Decoding the "carbon" road in the cement industry: A perspective on the information disclosure of listed companies of class A shares



Abstract

Climate change has become one of the major common global challenges of the twenty-first century, with the *Paris Agreement* establishing the goal of limiting the increase in global average temperature to 2 degrees Celsius compared with the pre-industrial period and working towards 1.5 degrees Celsius, and the global carbon neutral process is accelerating.

The cement industry, as a high-energy-consuming and high-emission industry, is one of the main sources of global greenhouse gas emissions. Some sources indicate that the cement industry accounts for 12 per cent of global industrial CO2 emissions and about 7 per cent of global anthropogenic CO2 emissions. ¹Carbon emission reduction in the cement industry is therefore crucial to achieving the temperature control targets of the *Paris Agreement*.

As the world's largest cement producer, China has accounted for more than 50 per cent of global cement production for many years. According to the data, China will produce 2.13 billion tons of cement in 2022, accounting for about 60% of the global cement production, and a total of 2.023 billion tons of cement in 2023, accounting for about 52.4% of the global cement production. ²As cement is an indispensable material for infrastructure construction, its demand will remain high in the future.

The introduction of policies such as the EU Carbon Border Adjustment Mechanism (CBAM) and the U.S. Clean Competition Act (CCA) has created new trade barriers to the export of high-carbon products such as cement and steel. Against this background, the cement industry needs to actively respond to international policy changes and strengthen carbon emission management to enhance international competitiveness.

At the same time, domestic government departments have also issued

¹ https://www.ccement.com/news/content/29406718605975001.html

² https://mp.weixin.qq.com/s/R-OfvMCnB2_s96XY-wosgg

policy documents to require key emitting enterprises to strengthen the level of carbon information disclosure. In December 2020, the Ministry of Ecology and Environment issued the *Administrative Measures for Carbon Emission Trading (for Trial Implementation)*³, which requires that annual greenhouse gas emission reports compiled by key emitting units should be made public on a regular basis to be subjected to public scrutiny. Administrative Measures for the *Legal Disclosure of Enterprise Environmental Information*⁴ (hereinafter referred to as the *Administrative Measures*) and Format Guidelines for the *Legal Disclosure of Enterprise Environmental Information*⁵ (hereinafter referred to as the *Format Guidelines*), which stipulate that the annual legal disclosure reports of key emitting enterprises on their environmental information should include information on carbon emissions, including information on emissions, emission facilities and other aspects.

And with the Ministry of Ecology and Environment 2025 March officially released *National Carbon Emission Trading Market Coverage of Iron and Steel, Cement and Aluminium Smelting Industries Work Plan*⁶, cement, iron and steel, aluminium smelting three major industries in the future will face more stringent carbon emissions management requirements, not only need to regularly disclose carbon emissions data, but also need to be subject to regulation, to enhance the transparency of carbon emissions information.

SIP Lvse Jiangnan Public Environmental Concern Centre (hereinafter referred to as "PECC"), as an environmental public welfare organisation, has been focusing on the carbon disclosure status of industries with high carbon emissions, such as cement and non-ferrous metals, since 2021, and has

³ Central People's Government of the People's Republic of China, https://www.gov.cn/zhengce/zhengceku/2021-01/06/content_5577360.htm

⁴ Department of Ecology and Environment, https://www.mee.gov.cn/gzk/gz/202112/t20211210_963770.shtml

⁵ Department of Ecology and Environment, https://www.mee.gov.cn/xxgk2018/xxgk/xxgk05/202201/t20220110 966488.html

⁶ Department of Ecology and Environment,

https://www.mee.gov.en/xxgk2018/xxgk/xxgk03/202503/t20250326 1104736.html?sessionid=-795753140

released a related research report⁷. In this report, PECC will continue to focus on the cement industry as one of the key greenhouse gas emitters, and observe the carbon disclosure status of listed cement companies and their affiliates (with an equity share of at least 50 per cent) through the 2023 annual reports and sustainability reports (including ESG and social responsibility reports) disclosed by A-share-listed cement companies, as well as through the public channels of the environmental law disclosure systems of enterprises in each provincial area and the official websites of enterprises. We will observe the carbon information disclosure of listed cement companies and their affiliates (with an equity ratio of not less than 50%), analyse their disclosure status and deficiencies, explore the direction of improvement in carbon information disclosure in the cement industry, enhance the transparency of corporate climate information disclosure, promote the tilting of capital towards green and low-carbon enterprises, accelerate the green transformation of the industry, and contribute to the achievement of the "dual-carbon" and green development goals in China.

1、research target

In 2024, China Cement Association ranked the comprehensive strength of China's cement listed companies by combining the selection indexes of cement product sales volume, total profit, net profit, etc., and released the *Announcement on the Release of 2024 Comprehensive Strength Ranking of China's Cement Listed Companies*⁸ in May. PECC selects 16 A-share listed cement companies and affiliates with more than 50% equity share as the research objects of this report.

Relying on the Blue Map environmental database established by the Public Environmental Research Centre (IPE), a domestic environmental data public

⁷ https://www.pecc.cc/section/83

⁸ China Cement Association, http://www.ccawz.com/chinacca/wenjian/225621.html

welfare platform that includes official and authoritative data⁹, and the list of environmental information disclosed according to law in 2023 published by various regional government departments, PECC has selected a total of 412 affiliated enterprises (except for Yunnan, where the enterprise Environmental Information Disclosure System¹⁰ cannot be accessed). Among them, 377 affiliates belong to the cement (products) manufacturing industry, while the remaining 35 belong to the hazardous waste management, chemical pesticide manufacturing, metal structure manufacturing, clay brickwork and building block manufacturing industries.

⁹ https://www.ipe.org.cn/index.html

¹⁰ http://202.104.140.36:32635/ynyfpl/frontal/index.html#/home/index

附件 1

2024年中国水泥上市公司综合实力排名表

排名	公司名称	股票代码	总分	去年其
1	海螺水泥	A:600585 H:00914	331.35	1
2	中国建材	Н: 03323	260.13	2
3	天山股份	A: 000877	239.16	3
4	华新水泥	A:600801 H:6655	157.84	4
5	华润建材科技	H: 01313	99.03	5
6	上峰水泥	A: 000672	79.39	10
7	塔牌集团	A: 002233	78.45	13
8	西部水泥	H: 02233	74.78	- 9
9	四川双马	A: 000935	69.47	14
10	万年青	A: 000789	68.77	12
11	亚洲水泥(中国)	H: 00743	66.65	11
12	青松建化	A: 600425	64.52	17
13	中国能建	A: 601868 H:03996	62.47	15
14	宁夏建材	A: 600449	58.24	16
15	冀东水泥	A: 000401	56.68	6
16	中国天瑞水泥	H: 01252	56.47	8
17	宁波富达	A: 600724	54.25	19
18	尖峰集团	A: 600668	54.14	18
19	山水水泥	H: 00691	53.03	7
20	西藏天路	A: 600326	47.06	21
21	福建水泥	A: 600802	46.33	20
22	亚泰集团	A: 600881	21.78	22

Figure 1 Comprehensive Strength Ranking of Listed Cement Companies in China, 2024



Figure 2 Distribution and Number of Affiliated Enterprises by Industry (Unit: Households)

2、Carbon disclosure by parent companies of listed companies

2.1 6 companies disclose GHG emissions

Through observation, PECC found that 6 out of 16 listed companies have total GHG emissions. Except for Huaxin Cement, the other 5 also disclosed Scope 1 and Scope 2 GHG emission data. Conch Cement, ranked No. 1 in terms of the overall strength of listed cement companies in China in 2024, also has the highest total GHG emissions among the six listed companies that have disclosed.

Table 1, GHG emissions disclosed by six listed companies (in t/CO₂e)

Listed Company Name	Scope 1	Scope 2	Total emissions
Conch Cement	175,889,43 4	7,889,12 8	183,778,562

Tianahan Ca	163,036,58	3,544,09	166,579,684	
Hanshan Co.	5.43	8.25	.27	
China National Construction	1 526 525	3,567,54	9 004 067	
Corporation (CNC)	4,520,525	2	0,094,007	
Ningxia Building Materials	7,043,900	499,600	7,543,500	
Ji Dong Cement (Tianjin FAW)	53,275,204	4,340,61 1	57,615,815	
Huaxin Cement	/	/	34,531,189. 72	

In addition, we can see from the aggregated data that none of the 16 listed companies have disclosed Scope 3 emissions data. Scope 3 GHG emissions cover indirect emissions from upstream and downstream of an enterprise's value chain, including raw material procurement, product transport, employee commuting, etc., which can comprehensively reflect an enterprise's carbon footprint in the supply chain and product life cycle. By accounting for and disclosing Scope 3 emissions data, cement companies can more accurately identify emission reduction links, thereby promoting green transformation of the entire value chain.

2.2 Disclosure of energy consumption by 8 companies

Of the 16 listed companies included in the evaluation, eight disclosed energy consumption-related data. Among them, Huaxin Cement only disclosed the comprehensive energy consumption in FY2023, while Fujian Cement, Jidong Cement, Ningbo Fuda, Ningxia Building Materials and Tianshan Shares only disclosed the consumption of various types of resources. Apart from that, Conch Cement and China Energy Construction not only disclosed the comprehensive energy consumption data, but also disclosed the consumption of various types of resources.

华新水泥能源消耗数据				
指标	2021年	2022 年	2023 年	单位
综合能源消耗	709.81	535.42	538.00	万吨标准煤
国内熟料单位产品综合能耗	-	99.46	94.69	千克标煤 / 吨熟料

Figure 3 Huaxin Cement Energy Consumption Data

	▲建水泥 福建水泥 2023 年度社会责任报告				
完善企	业发展	与生态环境和谐共生。			
(_	二) 20	23 年度资源消耗情况			
	序号	名称	单位	2023 年消耗	
	1	石灰石	万吨	858.99	
	2	原煤	万吨	85.02	
	3	替代燃料	万吨	5.51	
	4	石膏	万吨	42.03	
	5	混合材(工业废渣、废石等)	万吨	95.54	
	6	外购电力总量	亿千瓦时	4.31	

Figure 4 Fujian cement consumption

报告期内,本公司主要资源使用情况如下 $^{\oplus}$:				
指标名称	单位 ^②	2021 年	2022 年	2023 年
电力消耗量	万千瓦时	442,241	434,761	489,144
汽油消耗量	吨	58,570	57,162	64,043
柴油消耗量	吨	937,859	885,111	801,039
天然气消耗量	万立方米	557	629	675
燃料油消耗量	吨	62	35	30
外购热力消耗量	百万千焦	0	78,017	828,063
其他能源消耗量	吨标准煤	166,269	71,908	281,342
非石化能源消耗	吨标准煤	-	-	345,056
非石化能源使用比例	百分比	-	-	7.10%
综合能源消耗量 ³	吨标准煤	2,170,014	2,147,564	2,587,838
单位营收综合能源消	吨标准煤/万	0.070	0.060	0.058
耗量	元人民币			
生产用水总量	吨	1,613,645	25,752,061	7,379,558
单位营收耗水量	吨/万元人民 币	0.052	0.718	0.179

Figure 5 Comprehensive Energy Consumption and Various Types of Resources Consumption of China Energy Construction

2.3 12 companies disclosed carbon reductions

Under the background of "dual-carbon", the adoption of emission reduction measures by enterprises in the course of operation not only helps to reduce operating costs and improve energy efficiency, but also helps to enhance the image of corporate social responsibility. It is gratifying that the 16 listed cement companies evaluated in this evaluation have adopted energy saving and emission reduction measures in 2024, and 12 of them have disclosed the amount of carbon reduction, with the total carbon reduction of the 12 companies exceeding 28 million tons.

Table 2, Carbon reduction disclosed by 12 companies (in tons)

Listed Company Name	carbon reduction	
Tianshan Co.	21,646,066.82	

Ningxia Building Materials	1,681,734	
China National Construction	1 575 500	
Corporation (CNC)	1,010,000	
Huaxin Cement	1,449,397	
Fujian Cement	967,069	
Tapioca Group	248,700	
Yatai Group	156,200	
Ningbo Fuda	117,800	
Tsim Sha Tsui Group	108,435.34	
the road to heaven in Tibet	70,726	
Nippon lily (Rohdea japonica)	59,500	
Qingsong Construction	21 520 80	
Company	21,520.89	

Note: 1. The carbon reduction of TIANSHAN shares is converted based on the carbon emissions in 2022;

2. Pagoda Group and China National Energy Corporation (CNEC) did not disclose the total carbon reduction in the report, and the carbon reduction in the table is the sum of the corresponding carbon reduction of each emission reduction project.

天山股份按照目标规划,逐步实现"十四五"应对气候变化目标。
报告期内
单位熟料二氧化碳排放量0.8221tco2/t, 较2020年下降3.96%

Figure 6 Carbon Reduction in 2023 for Tianshan Shares

5、利用余热,节电节能。水泥窑纯低温余热发电技术可以将熟料生产过程中产生的热能转换为电能,从而实现资源的循环利用,节约传统电力能源,减少碳排放。公司分别对8条新型干法水泥熟料生产线配套了纯低温余热发电系统,并通过不断的优化发电系统与工艺,提高余热发电效能,2023年余热发电供电量为39198.18万 kW. h,减少 C02 排放约 22.77 万吨。

6、利用光伏发电,清洁低碳生产。光伏发电是指利用太阳能将光能转化为电能的一种方 式。随着环境保护和可再生能源的重要性不断提高,光伏发电作为一种清洁、可再生能源的代 表,逐渐得到了广泛的应用和推广,使用光伏发电可以有效地减少对不可再生资源的依赖,保 护能源环境。公司从2021年开始启动了光伏发电项目建设工作,在厂区闲置土地、建筑物天 面建设光伏发电项目,优化改善企业用能结构,有效降低碳排放,推动打造新的产业增长极, 促进产业绿色可持续发展。2023年光伏发电供电量为3666万kW.h,减少二氧化碳排放量约 2.1万吨左右,实现调整企业能源使用结构,实现清洁低碳生产,降低水泥生产碳排放,打造 低碳竞争力。

Figure 7 Carbon reduction measures and corresponding carbon reduction by Tata Group in 2023

2.4 5 companies disclosed emission reduction targets

The setting of emission reduction targets by listed companies is an important step in addressing climate change and fulfilling social responsibility. By combing through the reports released by 16 companies, we found that five companies have set emission reduction targets. In addition to Ningxia Building Materials and China National Energy Construction Corporation, Conch Cement, Huaxin Cement and Tianshan also disclosed the completion of their emission reduction targets in 2023, which is more conducive to the measurement of the effectiveness of the emission reduction measures, so that the companies can make more effective allocation of resources and strategic adjustments.

Table 3: Emission reduction targets disclosed by the five companies and theirachievements

Listed		
Company	Emission reduction targets	Achievement of targets
Name		

	6% reduction in CO2 emissions	
Conch	(clinker process) intensity	Decrease of 1.69 per cent in
Cement	(CO2/clinker) in 2025	2023 compared to 2020
	compared to 2020.	
	By 2030, the company's CO2	
	emissions per unit of operating	57 per cent below 2005
	income will be more than 70	levels by 2023
	per cent lower than in 2005.	
	By 2030, the company's direct	In 2023, the domestic
Huaxin	CO2 emissions (Scope 1)	emissions intensity is 576 47
Cement	intensity per tonne of cement	
	will be reduced to 475 kg.	ky:
	In 2030, the direct CO2	In 2023, the domestic
	emission intensity per cubic	omissions intensity is 140.88
	metre of concrete (Scope 1)	
	will be reduced to 124 kg.	kg.
	In 2025, average CO2	
Tionchon	emissions per unit of clinker	CO2 amiggiona par unit of
Co	reach 815 kg, a decrease of	coz emissions per unit of
0.	6.24 per cent compared to	
	2021.	
Ningvio	By 2025, the average CO2	
Puilding	emissions intensity of clinker	1
Motoriolo	will be 6.5 per cent lower than	7
Materials	in 2020.	
	Taking 2021 as the base year,	
	during the Fourteenth Five-	
China	Year Plan period, the average	
National	annual total carbon dioxide	
Constructi	emissions will be reduced by	1
on	1.38 per cent, and the average	7
Corporatio	annual carbon dioxide	
n (CNC)	emissions per 10,000 yuan of	
	output value (income) will be	
	reduced by 3.9 per cent.	

2.5 Summary

As a key greenhouse gas emission control industry, the cement industry's climate information disclosure has attracted much attention. From the disclosure content of 16 cement listed companies, the overall carbon

information disclosure level of the industry has been improved¹¹, but the disclosure content is still uneven and insufficient. Among them, the disclosure of carbon reduction measures and the amount of carbon reduction is better, 16 companies have disclosed the emission reduction measures, of which 12 companies have disclosed the relevant emission reduction data, accounting for more than 70%, indicating that the enterprises have begun to pay attention to the management of carbon emissions and have taken certain emission reduction measures.

However, the disclosure rates of greenhouse gas emissions, energy consumption and emission reduction targets are not high, accounting for no more than 50 per cent. Among them, eight companies disclosed data related to energy consumption, but there were differences in the disclosure calibre, which made it impossible to make a side-by-side comparison. Disclosure of greenhouse gas emissions of only 6 companies, accounting for less than 40%, and are not disclosed in the scope of the three emissions, it is difficult to comprehensively reflect the status of the industry chain carbon emissions. The emission reduction target disclosure enterprises only 5, reflecting that some enterprises have not yet energy saving and emission reduction targets into the strategic planning.

From the policy level, the introduction of policy documents such as *Guidelines on the Content and Format of Information Disclosure by Companies Issuing Public Securities No. 2 - Content and Format of Annual Reports*¹² *Sustainable Development Report (Trial)* ¹³ has put forward higher requirements for climate information disclosure of listed cement companies. However, there is still a gap between the current industry disclosure situation

¹¹ Compare with the "Observation Report on Carbon Emission Disclosure of A-share Listed Companies in Cement Industry" published by Green Gangnam in February 2023, https://www.pecc.cc/section/83/3328

¹² http://www.csrc.gov.cn/csrc/c101864/c6df1268b5b294448bdec7e010d880a01/content.shtml

¹³ https://www.sse.com.cn/lawandrules/sselawsrules/stocks/mainipo/c/c_20240412_5737862.shtml (SSE); https://www.szse.cn/lawrules/rule/ stock/supervision/currency/t20240412_606839.html (SZSE); https://www.bse.cn/cxjg_list/200021393.html (NSE)

and the policy requirements, mainly reflected in the incomplete disclosure content, inconsistent data calibre and other aspects. In the future, as the policy continues to increase and the regulatory system continues to improve, the disclosure of climate information in the cement industry will gradually move towards standardisation and standardisation, providing data support for the industry's green and low-carbon transformation.

3、Carbon Disclosure by Affiliated Enterprises

There are a total of 412 associated enterprises involved in this report, among which, TIANSHAN shares are involved in the largest number of associated enterprises with 179, while Sichuan Shuangma has only 1 associated enterprise. It should be noted in particular that, as the 2 affiliated enterprises of Ningbo Fuda are located in Yunnan, and the system for legal disclosure of environmental information of enterprises in Yunnan Province is inaccessible, the listed company is not involved in Figure 8.

By searching the websites of the ecological environment departments (bureaus) of the provincial administrative regions where the associated enterprises are located, the list of key greenhouse gas emitters made public by the National Carbon Market Information Network¹⁴, and the list obtained by the government in accordance with the application for public disclosure, PECC found that 180 out of the 412 associated enterprises belong to the key greenhouse gas emitters.

¹⁴ https://www.cets.org.cn/xxgk/index.jhtml



Figure8 1 Number of associated enterprises and temperature control key enterprises

3.1 Disclosure rate of over 70% for key emitters

Through the annual environmental information reports published by key emitting enterprises in the environmental information disclosure system of enterprises in each provincial administrative region according to the law, we found that 177 out of 180 enterprises belong to the cement industry, and 136 of them disclose carbon emission information. However, at the same time, we also found that there are some differences in the content of carbon information disclosed by cement enterprises, 106 enterprises disclosed annual carbon emissions in 2022 and 2023 at the same time, 2 affiliated enterprises disclosed carbon emissions in 2021 and 2022 at the same time, and 27 enterprises disclosed either carbon dioxide emissions in 2022 or carbon dioxide emissions in 2023. Another 1 enterprise did not disclose carbon emissions but disclosed carbon allowances.

In addition, Anhui Huaining Conch Cement Co., Ltd, Chaohu Conch Cement Co., Ltd and Zunyi Conch Panjiang Cement Co., Ltd. disclosed the carbon emissions generated from the consumption of various types of resources in addition to the annual emissions. Jidong Cement Heilongjiang Co., Ltd. additionally disclosed carbon emissions per unit of product, i.e. product carbon footprint.

Three enterprises not belonging to the cement industry, including Beijing Eco-Island Technology Limited, Beijing Electric Power Equipment General Factory Limited and Zhenjiang Hongshun Cogeneration Company Limited, also disclosed their annual carbon emissions for 2022 and 2023 at the same time.



Figure 9 Number of enterprises disclosing different content (in units)

企业关键环境信息提要	
生态环境行政许可变更情况*	2023年,本企业共涉及生态环境行政许可文件0份,其中,新获得0份,变更0份,延续0份,撤销0份,正在申请0份。
污染物排放以及碳排放情况*	2023年,本企业排放水污染物0种,分别为0(污染物)、排放量0吨;排放大气污染物3种,分别为氮氧化物(污染物)、排放量 527.708吨,二氧化硫(污染物)、排放量200.692吨,颗粒物(污染物)、排放量60.346吨;涉及工业固体废物1种,分别为脱硫石 膏(工业固体废物)、产生量31905吨。上年废未贮存量1055.06吨、利用处置量32907.06吨、本年度未贮存量53吨;涉及危险废物9 种,分别为废矿物曲(工业固体废物)、产生量2.6905吨。上年废未贮存量0.170°吨、利用处置量57.26吨、本年废未贮存量0吨, 工业出桶(工业固体废物)、产生量5.7805吨。上年废未贮存量0.197吨、利用处置量5.44吨、本年废未贮存量0.5775吨,废催化剂 (工业固体废物)、产生量378.46吨、上年度未贮存量0.197吨、利用处置量5.44吨、本年废未贮存量0.5775吨、废催化剂 (工业固体废物)、产生量378.46吨、上年度未贮存量0.197吨、利用处置量5.44吨、本年废未贮存量0.5775吨、废催化剂 (工业固体废物)、产生量378.46吨、上年度未贮存量0.197吨、利用处置量378.46吨、本年废未贮存量0吨、废润滑油(工业固体废 物)、产生量0.1804吨、上年度未贮存量2.4556吨、利用处置量2.34吨、本年度未贮存量0吨。废润滑油(工业固体废物)、产生量4.8 吨、上年度未贮存量0吨、利用处置量4.80吨、本年度未贮存量0吨,废油漆桶(工业固体废物)、产生量2.7155吨、上年度未贮存量00 0.2213吨、利用处置量2.9373吨、本年度未贮存量0吨,废油涂桶(工业固体废物)、产生量0.7627吨、上年度未贮存量0吨、利用处 量量0.7627吨、本年度未贮存量0吨,废机油滤芯(工业固体废物)、产生量3.16吨、上年度未贮存量0吨、利用处置量3.16吨、本年 度未贮存量0吨、废旧指毒电池(工业固体废物)、产生量1.66吨、上年度未贮存量0吨、利用处置量1.66吨、本年度未贮存量0 吨、排放有重有量物质0.43为(有重有重新质)、排放量0吨、2022年、本企业全线排放二量4.5551.54元、上年度未贮存量0 吨、排放有量有量物质0.43为(有重有重新质)、排放量0、2024年、本企业全线排放二量4.551.571 吨、碳融分解排放量3191416.74吨、生料中计燃料放烧油和和、其中、每种抗放废油的名和和、加入数量1.18818.30吨。
生态环境行政处罚、司法判决等情况 *	2023年,本企业共受到生态环境行政处罚0次,累计处罚金额0万元。2023年,本企业共受到生态环境司法判决0次,累计出发金额0 万元。

Figure 10 Carbon Disclosure of Chaohu Conch Cement Limited Liability Company

企业环境守法关键信息					
遵守生态环境法律法规情况:	严格遵守生态环境法律法规,无违反情况。	生态环境行政许可变更情况:延续			
污染物排放以及碳排放情况:	2023年度氮氧化物排放量为1164.96吨,二氧 化硫为43.21吨,全厂颗粒物为123.92吨。202	其他关键环境信息:无			
	2年法人边界的温室气体排放量为1614313tCO 2, 熟料产量2193978 t, 单位产品为0.7358tC O2/t熟料。				

Figure 11 Carbon Disclosure of Jidong Cement Heilongjiang Co.

3.2 More than half of non-priority emitters disclose carbon emissions

Based on the observation, we found that 197 of the 232 enterprises that are not key emission units belong to the cement industry, and 129 of them have disclosed their carbon emissions in their annual environmental information reports. 123 enterprises have disclosed their annual carbon emissions in 2022 and 2023, 5 enterprises have disclosed their annual carbon emissions in 2022 only, and 1 enterprise has disclosed its annual carbon emissions in 2023 only. annual carbon emissions.

Three companies not belonging to the cement industry have disclosed their carbon emissions, namely Yingde Conch Plastic Packaging Limited Company, Tangshan Caofeidian Dunshi New Building Materials Company Limited and Jiangsu Electric Power Equipment Company Limited. All three have disclosed their annual carbon emissions in 2022 and 2023.

宝观 <u>第</u> 1 余→ 注册	諸 众喜风凰山水泥有限公	〕 法定(代表人: 汪 * 新	行业:水泥制造(C30	《 返回
		● 以下信息由该企业提供, 企	业对其填报真实性、合法性负责		
年度报告 2023	~				
报告封面及廓页	专家名称及术语解释	关键环境信息提要	企业基本信息及生产信息	企业环境管理信息	企业污染物产生治理 与排放信息
碳排放情况	强制性清洁生产审核情况	生态环境应急信息	生态环境违法信息	本年度临时报告披露情况	相关投融资的 生态环保信息
本年度实际排放量(kg)	上年度实际排放量(kg)	温室气体排放核算方	法 配額清缴完成	始情况 排放	设施信息
869284170	1058853950	《中国水泥生产企》	业温室气体排放核 /	回转	窑、煤磨、生料磨、水泥磨、分

Figure 12 Carbon disclosure at Baoji Zhongxi Fenghuangshan Cement Co.

2023年度环境信息依法披露报告				
本年度实际排放量	2400565			
(KG)	2409000			
上年度实际排放量	1706000			
(KG)	1720000			
配额清缴信息	0			
排放设施信息	无			
温室气体排放核算	(总电量(度)*0.904kg(度)+(总用水量(吨)*			
方法	0.152(吨)=温室气体排放量			

Figure 13 Carbon disclosure of Yingde Conch Plastic Packaging Co.

3.3 Summary

From the disclosure results, 139 out of 180 key GHG emitters disclosed carbon emission data in their annual environmental information reports, a disclosure rate of 77.2 per cent; while 132 out of 232 non-key GHG emitters disclosed carbon emission data, a disclosure rate of 56.9 per cent. It can be seen that the disclosure rate of carbon emission information of key GHG emitters is significantly higher than that of non-key GHG emitters. This difference also suggests that key GHG emitters are paying more attention to the disclosure and transparency of carbon emission data under policy requirements and regulatory pressure.

In addition, the disclosure of carbon emission data is not only an important manifestation of the fulfilment of environmental responsibility by enterprises, but also the basis for promoting green and low-carbon transformation. The high disclosure rate of key greenhouse gas emitters reflects their positive attitude in addressing climate change and achieving the dual-carbon target, and also provides an important basis for the government and the public to monitor the carbon emission behaviour of enterprises. Although the disclosure rate of non-GHG key emitters is relatively low, with the gradual expansion of the scope of the policy and the government's increasing emphasis on low-carbon development, the standardisation and transparency of their carbon emission disclosure is also expected to be further enhanced in the future.

4、Communication and Feedback

At the beginning of the study, when PECC combed through the key GHG emitters in each region, PECC found that 12 provinces, including Shandong, Liaoning and Hunan, did not disclose the list of key GHG emitters in non-power generation industry, including building materials industry. PECC applied to 12 provinces for the list of key GHG emitters in non-power generation industry through public disclosure upon request.

As of the publication of the report, 11 provinces other than Shanxi have provided specific responses. Among them, Shandong, Zhejiang, Inner Mongolia and Guizhou provided a list of key GHG emitters for the non-power generation sector in 2023, and Shaanxi provided a list of key GHG emitters for the non-power generation sector in 2024. The remaining six provinces have indicated that only the power generation sector is currently included in the carbon emissions trading market, and the relevant lists have been made public as required. And according to the Notice on the Reporting and Verification of Greenhouse Gas Emissions of Enterprises in Selected Key Industries in 2023-2025 issued by the Ministry of Ecology and Environment¹⁵, provincial ecological and environmental departments should timely enter the lists of key GHG-emitting enterprises in petrochemicals, chemical industry, building materials, iron and steel, non-ferrous metals, papermaking, and civil aviation, etc., into the National Carbon Market Management Platform, but there is no requirement to make public the key emission lists of the above industries. Therefore, for the time being, it is not possible to disclose/provide the list of key GHG emitting enterprises in non-power generation industries.

¹⁵ Department of Ecology and Environment,

https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202310/t20231018_1043427.html

Also for this reason, although 41 of the 180 key GHG emitters did not disclose their carbon emission data, at the time of sending the letter, as some of the provinces where the enterprises are located did not disclose the list of key GHG emitters in the non-power generation industry, PECC ultimately sent a letter to 16 ecological and environmental bureaus of the regions where the 19 affiliated enterprises confirmed to be key GHG emitters and did not disclose their carbon emission information were located, of which Two enterprises in Wuzhong (Wuzhong Saima New Building Materials Co., Ltd. and Ningxia Shangfeng Mengsheng Building Materials Co., Ltd.) belong to the list of enterprises that are on the list of environmental information to be disclosed according to the law in 2023, but have not disclosed their annual environmental information reports.

Up to the release of the report, PECC has received 7 official replies from the Ecological Environment Bureau, all of which indicated that they would urge enterprises to disclose additional carbon emission information in 2023. And as verified by PECC, 5 enterprises have disclosed carbon emission information in the form of temporary disclosure. In addition, Wuzhong Jockey New Building Materials Co., Ltd. disclosed the annual environmental information report for 2023, while Ningxia Shangfeng Mengsheng Building Materials Co., Ltd. not only disclosed the annual environmental information report for 2023, but also disclosed the greenhouse gas emissions.

(1) Huaxin Cement (Enshi) Co.

	 ド新水泥(恩施)有限公司
	● 以下信息由企业提供,企业对其报送内容的真实性、合法性负责
年度报告 临时披露	2023 下载PDF
年度报告封面及扉页	碳排放情况
企业环境守法关键信息	
专业名称及术语解释	

Figure 14 Non-disclosure prior to letter

執意課題 執新設施 2023 協时招告封振及启贡 企业基本信息 執新製品店			T-BRPOF JSE [0]
日本赤环境行政许可新获得、変更、撤销等销况(迭) 不当思想表示涉及。 日本赤环境行政处罚情况 日本赤环境司法判決情况 不当思想表示涉及。 日本赤环境司法判決情况 「日本赤环境国法判決情况 「日本赤环境現実記信仰议情况(迭) 日本赤球境実変単件情况 「日本赤环境大変単件情況 「日本赤球境会商事項約20			
1 CJR/MP-V(Cla9-X-X In/A 支更申請 支更內容 支更依据附件	 环境信用行价等级: 2、华新水泥(图版)有限公司、 1、华新水泥(图组)有限公司环境信用行价等级为"温 量时间内电或履行。 7. 7期比企业环境信用行价系统"中环境信用行价等级 华新水泥(图定)有限 ④预送 主下载 	2023年還室气体排放。 1957 ; 2、华新水泥(愿施)有限公司2023年執利环节還室气体接放1 1957 "宣标"; 2、华新水泥(愿施)有限公司2023年還室气体接放板1	525275tCO2,朝時故議成为0.8377 tCO2/18;44;并且在成 直接書。
排放量	按指南核算的 企业法人边界 的温室气体排 放总量(tCO ₂ e)	按补充数据表填报的 二氧化碳排放总量 (tCO ₂)	企业法人边界的二 氧化碳排放总量 (tCO ₂)
初始报告的排放量 经核查后的排放量	548889 568267	531151 525275	548889 568267

Figure 15 Supplementary disclosure after letter sent

(2) Huaxin Cement (Hefeng) National Building Materials Co.

华新 公司 统一社 法定代 企业性 行业: 注册地	水泥 (鹤峰) 民族建材有限 会信用代码: 914228287606795386 遠人: 杜平 透: 合资企业 水泥、石灰和石膏制造 如: 湖北省恩施州鶴峰县	★平镇政府 肖家坪 漫水坪 高速地图 ◎ 2025 AutoNavi ¹¹ GS(2023)4677号
	① 以下信息由企业提供,企业对其报送内	容的真实性、合法性负责
年度报告 临时披露	2023	下载PDF
年度报告封面及扉页	碳排放情况	
企业环境守法关键信息	不涉及原因: 未计算	

Figure 16 Non-disclosure prior to letter

已披露环境信息变更情况			
交更事项	碶排放情况		
变更内容	2023年实际嵌排放量300803吨		
交更依据	温室气体排放核查报告		
立 图依据附件	核面接告.docx ©预定 土下載		
排放量	按指南核算的 企业法人边界 的温室气体排 放总量(tCO2e)	按补充数据表填 报的二氧化碳排 放总量(tCO ₂)	企业法人边界的二氧化碳 排放总量(tCO ₂)
初始报告的排放量	316698	300803	316698
经核查后的排放量	325083	300803	325083

Figure 17 Supplementary disclosure after letter sent

(3) Yatai Group Harbin Cement (Acheng) Co.

	亚泰集团哈尔滨水泥 (阿城) 有限公司 統一社会信用代码: 91230112686039785G 法定代表人:张瑞峰 企业性质:民营企业 行业:水泥制造 注册地址: 哈尔滨市阿城区松峰山镇三委		
	🕛 以下信息由该企业提供,企	2业对其报送信息的真实	性、合法性负责
年度报告 临时 临时报告封面及 一 已披露环境	波雷 (1) 🔲 2025年 庫页 编时报告正文 信息变更情况		▲ 協力披露2025-03-13 返回

Figure 18 Non-disclosure prior to letter

	亚泰集团哈尔滨水泥 (阿城) 有限公司 統一社会信用代码: 91230112686039785G 法定代表人: 张瑞峰 企业性质: 民誉企业 行业: 水泥制造 注册地址: 哈尔滨市阿城区松峰山镇三委	
	① 以下信息由该企业提供,1	全业对其报送信息的真实性、合法性负责
	 被痛 (1) 2025年 扉页 協时报告正文 信息交更情况 	▲ 临时披露2025-03-13 返回
变更事项: 变更内容:	碳排放情况 2024年信息披露过程中碳排放情况部分,填报时错误增服为不 涉及碳排放,实际企业2024年碳排放总量为757461吨	变更依据:根据本公司实际碳排放情况变更 更依据附件路径:

Figure 19 Supplementary disclosure after letter sent

(4) Sinoma Tianshan (Yunfu) Cement Co.

	第六节 碳排放信息
2023年本公司碳排放	权 核算上级主管部门未要求实施核算。
本年度实际排放量 (KG)	/

Figure 10 Non-disclosure prior to letter

广东省生态环境 Guangdong Enterprise Env	竟厅-企业环境信 ironmental Information Disclo	信息依法披露 Isure System Accord	晷 系统 ling to Law		
(計 百) 信息填服 [了。政策文件 🖉 企业名	A单 📄 披露振	浩 🗘 通知公告	2025-03-18 星	明二 16:43:39
■ 披露报告					
中材天山 按报告类型:	临时报告 🖌 按地市: 请选择	✔ 按企业类型: 请选择	✔ 时间范围:	至	查询
地市 企业名称	企业类型	预览报告	下载报告		披露时间
云浮市 中材天山 (云浮) 水泥有限公司	重点排污企业碳排放场配额管理的重点排	权交易市 预览 放单位	2025年企业环境信息依法披	雪临时报告 2	2025-02-24
				上一页	1 下一页
	第六节	碳排放信			
2023年本公司碳排放机	亥算上级主管部广]未要求实放	施核算。		
本年度实际排放量(K G)	/				
上年度实际排放量(K G)	1491887000				
配额清缴信息	无				

Figure 21 Supplementary disclosure after letter sent

(5) Huaxin Cement (Wuxi) Co.

Â	华新水泥 (武穴) 有限 统一社会信用代码: 91421182790591721R 法定代表人:梅向福 企业性质:民营企业 行业:水泥制造 注册地址:武穴市华新路1号	公司 大场遗址 全 一 一 一 一 一 一 一 一 一 一 一 一 一	^{沙坑} 动 新水泥
	❶ 以下信息由企业提供, ①	业对其报送内容的真实性、合法性负责	
年度报告 临时	1岐露		下载PDF
序号 企业名称		披露时间	操作
		暂无数据	

Figure 22 Non-disclosure prior to letter

华新水泥(武穴)有陽 防-社会信用代語:9142118275 法定代表人:梅吻補 企业性語: 民富企业 行型:水泥制础 注册地址:武穴市华新路1号	다. (18년년): 						
● 以下信息由企业提供,企业对其报送内容的需实性、合法性负责							
年度時音 Gattalage Cottalage Cottalag							
序号 企业名称		<u>地位期</u> 期1月63	握作				
1 华新水泥 (武穴) 有限公司		2025-03-18 17:45:15					
交更事項	公司2023年度温室气体排放报告						
变更内容	公司2023年度水泥生产企业温室气体排放报告						
交更依据	公司2023年意水泥生产企业温室气体得放报告已出具,补充提择2023年度初导放数据。						
交更终期附件	半新水混 (武穴) 有限 の預売 土下戦						
二、温室气体排放量 本报告主体温室气体排放总量如表2-1所示。							
表2-1 温室气体排放总量表							
		2	023年				
温室气体排放。	总量(tCO2)	27	702685				

(6) Ningxia Shangfeng Mengsheng Building Materials Co.

企业环境信息依法披露系统(宁夏)						登录 2025	登录 2025-02-25 周二 13:35		
■ 首页 / 披露名単 信息查询									
查询内容:	宁夏上峰萌生建材有限公司	披露年度:	2023		行政区域:	全部	~		
行业类别:	全部 ~	披露状态:	全部	~	报告类型:	年度报告	~		
								2 查询	こ重置
序号 年份	企业名称		行业类别		统一社会信用代码	行政区域(市)	行政区域(区县)	纳入企业名 单原因	操作
				暂无数据					

Figure 24 Failure to disclose annual report prior to letter writing

Figure 23 Supplementary disclosure after letter sent

企业3	不境信息依法披露系统(宁夏)	登录 2025-03-24 周一 14:53						
■ 首页 / 披露名单 / 宁夏上峰萌生	建材有限公司							
宁夏上峰萌生建材有限公司								
统一社会信用代码: 916403236 注册地址: 宁夏区吴忠市盐池县	704419489 法定代表人: 俞岳灿 转安蛋镇剪城村	行业: 水泥畅造(C3011)						
	以下信息由该企业提供、企业对其境限真实性、合法性负责							
■ 年度报告 2023 ∨								
报告封面及扇页 专业名词及术语解释 关键环境信息提要 企业其本信自动生产信息	生态环境行政許可变更情况: 无変化 污染物排放以及要排放情况: 本年度工业发气排放量为492607.35万立方米;二氢化旋排放量为166.4011; 氮氢化物排放量为159.0771	; 颗粒物排放量为394.356f; 企业宣室气体排放总量为1183088吨。						
12世紀会小田良以生产「自息 企业环境管理信息 企业污染物产生治理与排放信息 被排放信息								

Figure 25 Disclosure of annual reports and GHG emissions after letter sent

(7) Wuzhong Saima New Building Materials Co.

	企业环境信息依法披露系统(宁夏) 登录 2025-02-25 周二 13:35									
三首	三 首页 / 披露名单 信度查询									
	查询内容: 行业类别:	見忠赛马新型建材有限公司 全部 ∨	披露年度: 披露状态:	iii 2023全部	~	行政区域: 报告类型:	全部 年度报告	~		
									2 查询	の重置
Ē	婦子 年份	企业名称		行业类别		统一社会信用代码	行政区域(市)	行政区域(区县)	纳入企业名 单原因	操作
					暂无数据					

Figure 26 Failure to disclose annual reports prior to letter writing

企业3	不境信息依法披露系统(宁夏)	登录 2025-03-25 周二 13:47						
■ 首页 / 按题名单 / 吴忠赛马新型建材有限公司								
吴忠赛马新型建材有限公司								
统一社会信用代码: 91640303M	A76EK2Q12 法定代表人: 马军	行业: 水泥制造(C3011)						
注册地址: 吴忠市红寺堡区大河乡	·刘家沟清盐兴公路以南两公里、同土路以西							
	 以下信息由该企业提供,企业对其境报真实性、合法性负责 							
■ 年度报告 2023 ~								
报告封面及扉页	企业名称:							
专业名词及术语解释	吴忠赛马新型建材有限公司							
关键环境信息提要	统一社会信用代码:							
企业基本信息及生产信息	91640303MA76EK2Q12							
企业环境管理信息	报告年度: 2022							
企业污染物产生治理与排放信息	2025							
碳排放信息	2025-03-24							
强制性清洁生产审核信息	企业负责人承诺:							
生态环境应急信息	保证本年度报告内容的真实、准确、完整,不存在虚假记载、误导性陈述或重大遗漏,并承担相应的法律责任	E.						
生态环境行政处罚及司法判决情况	企业环保机构负责人承诺: 伊证本年度报告中环保教研究 直实 准确 宗教。							
本年度临时报告	承诺当時件:							
相关投融资的生态环保信息	宣看附件							

Figure 27 Disclosure of annual report after letter sent

5. Recommendations

In March 2025, the Ministry of Ecology and Environment issued the

*Opinions on Promoting the Voluntary Disclosure of Corporate Greenhouse Gas Information*¹⁶, which calls for the promotion of the voluntary disclosure of corporate greenhouse gas information, and encourages industry associations such as cement, iron and steel to organise industry enterprises to carry out the voluntary disclosure of greenhouse gas information on a pilot basis, taking into account the characteristics of the industry's emissions and the requirements of work on addressing climate change. This also means that with the continuous improvement of the policy, cement, iron and steel and other high-energyconsuming and high-emission industries need to continuously strengthen the transparent management of carbon emission data.

Currently, there are large differences in the disclosure of carbon information by cement companies, with only some companies disclosing key information such as energy consumption, carbon emissions and emission reduction targets. This unbalanced disclosure status quo not only affects the comparability of industry data, but also weakens the ability of outsiders to monitor and assess the effectiveness of companies' emission reduction. Therefore, we recommend:

5.1 Establishment of a mandatory carbon information disclosure system and expansion of disclosure coverage

Carbon information disclosure in most industries is mainly voluntary and lacks mandatory constraints, resulting in a lack of incentive for disclosure by some enterprises, especially non-priority emitting units. Therefore, we suggest that the regulator should introduce a mandatory carbon disclosure policy, requiring listed companies and all key GHG emitters to disclose carbon emissions data on a regular basis. The disclosure should include key data on direct emissions (Scope I), indirect emissions (Scope II) and supply chain emissions (Scope III), with clear disclosure formats and timeframes. Ensure,

¹⁶ Department of Ecology and Environment,

https://www.mee.gov.cn/xxgk2018/xxgk/xxgk05/202503/t20250303_1103199.html

through legislative or policy means, that enterprises fulfil their disclosure obligations, and impose penalties or restrictions on enterprises that fail to disclose as required.

Although the carbon emissions of non-priority emitters and small and medium-sized enterprises (SMEs) are relatively low, their total amount is still not negligible. Policy guidance and technical support can be provided to help these enterprises build their carbon disclosure capacity. For example, the Government can provide carbon accounting tools, training resources and guidance manuals to lower the technical threshold for disclosure. At the same time, it can encourage non-key emitters and SMEs to proactively disclose carbon emission data through the establishment of a "green enterprise" certification or incentive mechanism, so as to enhance their motivation to participate in emission reduction work. In addition, industry associations can also play a bridging role by organising exchanges of carbon disclosure experience among enterprises, so as to promote the improvement of the overall level of the industry.

5.2 Improve the quality of carbon disclosure and enhance the comparability and usefulness of data

Although some enterprises have disclosed carbon emissions data, the quality of disclosure varies and the comparability of data is relatively low. Therefore, regulators can formulate and promote unified standards for carbon emission accounting and disclosure, and clarify key elements such as accounting methodology, boundary scope and data sources. For example, reference can be made to the internationally recognised *Greenhouse Gas Accounting System* (GHG Protocol) or other relevant standards to ensure that enterprises adopt consistent accounting methods. At the same time, the disclosure standard should cover the full range of data on direct emissions, indirect emissions and supply chain emissions, and provide detailed explanations and illustrations to ensure the transparency and completeness of

the data.

In addition, in order to ensure the authenticity and reliability of the disclosed data, it is recommended that independent third-party organisations be introduced to audit and verify the carbon emission data of enterprises. The results of the audit should be an important part of the enterprise's environmental information report and made public. By strengthening data auditing and disclosure, not only can the credibility of the data be enhanced, but also the supervision of enterprises by the public and investors can be strengthened, and enterprises can be pushed to pay more attention to carbon information disclosure.

5.3 Promoting the integration of emission reduction targets and carbon disclosure

From the disclosure content, only 5 out of 16 A-share listed cement companies have disclosed their emission reduction targets, which indicates that most enterprises still lack initiative and sense of urgency in emission reduction planning. In order to change this situation, it is recommended that emission reduction targets be combined with carbon disclosure to promote enterprises to set and implement emission reduction targets.

It is recommended that regulators include the setting and disclosure of emission reduction targets in the mandatory requirements for carbon information disclosure, requiring enterprises to regularly publish their emission reduction targets and their progress in achieving them. The disclosure should include short-, medium- and long-term targets, as well as specific measures and investment plans taken to achieve the targets. By combining emission reduction targets with carbon information disclosure, enterprises will be promoted to shift from passive emission reduction to active planning, forming a benign competitive atmosphere for emission reduction in the industry.

The Government can use the setting and achievement of emission

reduction targets by enterprises as an important basis for policy incentives. For example, enterprises that set and achieve emission reduction targets will be given preferential policies such as tax exemptions, green credits and special financial support; enterprises that do not set targets or fail to meet them will be subject to enhanced supervision and the implementation of corresponding restrictive measures. Through a combination of policy incentives and constraints, enterprises will be encouraged to pay more attention to the setting and achievement of emission reduction targets.

5.4 Enhancing digitalisation and intelligence of carbon disclosure

With the rapid development of digital technology, the ways and means of carbon information disclosure should also keep pace with the times. It is recommended that the digitalisation and intelligence of carbon information disclosure be strengthened to improve the efficiency and accuracy of data collection, accounting and disclosure.

It is recommended that the Government and enterprises cooperate to develop and promote digital carbon management tools to help enterprises achieve real-time monitoring, automatic accounting and intelligent analysis of carbon emission data. For example, energy consumption and emissions data can be collected in real time through Internet of Things technology, and data analysis and forecasting can be carried out using big data and artificial intelligence technology to improve the accuracy and timeliness of carbon information disclosure.

5.5 Strengthening international co-operation and exchange of carbon information disclosure

Carbon information disclosure is not only an important part of domestic emission reduction work, but also a focus of attention for the international community. By strengthening international cooperation and exchanges on carbon information disclosure and participating in the formulation and revision

of international carbon information disclosure standards, we can not only enhance China's right to speak in the field of carbon information disclosure, but also improve the competitiveness of our enterprises in the international carbon market.

The Opinions on Promoting the Voluntary Disclosure of Corporate Greenhouse Gas Information also mention the need to strengthen international cooperation on corporate greenhouse gas information disclosure, and the need to strengthen the summarisation and dissemination of typical cases and good experiences of voluntary disclosure of greenhouse gas information that lead corporate climate action, so as to tell a good "Chinese story" of responding to global climate change to the outside world.

By establishing a mandatory carbon information disclosure system, improving the quality of disclosure, promoting the integration of emission reduction targets and information disclosure, strengthening digitalisation and intelligence, and enhancing international cooperation and exchanges, we can comprehensively enhance the coverage, quality and usefulness of carbon information disclosure in China. This will not only help to promote the green transformation of enterprises, but will also provide strong support for the Government in formulating emission reduction policies and achieving the "dualcarbon" goal.