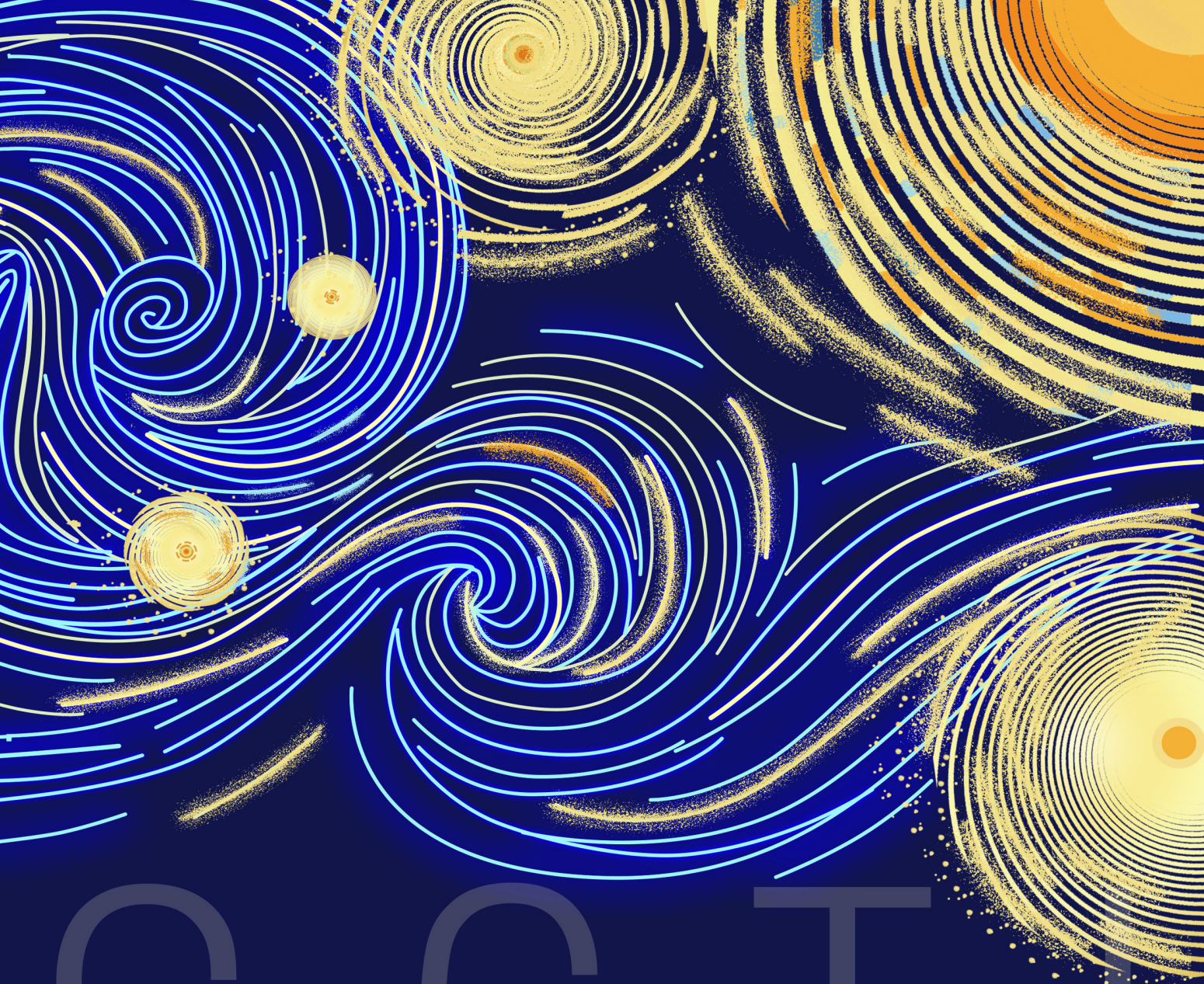

SCTI

Supply Chain Climate Action INDEX 2019

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

CDP
DISCLOSURE INSIGHT ACTION

Institute of Public and Environmental Affairs (IPE)

The Institute of Public & Environmental Affairs (IPE) is a non-profit environmental research organization registered and based in Beijing, China. Since its establishment in June 2006, IPE has collected government and corporate environmental information into a comprehensive database. IPE's two platforms – the Blue Map website and the Blue Map app – provide environmental data to serve green procurement, green finance and environmental policymaking, using cooperation between companies, government, NGOs, research organizations and other stakeholders to promote environmental information disclosure and improve environmental governance mechanisms.

CDP

CDP is an international non-profit that drives companies and governments to reduce their greenhouse gas emissions, safeguard water resources and protect forests. Voted number one climate research provider by investors and working with institutional investors with assets of US$87 trillion, we leverage investor and buyer power to motivate companies to disclose and manage their environmental impacts. Over 7000 companies with some 50% of global market capitalization disclosed environmental data through CDP in 2018. This is in addition to the over 628 cities and 122 states and regions who disclosed, making CDP's platform one of the richest sources of information globally on how companies and governments are driving environmental change. CDP, formerly Carbon Disclosure Project, is a founding member of the We Mean Business Coalition.

Authors

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Note：If any divergences arise between the English and the Chinese versions of this report, please refer to the Chinese version, which is the official version of the report.

Acknowledgements

This report was completed with the support of many parties. I would like to thank all those who shared their time and expertise with us.

Thank you to the brand companies evaluated in this report for your trust and support.

Many sincere thanks to the Heinrich Böll Foundation Beijing Representative Office, Alibaba Philanthropy, Ai You Foundation and SEE Foundation for providing financial support. The content and opinions of this report represent only the authors' personal views and are not related to the position or policy of these foundations.

Introduction

Due to past and present greenhouse gas (GHG) emissions, global warming has reached 1°C above pre-industrial temperature levels. Overwhelming evidence suggests that this increase will have a profound impact on ecosystems and human life. The Intergovernmental Panel on Climate Change (IPCC)'s latest Special Report on the Ocean and Cryosphere in a Changing Climate Change emphasizes that it is imperative to take timely and ambitious concerted efforts to address unprecedented long-term changes in the ocean and cryosphere.[1]

At present, global climate governance has entered a critical stage. Faced with adverse conditions such as the national economic downturn, U.S.-China trade war, and the U.S. withdrawal from the Paris Agreement, international climate action faces severe challenges and uncertainties. To keep global warming within 2°C to 1.5°C, the target defined in the Paris Agreement, new pathways must be pursued and market-based solutions that balance development and climate objectives will be essential.

Companies play an indispensable role in the implementation of the Paris Agreement. Across industries, companies on average report supply chain GHG emissions that are 5.5 times the volume of their direct emissions[2]. Economic globalization also continues to shift increasing supply chain emissions to emerging market countries, especially to China, which is still the workshop of the world. From another perspective, China's supply chain emissions hold great potential for multinational companies to achieve science-based carbon emissions reductions.

The restructuring of the Ministry of Ecology and Environment (MEE) began in March 2018 and the Ministry is now in the process of incorporating carbon emissions into the management mechanism for local pollutant emissions, which means companies with large supply chains in China need to be prepared.

To this end, IPE and CDP once again collaborated on Supply Chain Climate Transparency Index (SCTI) evaluation in 2019. The evaluation expanded from 118 brands in two industries to 440 brands in 19 industries, focusing on their progress and transparency on supply chain climate actions in China.

In addition to annual scores and rankings, the 2019 SCTI report also provides a larger section on methodologies and best practices for effective supply chain GHG emissions management. We hope that this practical guide can motivate companies to include emissions reduction requirements in their supplier procurement standards and incentivize suppliers to carry out emissions reduction actions with green procurement policies. Given the strong influence of commercial organizations, we believe that this will not only help China achieve its emissions reduction commitments, but also help brands fulfill their climate responsibilities by implementing bottom-up market incentives for the global fulfillment of the Paris Agreement.

SCTI Top 50

01 DELL 66	02 cisco 62	03 H&M 61	03 61	05 PUMA 60	05 Walmart 60
09 Gap Inc. 57	09 Hewlett Packard Enterprise 57	14 NOKIA 56	15 Levi's 54	16 INDITEX 53	17 UNIQLO 52
20 storaenso 49	20 NOVARTIS 49	20 FUJITSU 49	26 gsk 48	26 kao 48	26 lenovo 联想 48
33 Unilever 45	33 Coca-Cola 45	33 TESCO 45	33 Pfizer 45	33 General Mills 45	33 RICOH imagine. change. 45
45 PSA GROUPE 41	45 AkzoNobel 41	45 Canon 41	45 MARS 41	45 vodafone 41	45 HONDA 41

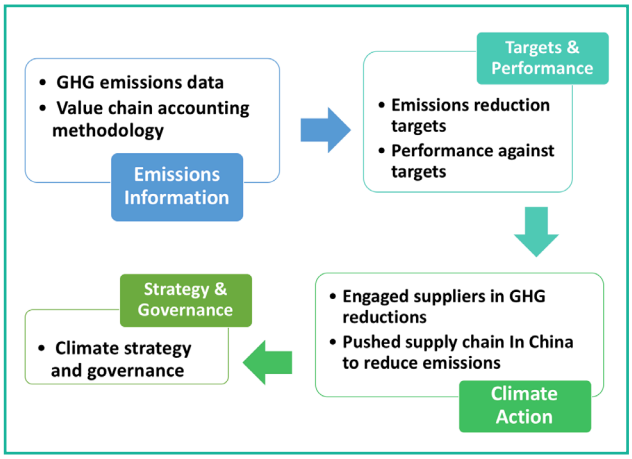
07 Microsoft 58	07 M&S EST. 1884 58	09 adidas 57	09 TARGET 57	09 hp 57
17 asics 52	19 L'ORÉAL 50	20 UPM 49	20 IKEA 49	20 pepsi 49
26 BURBERRY 48	26 BT 48	31 FOXCONN 47	32 PHILIPS 46	33 SONY 45
40 Electrolux 44	40 Nestlé 44	42 AB InBev 43	43 SAMSUNG 42	43 DSM 42
45 intel 41	45 BMW 41			

Note: Brands with the same ranking number are listed in no particular order.

SCTI Top 50

The SCTI report evaluates brand actions toward greenhouse gas emissions reductions in four major areas: emissions information, targets and performance, climate actions, and strategy and governance. The indicator system is based on existing initiatives and disclosure frameworks. It is an extension of the broader green supply chain Corporate Information Transparency Index (CITI) evaluation that is targeted to evaluate the management of greenhouse gas emissions in brand supply chains. It also has the guiding role of a roadmap and is designed to promote further corporate action. Supply chain GHG emissions reductions are deeply tied to global climate change governance.

In 2019, we expanded the SCTI evaluation[3] scope from 118 brands in two industries to 440 brands in 19 industries. The SCTI evaluation system this year focused on the development of supply chain efforts in China. The Top 50 brands in the IT and textile industries performed well, while other industries were led by several outstanding brands.



▲ The SCTI provides brands with a roadmap to reducesupply chain carbon emissions through these indicators

Evaluation Findings

1. Climate change has received increasing attention at international brand headquarters.

The average score of the SCTI Top 50, 49.5 points, is higher than the CITI Top 50[4] average score of 43.8, demonstrating more focus on climate action specifically, rather than broader green supply chain management. As international brands develop climate policies at brand headquarters, efforts to address climate change have been given higher priority, and attention from headquarters is more conducive to promoting emissions reductions in the long run.

Dell, which earned the highest evaluation score in 2019, not only set the goal of reducing the company's absolute emissions by 40%, but in its supply chain emissions reduction target, specifically required suppliers accounting for 95% of purchases to also set emissions reduction targets and report their emission

DELL Technologies

2020 Goal:

By 2020, Dell Technologies' suppliers representing 95% of direct materials spend, along with key logistics suppliers, will set specific greenhouse gas (GHG) emissions reduction targets and report on their emissions inventory

2020 Goal:

Reduce global absolute greenhouse gas (GHG) emissions, Scopes 1 and 2 ($MTCO_2e$) market-based, by 40% as compared to a FY11 baseline

cisco

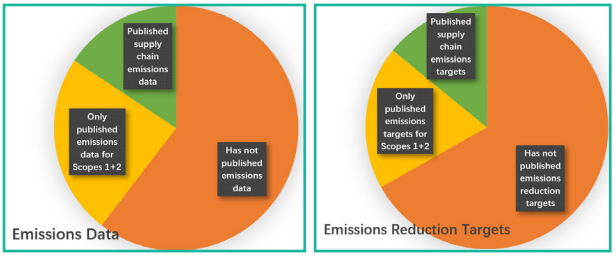
That is why Cisco is announcing two new goals to drive absolute GHG emissions reductions in our supply chain. We are committing:

- To reduce Cisco's upstream supply chain GHG emissions by 30% absolute by FY30 (baseline FY20)[1]
- That 80% of Cisco's component, manufacturing, and logistics suppliers by spend will have a public, absolute GHG emissions reduction target by FY25[2]

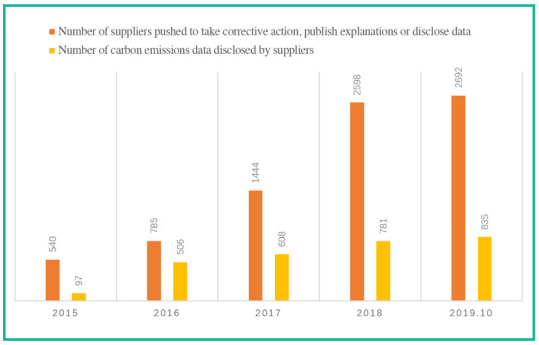
2. There is a gap between most brands' emissions reduction targets and their implementation.

In general, most brand targets lack a sufficient breakdown and implementation plan for the China supply chain, with the exception of a few leading brands such as Dell, Cisco, H&M, Nike and Puma that have already begun pushing their suppliers in China to reduce emissions.

Compared with the green supply chain CITI program that motivates nearly 3,000 companies a year to rectify pollution issues and provide public explanations, concerted climate action by SCTI Top 50 brands to push their suppliers in China to report carbon data is rare.



▲ 2019 SCTI evaluation of brand's public emissions data and emissions reduction targets



3. Chinese brands significantly lag behind in their supply chain climate actions.

The SCTI Top 50 includes only two Chinese brands, Lenovo and Foxconn, with only Lenovo from mainland China. Clearly there is a significant gap between Chinese and international brands in promoting the reduction of supply chain emissions, and there is an urgent need to fill this management gap.

Q&A

Why should companies manage greenhouse gas emissions from their supply chains?

More companies are starting to pay attention to carbon emissions management, but they often do not include supply chain emissions in their new policies. For the vast number of companies that outsource their production, to only pay attention to one's own direct emissions is to "see the trees without seeing the forest." According to research estimates, the greenhouse gas emissions of most industrial sectors primarily come from the supply chain (see the green sections below).[5]

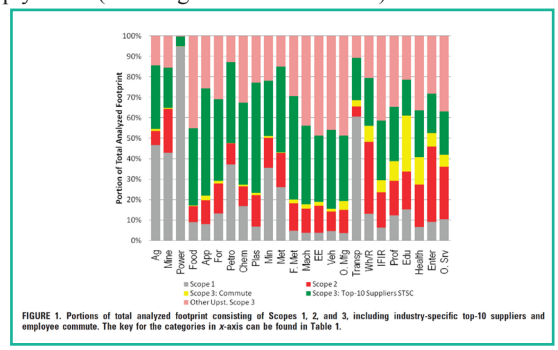
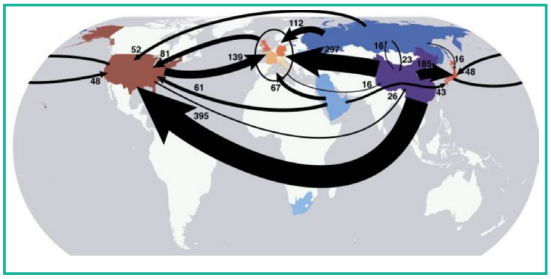


FIGURE 1. Portions of total analyzed footprint consisting of Scopes 1, 2, and 3, including industry-specific top-10 suppliers and employee commute. The key for the categories in x-axis can be found in Table 1.

▲ Industry carbon footprint analysis
(App-Textile, Apparels, & Shoes; Food-Food, Beverage, & Tobacco; EE-Electronics & Electrical Equipment; Chem-Chemical Products & Drugs)

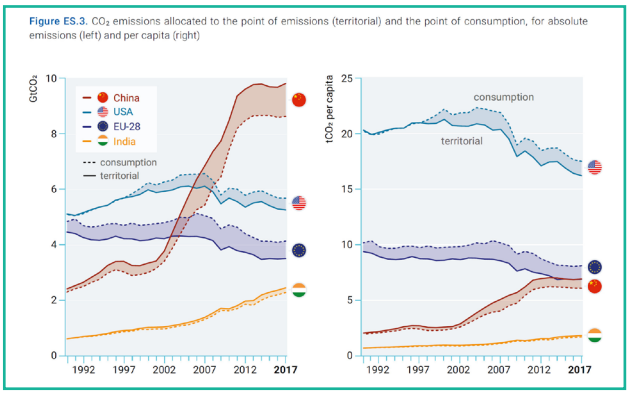
In today's globalized world, emissions from the supply chain are "transferred" to other countries, and about 25% of global greenhouse gas emissions are "indirectly" exported through products from the manufacturing country to consumers.[6]



▲ Carbon exports flow chart (Mt CO2/y)

Consumption-based emissions estimates in Emissions Gap Report 2019 released by the UNEP, shows that the net flow of embodied carbon is from developing to developed countries, even as developed countries reduce their territorial emissions this effect is being partially offset by importing embodied

Consumption-based emissions estimates in Emissions Gap this effect is being partially offset by importing embodied carbon, implying for example that EU per capita emissions are higher than Chinese when consumption-based emissions are included.



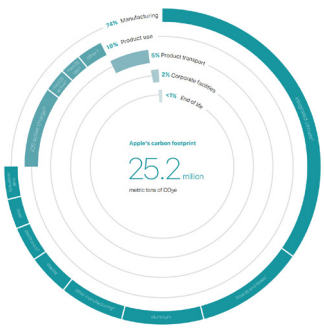
Getting Started

Understanding Science-Based Targets

The Science-Based Targets initiative (SBTi) was initiated by CDP, the World Resources Institute (WRI), the World Wildlife Fund (WWF), and the UN Global Compact (UNGC), and was included in the We Mean Business coalition platform as one of the required corporate commitments. Science-based targets are corporate GHG emissions reduction targets that are clearly consistent with the Paris Agreement goal of keeping global warming well below 2°C or 1.5°C. SBTi also requires that if a company's Scope 3 emissions exceed 40% of the company's total emissions (Scopes 1+2+3), a specific target needs to be set for Scope 3 (Please see the appendix for an introduction to emissions accounting scopes).

Best Practices

Apple calculates the carbon footprint of its products' lifecycles each year to understand potential emissions reductions that need to be addressed[7]. In 2018, Apple's carbon reductions came primarily from its Scope 3 emissions.



Q&A

How should suppliers measure and disclose their own greenhouse gas emissions?

Getting Started

In the process of building the national carbon market, China successfully issued a series of policies on GHG emissions reporting systems for key enterprises and industries, including the Greenhouse Gas Emissions Accounting and Reporting Guidelines for 24 Key Industries (Trial). The document lays the foundation for China's national Measurement, Reporting and Verification (MRV) system, a standard GHG emissions data management mechanism (Please see the appendix for an introduction to MRV accounting). Moreover, companies included in key emissions industries have already calculated and reported greenhouse gas emissions for three consecutive years.

Some regions are also promoting the establishment of a corporate greenhouse gas emissions information disclosure system. Since Shaanxi Province took the lead in requiring companies to disclose carbon emissions information in 2018, Sichuan and Jiangxi Provinces have successively put forward clear requirements for corporate carbon disclosure. The **Blue Carbon Map Database** now includes data on greenhouse gas emissions from a number of companies, including power, petrochemical, chemical, steel and cement companies with annual emissions exceeding one million tons of carbon dioxide equivalent (CO_2e).

▲ Blue Carbon Map Database

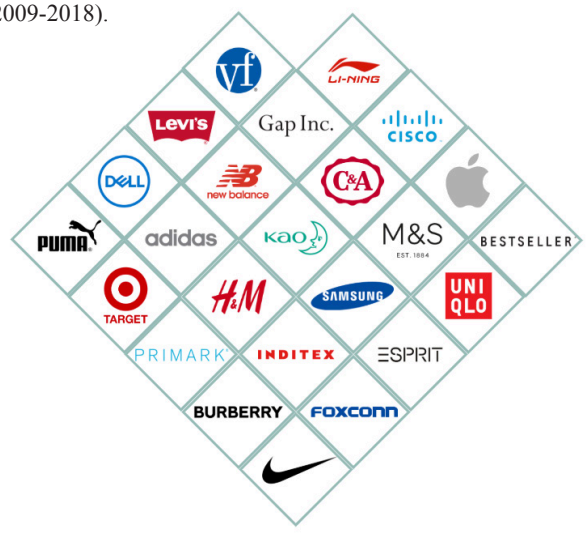
Best Practices

Considering China's present carbon emissions disclosure platforms, a unified disclosure mechanism has yet to be formed across the country, and only a few regions require that this data be disclosed. To this end, IPE developed a Pollutant Release and Transfer Registry (PRTR) data sheet for China in 2013 to provide suppliers with a platform to report and disclose enterprise-level energy and carbon emissions data.

IPE's PRTR Data Sheets

- Include both carbon emissions and local pollutants to address multiple data reporting needs;
- Include annual emissions data and progress on targets to facilitate self-evaluation and public disclosures on progress;
- Accurately benchmark mainstream carbon data indicators such as those from the CDP climate change questionnaire;
- Provide automatic check functions, which are then reviewed by IPE as a third party before the data is published.

At present, with the partnerships of 24 brands, more than 1,500 suppliers have published more than 3,500 sets of PRTR data through IPE's Blue Map Database, spanning nearly 10 years (2009-2018).

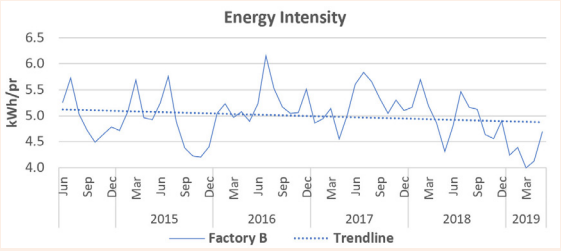


▲ Brands pushing suppliers to report PRTR data

The results of the 2019 SCTI evaluation show that **64** of the 440 brands collected at least one supplier's emissions information this year, and **24** brands are actively pushing their suppliers in China to measure and publish their own greenhouse gas emissions data.

Nike collects factory energy consumption data every month. The collection of energy consumption data not only reduces emissions and ensures progress toward overall emissions reduction targets, it also helps the factory.

For instance, this Nike factory analyzed its energy consumption data and set energy consumption as a key performance indicator for the shoemaking process to improve the design and reduce emissions from the source.



▲ Monthly energy consumption chart of a Nike supplier

Q&A

How do I set effective emissions reduction targets based on data?

Getting Started

Based on calculation results, select suppliers with relatively good conditions to set acceptable emissions reduction targets and promote their achievements.

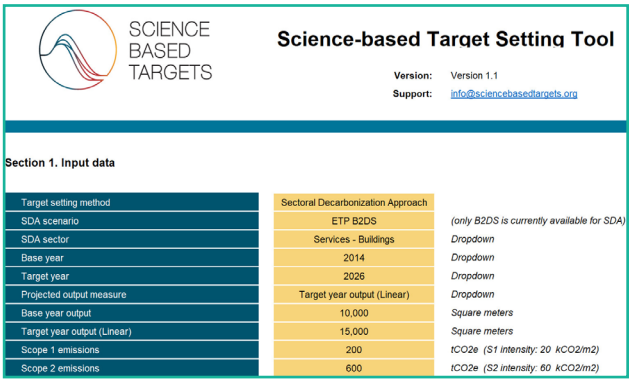
IPE is collaborating with expert organizations to develop a greenhouse gas emissions accounting platform suitable for Chinese enterprises, and to establish the platform according to the characteristics of industrial enterprise emissions. Based on the accounting data of industrial enterprises, the platform will be able to assist companies in setting basic emissions reduction targets. The industrial process accounting is expected to have a comparative function to identify key points in the process that need improvements.

▲ GHG accounting platform for Chinese enterprises (under development)

Best Practices

The preliminary goal of the Fashion Industry Charter for Climate Action signed by numerous fashion brands at COP24 is to reduce their total greenhouse gas emissions in Scopes 1, 2 and 3 by 30% by 2030.

The Science-Based Targets initiative can help companies set emissions reduction targets consistent with decarbonization levels that keep global temperature rise below 2°C. SBTi aims to provide companies with a clear development trajectory, including the speed and degree of emissions reductions the company needs. Although many companies have stated that they have the technology, expertise and innovation capacity for a low-carbon transition, more ambitious emissions reduction targets are still necessary to ensure that transition measures are consistent with the latest climate science.[8]



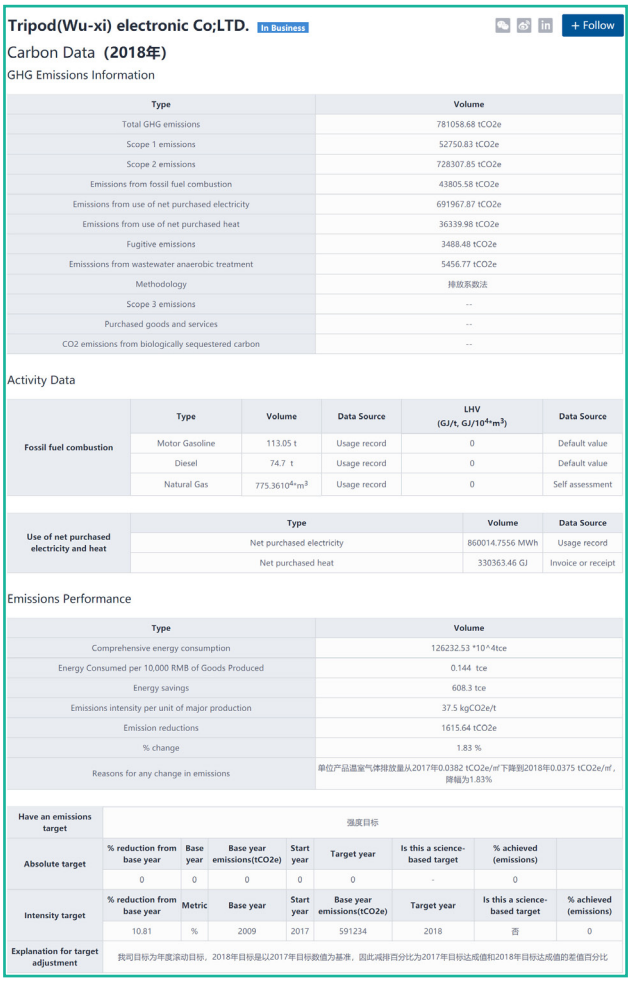
▲ Science-based Target Setting Tool[9]

Q&A

How do I motivate my suppliers to participate and continue to save energy and reduce emissions?

Getting Started

Based on the calculation and disclosure of PRTR data, brands can incentivize suppliers to set GHG emissions reduction targets, motivate them to develop emissions reduction projects, and disclose and evaluate targets and progress through annual PRTR data sheets.



Tripod(Wu-xi) electronic Co;LTD. In Business + Follow

Carbon Data **(2018年)**

GHG Emissions Information

Type	Volume
Total GHG emissions	781058.68 tCO2e
Scope 1 emissions	52750.83 tCO2e
Scope 2 emissions	728307.85 tCO2e
Emissions from fossil fuel combustion	43805.58 tCO2e
Emissions from use of net purchased electricity	691967.87 tCO2e
Emissions from use of net purchased heat	36339.98 tCO2e
Fugitive emissions	3488.48 tCO2e
Emisssions from wastewater anaerobic treatment	5456.77 tCO2e
Methodology	排放系数法
Scope 3 emissions	--
Purchased goods and services	--
CO2 emissions from biologically sequestered carbon	--

Activity Data

	Type	Volume	Data Source	LHV (GJ/t, GJ/$10^4$$m^3$)	Data Source
Fossil fuel combustion	Motor Gasoline	113.05 t	Usage record	0	Default value
	Diesel	74.7 t	Usage record	0	Default value
	Natural Gas	775.3610^4m^3	Usage record	0	Self assessment

	Type	Volume	Data Source
Use of net purchased electricity and heat	Net purchased electricity	860014.7556 MWh	Usage record
	Net purchased heat	330363.46 GJ	Invoice or receipt

Emissions Performance

Type	Volume
Comprehensive energy consumption	126232.53 *10^4tce
Energy Consumed per 10,000 RMB of Goods Produced	0.144 tce
Energy savings	608.3 tce
Emissions intensity per unit of major production	37.5 kgCO2e/t
Emission reductions	1615.64 tCO2e
% change	1.83 %
Reasons for any change in emissions	单位产品温室气体排放量从2017年0.0382 tCO2e/㎡下降到2018年0.0375 tCO2e/㎡，降幅为1.83%

Have an emissions target	强度目标							
Absolute target	% reduction from base year	Base year	Base year emissions(tCO2e)	Start year	Target year	Is this a science-based target	% achieved (emissions)	
	0	0	0	0	0	-	0	
Intensity target	% reduction from base year	Metric	Base year	Start year	Base year emissions(tCO2e)	Target year	Is this a science-based target	% achieved (emissions)
	10.81	%	2009	2017	591234	2018	否	0
Explanation for target adjustment	我司目标为年度滚动目标，2018年目标是以2017年目标数值为基准，因此减排百分比为2017年目标达成值和2018年目标达成值的差值百分比							

▲ Example of setting corporate emissions targets through PRTR data sheets[10]

The ten-year CDP Supply Chain Project is also driving suppliers to continuously reduce their impacts on climate change. By participating in supply chain management in cooperation with CDP, companies can identify risks and opportunities, set corporate emissions reduction targets, reduce energy consumption and waste, and implement sustainable commodity procurement. The CDP Supply Chain Project provides procurement companies with a supply chain management strategy that helps address climate, water and forest-related risks in the supply chain. In 2018, the project led more than 600 suppliers from Greater China to participate in the CDP environmental performance report. We have also seen brand companies that have cultivated the sustainable development of their supply chains for many years and continue to work with suppliers to strengthen climate action in this region.

Best Practices

Among the brands covered by the SCTI evaluation, **62** have set Scope 3 emissions reduction targets including the supply chain and **44** of them have received SBTi approval.

Fulfilling supply chain emissions reduction targets requires cooperation with suppliers. Some brands have made more specific requirements to motivate their suppliers to set their own emissions reduction targets and to promote the continuous participation of suppliers from the policy level.

Brand requirements for supplier target development

Dell	By 2020, Dell suppliers representing 95% of direct materials spend, along with key logistics suppliers, will set specific greenhouse gas (GHG) emissions reduction targets and report on their emissions inventory.
Cisco	80% of Cisco's component, manufacturing, and logistics suppliers by spend will have a public, absolute GHG emissions reduction target by FY25.
Adidas	2020 target: 20% reduction in energy consumption at strategic Tier 1 supplier facilities and strategic Tier 2 apparel material supplier facilities (2014 baseline).
Target	80% of Target's suppliers by spend covering all purchased goods and services will set science-based scope 1 and scope 2 targets by 2023.

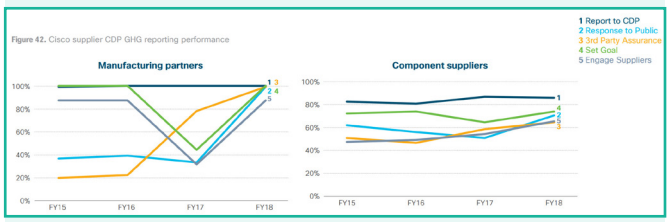
HPE	HPE commits that its manufacturing suppliers covering 80% of spend will set science-based targets by 2025.
Stora Enso	Stora Enso commits to have 70% of suppliers and downstream transportation suppliers in terms of spend set their own GHG reduction targets by 2025, towards the aim that these suppliers adopt science-based GHG reduction targets by 2030.
Pfizer	100% of key suppliers will manage their environmental impacts, including GHG emissions and 90% of key suppliers will institute GHG reduction targets by the end of 2020.

Dell, Cisco, and Target have been pushing their suppliers to report PRTR data, and have been involved in the CDP Supply Chain Project for many years. They have also simultaneously published responses to the CDP climate change questionnaire voluntarily disclosed by their suppliers in China on IPE's Blue Map Database. Dell has played a leading role in promoting data-sharing between the two platforms.

Cisco's Best Practices

-Report publicly
-Verify emissions through a third party
-Set a GHG emissions reduction target
-Engage their own suppliers

These practices have greatly improved the quality of greenhouse gas emissions data from the Cisco supply chain and ensure that Cisco's supply chain goal can be effectively achieved. Additionally, Cisco also updated its supplier guide to include PRTR reporting requirements this year.



▲GHG emissions management performance of Cisco suppliers[11]

Transparency is one of the basic requirements for Dell's supply chain to achieve the 2020 Legacy of Good Plan. To be transparent to achieve the 2020 Legacy of Good Plan. To be transparent to customers also requires supply chain partners to remain transparent and open. As one of the most important indicators for Dell to measure and evaluate suppliers' sustainable development, the GHG emissions reduction target of Dell's supply chain is listed at the top of the 2020 Goals Dashboard of the FY19 Corporate Social Responsibility report. At the same time, Dell conducted quarterly follow-up reviews of its suppliers' target setting and achievements. During the quarterly business performance review (QBR) process this year, it was found that some suppliers had set emissions reduction targets at the group level, but lacked targets at the factory level. There was no specific pathway to achieve the stated goal. To increase the probability of achieving our suppliers' goals, Dell now encourages and requires suppliers to break down their goals and implement them at the factory level, and further requires factories to set mid-to-long-term reduction targets in addition to long-term reduction targets for 2030, aligning them with Dell's 2030 social impact goals.

Dell has actively disclosed climate change data on the CDP platform since 2006 and has required its supply chain to disclose climate data since 2009, making Dell's supply chain climate data more transparent at the company level. At the same time, Dell has also required its suppliers in China to disclose PRTR data on the IPE platform since 2015. To date, more than 200 suppliers have published more than 500 sets of PRTR data. The disclosure and follow-up of emissions reduction targets for factory-level suppliers can be carried out through the latest revision of the PRTR GHG data sheet. At the same time, data cross-checking can be performed on the Blue Map Database platform. The emissions trend chart formed by the platform also helps users more intuitively evaluate supplier progress towards meeting emissions reduction targets.

Tips

Advantages of breaking down supply chain emissions data and emissions reduction targets in China

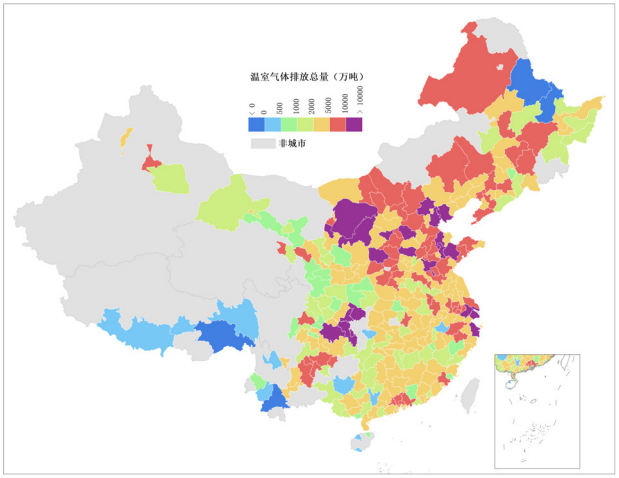
-Easily define management by specific regions
-Facilitate bottom-up data references and monitoring
-Achieve a more refined management of supply chain emissions

Resources

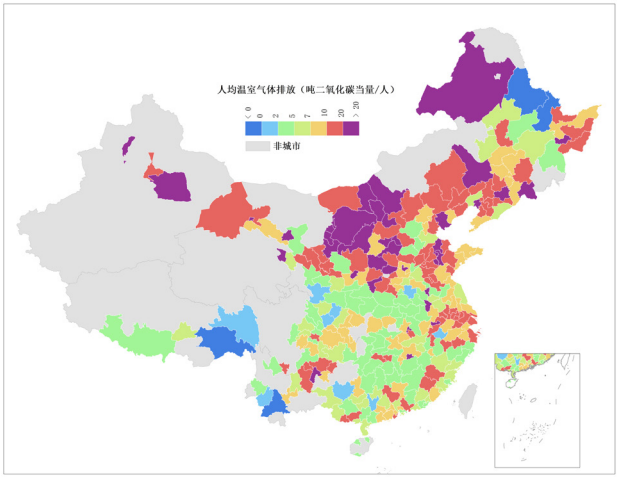
The Blue Carbon Map Database is China's first public greenhouse gas emissions database, covering regional and enterprise-level emissions data. The continuously accumulated data will become an important basis for brand companies to manage greenhouse gas emissions in their supply chains by identifying key regions and sources of emissions.

The total amount of GHG emissions in Chinese cities is generally high in the east and low in the west. The Top 10 cities with the highest total emissions are Shanghai, Chongqing, Tangshan, Tianjin, Yulin, Linfen, Binzhou, Suzhou, Beijing and Taiyuan. Cities with negative emissions are generally those with the sparse populations and low consumption of fossil fuel energy, as well as the presence of large forest carbon sinks, which cause the total emissions of these cities to be less than zero, showing negative emissions. Cities with relatively high per capita emissions and emissions per unit of GDP are dominated by high-carbon energy consumption, where industrial emissions account for a relatively high proportion of total emissions and the economy is still dependent on industrial production.[12]

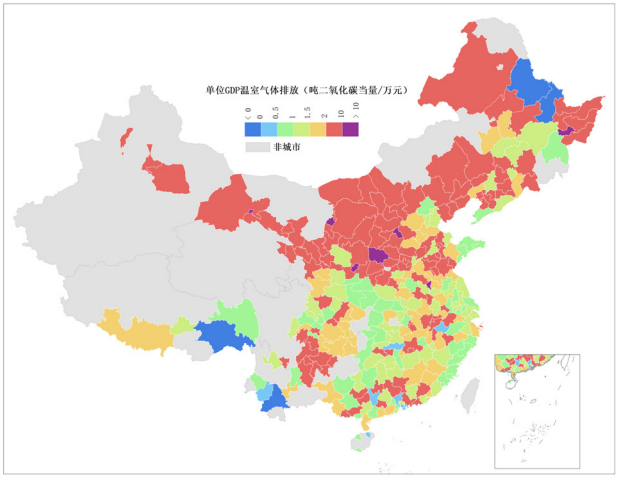
China Greenhouse Gas Emissions by City



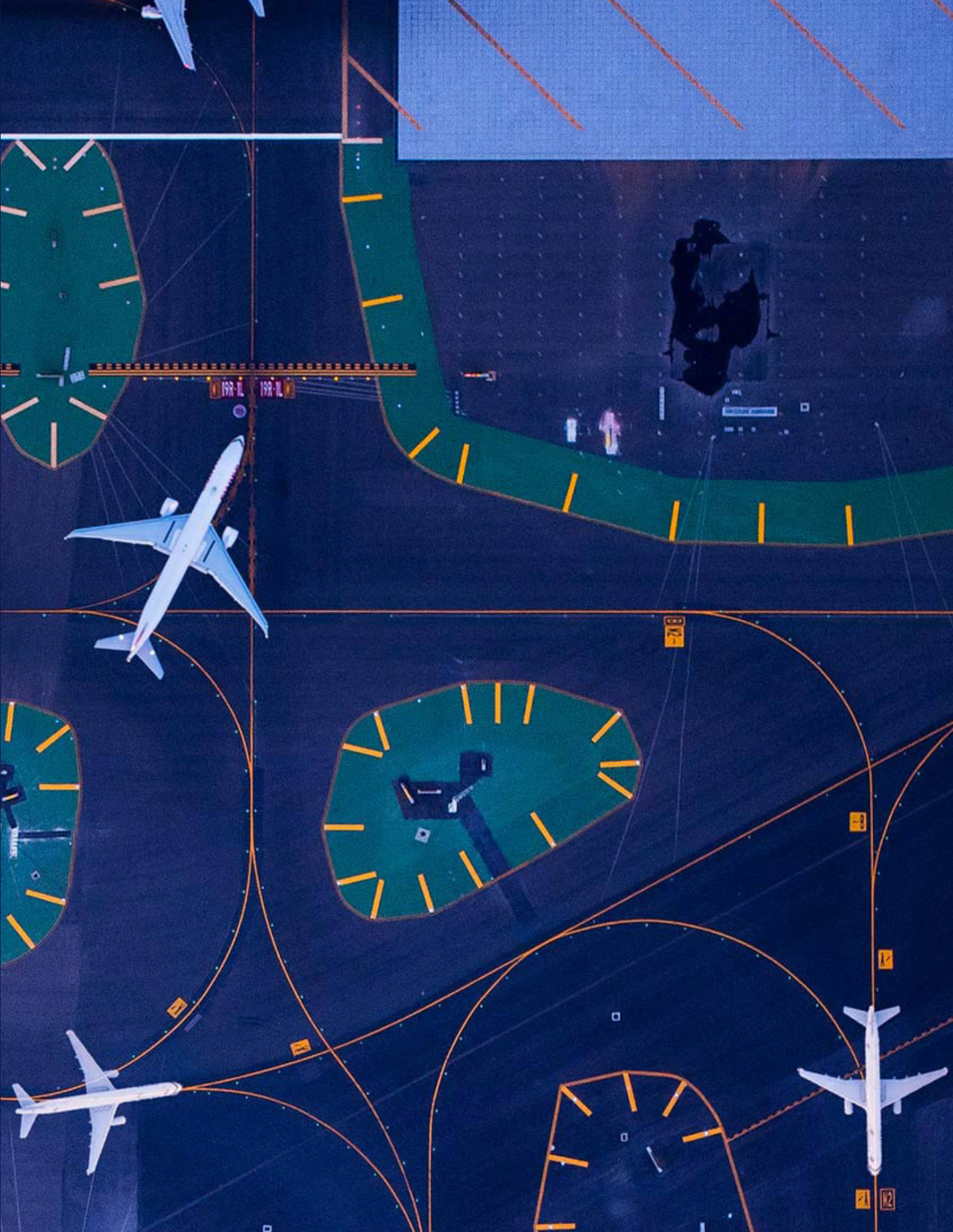
China Greenhouse Gas Emissions Per Capita by City



China Greenhouse Gas Emissions Per Unit of GDP by City



▲ Data Source: CHINA CITY GREENHOUSE GASES EMISSIONS DATASET (2015)



SCTI MASTER

The SCTI evaluation launched an “SCTI Master” designation, which aims to promote the establishment of a disclosure system based on Blue EcoChain tool in order to achieve refined management of the supply chain with the help of big data. Once designated a Master, the brand is no longer scored in annual SCTI evaluations, making room for a new top performer in the coming year.

SCTI Master Qualification Criteria:

1. Rank as a top performance brand in the annual SCTI;
2. Require all key suppliers to annually submit/disclose GHG emissions, reduction targets and monitoring progress through the Blue EcoChain or an equivalent automatic data system to ensure their accountability to the public.

BlueEcoChair 蔚蓝生态链

The 2019 SCTI Master is Apple. The Apple Supplier Code of Conduct requires suppliers to review their emission inventory and set targets to reduce emissions through conservation, clean energy, or other measures. Targets set by the supplier must include absolute reduction, normalized reduction, or both. Since 2013, Apple has pushed more than 200 suppliers to publish more than 600 sets of annual PRTR data. Most notably, the company has recently joined Blue EcoChain in 2019 and has committed to bringing all of its existing suppliers into the Blue EcoChain.

2019 SCTI Scores

Brand	Score	Brand	Score	Brand	Score	Brand	Score	Brand	Score
Dell	66	Canon	41	IBM	30	Disney	19	361°	6
Cisco	62	Honda	41	Sharp	30	Motorola	19	FILA	6
H&M	61	Intel	41	Tiffany	30	Abercrombie & Fitch	17	Chery	6
Nike	61	BMW	41	Solvay	30	Bridgestone	17	SIIC Envr	6
Puma	60	Vodafone	41	Hankook Tire	30	Volvo	17	FC ENVIRONMENT	6
Walmart	60	AkzoNobel	41	New Balance	29	Long Chen Paper	17	Columbia	5
M&S	58	Mars	41	Hitachi	29	CHANEL	17	Landsea	4
Microsoft	58	Groupe PSA	41	P&G	29	Li-Ning	15	Grandblue	4
Adidas	57	Volkswagen	38	Takeda	29	HTC	15	SAIC MOTOR	4
HP	57	ReckittBenckiser	38	Vanke	29	Swire Foods	14	CECEP	4
HPE	57	MICHELIN	38	Kraft Heinz	29	Next	14	Yanjing Beer	4
GAP	57	Google	38	Mercedes-Benz	29	Dystar	13	Clarks	4
Target	57	Bayer	38	Sanofi	29	Victoria's Secret	13	ecco	4
Nokia	56	C&A	37	Siemens	29	Prada	13	JAC	4
Levi's	54	Huawei	37	Mazda	29	Facebook	13	J.C. Penney	4
Inditex	53	Panasonic	37	HUGO BOSS	27	Mengniu	11	Vitasoy	4
Uniqlo	52	Danone	37	Fonterra	27	Boehringer-Ingelheim	11	Lee & Man Paper	4
ASICS	52	Ericsson	37	Hormel	27	Yili	11	Tsingtao	4
L'Oréal	50	Carlsberg	37	Toyota	26	SMIC	10	CR Sanjiu	4
IKEA	49	Johnson&Johnson	37	Carrefour	26	ZTE	10	Changan	4
UPM	49	Heineken	37	Oji Paper	26	Ralph Lauren	10	G-Star	4
Pepsi	49	Syngenta	37	APP	26	COOPERTIRES	10	SANYUAN	4
Novartis	49	Singtel	36	Eastman	26	Cortefiel	10	Shanying Paper	4
Fujitsu	49	Tommy Hilfiger	35	Clariant	26	EVERGRANDE	10	Great Wall	4
Stora Enso	49	Calvin Klein	35	SHISEIDO	26	Country Garden	10	GREE	4
Kao	48	DuPont	35	Mondelēz Intl.	26	YINGE	10	Hisense	4
Burberry	48	Cargill	35	Guess	25	Esquel	9	New Hope	4
Lenovo	48	BASF	34	Macy's	25	Kontoor	9	Chen Ming Group	4
GlaxoSmithKline	48	McDonald's	34	Bestseller	23	Ann Taylor	9	Jahwa	4
BT	48	Colgate-Palmolive	34	Toshiba	23	Lindex	8	Brightdairy	4
Foxconn	47	Seiko Epson	34	GE	23	Bosch	8	UGG	4
Royal Philips	46	Ford	34	Starbucks	23	Haier	8	Snowbeer	4
Tesco	45	Nissan	34	Whirlpool	23	Amazon	8	MOMA	4
Coca Cola	45	FCA Group	34	LG	23	Jinjiang Environment	7	Dongdu international	4
Pfizer	45	GM	34	Merck Group	23	Huntsman	7	ChiXia Development	4
General Mills	45	Merck & Co.	34	AVON	23	COFCO	7	Gold Mantis	4
Unilever	45	Asahi	34	Kate Spade	23	CPNE	7	zhenro	4
Sony	45	Henkel	34	COACH	23	Vinda	7	ENFI	4
RICOH	45	Dow	32	Arkema	23	Mothercare	7	Suitsupply	3
Nestlé	44	Lilly	31	SC Johnson	21	BYD	7	JEANSWEST	3
Electrolux	44	VF	31	TCL	20	MARY KAY	7	Nine Dragons Paper	3
ABInBev	43	Primark	30	Mizuno	20	Master Kong	7	SKYWORTH	3
Samsung	42	Hyundai	30	Esprit	20	Perfetti Van Melle S.P.A	7	Shanghai Electric	3
DSM	42	KIA	30	Everbright Intl.	19	ANTA	6	Sanfeng Envr.	0

Brand	Score	Brand	Score	Brand	Score	Brand	Score	Brand	Score
China Tianying	0	Tahoe	0	SHUANGDENG	0	DKNY	0	ROFFAR	0
Weiming Envr.	0	BRC	0	XINYA PAPER	0	LOCK LOCK	0	New Space	0
Conch Venture	0	Armani	0	Oishi	0	SUPOR	0	JUNFA	0
CIFI Group	0	Giordano	0	Kingstar Beer	0	Haitian	0	Golden Eagle	0
Anhui Xinyi Group	0	HTRH	0	Wahaha	0	Coconut Palm Group	0	Sunriver	0
HISUN	0	Joyoung	0	River Island	0	ASD	0	ruchen	0
Vantone Real Estate	0	Xiaomi	0	ROXY	0	CHAOYANG	0	sunkwan	0
SAMTAK	0	Samsonite	0	Hush Puppies	0	GITI	0	DaAi City	0
Hodo	0	Daphne	0	Sun Paper	0	Brilliance Auto	0	Dafa	0
SINYI	0	bluemoon	0	Umbro	0	BOSIDENG	0	AUX	0
Chengdu Jiaoda	0	mobike	0	Pierre Cardin	0	lepur	0	San Sheng Hong Ye	0
BSD	0	ofo	0	Lacoste	0	innisfree	0	huajian real estate	0
LUCKYKING	0	Spalding	0	HEAD	0	Costa	0	Sincere	0
TENHONG LAND	0	Nine West	0	Junlebao	0	NIVEA	0	Zhongda	0
Canvest	0	GEELY	0	Kangnai	0	Be & Cheery	0	TUNGHSU	0
Coop	0	C&S	0	MEIZU	0	Three Squirrels	0	Joyi	0
Tus-sound	0	Shuanghui	0	bluegogo	0	Bestore	0	SHOUGANG Envr.	0
SE Environment	0	Meters/bonwe	0	Genguquan	0	FUJIYA	0	BEIJING HUANWEI	0
Midea	0	Orchard Farmer	0	SENLI	0	HSU FU CHI	0	TIANFU	0
DYNAGREEN	0	KUMHO TIRE	0	QINGYUAN	0	Changhong	0	TIANLONG GROUP	0
Wanna Envr.	0	ERDOS	0	wondersun	0	KONKA	0	INTL.ENERGY	0
Shanghai Envir.	0	Nippon Paint	0	huishan	0	Tesla	0	yonker	0
OPPO	0	Kweichow Moutai	0	Pechoin	0	AUX	0	JUNXIN	0
Youngor	0	Yibin Wuliangye	0	Chando	0	PurCotton	0	FEIMA	0
Shengyuan	0	LMZ	0	Proya	0	Gloden Throat	0	YUNNAN WATER	0
CSG Envr.	0	Nice	0	Hanhoo	0	Taiji Group	0	WEAL	0
PEP	0	KFC	0	Unifon	0	Tong Ren Tang	0	Avic Renewable Energy	0
Benetton	0	Hengan	0	TIANYOU	0	Xifeng	0	DCEP	0
Herrel	0	Nongshim	0	Valentino	0	YANGHE	0	KRE	0
DONGFENG MOTOR	0	Beingmate	0	MUJI	0	Niulanshan	0	HUAGUANG SHARES	0
BAIC GROUP	0	Panpan Foods	0	K-BOXING	0	FEN JIU GROUP	0	HAIYING GROUP	0
MANGO	0	Huiyuan	0	HLA	0	GUJING GROUP	0	NENGDA HUAWEI	0
WENERGY	0	Yunnan Baiyao	0	Dicos	0	LUZHOULAOJIAO	0	Xiamen Municipal Constr. Group	0
JMC	0	WEIQUAN CORP	0	Burger King	0	Hello Bike	0	KNC	0
Yuen Foong Yu	0	NEXEN TIRE	0	kaimi	0	sunnyworld	0	XINDU HOLDINGS	0
Shengyun	0	YISHION	0	watsons	0	HUAYUAN	0	keqiaoshuiwu	0
BEHET	0	Hisense Kelon	0	Lafuma	0	TENTIMES	0	SEPG	0
Modern Farming	0	Tonlion	0	Toread	0	yahe	0	Chengde Heating Group	0
Want-Want	0	Semir	0	Whitecat	0	Xinyang	0	Zhongshan Public Utilities	0
Uni-president	0	vivo	0	Kappa	0	worldunion	0	Hangzhou Envr. Group	0
Dachan	0	Zhujiang Beer	0	Belle	0	Hisense	0	huimignhuanbao	0
Liby	0	Tranlin	0	Aokang	0	Kingdom	0	TEDAHB	0
COFCO PROPERTY	0	GAC GROUP	0	Nongfu Spring	0	DaHan	0	yingfeng	0
Central China Real Estate	0	HONGAN	0	CP	0	ZhongFang	0	DAJIHUANJING	0

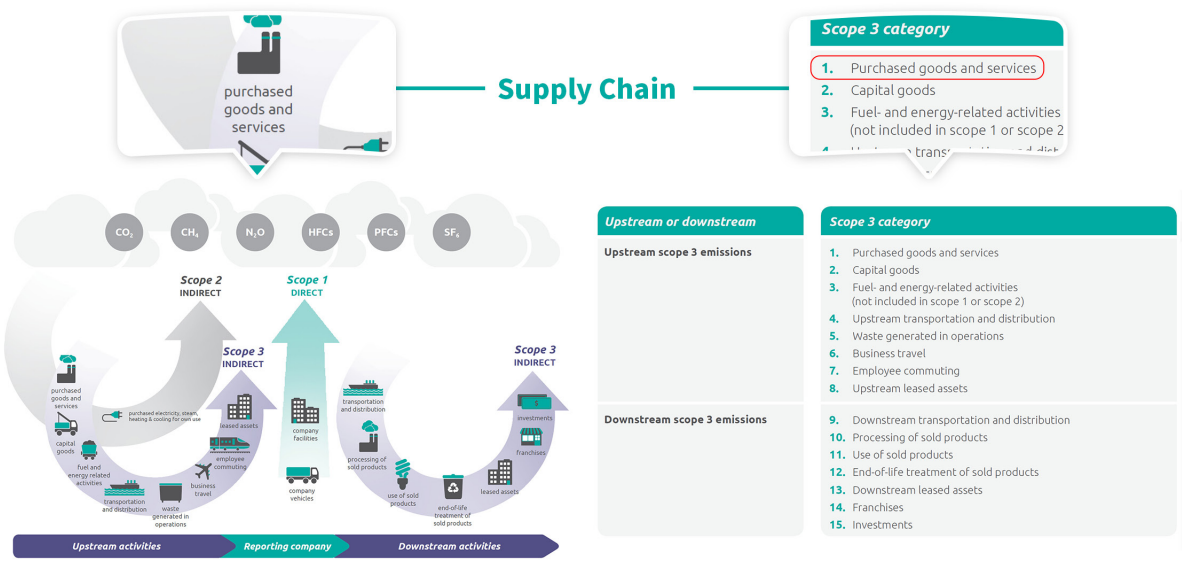
Definitions

Introduction to Scope 1, 2 and 3 GHG emissions[13]

Greenhouse Gas Protocol divides corporate-level greenhouse gas emissions sources into three categories: Scope 1, Scope 2, and Scope 3. To put it simply, Scope 1 emissions include all direct emissions, meaning emissions from sources that are directly controlled or owned by the accounting company. For example, greenhouse gases emitted by the company's own production processes or emitted by vehicles owned by the company.

Scopes 2 and 3 are indirect emissions. Scope 2 emissions refer to indirect emissions from the outsourcing of purchased electricity, steam, heating, cooling and other processes used by the enterprise. For example, purchased electricity, heating and cooling used in the production process, heating services purchased by company, etc.

Scope 3 emissions refer to all indirect emissions except Scope 2 emissions, including all emissions from the upstream and downstream company value chain, except for purchased electricity used by the company itself. For example, production emissions from the purchase of raw materials by the company, emissions from the use of products during the product life cycle, emissions from logistics, and so on. For enterprises in some industries, Scope 3 emissions are much higher than their own direct and indirect emissions (i.e. Scopes 1 and 2). Although they may account for the majority of total emissions, Scope 3 emissions are often ignored.



Carbon market MRV management mechanism[14]

Measurement (M) —— Standardize guidelines and accounting methodology statistics and measure greenhouse gas emissions data to ensure the accuracy and scientific quality of greenhouse gas emissions data. Try to conduct periodic accounting in a standardized manner, which will support the basic starting point for the entire carbon market.

Reporting (R) —— Develop reporting rules and data disclosure processes that ensure the accuracy and scientific quality of greenhouse gas emissions data. The MRV management mechanism of the carbon market should also set reporting rules for greenhouse gases that require companies or facilities involved in reporting to reach a prescribed threshold.

Verification (V) —— The third-party verification mechanism periodically verifies the collection and reporting of greenhouse gas emissions data, helping regulatory authorities to control the accuracy and reliability of data to the greatest possible extent and improving the credibility of overall greenhouse gas emissions reported results.

Endnotes

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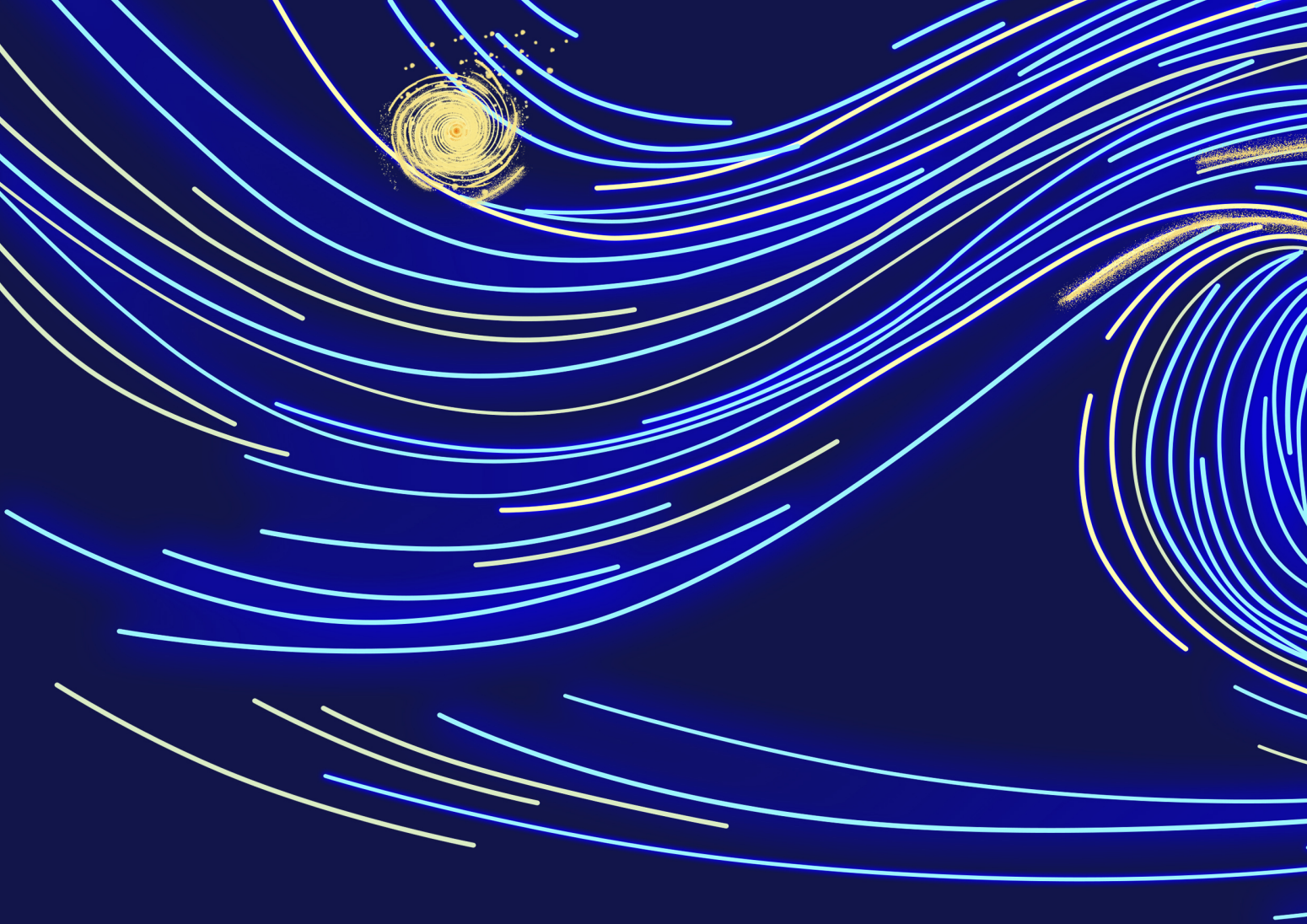
[13] CDP China Report 2018.

[14] ZHENG Shuang, ZHANG Xin, LIU Haiyan, YIN Lei, SONG Ranping. Supporting China National Carbon Market with Effective MRV for GHG Data. Beijing: World Resources Institute 2015. http://www.wri.org.cn/mrvcarbonmarket



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