Carbon Footprint Factors Database (CPCD) in 2023, which aims to assist Chinese companies in analysing the carbon footprint of their products, and to assist them in accounting for categories such as Scope 3 purchased goods and services.

IPE has also developed and launched the Product Carbon Footprint Disclosure and Catalogue (PCFD) Platform in 2023, which continuously collects more than 10,000 product carbon footprint data disclosed by companies in China and overseas, and cooperated with the International EPD System and the China Automotive Industry Chain Carbon Public Disclosure Platform (CPP), etc. for data collaboration, so that stakeholders can conveniently retrieve product carbon footprint information on the PCFD platform.

Figure 5-9

China Products Carbon Footprint Factors Database

Scan the QR code to access the CPCD platform

Figure 5-10

Product Carbon Footprint Disclosure and Catalogue Platform

Scan the QR code to access the PCFD platform

37.   BGLS. Building Materials Industry Green and Low Carbon Public Service Platform [EB/OL]. [2023-10-10]. http://www.greenjc.cn/a/1180.aspx.
38.   EPD Promotion Centre. ChinaEPD [EB/OL]. [2023-10-10]. http://www.epdchina.cn/.
39.   Taiwan Environmental Protection Agency. Product Carbon Footprint Information Platform [EB/OL]. [2023-10-10]. https://cfp-calculate.tw/cfpc/Carbon/WebPage/visitors/FLProductinfo.aspx.

5.3 Carbon Target Setting and Performance against Carbon Targets

After establishing the baseline for emissions reductions through accounting, companies need to set emissions reduction targets and regularly track progress towards those targets, so that targets can be adjusted based on the actual emissions reduction situation. In terms of setting targets and tracking progress, the CATI Index focuses on whether companies have set carbon neutrality targets and breaks them down into short and medium-term emission reduction targets, supply chain targets and renewable energy targets, etc., to make the long-term targets implementable, quantifiable, and traceable, and to guide companies to implement their climate commitments step by step.

Case Study:

LONGi Green Energy sets science-based targets, empowers suppliers to reduce Scope 3 emissions

LONGi Green Energy is committed to reducing Scope 1&2 GHG emissions by 60% and carbon intensity per tonne of purchased raw materials by 52% by 2030 from a 2020 base year. LONGi Green Energy has also joined the RE100[40], EP100[41] and EV100[42] initiatives, committing to increase the use of renewable energy, improve energy efficiency and disclose the progress of emission reduction through annual reports.

To address the issue of reducing carbon emissions embedded in key purchased raw materials in Scope 3, LONGi Green Energy launched the "Supply Chain Green Partner Empowerment Programme" in 2022 to help supply chain companies establish corporate carbon management systems, empower suppliers to establish carbon inventories, formulate carbon emission reduction targets and pathways, implement energy saving and emission reduction measures, and increase the proportion of renewable energy inputs.

Figure 5-11

LONGi Green Energy's science-based targets
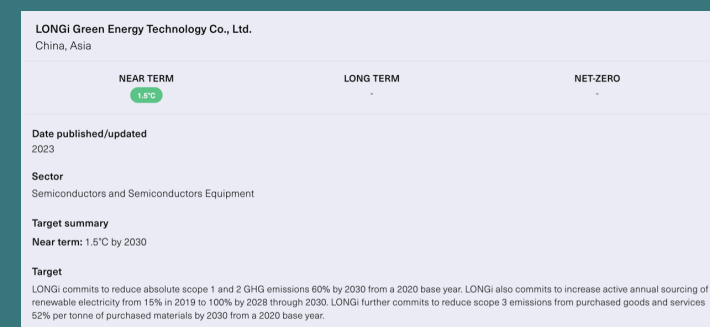
Figure 5-12

LONGi Green Energy's three "100" initiatives

Case Study:

Levi Strauss & Co. empowers suppliers to develop carbon reduction plans and leads them to publicly disclose their annual progress in reducing emissions

Levi Strauss & Co.[43] empowers its key global apparel and fabric suppliers (covering more than 140 mills from more than 70 suppliers worldwide and more than 80% of its global sourcing) to use its self-developed Climate Tracker tool to develop clear, actionable plans to reduce emissions and track each supplier's progress towards carbon targets.

The 50 Chinese suppliers using the tool have publicly disclosed their GHG reduction targets in 2022 through IPE's carbon data disclosure platform; 17 factories from 12 suppliers have identified roadmaps and action plans to work with Levi Strauss & Co. to drive the green transformation of supply chain.

Figure 5-13

Levi Strauss & Co. Climate Tracker Tool
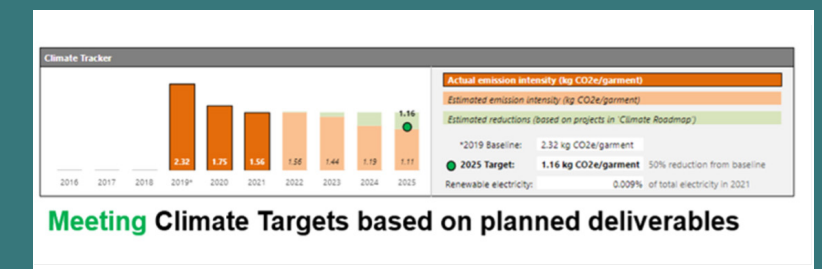
Scan the QR code to view the the brand story of Levi Strauss & Co.

40. Climate Group RE100.RE100[EB/OL].[2023-10-09].https://www.there100.org/.
41. Climate Group EP100.EP100[EB/OL].[2023-10-09].https://www.theclimategroup.org/about-ep100.
42. Climate Group EV100.EV100[EB/OL].[2023-10-09].https://www.theclimategroup.org/about-ev100.

43. Levi Strauss & Co. Ten Years Together, Looking Ahead: 2023 Levi Strauss & Co. Sustainability Efforts Reviewed and Shared [EB/OL].2023:[2023-10-09].https://www.ipe.org.cn/GreenSupplyChain/BrandStoryDetail. aspx?id=92.

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 in 2023. Based on the methodology of the Science Based Targets initiative, the tool generates alternative emission reduction targets for companies. The tool enables SMEs to set appropriate science-based emission reduction targets (aligned with the 1.5℃, well below 2℃ and 2℃ temperature control pathways). By simply 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 emission reduction targets.

Figure 5-14

Corporate Carbon Emission Reduction Target Setting Tool

In addition, 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". By the end of September 2023, the map has recorded and showcased the climate commitments made by 1,504 major global and Chinese brands, listed companies and large corporations in addressing climate change, their progress towards achieving their targets, their GHG emissions, and the actions they have taken to promote emissions reductions in their supply chains in China.

Figure 5-15

Global Business Accountability Map
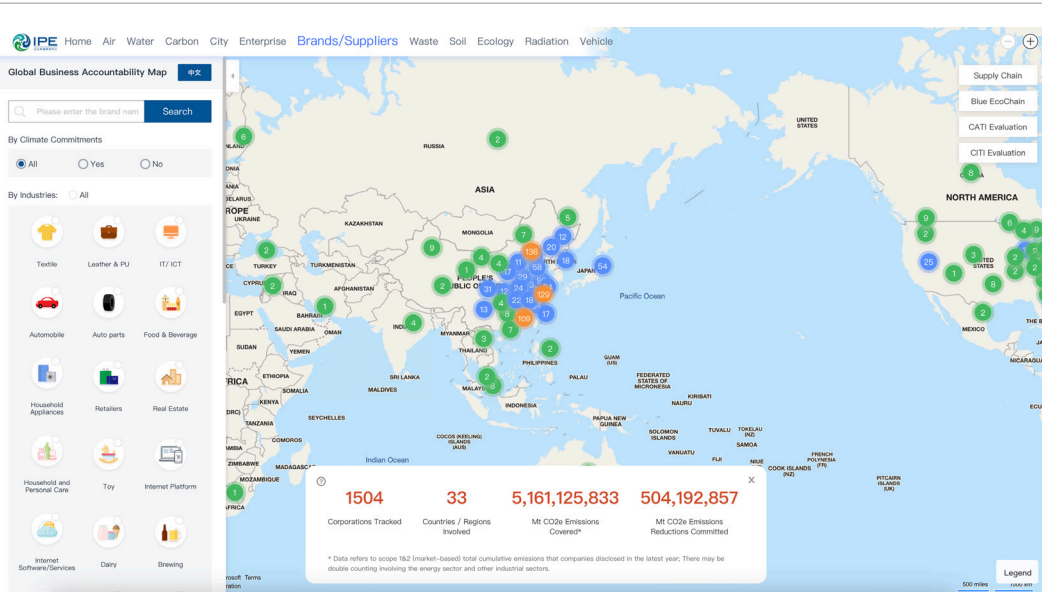
Product Carbon Footprint Measurement, Disclosure and Application

To guide companies to pay attention to GHG emissions at all stages of the lifecycle and help consumers make green choices, IPE has added the indicator of "Measurement and Disclosure of Product Carbon Footprint" to the CATI index in the 2023 valuation period, focusing on whether companies have identified emission hotspots through lifecycle assessment and are working with the supply chain to conduct research and development of key decarbonization technologies and make joint efforts to promote the low-carbon transformation of the industrial chain.

Case Study:

PUMA tracks product carbon footprint hotspot changes, adopts emissions reduction measures

Comparative data disclosed by PUMA in its 2022 Annual Report[44] shows that rubber production accounts for 33% of its 2017 Scope 3 Purchased Goods and Services baseline emissions, and leather for 21%, which can be considered emissions hotspots.

The use of more sustainable EVA and polyurethane materials has significantly reduced the emissions associated with rubber production to 10% in 2022. In contrast, GHG emissions from polyamide materials have increased from 12% in 2017 to 18%, becoming a new emissions hotspot. This means that PUMA needs to focus on replacing polyurethane, leather, and polyester as a new priority for Scope 3 emissions reduction.

Figure 5-16

PUMA's GHG emissions from purchased goods and services - by materials

↗ G.22 GHG CONTRIBUTIONS BY MATERIALS

Note:
Other include acrylic, linen, lycra, metals, adhesives, etc.
Leather is natural leather while polyurethane is imitation leather, also known as synthetic leather.
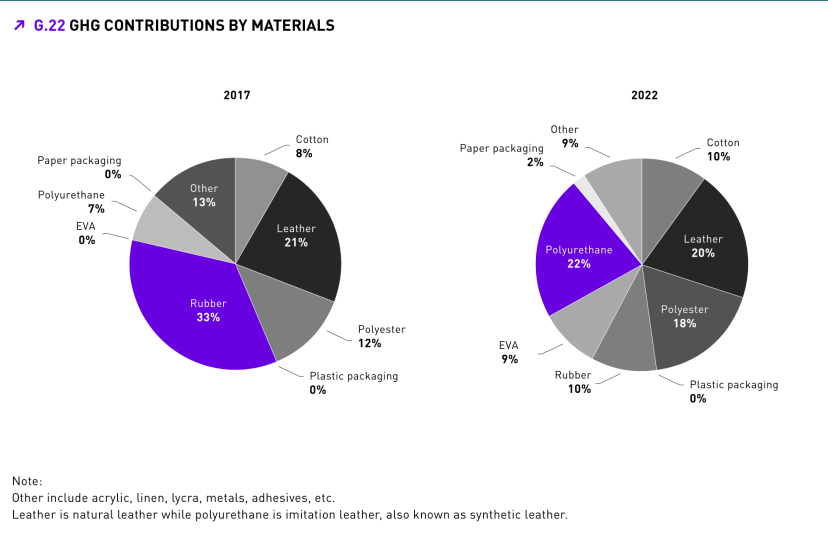
PUMA has also analysed the full lifecycle footprint of the CONVENTIONAL SUEDE and RE:SUEDE sneakers according to the ISO 14040 and ISO 14044 lifecycle assessment standards, and the comparison of the data is detailed in Table 5-1.

Compared to conventional SUEDE, RE:SUEDE's product net weight is reduced by nearly 0.07kg, and the product carbon footprint is reduced by 2.84kg CO_2e. As shown in the table, the use of TPE materials[45] instead of rubber, and the use of zeolite tanned suede[46] instead of conventional suede are the main reasons for the reduction of the carbon footprint of RE:SUEDE products. In addition, PUMA also mentions in its report that the use of TPE raw materials reduces carbon emissions at the end recycling and disposal stage.

Table 5-1

Comparison of carbon footprint data for PUMA sneaker products

Product Name	conventional SUEDE	RE:SUEDE
Net Weight	0.831 kg	0.763 kg
PCF	11.5 kg CO_2e	8.66 kg CO_2e
Primary Energy Demand	196.64 MJ	169.44 MJ
Contributions from：		
Electricity	196.64 x 20% = 39.33 MJ	169.44 x 24% = 40.67 MJ
Materials	suede： 196.64 x 41.25% = 81.11 MJ	mainly zeolite tanned suede： 169.44 x 33.73% = 57.15 MJ
Materials	synthetic rubber： 196.64 x 36.21% = 71.20 MJ	biodegradable TPE： 169.44 x 29.16% = 49.41 MJ
Packaging	Not specify	169.44 x 10% = 16.94 MJ
Others	196.64 x (1-95.54%) = 8.77 MJ	169.44 x (1-96.89%) = 5.27 MJ

45. Note: TPE raw materials (Thermoplastic Elastomer)
46. Note: Environmental benefits of zeolite-tanned chamois include less pollution, fewer chemical releases from waste and wastewater, no use of chromium or glutaraldehyde (GDA), and improved biodegradability of the tanned material. Source: https://www.gtss.cn/archives/82244.html

44. PUMA.Annual Report 2022[R/OL].2022:[2023-10-09].https://annual-report.puma.com/2022/en/index.html.

Case Study:

Polestar uses LCA to identify emission hotspots in automotive raw materials and motivates upstream aluminium suppliers to take action to reduce emissions

In its 2022 Sustainability Report[47], Polestar introduces the "Polestar 0 project", committing to achieve a "carbon neutral" product without carbon offsetting by 2030. As emissions from the upstream supply chain account for 65% of the total emissions in Polestar's value chain, Polestar encourages its suppliers to accelerate the substitution of renewable energy and the improvement of energy efficiency, and calculates the emission reduction potential of different types of raw materials through LCA analysis at the product design stage.

The Polestar 2 Life Cycle Assessment [48], publicly disclosed by Polestar through its official website, shows that the full lifecycle carbon emissions of Polestar 2 per 200,000 km driven are 8 tonnes of CO_2e less than the Volvo XC40, and with the wind power mix the reduction is more than 50% compared to the XC40 ICE.

Figure 5-17

Polestar 2 - carbon footprint reduction trend
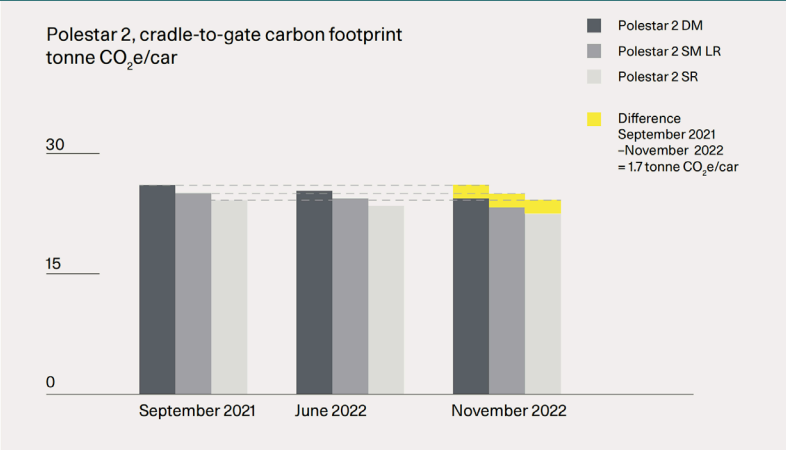
Figure 5-18

Carbon footprint by product life cycle stage for Polestar 2 and fuel-efficient Volvo XC40 ICE
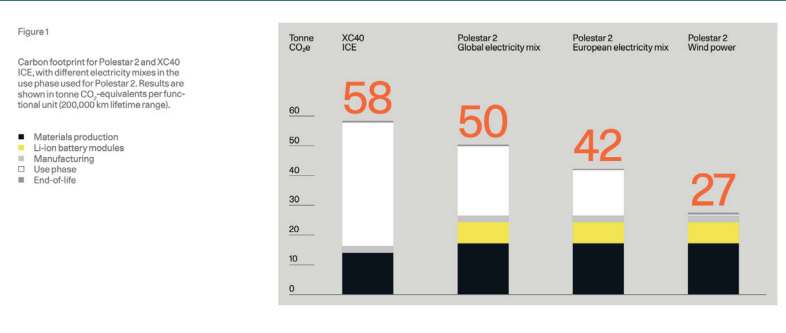
From Figure 5-19 it can be seen that the upstream supply chain emissions of the Polestar 2 come mainly from the production of lithium battery components (29%) and the smelting and rolling of aluminium (29%) and steel and iron (17%), while for the Volvo XC40 ICE they come mainly from the smelting and rolling of aluminium (34%) and iron and steel (34%). Therefore, for both EVs and conventional fuel vehicles, upstream metal material-related emissions account for more than 46% of the carbon footprint of the product's raw material extraction and manufacturing chain, and are key to the low-carbon transformation of automotive companies' upstream supply chain. Polestar is currently pushing its aluminium suppliers to increase the proportion of renewable energy substitution in the smelting process, and continues to publish progress on the 'cradle to grave' emissions reduction of Polestar 2.

Figure 5-19

Raw material GHG emission share for a Polestar 2 and a XC40 ICE
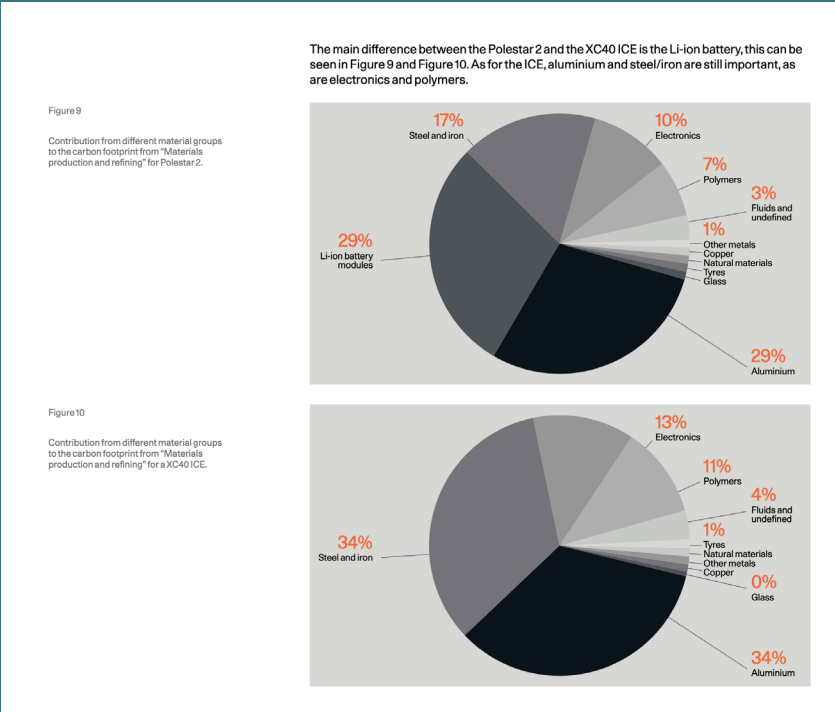
47. Polestar.Sustainability Report 2022[R/OL].2022:[2023-10-09].https://reports.polestar.com/media/etekhahn/polestar_sustainabilityreport_2021.pdf.
48. Polestar.Life cycle assessment 2021-Carbon footprint of Polestar 2 variants[R/OL].2023:[2023-10-09].https://www.polestar.com/dato-assets/11286/1630409045-polestarlcarapportprintkorr11210831.pdf.

5.5 Collaboration with Logistics Providers to Reduce Emissions

In addition to the carbon emissions embedded in purchased goods and services, the upstream and downstream transport process is also one of the emission hotspots in a company's value chain. To achieve net zero emissions, companies need to work with logistics providers to reduce carbon emissions in logistics processes.

Case Study:

Avary Holding conducts green logistics management in industrial parks

By integrating the logistics and distribution addresses of each industrial park, Avary Holding[49] improves logistics efficiency, reduces energy consumption, and lowers greenhouse gas emissions in transportation. In 2022, Avary Holding further promoted the integration of freight transportation needs in Shenzhen, Qinhuangdao, and Huai'an industrial parks, and carried out reasonable merging of suppliers' vehicles, which reduced the total number of loads by 13,100 vehicle trips and saved a total of 3,083,264 liters of diesel and gasoline (see Table 5-2 for details), and reduced emissions by 6,876 tons of CO_2e, representing a year-on-year increase of nearly 150% in emission reduction efficiency (Table 5-2).

Table 5-2

Green logistics measures and emission reductions in each industrial park of Avary Holding

Location Park	Freight Consolidation	Diesel and Gasoline Savings	Carbon Reduction
Shenzhen	Reduce 3,651 vehicles	32,913 liters	73 tCO2e
Qinhuangdao	Reduce 3,807 vehicles	456,840 liters	123 tCO2e
Huai'an	Reduce 2,715 vehicles	Gasoline :2,546,920 liters Diesel :46,591 liters	5,787 tCO2e
Total	Reduce 13,100 vehicles	3,083,264 liters	6,876 tCO2e

Case Study:

Danone reduces carbon emissions in urban distribution logistics

Danone[50] Mizone Wuhan factory has extended its low-carbon practices to downstream logistics suppliers since 2022, reducing carbon emissions in the logistics processes by building its own charging stations, providing 100% green electricity to the electric trucks, and maximising vehicle turnover by optimising distribution routes. Starting with urban distribution in Wuhan City, all 13 administrative districts in Wuhan City were covered by electric truck transportation in 2022, and electric trucks delivered over 600,000 metric tons of kilometers through urban distribution.

Figure 5-20

Danone Wuhan green logistics project

49. Avary Holding. Environmental Performance Improvement in Logistics Segment of Avary Holding [EB/OL].2023:[2023-10-09]https://wwwen.ipe.org.cn/GreenSupplyChain/BrandStoryDetail.aspx?id=89

50. Danone.Danone Mizone - A Case of Green Logistics Transformationin Wuhan [EB/OL].2023:[2023-10-09].https://wwwen.ipe.org.cn/GreenSupplyChain/BrandStoryDetail.aspx?id=88.

5.6 Stakeholder Cooperation to Promote Upstream Supply Chain Carbon Management

As more and more companies recognise the importance of collecting actual supplier data and continue to promote carbon data disclosure by their direct and indirect suppliers, 2,225 suppliers have disclosed their carbon emissions data through the Blue Map website during this evaluation period, an increase of 15.5% compared to the 2022 evaluation period, motivated by IPE and 33 global and Chinese companies. These suppliers' Scope 1 & 2 carbon emissions in the most recent year surpassed 56.18 million tonnes of CO_2e[51]. Among them:

- Approximately 2/3 of suppliers have annual carbon emissions between 100 tonnes and 10,000 tonnes, and 107 suppliers have annual emissions of more than 1 million tonnes (see Figure 5-21 for details of the distribution of supplier emissions);

- 1,919 supplier companies used the Enterprise GHG Emissions Accounting Platform to account for their GHG emissions; 261 supplier companies conducted third-party verification based on carbon accounting and uploaded the verification reports, of which more than 50% (141 supplier companies) were from the computer, communication and other electronic equipment manufacturing industry, while the others were from textile-related industries, electrical machinery and equipment manufacturing industry, metal products industry, rubber and plastic products industry, and others;

- On the basis of accounting and disclosure of Scope 1 & 2 emissions, 175 supplier companies have calculated and disclosed Scope 3 emissions;

- 947 supplier companies started to set carbon reduction targets. Of these, 652 suppliers set absolute emission reduction targets, an increase of 99.4% compared with 2022 evaluation period, with committed emission reductions totaling 2,720,700 tonnes of CO_2e; 313 suppliers set intensity reduction targets. Although more suppliers have started to set emission reduction targets compared to the 2022 evaluation period, the amount of committed emission reductions is still low, reflecting the fact that suppliers' ambition to reduce emissions still needs to be raised;

- In terms of industry distribution, supplier companies disclosing carbon emissions data came from 39 industries[52], mainly including textile-related industries, the computer, communication and other electronic equipment manufacturing industry, and the leather, fur, feather and footwear industry. Among them, 887 suppliers from the textile and apparel industries emitted a total of 16,206,900 tonnes of CO_2e; and 337 suppliers from the computer, communication and other electronic equipment manufacturing industry emitted a total of 21,294,800 tonnes of CO_2e.

Figure 5-21

Magnitude distribution of annual carbon emissions disclosed through the Blue Map in this evaluation period

51. Note: This data may involve double-counting due to possible inclusion or supply relationships between supplier enterprises
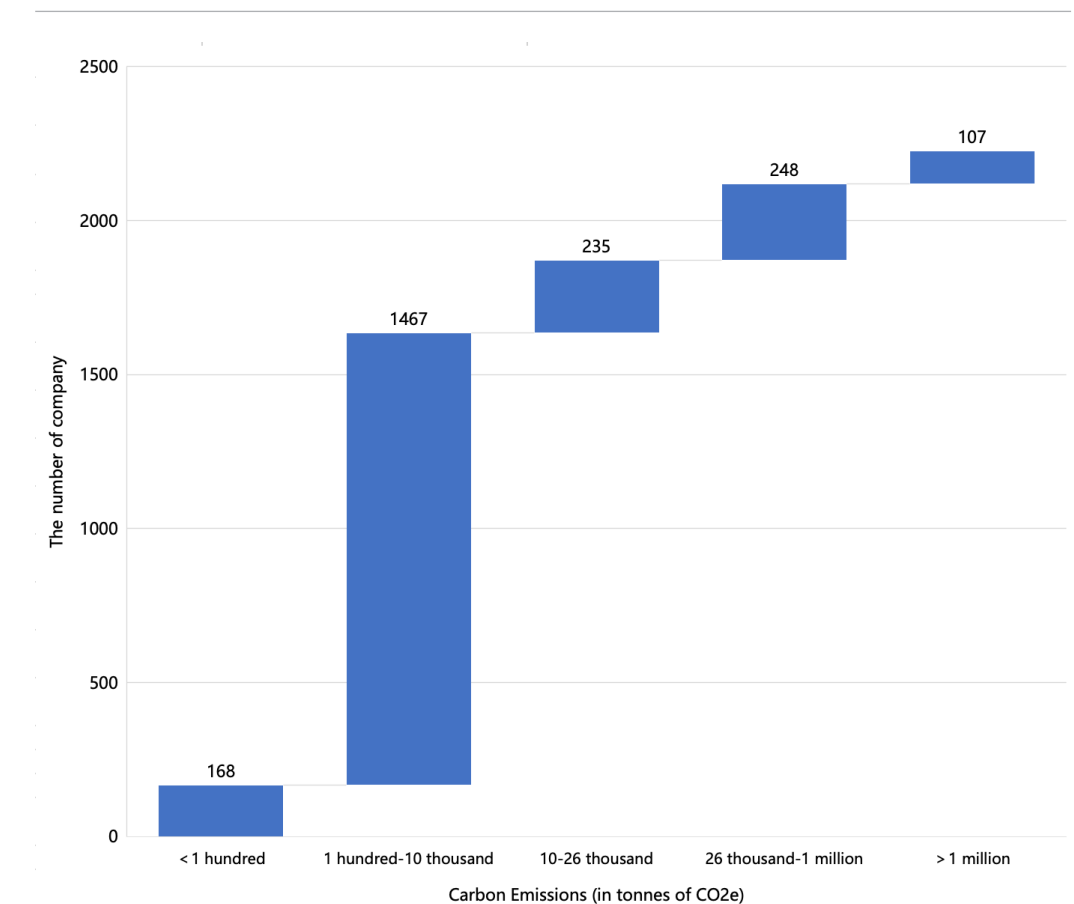
52. Note: The industry classification standard for enterprises disclosing carbon data on the Blue Map website adopts the National Economic Industry Classification (GB/T 4754-2017), and the missing industry information of some enterprises is delineated by IPE with reference to the main products of the enterprises, for reference only.

Figure 5-22

Distribution of industries' carbon emissions disclosed through the Blue Map website in this evaluation period (Unit: 10,000 tonnes of CO_2e)

Other industries: 593.49

104.63
121.87
177.47
214.51
262.41
448.28
1620.69
2129.48

- Computer, communication and other electronic equipment manufacturing industry
- Textile; clothing and apparel industries
- Wholesale and retail trade industry
- Chemical fiber manufacturing
- Electrical machinery and equipment manufacturing
- Ferrous metal smelting and rolling processing industry
- Scientific research and technical services industry
- Leather, fur, feather and their products and footwear industry
- Rubber and plastic products industry
- Chemical raw materials and chemical products manufacturing
- Metal products industry
- Other manufacturing industries
- Electricity, heat, gas and water production and supply industry
- Instrument manufacturing
- Pharmaceutical manufacturing
- Food manufacturing
- Information transmission, software and information technology services
- Specialized equipment manufacturing
- Paper and paper products industry
- Non-ferrous metal smelting and rolling processing industry
- Printing and recording media reproduction industry
- Automobile manufacturing
- Non-metallic mineral products industry
- Cultural, educational, arts and crafts, sports and entertainment products manufacturing
- Alcohol, beverage and refined tea manufacturing
- General equipment manufacturing
- Agricultural food processing industry
- Transportation, storage and postal industry
- Residential services, repair and other services
- Metal products, machinery and equipment repair industry
- Leasing and business services
- Culture, sports and entertainment
- Agriculture, forestry, animal husbandry and fishery
- Waste resources utilization
- Furniture manufacturing
- Public administration, social security and social organizations

Figure 5-23

Number of supplier companies in each industry that disclosed their carbon emissions through the Blue Map website in this evaluation period

Other industries: 128

36
37
40
46
48
50
54
66
83
90
98
225
337
887

- Textile; clothing and apparel industries
- Computer, communication and other electronic equipment manufacturing industry
- Leather, fur, feather and their products and footwear industry
- Rubber and plastic products industry
- Wholesale and retail trade industry
- Scientific research and technical services industry
- Metal products industry
- Other manufacturing industries
- Electrical machinery and equipment manufacturing
- Specialized equipment manufacturing
- Cultural, educational, arts and crafts, sports and entertainment products manufacturing
- Chemical raw materials and chemical products manufacturing
- Printing and recording media reproduction industry
- Paper and paper products industry
- General equipment manufacturing
- Chemical fiber manufacturing
- Instrument manufacturing
- Food manufacturing
- Transportation, storage and postal industry
- Automobile manufacturing
- Alcohol, beverage and refined tea manufacturing
- Non-ferrous metal smelting and rolling processing industry
- Non-metallic mineral products industry
- Information transmission, software and information technology services
- Leasing and business services
- Agricultural food processing industry

Featured:

IPE and companies in China and overseas work together to empower supplier carbon management

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, and has been continuously upgrading the platform. 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 base line" in a cost-effective and efficient manner.

IPE has also continued to upgrade its carbon disclosure platform to automate the process of data accounting, reporting and disclosure. Most suppliers have been able to carry out data accounting and reporting on their own and have been measuring and disclosing their data through the IPE website for many years to track progress in reducing GHG emissions. However, suppliers need to further improve their carbon and energy data management capabilities to ensure that the quality of the data reported meets their own statistical analysis needs and the requirements of their stakeholders.

Figure 5-24

Chinese Enterprise GHG Emissions Accounting Platform
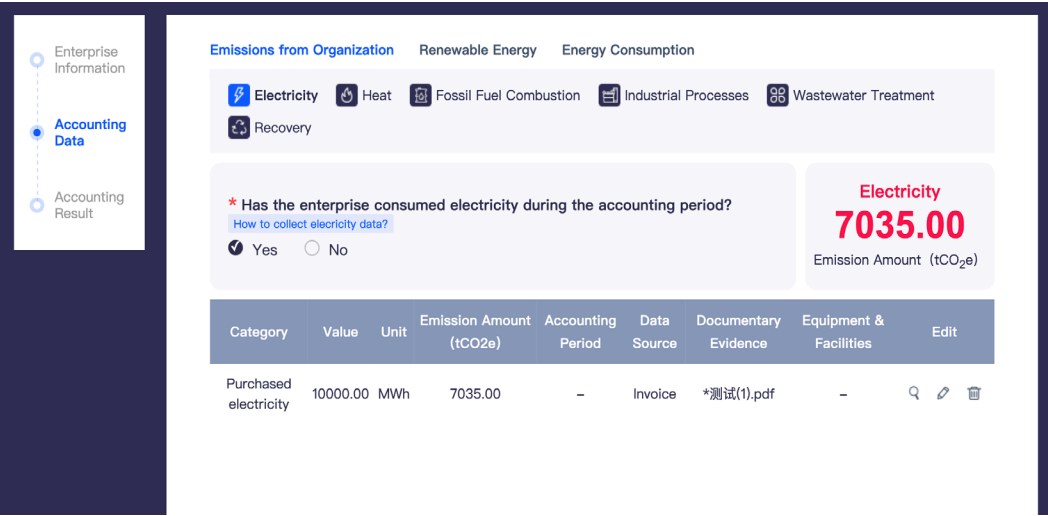
To further accelerate the supply chain decarbonisation process and reach the global climate goals, IPE has launched the Zero Carbon Supply Chain Initiative[53] in 2023, calling on leading companies, industry associations and key institutions with supply chain influence and climate ambition to take the lead in joining the initiative, to drive the core supply chain companies to join the Global Race to Zero, and to promote the participation of more small and medium-sized enterprises (SMEs) in global climate process. IPE also calls on financial institutions, governments, research organisations and the public/consumers to pay attention to and support the initiative, and work together to promote the decarbonisation of supply chains.

As of the end of September 2023, Lenovo, LONGi Green Energy, Luxshare Precision and Foxconn have joined the initiative, committing to promote carbon data measurement and disclosure, set emission reduction and carbon neutrality targets, and track and disclose emission reduction progress accross supplier companies. We look forward to seeing more stakeholders joining the initiative to accelerate the Global Race to Zero and and protect our planet home.

53. IPE. Zero Carbon Supply Chain Initiative [EB/OL].2023:[2023-10-09].https://wwwen.ipe.org.cn/No-tice/Detail_21871_4.html

06

Looking Ahead

To address the severe climate challenges and meet the Paris Agreement temperature control targets, some 150 countries and regions around the world have committed to carbon neutrality, and nearly 1,000 major companies and financial institutions have pledged to become carbon neutral. However, the rapid increase in emission reduction commitments contrasts sharply with the huge gap in carbon emission reductions. How to implement commitments and take practical action is becoming the focus of attention for all parties, and the business sector in particular needs to be soberly aware of the great responsibility it bears.

In order to guide and motivate global and Chinese companies to implement their climate commitments, IPE's 6th Corporate Climate Action CATI Index evaluation result shows that Chinese and global companies are speeding up their climate action, and that nearly 100 leading companies have started to employ innovative solutions based on big data and the Internet to efficiently manage carbon emissions across the value chain and promote a green and low-carbon supply chain transformation. However, there are still a number of companies with high energy consumption and Scope 3 emissions that urgently need to fulfil their commitments to respond to the climate crisis, encourage suppliers to measure and publicly disclose their emissions data, and track progress in reducing GHG emissions in a more substantive way to gradually move towards zero carbon supply chain.

To this end, we propose a multi-stakeholder approach to:

Promote public disclosure of corporate carbon information

Companies should strengthen the measurement and disclosure of carbon emissions information, set science-based carbon targets, promote the disclosure of climate information about their own operations, subsidiaries, suppliers and their products, and publicly report on progress towards emissions reductions and carbon neutrality across the value chain, so as to encourage a more substantial low-carbon supply chain transformation, put an end to "climate-washing", and stimulate concerted efforts by all parties to implement concrete emission reduction actions.

Improve carbon accounting and disclosure standards

Based on the existing standards for corporate carbon data and product carbon footprints, all parties should improve the accounting boundaries, life cycle division, core data statistical calibre and other requirements to enhance data comparability; at the same time, establish unified standards, vigorously promote product carbon footprint disclosure and data application, and form representative LCA factors to improve product carbon footprint accounting.

Build zero-carbon supply chains

Leading companies, industry associations and key institutions with supply chain influence and climate ambition should drive the core companies in their supply chains to join the Global Race to Zero, while encouraging more small and medium-sized enterprises (SMEs) to join the global climate process. All sectors of society should pay attention to and support the process of supply chain decarbonization, support developing countries and emerging economies where global supply chains are located in low-carbon transformation, accelerate the Global Race to Zero and work together to protect our planet home.

We recommend companies and industry organizations that are engaged in global sourcing:

- Recognize the importance of reducing carbon emissions in supply chains and integrate it into corporate governance and supplier management mechanisms;

- Calculate and disclose corporate-level carbon data; for Scope 3 purchased goods and services, gradually integrate supplier-specific activity data into the calculation; begin measuring and disclosing 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 to enable suppliers to take effective action to reduce carbon emissions;

- Support the exploration of nature-based solutions to reduce supply chain footprint and promote synergistic biodiversity conservation and climate action efforts.

We recommend that policymakers and regulators:

- Improve the disclosure of climate information and build a climate data infrastructure;

- Formulate climate disclosure frameworks and standards that are in line with international standards and suitable for Chinese companies, ensure that disclosure requirements reflect efforts to address climate change, promote regular and mandatory disclosure of carbon data by companies, and enable carbon management capacity building;

- Actively guide companies to implement supply chain carbon management, including strengthening low-carbon product design, accelerating research and development of energy-saving and carbon-reducing advanced technologies, and promoting their application;

- Improve green finance infrastructure norms, enhance corporate environmental and carbon disclosure policies, support corporate climate management capacity building, and promote quantitative measurement of climate risk;

- Improve product carbon footprint accounting standards to promote the comparability of product carbon footprints, and work together to formulate requirements for product carbon footprint information disclosure formats, strengthen the exchange of international standards, and promote the formation of international mutual recognition of accounting and standard criteria.

We recommend that financial institutions and other investors:

- Set science-based climate targets for investments, and measure and disclose annual progress in reducing carbon emissions in the Scope 3 investment category;

- Strengthen climate disclosure requirements for financing enterprises and guide them in publicly disclosing relevant climate information about their own operations, their value chain and the projects in which they invest;

- Develop green supply chain finance to support the development and application of key technologies to reduce emissions in the supply chain; motivate leading corporations to provide financial services to upstream and downstream small and micro enterprises (SMEs) to support low-carbon transformation along the value chain;

- Formulate climate investment and financing programs tailored to the production processes and emission characteristics of different industries, and develop diversified financing mechanisms and tools to help companies accelerate their green and low-carbon transformation; and provide financial support for large projects with long loan periods in the process of zero-carbon supply chain transformation.

We recommend foundations, research organisations and environmental NGOs:

- Promote companies to implement climate commitments in their supply chains, and continue to promote companies to effectively curb "climate-washing" through adequate information disclosure;

- Promote the full consideration of supply chain climate performance in ESG assessment;

- Identify, disseminate and promote zero carbon supply chain best practices;

- Support the development of innovative solutions to enable supply chain decarbonization;

- Track the construction of zero carbon supply chains and promote the development of policies and regulations that facilitate decarbonization.

2023 CATI Scores

Company	Score	Company	Score	Company	Score	Company	Score	Company	Score
Adidas	81.2	Tendam	47	Huawei	39.6	Zalando	33.2	Cargill	29.2
Puma	79.8	Carrefour	46.6	PepsiCo	39.6	Asahi	33	UCB	29
Cisco	79.6	Renault	46.3	Moncler	39	The Very Group	33	TONGWEI	29
Dell	79.6	CHANEL	45.8	AkzoNobel	38.6	Ajinomoto	33	VELUX	28.8
Foxconn	77.5	MANGO	45.6	Polestar	38.5	Bunge	33	Land Rover	28.8
Apple	77	Colgate-Palmolive	45.6	Mars	38.4	Dow	32.6	ABInBev	28.5
Nike	76.8	Uniqlo	45.2	Spalding	38	REI	32.4	PROYA	28.5
Inditex	76.4	Seagate	45.2	Metro	38	Kraft Heinz	32.2	GOERTEK	28.5
Levi's	76	Ericsson	45	Royal Philips	37.7	asos	32.2	novo nordisk	28.2
M&S	75.6	Stora Enso	45	Church & Dwight	37.5	Reckitt Benckiser	32.1	Peak Performance	28.2
Microsoft	69.4	Toyota Motor	44.8	Honda Motor	37.2	Plastic Omnium	32.1	Tata Motors	28.1
LUXSHARE-ICT	67	Coca Cola	44.8	CANADIANSOLAR	36.8	MENGNIU DAIRY	32	Bridgestone	27.8
Primark	66.4	H&M	44.6	OMRON	36.8	Clariant	32	Solvay	27.8
New Balance	65.8	AEO	44.4	Amazon	36.4	McDonald's	31.8	GILEAD	27.8
LENOVO GROUP	65.2	Sainsbury's	44.4	Kellogg's	36.4	Keurig Dr Pepper	31.8	Arkema	27.7
AVARY HOLDING	63.5	Decathlon	43.6	Mercedes-Benz	36.1	Santen	31.6	TZE	27.6
Target	63.4	Lego	43.6	Heineken	36	ABOUT YOU	31.6	SHANYING INTERNATIONAL	27.4
LONGI	60.4	Starbucks	43.3	Armani	36	Disney	31.4	SUNGROW POWER SUPPLY	27.4
Kao	58.3	Siemens	43.1	Toshiba	35.7	Xiaomi	31.4	Abercrombie & Fitch	27
Lindex	57.8	HUGO BOSS	42.8	Oji Paper	35.4	Unicharm	31.4	JA SOLAR	26.8
VF	57.6	Lululemon	42.8	Woolworths	35	SMCP	31.2	na-kd	26.6
Tesco	57.4	Guess	42.8	Burger King	34.6	Tyson Foods	31	BROOKS	26.6
Intel	56.2	Kosé	42.5	Merck Group	34.6	Henkel	30.9	Arla	26.5
GAP	56	Unilever	42.5	Adient	34.6	APP	30.8	JINKOSOLAR	26.4
Danone	54.8	Bayer	42.5	DuPont	34.5	Kontoor	30.8	Biogen	26.4
Schaeffler	54.6	Samsung	42.4	FUYAO GLASS	34.4	ASUS	30.8	Aisin	26.4
ANTA	53.6	ZTE	42.2	Walmart	34.4	AstraZeneca	30.4	Pirelli	26.2
Bestseller	52.8	GEELY AUTO	41.8	Zebra	34	Ferragamo	30.4	Goodyear	25.9
Nestlé	51.8	Prada	41.6	BASF	33.9	P&G	30.3	L'Occitane	25.9
ASICS	51.6	PVH	41.6	AMOREPACIFIC CORPORATION	33.9	Deckers Brands	30.2	Esprit	25.8
Panasonic	51	Lojas Renner	41.4	Ford	33.8	Faurecia	30.1	Clorox	25.8
UPM	50.8	Volvo	40.9	Columbia Sportswear	33.6	Meiji	30	Macy's	25.8
HP	50.4	IKEA	40.8	Ted Baker	33.6	HANG LUNG PROPERTIES	30	TRINA SOLAR	25.8
L'Oréal	48.6	Natura & Co	40.7	SHISEIDO	33.4	7-Eleven	29.8	Bosch	25.5
Ralph Lauren	48.4	Arçelik	40.3	Hershey	33.4	Nissan	29.7	River Island	25.4
Canon	48.4	KFC	40.1	Roche	33.2	Tiffany	29.6	Bang & Olufsen	25.2
ZF Friedrichshafen	47.6	Burberry	40	Under Armour	33.2	General Mills	29.6	Eastman	25.1
C&A	47.4	Kimberly-Clark	39.8	Teva Pharmaceutical	33.2	KERSEN	29.5	TCL	25

Company	Score	Company	Score	Company	Score	Company	Score	Company	Score
Lear	24.9	Facebook	22	MITSUBISHI MOTORS	19.6	TONGLI CEMENT	17.2	XIANHE	14.6
LI NING	24.8	Yihai Kerry Arawana	22	Domino's	19.5	Hyundai Mobis	17.1	CHINA AOYUAN	14.6
Hormel	24.8	Whirlpool	21.9	Deutsche Telekom	19.4	LANDSEA MGMT	17	LG Chem	14.5
Alibaba	24.8	TCL TECH.	21.8	3M	19.2	LINGYI iTECH	17	Sartorius	14.4
Suntory	24.6	XINYI SOLAR	21.8	Seasalt	19.2	GAC GROUP	16.9	The Children's Place	14.4
desigual	24.6	Mazda	21.7	BLUE MOON GROUP	19	MICHELIN	16.9	SKSHU	14.3
YILI	24.5	ABBOTT	21.6	Dystar	19	NONGFU SPRING	16.8	DEXIN CHINA	14.2
BMW	24.5	JD Sports Fashion	21.6	Google	19	Mondelēz International	16.8	SHANGHAI PHARMA	14.2
Kohl's	24.4	Viessmann	21.6	Bristol Myers Squibb	19	Oatly	16.8	WEICHAI POWER	14.2
SINO-OCEAN GP	24.4	Carlsberg	21.5	UNITED LAB	19	Sharp	16.6	Electrolux	14
BIMBO	24.2	kathmandu	21.4	Salomon	19	Olympus	16.6	Hankook Tire	14
SWIRE PROPERTIES	24.2	LVMH	21.4	OPPO	18.8	TAI HING GROUP	16.6	Orion	14
GM	24	Stellantis	21.3	AbbVie	18.8	Hyundai	16.5	CHINA OVERSEAS	14
Bentley	23.7	CH MODERN D	21	The Kroger Co.	18.8	Kagome	16.4	DSM	13.9
Continental	23.7	Suitsupply	21	Lonza	18.6	GREENTOWN CHINA	16.4	Fortune Brands	13.8
Takeda	23.6	Honor	21	SERVIER	18.6	ND PAPER	16.4	XPENG	13.8
Singtel	23.4	FILA	20.8	Costa	18.5	MUJI	16.4	Allbirds	13.8
Seiko Epson	23.4	Logitech	20.8	Denso	18.5	CHINT	16.2	HTC	13.6
Acer	23.4	Johnson & Johnson	20.7	IBM	18.4	Razer	16.2	HAIER	13.6
VAUDE	23.4	Baxter	20.6	Fujitsu	18.4	HanesBrands	16.2	GH	13.6
Volkswagen	23.2	Wilmar	20.6	CapitaLand	18.4	TSINGTAO	16	ZHONGLIANG HLDG	13.6
Next	23.2	SHUI ON LAND	20.6	Magna	18.4	BYD	15.8	WULING MOTORS	13.6
Mammut	23.2	CHINA RES BEER	20.5	Midea Group	18.2	XTEP INT''L	15.8	De'Longhi	13.6
camper	22.8	carter's	20.4	Pfizer	18.2	VTECH HOLDINGS	15.8	LocknLock	13.5
Vodafone	22.8	AMD	20.4	Pentland	18	BAIC MOTOR	15.7	KING''S LUCK	13.5
Crocs	22.8	G-Star RAW	20.4	GSK	17.8	BOE	15.5	Nippon Paint	13.4
Western Digital	22.8	Subaru	20.4	RICOH	17.8	Sanofi	15.3	Li Auto	13.3
Merck & Co.	22.6	Mizuno	20.2	Huntsman	17.8	Hasbro	15.2	Arc'teryx	13.2
Morrisons	22.6	SHANGHAI JAHWA	20.2	GCL TECH	17.8	Samsonite	15.2	YUZHOU GROUP	13.2
Sony	22.6	Delta Galil	20.2	LG Electronics	17.7	MINTH GROUP	15.2	LONGFOR GROUP	13.2
TOTO	22.5	Fonterra	20	Tesla	17.6	SHOUCHENG	15	CHINA JINMAO	13.2
Nokia	22.4	McCormick	20	A.O.Smith	17.6	JIUJIUWANG	15	NIVEA	13.2
Syngenta	22.4	Toyoda Gosei	19.9	PPG	17.6	CSPC PHARMA	15	Lilly	13
Vanke	22.2	Tokai Rika	19.9	HENGAN INT''L	17.6	BT	14.8	WULIANGYE	13
JD.com	22.2	Long Chen	19.8	C.BANNER	17.5	Novartis	14.8	LENS	13
Swire Foods	22.2	Hewlett Packard Enterprise	19.8	new look	17.4	SK HYNIX	14.8	YUEXIU PROPERTY	13
J.C. Penney	22.2	Vitasoy	19.8	SUZUKI	17.4	NIO	14.8	Shede Spirits	13
SUN PAPER	22.2	Costco	19.6	patagonia	17.4	Lee & Man Paper	14.6	Sherwin-Williams	12.9

2023 CATI Scores

Company	Score	Company	Score	Company	Score	Company	Score	Company	Score
WANT WANT CHINA	12.8	PRE	11.4	JIASHILI GP	9.6	Papa John's	8.1	Lafuma	6
Archroma	12.8	SHUANGHUI	11.2	GUJING DISTILLERY	9.5	XINTE ENERGY	8	GIANT BICYCLES	6
SHEIN	12.8	M&G	11.2	HMD	9.5	TAIJI GROUP	7.8	R&F PROPERTIES	6
Ella's Kitchen	12.8	GIORDANO INT''L	11	CENTRAL CHINA	9.4	DAPHNE INT''L	7.8	WXTJ	6
NetEase	12.8	Yuen Foong Yu	11	Hello Bike	9.4	COUNTRY GARDEN	7.8	CHIXIA DEVELOPMENT	6
UNI-BIO GROUP	12.8	CHINA MOBILE	11	Feihe Milk	9.4	GLORY HEALTH	7.8	OCT HOLDING	6
XIABUXIABU	12.8	New Hope Dairy	11	DALI	9.4	MATTEL	7.8	C&S	6
CR SANJIU	12.8	BAIYUNSHAN PH	10.8	Gymshark	9.4	POP MART	7.8	LONKEY	5.9
POLY PROPERTY	12.8	GLP	10.8	AVON	9.2	MILLION CITIES	7.8	YUNNAN BAIYAO	5.8
PORSCHE	12.7	DMEGC	10.6	HAI TIAN	9.2	LEAPMOTOR	7.7	Nongshim	5.8
MIDEA REAL EST	12.6	NEXEN TIRE	10.6	GOLDEN EAGLE	9.2	MONALISA	7.6	Quiksilver	5.8
CR Land	12.6	SUNING COMMERCE	10.6	NVC	9.2	CHANGAN AUTOMOBILE	7.6	MICHAEL KORS	5.8
DAQO	12.6	GROHE	10.5	QUZHOU WUZHOU SPECIAL PAPER	9.2	boohoo	7.6	Orion	5.8
DAWNRAYS PHARMA	12.6	YANGHE	10.5	TRAD CHI MED	9.2	YANJING BREWERY	7.5	Royalstar	5.8
HISENSE H.A.	12.5	CMSK	10.4	YADEA	9	Etam	7.4	TASLY	5.6
COACH	12.4	Catalent	10.4	CENTRAL NEW EGY	9	Infinitus	7.4	watsons	5.6
Kate Spade	12.4	CHINAHUAJUNGP	10.4	ERDOS	9	361 DEGREES	7.2	HLA	5.6
YYFP	12.4	Mulberry	10.4	FAW Group	8.9	HUAZHONG IN-V	7.2	K-BOXING	5.6
CHENMING PAPER	12.4	AEON	10.4	SPEG	8.9	Thai Union	7.2	AUX	5.5
KOHLER	12.3	CIFI HOLD GP	10.4	Barry Callebaut	8.8	KUMHO TIRE	7.1	SCSF	5.5
VINDA INT''L	12.2	Lion	10.3	Vip.com	8.8	OPPEIN	7	AIMA	5.4
Victoria's Secret	12.2	MINMETALS LAND	10.2	RS MACALLINE	8.7	Hylo	7	Skechers	5.4
Conagra	12.2	MINMETALS LAND	10.2	COFCO TUNHE	8.6	YOUNGOR	7	EASYHOME	5.2
Meituan	12.2	MING FAI INT''L	10.2	DATANG GROUP	8.6	SANYUAN	7	hellyhansen	5.2
CJ	12.2	ZHOU HEI YA	10.2	LVGEM CHINA	8.6	vivo	6.8	Nice	5.2
LACOSTE	12	JOTUN	10.1	ZHEJIANG SHIBAO	8.6	Centrient	6.8	OPPLE	5.2
SAIC MOTOR	12	BOSIDENG	10	SKYWORTH	8.5	Jollibee Foods	6.7	PEARL RIVER	5
HIKVISION	11.9	SUNKWAN PPT	10	XINYI GLASS	8.5	MERIDA	6.6	TRANSSION	5
BANDAI	11.8	CHINA UNICOM	10	LUZHOU LAO JIAO	8.5	ANTAI GROUP	6.5	Aimer	5
RSUN PPT	11.8	YURUN FOOD	10	MEC	8.4	HAIDILAO	6.5	Niulanshan	5
SHANGHAI XINMEI	11.6	Canada Goose	10	XINHUA PHARM	8.4	SINYI	6.4	SEMIR	4.8
Uni-president	11.6	BRIGHT DAIRY	10	SUPOR	8.4	CNSIC	6.4	TALESUN	4.8
TINGYI	11.6	KIA	10	SC Johnson	8.4	CHINA MEHECO	6.4	Hush Puppies	4.8
Chery	11.6	WENS	9.8	JML	8.4	KONKA GROUP	6.3	TRT	4.8
KWEICHOW MOUTAI	11.5	fenix outdoor	9.6	DAFA PPT	8.4	GOLDEN THROAT	6.2	Joyi	4.8
INSPUR	11.5	SHENZHEN INVEST	9.6	WEICHUAN	8.2	CR Vanguard	6.2	ALDI	4.8
MARUBI	11.5	SHANSHAN	9.6	AGILE GROUP	8.2	TIANDA PHARMA	6.2	Liby	4.6
AUSNUTRIA	11.4	CHINA TELECOM	9.6	Home Depot	8.1	Changhong	6.2	DFAC	4.6

Company	Score	Company	Score	Company	Score	Company	Score	Company	Score
HONGDOU INDUSTRIAL	4.5	YOTRIO	3.2	CP	2	COOPERTIRES	0	LUYUAN	0
AOKANG	4.5	HOSHINE SILICON INDUSTRY	3.2	JIUSHENG	2	ZC Rubber	0	TAILG	0
MERCURY	4.5	BAOXINIAO	3.2	Greenland Holdings	0	Coconut Palm Group	0	SLANE	0
ecco	4.4	RISEN ENERGY	3.2	China Lesso	0	Xifeng	0	BYVIN	0
ANGEL	4.4	Dachan	3	Rivian	0	Panpan Foods	0	Boloni	0
GREE	4.4	FUJIYA	3	ZHONGLI SCI-TECH	0	Be & Cheery	0	Lanju	0
HAIMA AUTOMOBILE	4.3	CABBEEN	3	JIAWEI ENERGY	0	HY PROPERTY	0	Hozonauto	0
TBEA	4.2	BEINGMATE	3	JSQJ	0	TENTIMES	0	WM Motor	0
SFY	4.2	PERFECT	3	JINCHEN	0	SunnyWorld	0	Luckin Coffee	0
Boehringer-Ingelheim	4	Clarks	2.8	Peacebird	0	Hisense	0	Gloria Jean's Coffees	0
JEANSWEST	4	AKCOME	2.8	Junlebao	0	Dongdu International	0	CST Tires	0
JOYOUNG	4	HOYUAN	2.8	MEIZU	0	Kingdom Group	0	HAOYUE	0
WINNER	4	JINKO POWER	2.8	Dicos	0	DaHan	0	JINQIAO GROUP	0
Pacific Coffee	4	Benetton	2.8	FJMOTOR	0	ZhongFang	0	LINGPAI GROUP	0
iRobot	4	METERSBONWE	2.8	SENLI BEER	0	ROFFAR	0	AOHAI	0
AUPUP	4	GOLD MANTIS	2.8	QINGYUAN	0	Sunriver	0	SCEGC REAL ESTATE GROUP	0
ACHT	4	SEPTWOLVES	2.8	wondersun	0	Ruchen	0	Dyson	0
Kaimi	4	Ann Taylor	2.8	Huishan	0	DaAi City	0	EASTIDE GROUP	0
Mothercare	4	SLH	2.6	Pechoin	0	AUX	0	Sincere	0
Baojun	4	Galanz	2.6	Chando	0	Huajian Real Estate	0	AIJIA	0
YINGE	4	AUPU	2.6	Hanhoo	0	Joru Group	0		
VEKEN	4	LMZ	2.6	Unifon	0	yahe	0		
YIBIN PAPER	4	Nature Home	2.6	TIANYOU	0	LAO GAN MA	0		
MFSP	4	TOPRAYSOLAR	2.6	Tranlin	0	BEAR	0		
GITI TIRE	3.8	ASD	2.6	XINYA PAPER	0	Jimei	0		
FIRST	3.8	Whitecat	2.6	HONGAN	0	Feidiao	0		
HEPALINK	3.8	Huiyuan Juice	2.6	SHUANGDENG	0	Macro	0		
Orchard Farmer	3.6	TOREAD	2.5	HPEACE DAIRY	0	DIDI BIKE	0		
HENGLIN	3.5	PAK	2.3	GAEA GEM	0	TIANI Group	0		
SUNNER	3.5	Meituan Bike	2.2	Oishi	0	EAST SEA	0		
Sephora	3.5	Perfetti	2.2	Kingstar Beer	0	DAJA	0		
EGING PV	3.4	Valentino	2.2	HISUN	0	YURUN	0		
CLENERGY	3.4	Wahaha	2.2	VANTONE REAL ESTATE	0	HONGBAOLAI	0		
Paulmann	3.3	BESTORE	2.2	Hodo	0	SHUITA	0		
JMC	3.2	MARY KAY	2	BSD	0	Synear	0		
THREE SQUIRRELS	3.2	Charles & Keith	2	TENHONG LAND	0	Micoe	0		
SUNRAIN	3.2	DARE POWER DEKOR	2	EuroGroup	0	BATTLE	0		
JAC	3.2	ELLASSAY	2	lepur	0	XINRI E-VEHICLE	0		

Terms and Definitions

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.

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.

Stakeholders: Organizations that have an interest in a company's decisions or activities, including but not limited to consumers, shareholders, investment institutions, environmental organizations, suppliers, partners, etc.

Environmental compliance: An enterprise (or public institution) maintaining compliance with national and/or local environmental protection laws and regulations during processes including construction, production, operations and relocation.

Environmental violation(s): Information published by official sources regarding enterprises (or public institutions) violating national and local environmental protection laws and regulations during construction, production and operations processes, as well as publicly confirmed complaints and reports against enterprises (or public institutions) with violation issues.

Public explanation(s): The process of publicly releasing information in written form through such channels as government platforms, corporate websites, IPE's website, traditional media, and social media (e.g. official Weibo, WeChat public accounts, etc.)

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.

Life Cycle Assessment (LCA): Assessment of the sum of a product's effects (e.g. GHG emissions) at each step in its life cycle, including resource extraction, production, use and waste disposal.

Greenhouse Gas (GHG): For the purposes of this report, GHGs are the six gases listed in the Kyoto Protocol: carbon dioxide (CO_2); methane (CH4); nitrous oxide (N2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF6).

Global warming potential (GWP): A factor describing the radiative forcing impact (degree of harm to the atmosphere) of one unit of a given GHG relative to one unit of CO_2.

CO_2 equivalent (CO_2e): The universal unit of measurement to indicate the global warming potential (GWP) of each of the six greenhouse gases, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

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.

Emission sources: Any physical unit or process which releases GHG into the atmosphere.

Direct emissions: Emissions from sources that are owned or controlled by the reporting company.

Indirect emissions: Emissions that are a consequence of the activities of the company but occur at sources owned or controlled by another company.

Scope 1: Emissions from operations that are owned or controlled by the reporting company.

Scope 2: Emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company.

Market-based method for Scope 2 accounting: A method to quantify scope 2 GHG emissions based on GHG emissions emitted by the generators from which the reporter contractually purchases electricity bundled with instruments, or unbundled instruments on their own.

Location-based method for Scope 2 accounting: A method to quantify scope 2 GHG emissions based on average energy generation emission factors for defined locations, including local, subnational, or national boundaries.

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.

Absolute target: A target defined by reduction in absolute emissions over time e.g., reduces CO_2 emissions by 25% by 2030 from a 2020 baseline.

Intensity target: A target defined by reduction in the ratio of emissions and a business metric over time e.g., reduce CO_2 per tonne of cement by 12% between 2018 and 2025.

Base year: A historic datum (a specific year or an average over multiple years) against which a company's emissions are tracked over time.

Target year: The year that defines the end of the target commitment period.

Baseline: A hypothetical scenario for what GHG emissions, removals or storage would have been in the absence of the GHG project or project activity.

Base year emissions: GHG emissions in the base year

Carbon intensity: Ratios that express GHG impact per unit of physical activity or unit of economic value (e.g. tonnes of CO_2 emissions per unit of electricity generated). Intensity ratios are the inverse of productivity/efficiency ratios

Carbon sink: Any physical unit or process that stores GHGs; usually refers to forests and underground/deep sea reservoirs of CO_2.

Carbon emission trading: All purchases or sales of carbon emission allowances, offsets, and credits.

Allowance: A Commodity giving its holder the right to emit a certain quantity of GHG.

Intergovernmental Panel on Climate Change (IPCC): International body of climate change scientists. The role of the IPCC is to assess the scientific, technical and socio-economic information relevant to the understanding of the risk of human-induced climate change.

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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Notes
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. The quotes from some brands have been translated by IPE for the purposes of reference only. If any questions arise related to the accuracy of the information contained in the translation, please refer to the original documents published by the brands.
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