



# China Power International Development Limited 中國電力國際發展有限公司

(incorporated in Hong Kong with limited liability)

(Stock Code : 2380)



# 2023

## Sustainability Report

# Contents

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China Power  
Official WeChat



China Power  
Mobile Website



# About This Report

## Introduction

This report issued by China Power International Development Limited discloses and presents its performance in terms of environmental, social and corporate governance (“ESG”).

In this report, “China Power”, the “Company” and “We” refer to China Power International Development Limited; and the “Group” refers to, collectively, the Company and its subsidiaries.

## Timeframe

Unless otherwise specified, this report covers the period from 1 January 2023 to 31 December 2023. To ensure the completeness of this report, the timeframe of some information has been extended backwards or forwards.

## Reporting Scope

The quantitative data in this report covers China Power and its subsidiaries within the scope of the consolidated financial statements during the same period, while the qualitative information covers China Power and its subsidiaries within the scope of the consolidated financial statements during the same period (excluding the Entrusted Assets, unless otherwise specified), as well as the joint ventures and associates that are recorded as interests in joint ventures and associates, respectively, in the consolidated financial statements of the Group (collectively, the “Assets”). Contents with other scopes differed from this have been explained in this report.

This report covers (i) any Assets that have been in continuing operation in 2023; (ii) any Assets that have been acquired or established during the year, commencing from the completion date/date of establishment of the relevant acquisition/Assets up to 31 December 2023; and (iii) any Assets that have been disposed of in its entirety during the year, commencing from 1 January 2023 up to the completion date of the relevant disposal.

## Data Sources

The sources of data for all information in this report include public data from government departments, official documents of the Company, public disclosure documents and relevant internal summary statistics. The financial data quoted in the report is derived from the audited financial information contained in the 2023 Annual Report of the Company. The monetary amounts involved in this report are denominated in RMB, the lawful currency of the PRC, unless otherwise stated.

## Basis of Preparation

This report has been prepared in accordance with Appendix C2 “Environmental, Social and Governance Reporting Guidelines” (the “SEHK ESG Guidelines”) of the Listing Rules and follows the reporting principles of materiality, quantitative, balance and consistency of the SEHK ESG Guidelines.

### Materiality

This report identifies the extent to which ESG-related matters affect various stakeholders by conducting a materiality issue assessment and focuses on responding to and disclosing issues with a higher degree of materiality.

### Quantitative

Through the establishment of an ESG indicator collection tool covering the headquarters and subsidiaries, ESG KPIs are presented in a measurable manner as far as practicable. The basis for the calculation of quantitative values and the caliber of statistics are also disclosed in this report.

### Balance

The contents of this report are derived from the Company's internal management documents, statistics and publicly disclosed information, disclosing both positive and negative indicators, reflecting the objective facts and presenting the performance of China Power in terms of ESG.

### Consistency

Unless otherwise specified, this report adopts the statistical method of disclosure consistent with the reports of previous years, and if the caliber of the indicator statistics changes, it will be annotated in the report.

This report is prepared with relevant reference to the Global Reporting Initiative's (GRI) Sustainability Reporting Standard, the SASAC's Guidance on the Implementation of Social Responsibility by Central Enterprises, Study on ESG Special Report Compilation for Listed Companies Controlled by Central Enterprises, as well as Sustainability Disclosure Standards of IFRS 2 – Climate-Related Disclosure, issued by the International Sustainability Standards Board (ISSB) and other relevant requirements.

## Date of Approval of the Report

This report was confirmed by the Company's Strategic and Sustainable Development Committee and approved and adopted by the Board in March 2024.

## Release of the Report

This report is available in simplified Chinese, traditional Chinese and English, all of which are in electronic form and may be obtained or viewed from the website of the Hong Kong Stock Exchange ([www.hkexnews.hk](http://www.hkexnews.hk)) or the Company's website ([www.chinapower.hk](http://www.chinapower.hk)).

## Response from Readers

In order to continuously improve the Company's ESG management level, enhance the quality of ESG information disclosure, and promote the practice of ESG development philosophy, we hereby seek readers' opinions on this report (please refer to Appendix III "Readers' Comments Form" for details), and invite readers to feedback their opinions to the Company's email address ([ir@chinapower.hk](mailto:ir@chinapower.hk)).



# Message from the Chairman

2023 was a year in which China Power forged ahead with its strategic transformation. Under the new stage and situation of global sustainable development, we seized the opportunity to take advantage of the momentum, and continued to strive hard and move forward. As a technologically innovative clean energy enterprise with international influence, we took it as our responsibility to lead the sustainable development of the global energy industry. We integrated ESG concepts into our corporate strategy and implemented them throughout various sectors and all processes of operation and management to continuously improve our ESG governance and risk management capabilities. We were firmly committed to the path of green development, setting an exemplary model for the low-carbon transformation of the energy industry. In addition, we gave back to the society at home and abroad with practical actions, demonstrating our responsibility and commitment as an industry leader.

**Adhere to the green and innovation empowerment, and embark on high-quality development guided by our “dual-wheel drive” strategy** ”

At present, actively responding to climate change and promoting green and low-carbon development have become a global consensus. In the face of the new situation of the energy revolution and the new demands of the “dual-carbon” era, we adhered to the “dual-wheel drive” of clean and low-carbon energy and strategic emerging industries, and continued to consolidate the advantages of our core clean energy business. We prompted the construction and commissioning of the large-scale new energy base projects, and optimized and adjusted existing coal-fired power assets comprehensively.

As at the end of 2023, the Group's consolidated installed capacity of clean energy accounted for 75.39% of total consolidated installed capacity, representing an increase of 10.45 percentage points over the same period previous year, and exceeding the strategic goal of the Company for this stage. Revenue and profit from clean energy<sup>1</sup> amounted to RMB22,443,180,000 and RMB4,099,541,000, respectively, accounting for 50.71% and 90.42% of total revenue and profit respectively. We actively participated in ecological environment management, successfully practiced and promoted the new mode and technology of “new energy + sand control”, and promoted the organic integration of new energy development and ecological protection and restoration. We continued to promote the refined management of carbon emissions, formulated the carbon peak action plan, comprehensively carried out green power and green certificate trading, and continued to enhance the value of clean and green power. In 2023, we completed the green power transactions of electricity amounting to 2,592,000MWh, and completed the trading of green certificates of 1,796,400.

Persisting in practicing the concept of innovation-driven sustainable development, we vigorously developed the strategic emerging industries, and accelerated the cultivation and value creation of strategic emerging industries such as novel energy storage, green power transportation, geothermal energy, photovoltaic colorization and decommissioned photovoltaic recycling, and integrated intelligent energy. Focusing on the three areas of “energy storage safety”, the deep integration of “Source-Grid-Load-Storage”, and “the in-depth decarbonization of high-carbon industries”, we vigorously promoted scientific and technological innovation and transformation of achievements. As at the end of 2023, a number of projects of the Company's emerging energy industry companies received awards at home and abroad (please refer to the section headed “2023 ESG Milestones and Innovation Achievements” for details). During the year under review, the Group was granted a total of 198 research and development patents. Continuous breakthroughs in scientific and technological innovation have provided strong endogenous impetus for the Company's high-quality development and green and low-carbon transformation.

<sup>1</sup> Clean energy includes hydropower, wind power, photovoltaic power, environmental power, natural gas power and energy storage businesses.

## Continuously reform and improve the governance structure to strengthen modern corporate governance



We are fully aware that good corporate governance is the cornerstone of high-quality corporate development. In this regard, we continued to improve our ESG governance structure by establishing the Strategic and Sustainable Development Committee under the Board during the year under review, which is responsible for monitoring and responding to climate change risks, and promoting the development of ESG governance and related mechanisms of the Group with a top-down approach. We actively explored scientific and efficient corporate development pathways. With an open attitude to benchmark the globally advanced corporate management experience, we continued to improve our corporate management model and modern corporate system. Meanwhile, we enhanced the level of standardized operations, improved the risk and internal control management system and generally practiced corporate governance in accordance with the law and regulations in every effort to promote integrity and compliant business operations.

We continued to further strengthen our strategic leadership, continuously motivated new vitality for corporate development in comprehensive reform and enhancement, and continued to create greater value for our shareholders and other stakeholders with advanced corporate governance capabilities and efficient operation and management.

In 2023, China Power's ESG management work was highly recognized by various sectors of the society. It was selected successively as one of the "Top 100 ESG Pioneer Among Listed Companies in China" and the "100 ESG Pioneer of Central Enterprises", and was awarded the "Responsible Top Bull Awards – ESG Dual Carbon Pioneer" (責任犇牛獎 • ESG 雙碳先鋒). The integration and development of ESG concepts with the Company's governance and operation has achieved significant results.

## Adhere to jointly-creating and sharing results to help unleashing social benefits



We have always adhered to the business philosophy of "mutual achievement, connection with society", and maintained in-depth communications with all stakeholders to develop with them hand in hand, and to achieve mutual growth and common achievements. We took action to actively fulfill our social responsibilities and give our fruits of corporate development back to the society so as to create social value continuously.

Internally, adhering to our people-oriented aspiration, we have established the sound system of employee rights and interest protection and talent cultivation. We have improved the selection and appointment mechanism, support employees' professional development, safe guard their occupational health and safety, and carry out employee care activities on a regular basis, so as to create a stable, safe and comfortable working environment. We attach great importance to the opinions and feedback of employees and listen to their voices. We regularly conduct employee satisfaction survey to timely identify and address their concerned issues, continuously improving their engagement and sense of belongings. In 2023, the Company conducted a number of employee satisfaction surveys and the employee's satisfaction towards the Company remained at a relatively high level in general.

Externally, we actively explored "new energy + intelligent agriculture", transportation and energy integration, construction and photovoltaic power integration and other development modes to promote the green development of local economies. Being empowered by technology to safeguard people's livelihoods, and relying on technologies such as energy storage, color photovoltaic, and PEDF. We have also designed and constructed "Emergency Safe Shelters" with functions such as "uninterrupted power supply" during emergencies to ensure the basic living needs of people. In December 2023, after the earthquake occurred in Gansu Province, we actively fulfilled our social responsibility by setting up "Gansu Disaster Relief Action" team. We helped to construct five emergency safe shelters in the disaster-stricken areas, and fully activated "technological support" to the people in the disaster areas to help victims to settle down steadily until the post-disaster resettlement.

In addition, we have continued to enhance the level of international development, deepen international cooperation and exchanges, and help to improve the level of development of the host country's environmental protection, health care, education and equity and other livelihood areas, making positive contributions to the economic and social development of the countries and regions where the Group's projects are located. In July 2023, the first integrated intelligent energy project invested and constructed by Wu Ling Power in Bangladesh was officially connected to the power grid for power generation. The project provided more than 1,500 local jobs and laid the foundation for the sustainable development of Bangladesh's energy industry while promoting local employment.

Looking ahead, we will advance forward our strategic development, and maintain our strategic focus on our vision and goal of "building a world's leading technology innovation-driven green and low-carbon energy provider". We will adhere to integrity and innovation, develop clean energy with high quality, and lead the development of emerging industries. We will improve the performance of ESG governance, practice the concept of sustainable development and actively fulfill our social responsibilities. We are marching together with our stakeholders for a win-win solution, and embarking on the green and low-carbon journey to co-build a prosperous future!

HE Xi  
Chairman of the Board  
China Power International Development Limited

# About China Power

## Company Profile

China Power was incorporated in Hong Kong with limited liability under the Hong Kong Companies Ordinance on 24 March 2004 and is a core subsidiary of SPIC, which is an integrated energy group that simultaneously owns thermal power, hydropower, nuclear power and renewable energy resources in the PRC.

The Company was listed on the Main Board of the Hong Kong Stock Exchange on 15 October 2004 with the stock code 2380. From the beginning of solely engaging in generation and electricity sales of coal-fired power, the Company has expanded its business into the areas of, among others, hydropower, wind power, photovoltaic power, natural gas power, environmental power, energy storage, green power transportation and integrated intelligent energy services through continuous development. Various business segments have been kept growing along with the constant expansion of the Group.

As of 31 December 2023, the Group's total consolidated installed capacity was 45,018.8MW, of which the consolidated installed capacity of clean energy was 33,938.8MW, accounting for 75.39% of the total consolidated installed capacity.

## Corporate Culture



### Corporate Vision

The World's Leading Green and Low-carbon Energy Provider



### Purpose and Mission

Lower Carbon  
Empower Better Life



### Core Philosophy

Green-empowerment, Intelligent  
Innovation and Mutual Achievement

## Business Segments

### Power Supply

- Photovoltaic Power
- Wind Power
- Hydropower
- Clean Coal-fired Power
- Natural Gas Power
- Agricultural and Forestry Biomass Power
- Environmental Power

### Energy Services

- Integrated Intelligent Energy
- Energy storage
- Green Power Transportation
- Construction of Low-carbon and Zero-carbon Beautiful Countryside
- Zero-carbon Power Plant
- Colored Photovoltaic and Recycling of Obsolete Photovoltaic Modules

### Industries Synergy

- Nuclear Power Inspection and Maintenance
- Power Plant Services
- Power Generation By-products
- Electricity Sales and Distribution
- Carbon Trading Services
- Investment Holding

## Installed capacity

Indicator	Unit	Value in 2023	Value in 2022	Change
Consolidated installed capacity of clean energy	MW	33,938.8	20,519.2	65.40%
Proportion of consolidated installed capacity of clean energy	%	75.39	64.94	10.45 percentage points
Total consolidated installed capacity	MW	45,018.8	31,599.2	42.47%
Of which: Hydropower	MW	5,951.1	5,451.1	9.17%
Wind power	MW	12,016.1	7,189.3	67.14%
Photovoltaic power	MW	15,149.4	7,206.6	110.22%
Natural gas power	MW	505.2	475.2	6.31%
Environmental power	MW	317.0	197.0	60.91%
Coal-fired power	MW	11,080.0	11,080.0	–

## Clean power generation

Indicator	Unit	Value in 2023	Value in 2022	Change
Clean energy power generation	MWh	49,460,300	40,999,427	20.64%
Of which: Hydropower	MWh	11,899,963	18,373,926	-35.23%
Wind power	MWh	18,977,272	11,155,405	70.12%
Photovoltaic power	MWh	14,810,116	9,924,832	49.22%
Natural gas power	MWh	2,120,567	1,171,078	81.08%
Environmental power	MWh	1,652,382	374,186	341.59%
Equivalent CO <sub>2</sub> emissions reduction	ton	32,928,961	26,102,786	26.15%

# Business Distribution

As at 31 December 2023, the Group's wholly-owned and controlled power plants presented by region are as follows:

Photovoltaic Power	Region
	<p>Henan, Anhui, Shanxi, Liaoning, Hubei, Guangdong, Guizhou, Shandong, Heilongjiang, Beijing, Guangxi, Tianjin, Xinjiang, Jiangxi, Hebei, Jiangsu, Ningxia, Hunan, Gansu, Fujian, Hainan, Sichuan, Yunnan, Inner Mongolia, Zhejiang, Shaanxi, Jilin</p>

Wind Power	Region
	<p>Xinjiang, Hunan, Inner Mongolia, Gansu, Yunnan, Shanxi, Anhui, Guangdong, Guangxi, Shandong, Henan, Qinghai, Heilongjiang, Jiangsu, Hubei, Shaanxi, Ningxia, Liaoning</p>



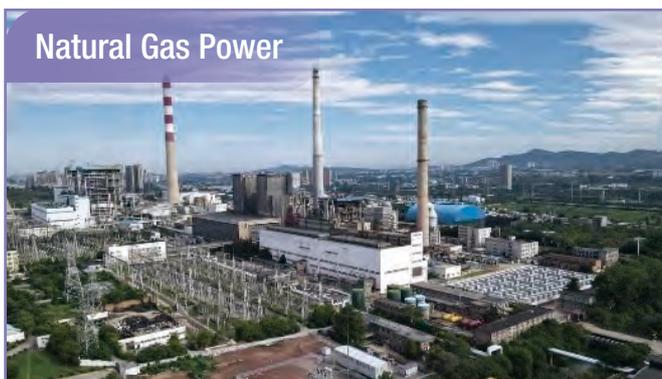
**Region**

Hunan, Guizhou, Sichuan, Guangxi



**Region**

Anhui, Henan, Sichuan, Shanxi, Guizhou



**Region**

Hubei, Guangdong, Jiangsu, Sichuan



**Region**

Hainan, Sichuan, Henan, Hebei,  
Heilongjiang

# 2023 Performance Highlights



## Business performance

Total assets (RMB'000)	2023 2022	305,806,779 211,404,964	44.65%	↑
Revenue (RMB'000)	2023 2022	44,261,767 43,689,129	1.31%	↑
Net profit (RMB'000)	2023 2022	4,533,955 2,685,338	68.84%	↑
Consolidated installed capacity (MW)	2023 2022	45,018.8 31,599.2	42.47%	↑
Consolidated installed capacity of clean energy (MW)	2023 2022	33,938.8 20,519.2	65.40%	↑
Total electricity sales (MWh)	2023 2022	103,239,505 108,170,802	-4.56%	↓



## Governance performance

Number of Board meetings held (times)	2023 2022	9 9		
Percentage of independent non-executive Directors (%)	2023 2022	42.86 42.86		
Total number of anti-corruption trainings conducted (times)	2023 2022	588 465	26.45%	↑



## Environmental performance

Clean energy power generation (MWh)	2023 2022	49,460,300 40,999,427	20.64%	↑
Proportion of consolidated installed capacity of clean energy (%)	2023 2022	75.39 64.94	10.45 percentage points	↑
Equivalent CO <sub>2</sub> emissions reduction (ton)	2023 2022	32,928,961 26,102,786	26.15%	↑
Net coal consumption rate (g/kWh)	2023 2022	298.72 302.37	-1.21%	↓
Density of SO <sub>2</sub> emissions (g/kWh)	2023 2022	0.04 0.07	-42.86%	↓
Density of NO <sub>x</sub> emissions (g/kWh)	2023 2022	0.09 0.13	-30.77%	↓
Density of flue gas and dust emissions (g/kWh)	2023 2022	0.005 0.008	-37.50%	↓
Density of greenhouse gas emissions (g/kWh)	2023 2022	456.42 548.06	-16.72%	↓
Sales of carbon emission allowances (tCO <sub>2</sub> e)	2023 2022	2,240,224 0	N/A	



## Social performance

### Customers

Number of service-related complaints received (case)	2023	0	]	.....
	2022	0		

Customer satisfaction (%)	2023	100	]	.....
	2022	100		

### Technological innovation

R&D expenses (RMB'000)	2023	306,351	]	34.09%	↑
	2022	228,469			

Total patents granted during the year (patent)	2023	198	]	16.47%	↑
	2022	170			

### Employee

Total hours of employee training (hour)	2023	965,950	]	31.47%	↑
	2022	734,720			

Total investment in employee training (RMB'000)	2023	94,523.5	]	140.49%	↑
	2022	39,304.6			

Overall employee turnover rate (%)	2023	4.76	]	0.89 percentage points	↑
	2022	3.87			

### Social welfare

Total charity donation (RMB)	2023	3,142,800	]	-7.47%	↓
	2022	3,396,500			

## New Key Performance in 2023

Governance performance 	Indicator	Unit	Value in 2023
	Total number of business ethics trainings	times	453
	Total hours of risk control-related training	hour	158
	Total hours of audit and internal control-related training	hour	803
	Total hours of legal compliance training	hour	91
	Total number of information security training	times	42

Environmental performance 	Indicator	Unit	Value in 2023
	Investment in environmental protection	RMB billion	0.176
	Comprehensive energy consumption intensity	gram of standard coal/kWh	196
	Recycling rate of water resources	%	93.14
	Number of environmental protection training	times	495

Social performance 		Indicator	Unit	Value in 2023	
	Suppliers		Number of suppliers	supplier	8,029
			Proportion of new suppliers selected based on environmental and social criteria	%	75.07
			Number of supplier training or capacity building activities	times	6
	Technological Innovation		Number of scientific research training activities	times	37
			Number of technological innovation platforms awarded during the year	platform	8
			Number of industry-university-research partners	partner	76
			Number of technological innovation projects carried out during the year	project	338
			Number of honorary awards for technological innovation	award	23
	Employee		Number of shares held by employees	share	93,060,000
			Total investment in employee care and assistance	RMB'000	24,537.7
			Occupational health screening coverage	%	100
	Social welfare		Donated education fund	RMB	300,000
			Cumulative number of students assisted	person-times	1,058

# 2023 ESG Milestones and Innovation Achievements

## January

### China Power's first centralized photovoltaic project in the new year was connected to the power grid successfully

The 100MW Integrated Photovoltaic Sand Control and Husbandry Promotion Demonstration Project of China Power Zhongping New Energy in Dalad Banner was successfully connected to the power grid for the first time. As a shining project in Kubuqi, it is the first centralized photovoltaic project connected to the power grid of China Power in the new year.



## March

### Xinyuan Smart Storage attended China International Clean Energy Expo with its core technology

China International Clean Energy Expo (CEEC 2023) opened in Beijing. Xinyuan Smart Storage presented its core energy storage technology and professional system solutions in the exhibition.



## February

### China Power's first overseas energy storage project was officially inaugurated in Sonora, Mexico

This project is an ancillary energy storage project for the photovoltaic power station in Puerto Peñasco Port, which is the first government-level solar power project of Mexico, with a capacity of 12MW/24MWh. The Company has customized the "Puerto Peñasco Solution" for this project, and the equipment at all levels of the energy storage system meets and exceeds international standards, which has been visited and applauded by the President of Mexico.



## March · Xinyuan Jinwu

Won the 2022 First Prize of Scientific and Technological Progress of All-China Environment Federation

May

China Power achieved groundbreaking progress in wind power projects in Liaoning Province

CP Chaoyang 250MW Integrated Intelligent Wind-and-Energy Storage Wind Power Project was successfully connected to the power grid for the first time, realizing a groundbreaking progress for China Power’s wind power projects in Liaoning Province. Located in Chaoyang County, Chaoyang City, Liaoning Province, with a total investment of RMB1.58 billion, the CP Chaoyang 250MW Integrated Intelligent Wind-and-Energy Storage Wind Power Project has a total installed capacity of 250MW, with 50 single-5MW wind power turbines installed.



June - Qiyuanxin Power

Received the “China Battery-Swap Technology Innovation Award” and “Charging & Battery Swapping Industry Role Model” in the Gold Brick Charging & Battery Swapping Forum

April

China Power won various awards at the 11th Energy Storage International Conference and Expo

Mr. HE Xi, the Chairman of the Board, attended the 11th Energy Storage International Conference and Expo as a member of the 4th Standing Committee of the Energy Storage Alliance and was granted the “2022 Person of the Year for Energy Storage Award” at the Opening Ceremony and Energy Storage Innovation Competition Award Presentation Ceremony. In addition, the Haiyang 100MW/200MWh Energy Storage Power Station and Jining 100MW/200MWh Energy Storage Power Station projects of Xinyuan Smart Storage were honored with the awards of “2022 TOP10 Energy Storage Application Innovation Model” and “2023 TOP10 Energy Storage Application Innovation Model” respectively.



June

China Power was included in the list of “Top 100 ESG Pioneer Among Listed Companies in China”

At the “China ESG (Corporate Social Responsibility) Presentation” and Celebration Event, China Power was successfully included in the list of “Top 100 ESG Pioneer Among Listed Companies in China”. With its long-term responsible operation and effectiveness in fulfilling its responsibilities, China Power stood out from the sample pool of 6,405 Chinese listed companies and the evaluation sample of 855 listed companies.



## July

### Successful launch of “CP Nongchuang” Satellite

On 23 July, China’s first commercial infrared remote sensing satellite “CP Nongchuang” was successfully launched. The satellite observation data will be used in the fields of national land resources survey and monitoring, crop pests and diseases, drought and flood monitoring, crop growth assessment and yield prediction, disaster prevention and mitigation, agriculture, forestry and water conservancy, ecological environment, and wind-photovoltaic new energy, etc. The extensive applications of its observation data will provide immense support to China Power’s industrial development of “Dual-Carbon Rural Revitalization”.



## September

### The “Integrated Intelligent Photovoltaic-Energy Storage-Charging-Discharging” Green Power Transportation Project commenced operation

China Power’s “Integrated Intelligent Photovoltaic-Energy Storage-Charging-Discharging” Green Power Transportation Project in Chaoyang City, Liaoning Province has commenced operation. The project is the largest integrated photovoltaic-energy storage-charging-discharging demonstration station for buses in China. The project adopts the green power model of “self-powered with surplus power integrated into grid”. It is a typical scenario of a distributed virtual power plant, which has realized green power consumption, orderly charging with the mode of peak-load shifting, and multi-energy complementation.



### August · Xinyuan Smart Storage

Its “Low-carbon Solution for Novel Energy Storage in Park-level ‘Source-Grid-Load-Storage’ Projects” won the Third Prize of “Sanxingdui Cup (三星堆杯)” Clean Energy Equipment Intelligent and Green Innovation Competition

### September · Xinyuan Jinwu

Presented its new “Full Color Auto-Powered Photovoltaic Signage” product series based on innovative development of full color micro-layer technology and decommissioned photovoltaic modules application

## August

### The second “Sino-Kazakhstan Renewable Energy and Science and Technology Innovation Cooperation Forum” was successfully held

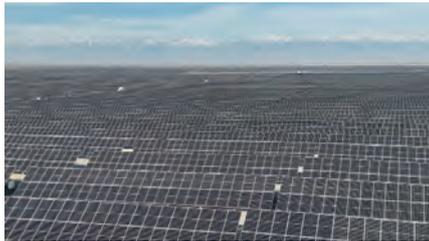
The second “Sino-Kazakhstan Renewable Energy and Science and Technology Innovation Cooperation Forum”, co-organized by China Power and the Kazakhstan Renewable Energy Association (KREA), was successfully held. During the forum, China Power signed a Memorandum of Cooperation on Energy Storage Research with Kazakhstan National Grid in respect of renewable energy and science and technology, and Kazakhstan Energy Investment signed a Memorandum of Talent Cultivation with Satbayev University of Technology.



**November**

**Successful grid-connection of the “Belt and Road Initiative” Silk Road Pearl Project in its First Attempt**

The 300MW Xinjiang Integrated Source-Grid-Load-Storage Project independently developed, constructed and operated by CP Nongchuang was successfully connected to the power grid in its first attempt. Located in Horgos Area of China (Xinjiang) Pilot Free Trade Zone, the project is the first “Belt and Road Initiative” Silk Road Pearl Project of the Company.



**December · Qiyuanxin Power**

Was honored with the “2023 Battery-swap Operator Brand” and “2023 Annual Best Battery-swap Mode Innovation Award in the Battery-swap Industry” at the Gold Brick Battery Swapping Forum and the 4th China International Battery Swapping Mode Industry Conference 2023

**December · CP Snow Salt**

The Hengyang Compressed Air Energy Storage Project was selected as a “Novel Energy Storage Pilot Demonstration” by the National Energy Administration

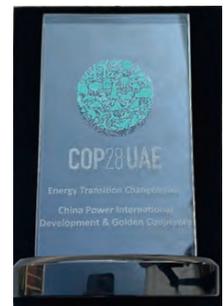
**November · CP Intelligent**

Won the First Prize of Beijing Science and Technology Invention

**November-December**

**Zhuangshang Village Direct-Current Micro-grid Project Won Award at the UN Climate Change Conference**

At the 28th United Nations Climate Change Conference (COP28), China Power’s Zhuangshang Village PEDF Direct-Current Micro-grid Project in Ruicheng County, Shanxi Province was honored with the award of “Energy Transition Changemakers”, one of the 39 projects selected globally, and one of the five projects selected in China. Zhuangshang Village, the village where the project is located, was awarded the title of “China’s Zero-Carbon Villages and Towns Demonstration Village” by the United Nations Development Program (UNDP), the Global Environment Facility (GEF), and the Ministry of Agriculture and Rural Affairs.



**October · Xinyuan Smart Storage**

Won the awards of “2023 Most Influential Enterprise in the Energy Storage Industry”, “2023 Best System Integrator in the Energy Storage Industry” and “2023 Best Equipment Supplier in the Energy Storage Industry”

# Accolades and Awards



Top 100 ESG Pioneer Among Listed Companies in China

“China ESG (Corporate Social Responsibility) Presentation” jointly organized by CCTV’s Financial Programming Center and various other departments



100 ESG Pioneer of Central Enterprises

The 6th China Enterprise Forum Parallel Forum “Practicing ESG Concepts and Creating First-class Enterprises – Central Enterprise ESG Forum”



Responsible Top Bull Awards ESG Dual Carbon Pioneer

Responsibility Cloud Research Institute



Benchmark Enterprise among the “Double Hundred Enterprises”

SASAC



Benchmark Enterprise under “Demonstration Enterprise in Technology Reform”

SASAC



“Energy Transition Changemakers” Award

The 28th United Nations Climate Change Conference (COP28)



One of Top Ten Practice Cases of Building PEDF

The First China PEDF Conference (2023)



2023 Occupational Health and Safety Management Award

Tucapel González García of Chile



“China-Pakistan Economic Corridor (CPEC)” Outstanding Contribution Award

The Pakistani Government



Energy Innovation Award First Prize

China Energy Research Society



“2023 Award for Best System Integration Solution Provider”, “2023 Award for Best Grid-Side Application Scenario Innovation Project”

The 2nd China International Energy Storage Exhibition and the 10th China International Conference on Photovoltaic, Energy Storage and Charging



# Governance for Sustainable Development

We have always adhered to the strategy to lead high-quality development, continued to optimize our governance system, and steadily improved our governance capability. We have always safeguarded the rights and interests of investors and stakeholders effectively, drove the Company to move forward steadily on the path of standardized governance and strengthened the foundation for sustainable development.

Responding to Sustainable Development Goals (SDGs) of the United Nations



## 2023 Performance Highlights

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- Total number of business ethics trainings **453** times
- Number of litigation cases regarding corrupt practices **0** case
- Coverage of corruption risk assessments conducted **100%**
- Total number of participants in anti-corruption training **52,914** person-times
- Total tax payments **4.304** RMB billion

# Strategy for Sustainable Development

We insist on green, innovative and high-quality development, with focus on promoting the sustainable and rapid development of clean and low-carbon energy. We actively cultivate strategic emerging industries, and realize the “dual-wheel drive” of clean and low-carbon energy and strategic emerging industries. We have built a new low-carbon energy ecosystem, and comprehensively serve the economic and social transformation of green and low-carbon, while being committed to becoming a “world’s leading green and low-carbon energy provider”.

## Strategic planning

Corporate vision

Objective and mission

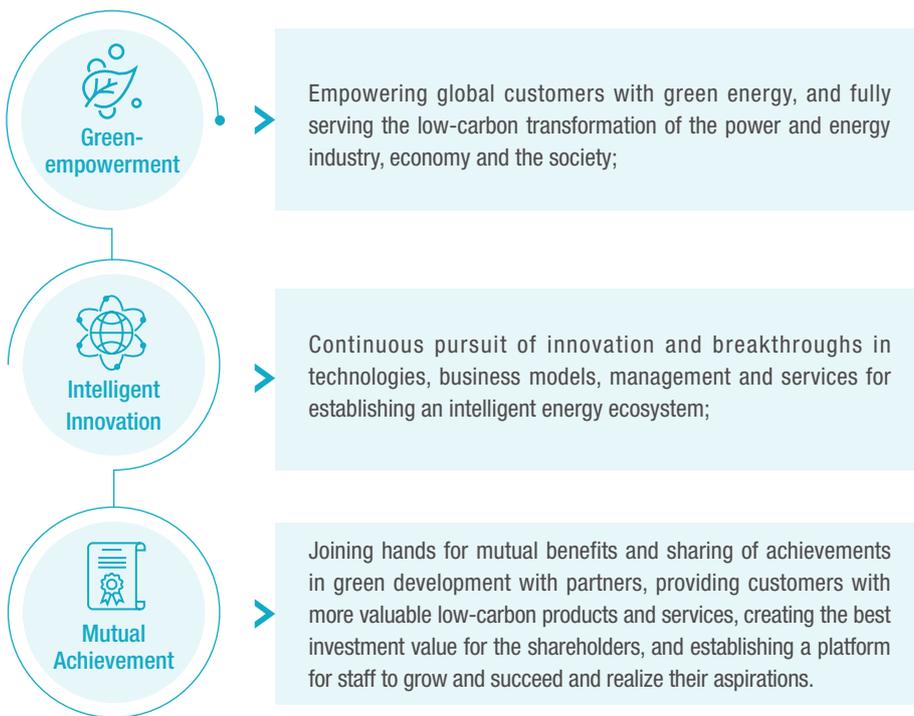
Core philosophy

Strategic positioning

### China Power’s New Development Strategy

The world’s leading green and low-carbon energy provider

Lower Carbon Empower Better Life



- **“Core Business Transformation”**: Transform from a traditional power generation enterprise to a green and low-carbon energy provider.
- **“Three-in-One” Business Positioning**: An enterprise that integrates the role of “Clean and Low-carbon Energy Producer, Green Energy Technology Service Provider and Dual Carbon Ecosystem Integrator”.
- **“Double-leading Enterprise” Growth Positioning**: Progressing from a leading enterprise in China towards a leading enterprise in the world.

Strategic pathway

By the end of 2025, the Group's proportion of clean energy installed capacity in China will be over 90%, the proportion of revenue from clean energy will be over 70%, the proportion of revenue from comprehensive smart energy will be over 25%, and the number of strategic and sizable customers and strategic cooperation cities and counties will be over 200.

To become a leader in China's green power transportation and energy storage power plants, a pioneer in low-carbon and zero-carbon beautiful countryside, and has built a number of pilot demonstration projects for green power transportation and energy storage outside China.

By 2025, we expect to become a first-class green and low-carbon energy provider in China.

By 2030, the Group's proportion of clean energy installed capacity to the total installed capacity in China will exceed 95%, the proportion of revenue from comprehensive smart energy will exceed 50%, and more than 1,000 strategic and sizable customers and strategic cooperation cities and counties will be realized in China; 100% of the energy and power installed capacity outside China will be clean and low-carbon energy assets, green power transportation and energy storage will be launched in multiple regions and scenarios outside China.

China Power's "Three-in-One" business positioning as a clean low-carbon energy producer, green energy technology service provider and dual-carbon ecosystem integrator will be recognized in the international market.

By 2030, we strive to be a world's leading green and low-carbon energy provider.

The Group's R&D investment in science and technology and the proportion of science and technology-related income will reach the forefront level of the industry, mastering a number of globally competitive low-carbon and zero-carbon core technologies and solutions. The layout of clean and low-carbon energy assets will cover more than 30 countries and regions, and green power transportation and energy storage will be popularized and applied abroad.

China Power will become a well-known brand of green and low-carbon energy provider with international competitiveness and influence.



By 2035, we expect to become a world's leading green and low-carbon energy provider.

Responding to national strategies

We have actively responded to the "Belt and Road Initiative", and as a pioneer in "Going Global" business, we have built on our strengths, practiced our internationalization strategy, upgraded our localized operation and management capabilities, and actively promoted the integration of global technologies, talents and cultures to facilitate the development of local economies. We regularly carry out educational assistance, donations, environmental protection and other caring services (for details, please refer to the section headed "Contributions to the Community" of this report), and enhance the sense of achievement and well-being of people at home and abroad with our actions.

Responding to the "Belt and Road Initiative"

- Signed investment cooperation agreement with the Ministry of Energy of Kyrgyzstan on the principal terms of the project PPA (Power Purchase and Sale Agreement)/IA (Implementation Agreement)
- Signed Memorandum of Cooperation on Energy Storage Research with the National Grid of Kazakhstan
- Xinyuan Smart Storage and Chile S.A. jointly developed Punta 6MWh Energy Storage and other local projects

"Going Global" Strategy

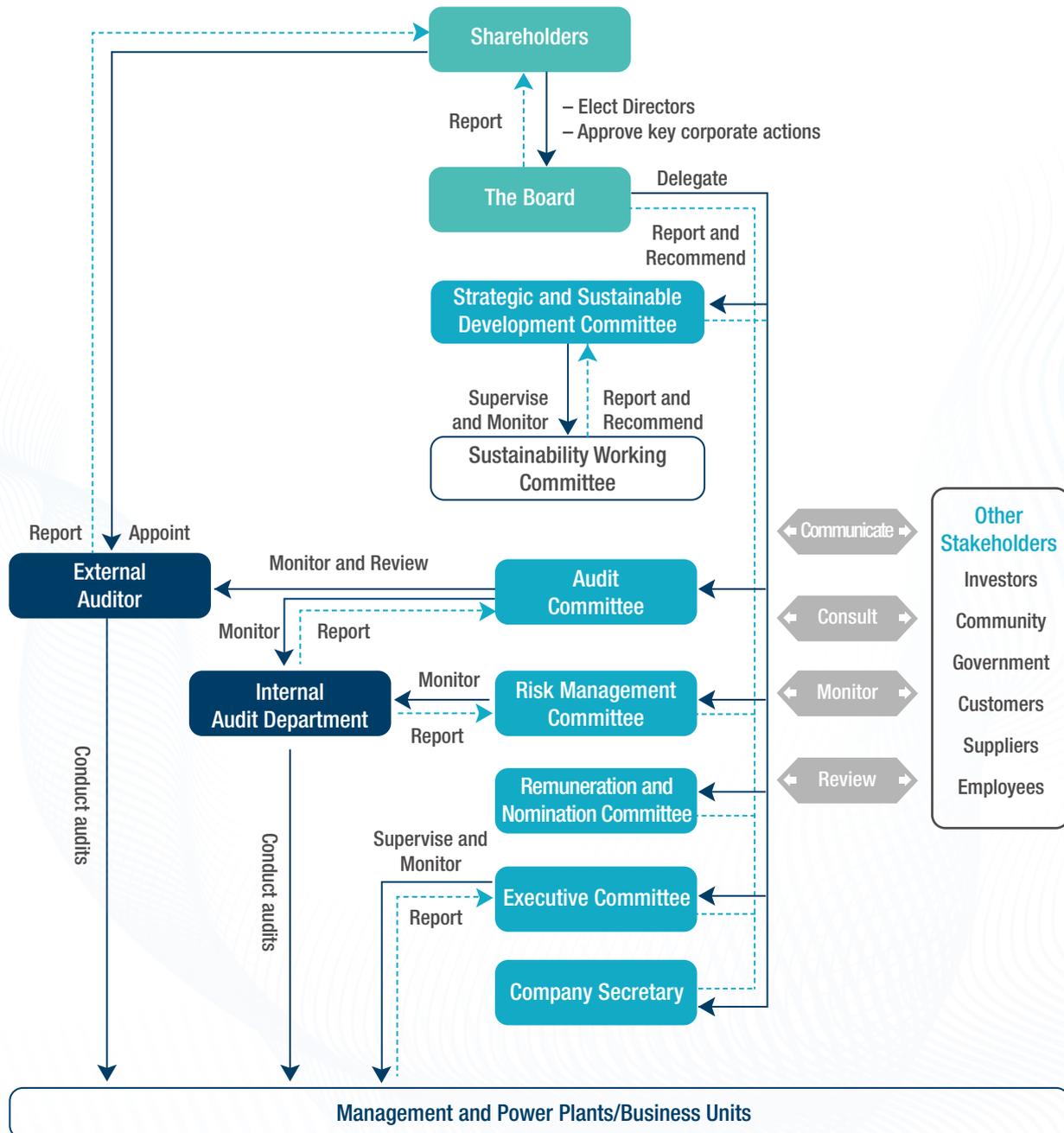
- Signed a Memorandum of Understanding on cooperation with New Zealand partners and completed the project filing for the 200MW photovoltaic project in New Zealand
- The ancillary energy storage construction project to Mexico's first government-level photovoltaic project has commenced operation at full capacity
- Signed a framework agreement on the development of smart zero-carbon cities with the government of the state of Yucatan, Mexico, and promoted the launch of the first batch of offshore demonstration projects in Mexico

# Corporate Governance

Since its establishment, China Power has been committed to pursuing a high level of corporate governance, strictly complying with the laws, regulations and regulatory requirements, and continuously improving and enhancing the Company's governance system and governance level. Through continuous exploration and practices, the Company has formed a standardized governance structure and formulated comprehensive policies and procedures to ensure that the Company is well managed and its decision-making and supervision are effective.

## Governance structure

We have established a governance structure consisting of shareholders, the Board, five committees under the Board and the management, forming an operational mechanism with well-defined division of powers and responsibilities among ownership, decision-making and supervisory powers, and operational powers, each with its own responsibilities, mutual checks and balances, and coordinated operation.



## Board

The Board consists of 7 Directors. The Board exercises its powers in accordance with the law, performs its duties and obligations diligently and conscientiously, actively participates in the Board meetings and, with the assistance and advice of the committees under its purview, formulates the strategies and directions for the development of the Group, while the management ensures that the decisions of the Board are accurately communicated and implemented.

Strategic and Sustainable Development Committee, the Remuneration and Nomination Committee, the Audit Committee, the Risk Management Committee and the Executive Committee have been established under the Board, each of which has given full play to its professional strengths since its establishment, and has carried out its work in accordance with the principle of due diligence in accordance with the relevant provisions of the relevant laws, regulations, regulatory documents and the respective rules of procedure.

The Board adopted the Board Diversity Policy in 2013 and reviews its implementation and effectiveness on an annual basis. In the selection of Directors, the Board emphasizes various diversity factors, including but not limited to professional background, talent, regional and industry experience, gender and other attributes, in order to achieve a well-structured composition of the Board and efficient and coordinated operation of the Board. The current members of the Board possess profound industry experience and academic and professional backgrounds covering a wide range of fields, including power technology and management, finance, law and international investment.

On 8 March 2023, the Remuneration and Nomination Committee meeting was briefed on the matters of director restructuring and the implementation of the Board diversity to appoint a female director to the Board by the end of 2024 in accordance with the regulatory requirements. On 23 March 2023, the Board passed the approval of the proposal to nominate Ms. HUANG Qinghua as a non-executive Director to replace Mr. XU Zuyong and the proposal was approved by the Company's shareholders in June 2023 at the annual general meeting to promote the level of gender diversity on the Board.

### Members of the Board and its Committees of China Power

Name	Gender	Position	Academic background	Professional background
HE Xi	male	1 A D E	Master Degree	I II IV V
GAO Ping	male	2 A D E	Bachelor Degree	I II III IV V
ZHOU Jie	male	3 A	Bachelor Degree	I II III IV
HUANG Qinghua	Female	3	Master Degree	II III IV
LI Fang	male	4 A B C D	JD Degree	II III IV V
YAU Ka Chi	male	4 A B C D	Professional Diploma	II III IV V
HUI Hon Chung, Stanley	male	4 B C D	Bachelor Degree	II IV V

- Board**
  - 1 Chairman of the Board, executive Director
  - 2 President, executive Director
  - 3 Non-executive Director
  - 4 Independent non-executive Director
- Committee**
  - A Strategic and Sustainable Development Committee
  - B Remuneration and Nomination Committee
  - C Audit committee
  - D Risk Management Committee
  - E Executive Committee
- Professional background**
  - I Electric Power Technology and Management
  - II Strategic Planning and Management
  - III Accountancy, Finance and Legal
  - IV Risk Management
  - V Global Market Experience

### Meetings of the Board and its Committees of China Power Held in 2023



## Management

The management of China Power consists of 9 members, with 1 president, 6 vice presidents, 1 chief accountant and 1 company secretary. Among them, there are a total of 3 female management officers, accounting for 1/3 of the total. The management of the Company has well-defined powers and responsibilities and is diligent in performing its day-to-day management duties and making relevant decisions in a timely manner within the scope of authorization approved by the Board.

### Senior Management of China Power

Name	Gender	Position	Academic background
GAO Ping	male	President (Chief Executive)	Bachelor Degree
SHOU Rufeng	male	Vice President	Master Degree
TONG Yumei	female	Vice President	Bachelor Degree
ZHAO Yonggang	male	Vice President	Master Degree
XU Ji	male	Chief Accountant	Master Degree
LYU Keqi	male	Vice President	Bachelor Degree
YANG Qian	female	Vice President	Master Degree
WANG Dongrong	male	Vice President	Doctoral Degree

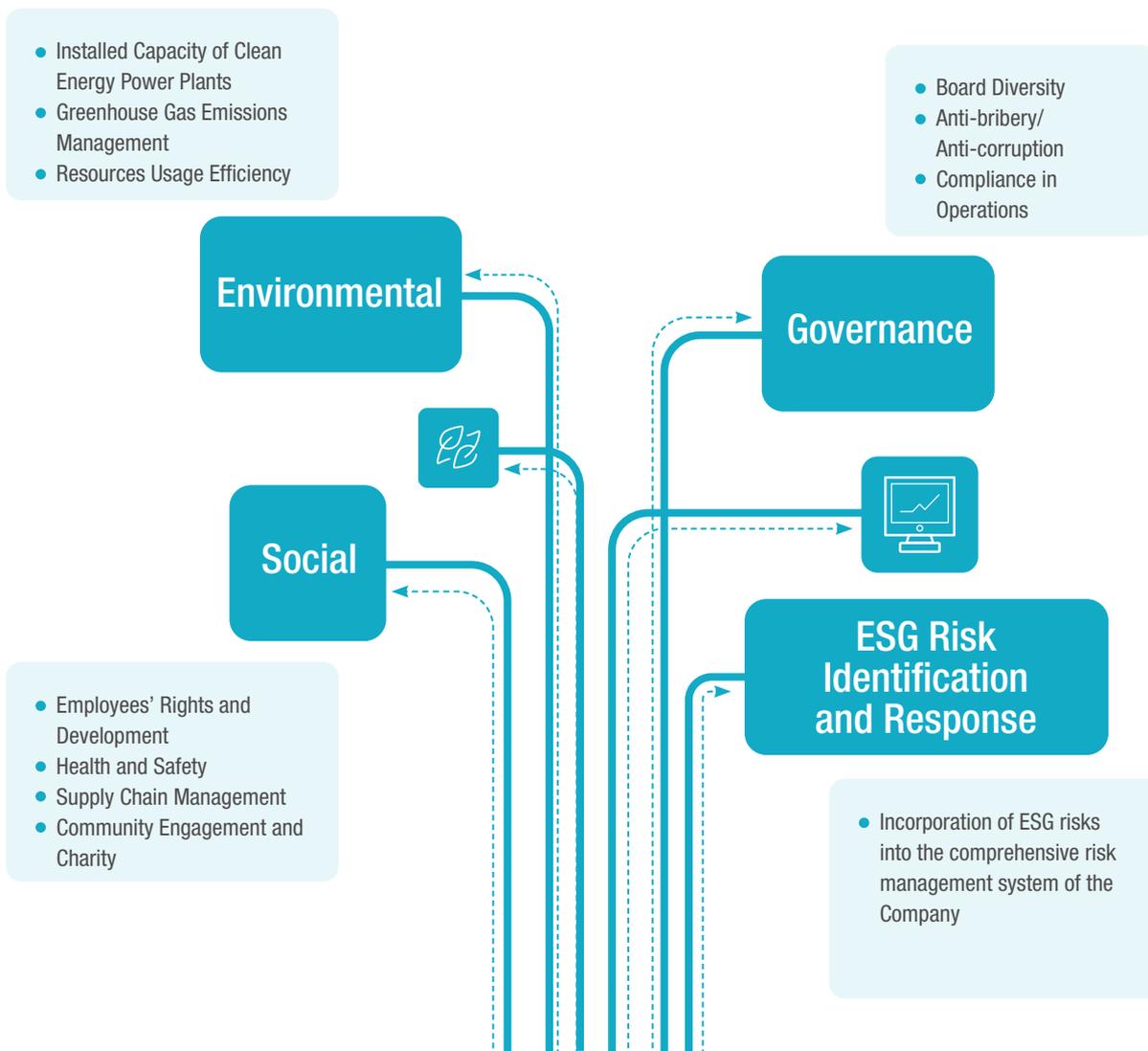
### Company Secretary of China Power

Name	Gender	Position	Academic background
CHEUNG Siu Lan	female	Company Secretary	Master Degree

# ESG Governance System

We regard the development of an ESG system with high standards as a mandatory course for the high-quality development of the Company, and strive to undertake our corporate responsibilities in governance, economy, environment and society. We have established a three-tiered ESG governance structure with specified rights and responsibilities, and continue to improve the ESG management of our Company to realize our mission of sustainable development.

The Board, with the assistance of the Strategic and Sustainable Development Committee and the Sustainability Working Committee, has overall supervision and management of ESG work, specifically including target setting and progress review and ESG risk identification and response:



## ESG Statement of the Board

The Board understands the importance of ESG to the Group's sustainable development, and actively promotes the full integration of ESG concepts into the Group's strategies and business operations. It has established and improved the sustainable development management structure and operation mechanism, and guides and oversees the ESG work and related risk management, in order to safeguard the implementation of the Group's sustainable development strategies.

## ESG Management Policy and Strategy

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The Company adopts a "top-down" management approach, whereby the Board, with the assistance of the Strategic and Sustainable Development Committee and the Sustainability Working Committee, takes into account factors such as the macro policy environment, industrial development trends and stakeholders' expectations and demands, and carries out communications with stakeholders and expert research in various ways, in order to identify, assess and put forward views and recommendations on the ESG topics that may have an impact on the Company's long-term development (for details, please refer to the section headed "Analysis of Substantive Topics" in this report). The Board also integrates ESG into our day-to-day management system, and regularly inspects and monitors the completion of its ESG work to continuously improve the level of ESG management.

## Goal Setting and Progress Review

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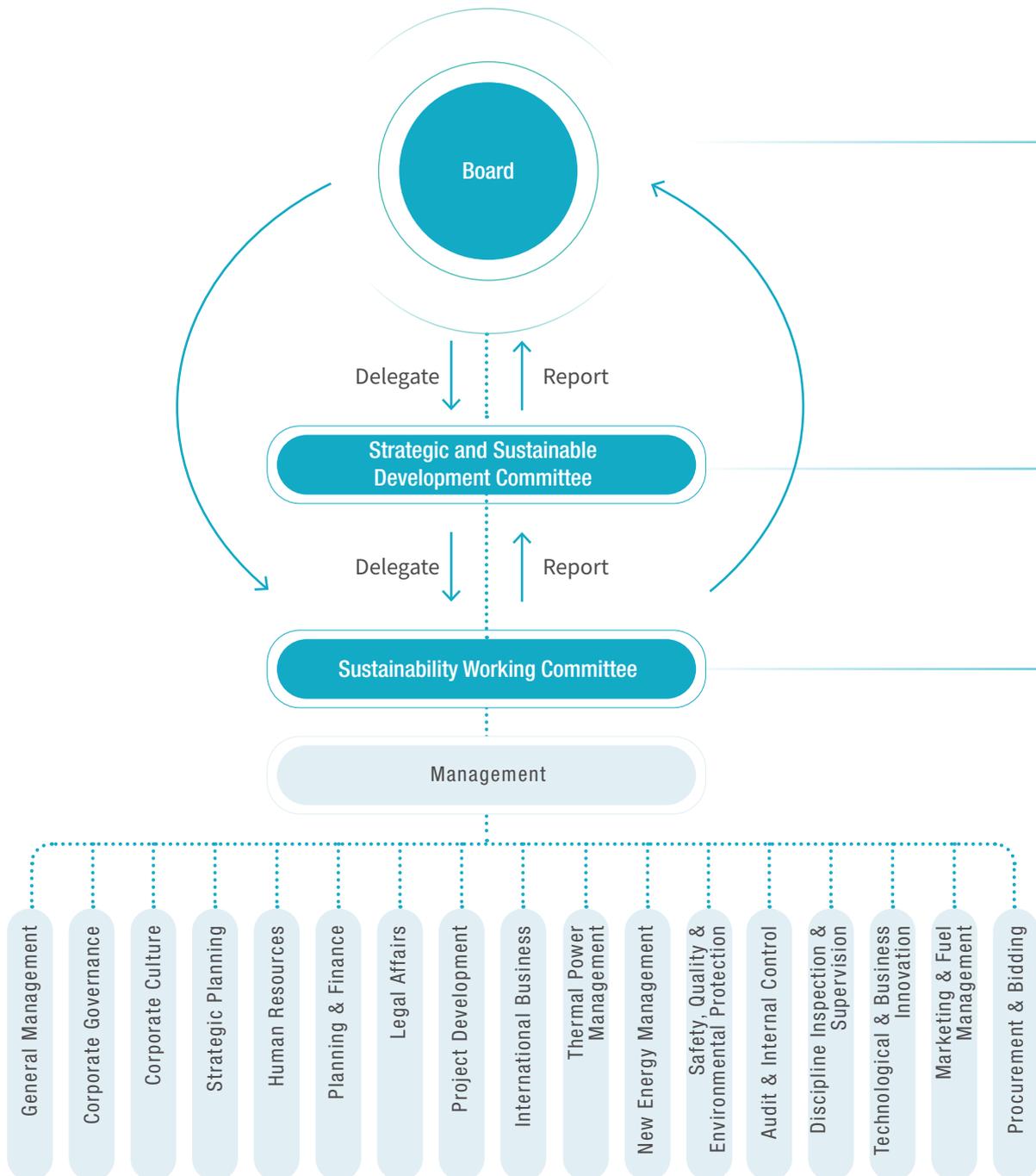
The Board has formulated and reviewed ESG key performance goals and/or plans in light of the actual situation of the Company, covering areas such as board diversity, anti-bribery/anti-corruption, compliant operation, installed capacity of clean energy power stations, management of greenhouse gas emissions, efficiency in resource utilization, employee rights and development, health and safety, supply chain management, community engagement and charity, etc., and has reviewed the progress of completion and evaluated the results on a regular basis, in order to ensure the continuous performance and implementation of ESG practices. The Company has engaged Ernst & Young Hua Ming LLP to provide independent assurance on certain ESG performance indicators of the Company to ensure the reliability of the ESG performance indicators (for details, please refer to "Appendix I: Assurance Report" of this report).

The Company has implemented the ESG target management responsibility system, which incorporates ESG-related indicators such as technological innovation, safety and environmental protection, energy saving and carbon reduction, and compliance management into the operational performance appraisal of executive Directors and management of the Company as the assessment indicators, and honors performance-based remuneration based on the performance appraisal scores.



## ESG Governance Structure

The Company has established an ESG governance structure of “Board – Strategic and Sustainable Development Committee – Sustainability Working Committee”. The Board, as the highest decision-making body on ESG matters of the Company, is ultimately responsible for the Company’s ESG governance. In March 2023, the Board approved the establishment of the Strategic and Sustainable Development Committee, which has taken over the work of ESG governance previously under the Risk Management Committee, including leading the Sustainability Working Committee. The Strategic and Sustainable Development Committee consists of five Directors and is chaired by HE Xi, the Chairman of the Board (other members include GAO Ping, Executive Director and President, ZHOU Jie, Non-executive Director, and LI Fang and YAU Ka Chi, Independent Non-executive Directors), and is responsible for formulating the Group’s policies and programs related to strategy and sustainability, and reviewing and assessing opportunities and risks.



### Board

- Define the direction of development and be ultimately responsible and accountable for sustainable development matters;
- Consider and resolve the significant matters relating to the Group's annual ESG management;
- Consider and provide guidance on the report of the Strategic and Sustainable Development Committee;
- Develop, monitor and progress with the Group's ESG goals.

### Strategic and Sustainable Development Committee

- Identify, review and assess the goals, policies, practices, opportunities and risks related to the Group's sustainable development and make recommendations to the Board;
- Review and monitor the Group's ESG-related efforts and conduct ESG performance assessments;
- Review the Company's annual ESG report and make recommendations to the Board to ensure accuracy, completeness and continuous quality improvement of the report;
- Supervise the Sustainability Working Committee and monitor its work.

### Sustainability Working Committee

- Review and identify sustainability factors that have an impact on or are relevant to the Group's business or operations;
- Contribute to the formulation of the Group's sustainability strategy, goals and standards;
- Monitor and evaluate the effectiveness of the Group's sustainability policies and practices and report on ESG performance;
- Oversee or participate in the preparation of the Company's annual ESG report;
- Report regularly to Strategic and Sustainable Development Committee on its work.

## ESG Risk Identification and Response

We have incorporated ESG risks into the comprehensive risk management system of the Group, taking into account the impact of the policy and market environment, climate change and other factors on our corporate development strategy and operations, and have continuously carried out the identification and control of ESG risks to improve our risk prevention and control capabilities and to help us continuously improve the governance level of the Group and achieve more efficient, reliable and sustainable operational development.

Type of risk	Policy and market changes	Fuel cost fluctuations	Reform and business transformation risk
<b>Description</b>	<p>“Carbon Peak and Carbon Neutrality” have been incorporated into the country’s overall layout of ecological civilization development, and the transformation of the global economic system and development model would face reshaping. In 2023 competition for high-quality new energy projects was intense, placing higher demands on the investment strategy, execution and management capabilities of the investors, and increasing the risks of successfully bidding for new investment projects.</p>	<p>In 2023, coal supply was tight and supply pressure continued throughout the year. The tight supply-demand balance has become normalized, and prices would fluctuate widely. There were certain risks in supply guarantee and procurement prices for coal that affected our coal-fired power generation business.</p>	<p>The Company has entered a new period of strategic transformation and development, which has put forward higher requirements for reform and innovative development. Some of the new-segment platform companies of strategic emerging industries are still in the incubation period, and there are certain uncertainties in respect of the business model, operation and development, revenue and effectiveness.</p>
<b>Response</b>	<p>Strengthened policy research and market analysis, closely monitored the introduction of new industrial and market policies, interpreted policy directions and formulated response strategies.</p>	<p>Increased the contractual amount of coal supply under long-term agreement, kept a close attention to the contract fulfillment rate, reasonably adjusted the procurement structure, and stagger coal storage to control and reduce the procurement cost.</p>	<p>Followed up with the latest policies and market trends in related fields in a timely manner, strengthened the research on related industrial policies, reinforced the support of technological innovation to industrial development, and established and improved the control and governance model of strategic emerging industry platforms.</p>
<b>Effectiveness</b>	<p>Actively implemented the national “carbon peak and carbon neutrality” target requirements, and completed the preparation of China Power’s carbon peak program, covering (among others) the current status carbon emissions, green transformation, implementation and safeguard measures, so as to effectively improve the Group’s carbon emission management level.</p>	<p>The Company realized full coverage of medium- and long-term contracts, and 93.23% of annual LTAs were honored. The Company also reviewed the market and carried out coal storage for summer (winter) to ensure supply during peak periods, and realized the benefit of peak purchasing of RMB164 million. Promoted the construction of “Smart Fuel” digital system, completed the launch of the fuel supplier evaluation system; fully launched the coal blending and mixed-combustion management system, strengthened the efforts in safety and scientific mixed-combustion work.</p>	<p>The Company enhanced the technological research and development of various emerging energy industries and core technology investment, and continued efforts for technology upgrading to create differentiated advantages in the industry competition. Several emerging energy industry companies with core competencies were currently established in areas such as novel energy storage, color photovoltaic and module recycling, green transport and rural revitalization, while the efficient development and application of geothermal energy, PEDF and other technologies were actively deployed in our layout.</p> <p>Through continuous exploration and practice of integration, innovation and in-depth cooperation among emerging energy industries, China Power has initially formed an emerging industry cluster in PEDF – heat-exchange-charge based on the four major energy-using fields of construction, transport, agriculture and industry, providing safe, reliable, green, intelligent, cost-effective and integrated energy solutions for transport energy integration, urban renewal, and industrial and agricultural energy-use transformation.</p>



**Market competition risk**

With the deepening of the process of market-oriented operation of electricity, the gradual and full liberalization of the electricity consumption plan for operational users and the continuous expansion of the proportion of market-based transactions, the Company is facing fiercer market competition in the electricity market, and is exposed to the risk of decline in market share and market-traded electricity prices.

Increased efforts in market development and launched the standardized development of power sales to ensure the contracted power output. Strengthened regional collaboration and strived to ensure the electricity price level in the coal-fired power market; Coordinated and considered the marketing management mode of new energy projects, and enhanced the level of market-oriented transactions for new energy projects.

**Electricity sales:** China Power had 8 electricity sales companies that acted as agents for 3,148 users, with a proxy electricity output of 35,400,000MWh, a year-on-year increase of 22.06%.

**Coal-fired power:** strengthened industry synergy, strictly prohibited malicious price cuts, and actively applied for power production quota to ensure the trading price was not lower than the regional average levels. Focused on quantity and price analysis, and strived to generate profitable electricity during the operation of spot coals, while continuously tracking the inter-provincial market dynamics, and trying to seize the opportunities of inter-provincial transactions. In 2023, the coal-fired power trading price was RMB452.52/MWh, representing an increase of 19.66% as compared to the benchmark price.

**New energy power:** strengthened the prediction of market price trends, formulated monthly medium and long-term trading strategies reasonably, and optimized daily rolling plans by synergizing different time periods. Optimized the allocation of power production quotas by considering factors such as location of plants and power restrictions, and other factors, while seizing the inter-provincial, inter-regional and green power transactions, and enhanced the medium- and long-term trading price. As a result, electricity transactions of the new energy segment amounted to 10,849,000MWh, representing a year-on-year growth of 25.89%, with an average trading price of RMB345.07/MWh, representing a year-on-year increase of 9.54%

**Address Risks by New Markets**

The supply and demand situation in the carbon trading and green power/green certificates markets is unclear and subject to considerable uncertainty. With lower prices or loss of revenue in the spot market, volume and price of green power and green certificates were below average.

Timely followed up on the latest policies related to carbon trading and green power/green certificates; Strengthened staff skills training and enhanced the trading level in the spot market through digital means. Made full use of the existing user channels to tap the demand for green power and green certificates and increase the trading scale.

**Green certificates:** In 2023, accumulated sales of 1,796,400 green certificates, and green power transactions of 2,592,000MWh completed, with annual green value premium income exceeded RMB0.10 billion.

**Spot market:** Improved management and strengthened internal supervision and information-based development. Completed the upgrading of the system in all respects. Concluded the experience of spot trial operation, prepared China Power's "Implementation Rules for the Management of Electricity Spot Market Transactions (Trial)", and standardized the management of spot transactions of each entity for full participation in the spot market.

**Risk of shortage of key personnel**

Staffing ratios are difficult to meet market needs. Newly commissioned new energy projects lack, to a certain extent, personnel with capabilities for power trading, green power, green certificates and ancillary services, increasing operational risks.

Accelerated the building of talent pool through independent training and external introduction, and implemented the development of a competitive salary and talent training system.

In 2023, China Power insisted on market-oriented open recruitment in the fields of corporate governance, ESG, innovative power system and emerging energy industries, introducing more than 30 technical and managerial talents. The Company also carried out regular visits to the recruited personnel, continuously improved the quality of recruitment work, and stimulated the "catfish effect" to enhance the vitality of talents, while preparing for talent reserve and team building for the Company's transformation and development.

In 2023, China Power introduced high-level innovation teams to build a talent pool. We focused on strengthening the development of scientific and technological research team of talents and on the main directions and key areas of China Power. The Company introduced a number of innovative teams from "Tsinghua University" and the "Chinese Academy of Sciences" in the form of alliance of scientific research innovation teams, thereby forming a virtuous cycle of introducing and cultivating teams on the front line of scientific and technological innovation practice, and promoting scientific and technological progress with excellent scientific and technological research teams.

# ESG Management Practices

We are committed to integrating our business operations with broader sustainable development. Under the guidance and supervision of the Board, we join hands with internal and external stakeholders to actively carry out ESG practices and create a sustainable future.

## ESG governance

The Board, with the assistance of its specialized committees, actively promotes the development of an ESG management system, guides and supervises the Company's overall sustainability strategy and sustainability risk management, and ensures the smooth implementation of the Company's ESG efforts.

The Company's ESG governance work done for 2023 included:

- Reviewed the Risk Management Report for the year 2022 and Sustainability Report 2022;
- Approved the Corporate Governance Report prepared in accordance with the newly amended Listing Rules including ESG related aspects such as corporate culture, diversity goals of the Board and overall employees and compliance with the Corporate Governance Code;
- Approved the establishment of Strategic and Sustainable Development Committee and approved the Terms of Reference for both the Strategic and Sustainable Development Committee and the Sustainability Working Committee.

For details, please refer to the Corporate Governance Report and the Risk Management Committee Report in the Annual Report 2023.

## Conducting research on ESG strategies

In 2023, the Company conducted a comprehensive and in-depth study of ESG strategies. Starting from the global ESG development trend and domestic policy background, we analyzed the current situation and deficiencies of the Company's ESG governance system, risk management, and management of substantive topics in light of the current situation of ESG management in the power industry. We also analyzed the ESG strategies of 10 outstanding companies in the world, and conducted ESG topic research in the three dimensions of industry, enterprise and stakeholders, sorting out the important ESG issues of China Power, and clarifying the direction of ESG management upgrade to provide a framework for ESG work in the future.

## Implementation of ESG Action 2023

The Board resolved to carry out ESG enhancement actions during 2023 based on the Company's two-dimensional matrix of material topics for 2022. After a full year of efforts, the action achieved significant results, laying a solid foundation for the Company's high-quality sustainable development in the future.

### Implementation of ESG Action 2023 for China Power

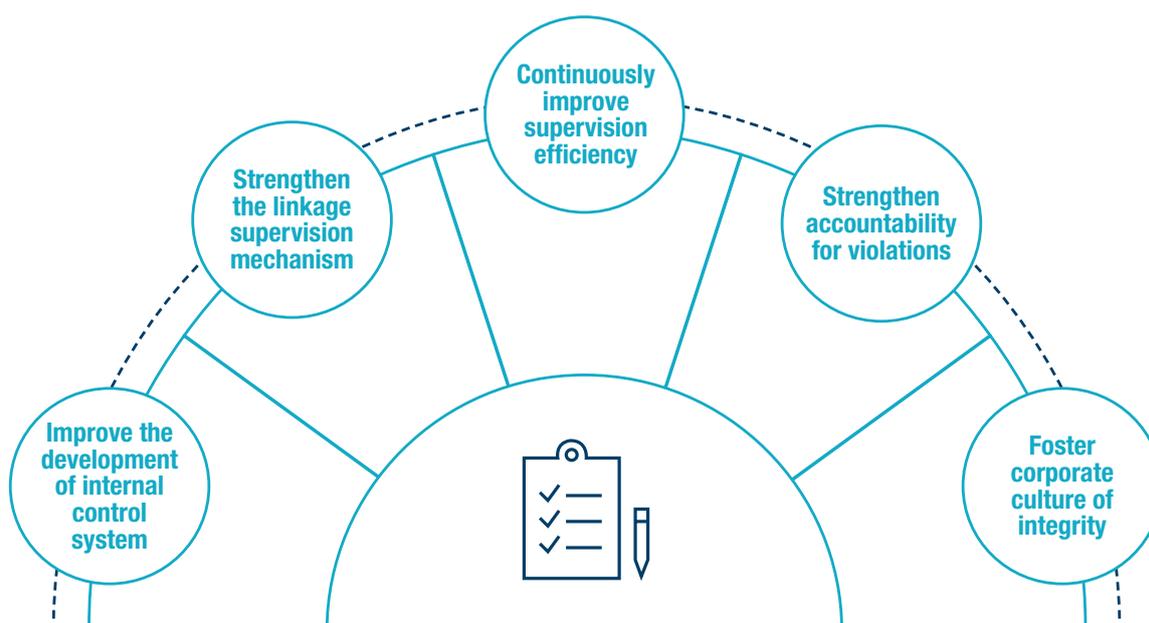
Elements of action	Achievements/practices
<p>Refined the Company's "Dual Carbon Goals" strategic transformation and development plan</p>	<p>Completed the Company's Carbon Peak Action Plan and the preparation of the Carbon Peak Self-Assessment Report for 2023</p>
<p>Refined the Company's planning and key policies on social responsibility</p>	<p>Studied and implemented ESG strategy upgrading work, and sorted out China Power's material ESG topics in the environmental, social and governance dimensions of Level 1 and Level 2</p>
<p>Optimized the governance system to adapt to the Company's green transformation in accordance with the requirements of national green and high-quality development, optimized the positions and responsibilities of each functional department, and created a perfect ESG organization and working mechanism</p>	<p>Established a three-tier governance structure of "Board – Strategic and Sustainable Development Committee – Sustainability Working Committee", formulated the terms of reference and specified work responsibilities at each level</p>
<p>Highlighted strategic leadership and strengthened the implementation of strategies and policy research</p>	<p>Continuously strengthened policy research and conducted more than 18 soft topic studies during the year; completed the optimization plan for the Company's "14th Five-Year Plan"</p>
<p>Responded to the disclosure requirements of the Hong Kong Stock Exchange on the financial risks associated with climate change, further strengthened the work procedures and enhanced the quality of professional research work</p>	<p>Conducted climate change risk and opportunity identification and climate risk stress testing with reference to the TCFD framework</p>
<p>Optimized the Group's organizational structure to meet ESG goals and complied with mandatory requirements</p>	<p>Established the Strategic and Sustainable Development Committee to improve the ESG governance structure</p>
<p>Conducted human resources assessment and allocation adjustments to meet ESG goals and related job requirements</p>	<p>Increased gender diversity on the Board by adding one female director</p>
<p>Organized ESG-related training series</p>	<p>Organized environmental training, employee skills training, OHS training, statistics and disclosure of quantitative data</p>

# Compliance in Operations

We firmly believe that compliance is the cornerstone of the Group's sound and sustainable development. We adhere to the principles of compliance with the law and honesty in business operation. We also adhere to the bottom line of integrity and self-discipline, improve the internal oversight system, continue to strengthen risk management and control, and promote the sound and efficient operation of the Company.

In March 2023, the Audit Committee reviewed the Company's Internal Supervision Report 2022 and formulated the goals of the internal control and supervision work for 2023. In August 2023, the Audit Committee reviewed the Internal Supervision Report for the first half of 2023. The Company continued to enhance the synergy and effectiveness of its supervision, and to coordinate the promotion of various types of supervision, so as to enhance the standardization and legalization of corporate management.

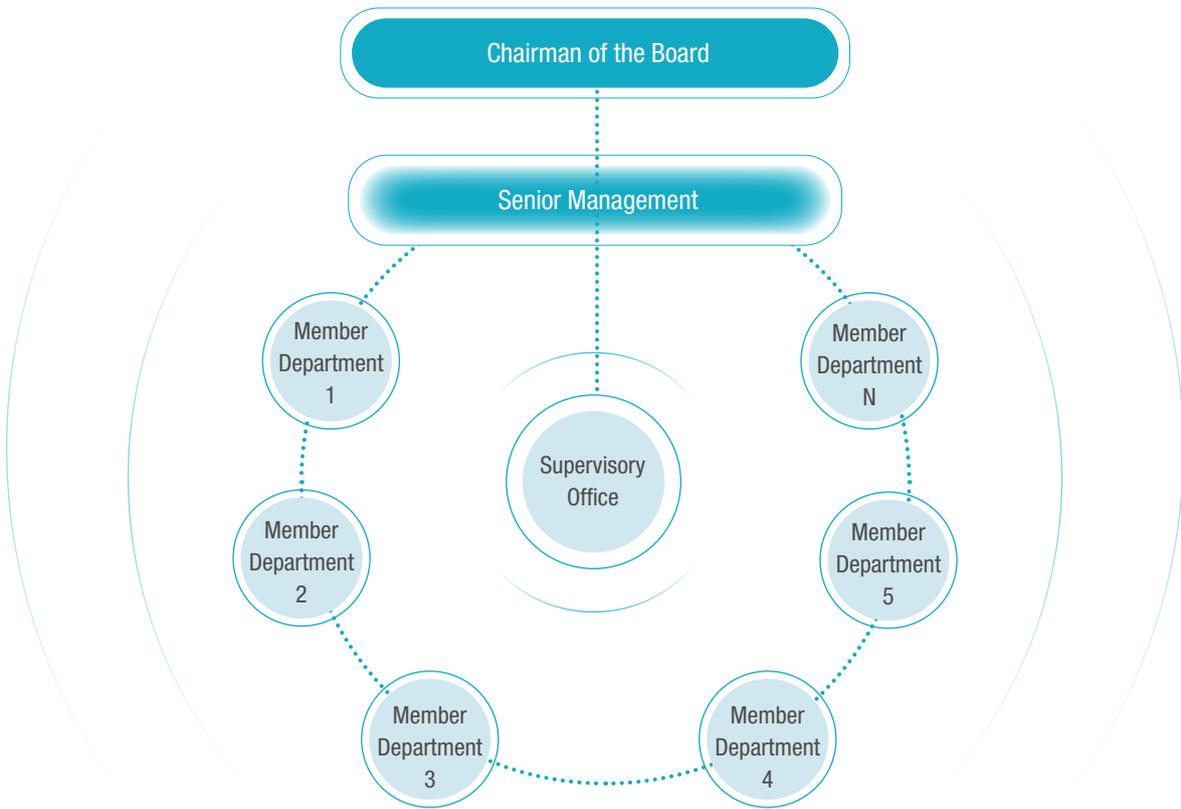
## Goals for Internal Control Supervision of China Power in 2023



## “Grand Oversight” System

The Company has established a sound “1+N” grand-oversight system, and set up a joint meeting mechanism for the “Grand Oversight”. We have refined and specified the boundaries of responsibilities and defined the scope of supervision work in accordance with the “Grand Oversight Work Guidance Manual” and other internal policies. A “Grand Oversight” joint meeting is convened by the Chairman of the Board, and all departments at the headquarters are served as member departments of the “Grand Oversight” joint meeting. The Supervisory Office is responsible for organizing the formulation of the annual supervision plan, coordinating the integration of supervision resources, and taking the lead in drafting the annual work report on comprehensive supervision.

At the joint meeting, all member departments are required to report on the progress of their supervision work, problems identified, suggestions for rectification, and issues that need to be submitted to the meeting for review and resolution. By opening up channels for regular communication and information exchange between departments, a working pattern of centralized command, comprehensive coverage and respective responsibilities is formed, giving full play to the efficacy of supervision and continuously enhancing the seriousness, synergy and effectiveness of supervision.



### Work Highlights of China Power's 'Grand Oversight' System in 2023



Co-ordinated the list of 15 "Grand Oversight" project plans and followed up on the projects on an on-going basis



Convened 2 joint meetings of the "Grand Oversight", supervised the implementation of matters agreed at the meetings and the plans of the "Grand Oversight" projects, and promoted the resolution of difficulties or issues identified through the supervision and inspection



Regularly updated the "Grand Oversight" results repository and share supervision results with member departments



Further implemented the requirements of the "Piercing Stone ( 穿石 )" action, provided training and guidance on the development of the "Grand Oversight" system to its subsidiaries by means of online business training and offline regional exchange meetings, and carried out annual assessment



Multi-departmental co-ordination to carry out supervision and inspection work in certain areas such as policy development, procurement, tender and bidding, safety and environmental protection, construction projects and financial management

## Business Ethics

We adhere to integrity and compliant operation, abide by the business ethics and code of conduct, and firmly uphold a zero-tolerance attitude toward favoritism and malpractice. We actively carry out work on business ethics to promote the positive development of the industry and society. The Company has formulated the Code of Conduct for Employees, which requires all employees to establish good professional ethics and observe the highest standards of business ethics in economic activities with suppliers and contractors. In 2023, the Group conducted business ethics training for its employees to urge them to continuously improve their professional ethical standards.



453 times

Total number of business ethics training programs



1,928.5 hours

Total hours of business ethics training



45,367 person-time

Total number of participants in business ethics training programs

### Case

#### China Power organized “Strengthening Foundation and Refining Business” policy system and business enhancement training

In August 2023, the Company organized a 5-day training course of “Strengthening Foundation and Refining Business” policy system and business enhancement training, with a total of more than 1,300 person-times. The lecturers gave detailed lectures based on the explanation of regulations and policies at all levels, combining with business norms, key points of management and risk prevention and control, to comprehensively enhance employees’ awareness of anti-corruption and anti-money laundering, and to cultivate good business ethics and ability to perform their duties.



“Strengthening Foundation and Refining Business” policy system and business enhancement training

## Anti-corruption

We strictly abide by the Company Law of the People’s Republic of China, the Anti-Corruption Law of the People’s Republic of China and other laws and regulations of places where our business operates, and continue to improve the integrity supervision system, create an upright and standardized corporate atmosphere and establish a good corporate image.

### Conducting oversight inspections



We have carried out daily supervision and deepened the supervision in key areas to effectively prevent integrity risks in overseas projects and coal combustion management, etc. We regularly carry out supervision of “personnel selection and appointment”. During the reporting period, 73 anti-corruption reminders were made before appointment, more than 300 management members and key position holders were organized to sign the “Statement of Commitment to Integrity and Clean Operation”, and more than 400 evaluation personnel signed the “Statement of Commitment to Integrity and Clean Operation for Evaluation Experts”, continuously strengthening the ideological defense line for integrity and clean operation of “key positions” personnel.

### Improve integrity risk prevention and control



We continued to improve the integrity risk prevention and control system and continuously enhance the level of compliance management and integrity risk prevention and control. During the reporting period, the Company revised 23 rules and regulations, organized and carried out the integrity risk investigation of the departments of the Company’s headquarters and 51 business units, covering ideology and morality, job duties, business processes, system and mechanisms, external environment, etc., and formed the integrity risk prevention and control lists of positions, departments and business units. We conducted a systematic investigation of integrity risks in the field of financial affairs, identified 9 key areas, sorted out 28 key links and 55 risk factors and formulated countermeasures. We established the Integrity Risk Library in the Field of Financial Management.

### Strengthening the style of work



We standardized the operation of small and micro powers and carried out special governance on small and micro powers at the working level. During the reporting period, we adopted the methods of self-checking, self-correction, cross-checking and cross-reviewing to identify 634 integrity risk points of small and micro powers, among which, we found a total of 97 issues in the key areas of employees’ bonus distribution, disposal of waste materials and advertising and publicity expenses, and completed the rectification of 75 of them and continued the rectification of 22 of them. We promoted the revision of 28 management systems of them such as the “Management Measures for Departmental Performance” and the “Management Measures for Waste Materials”.

### Anti-corruption policy for suppliers



We insist on building a clean supply ecosystem together with our suppliers, continuously improving the construction of anti-corruption system and mechanism for suppliers, setting up a “blacklist” of suppliers involved in cases, and seriously investigating and punishing all acts of bribing or taking any improper ways of obtaining benefits from the Group (for details, please refer to the section headed “Responsible Procurement” in this report). During the reporting period, the Group included 20 suppliers involved in the cases into the “blacklist” management, and interviewed the main person in charge of the relevant suppliers involved in the cases, to strictly prevent the corrosion of “hunting” by unscrupulous businessmen.

### Conducting integrity education



We carried out integrity education to create a clean and honest corporate culture. We held regular warning education conferences and organize employee to participate in training activities on anti-corruption and integrity-related topics, and promote the formation of the ideological and operational self-awareness of compliance with rules and regulations and integrity and honesty.

## Anti-Corruption Management Performance of China Power

Indicator	Unit	Value in 2023	Value in 2022
Number of litigation cases regarding corrupt practices	case	0	0
Coverage of corruption risk assessments conducted	%	100	100
Total number of presentations on anti-corruption and integrity	times	101	95

## Anti-Corruption Training Performance of China Power in 2023

Indicator	Unit	Value in 2023
Total number of anti-corruption trainings conducted	times	588
Of which: Total number of anti-corruption training programs provided to Directors	times	6
Total number of anti-corruption training programs provided to employees	times	499
Total hours of anti-corruption training conducted	hour	2,160.5
Of which: Hours of anti-corruption training provided to Directors	hour	12
Hours of anti-corruption training provided to employees	hour	2,037
Total number of participants in anti-corruption training	person-times	52,914
Of which: Number of participants as Directors in anti-corruption training	person-times	16
Number of participants as employees in anti-corruption training	person-times	52,573

## Case

## China Power organized offshore anti-corruption special training

In November 2023, in order to implement the relevant arrangements and deployments of China Power on strengthening overseas anti-corruption work, the Company invited overseas professional lawyers specialized in anti-corruption to conduct “overseas anti-corruption special training” at its headquarters, covering area such as the introduction of anti-corruption laws and regulations, and anti-corruption compliance risks in cross-border operations, so as to effectively strengthen the awareness of overseas anti-corruption and the working ability of the foreign entities and staffs involved in foreign affairs.



Offshore anti-corruption special training

## Whistle-blowing mechanism

We encourage our employees and the public to provide feedback and report all illegal and unethical behavior that violates business ethics and harms the overall interests of the Company. Meanwhile, we continue to improve its whistle-blowing mechanism by setting up various whistle-blowing channels such as website, telephone, email and mailbox. We have formulated the “Measures for China Power to Handle Complaints and Accusations (Trial)” and “Measures for China Power to Investigate and Deal with Acts of False Accusations and Clarification of Misrepresentation on Whistle-blowing and Accusation (Trial)”, standardizing the whistle-blowing procedures, not only to protect the supervisory rights of informants and accusers, but also to investigate and deal with false accusations.

We reward “whistleblowers” who report and accuse with real names and help the Group to recover significant economic losses. Meanwhile, we protect the confidentiality of whistleblowers, strictly prevent the leakage and dissemination of whistleblowers’ names (name of the unit served), unit served, addresses, and other related information, as well as the content of the reported and accused private information. We strictly prohibit and punish any actions against whistleblowers. When necessary, judicial authorities will be resorted to seriously pursue legal responsibilities in accordance with the law.



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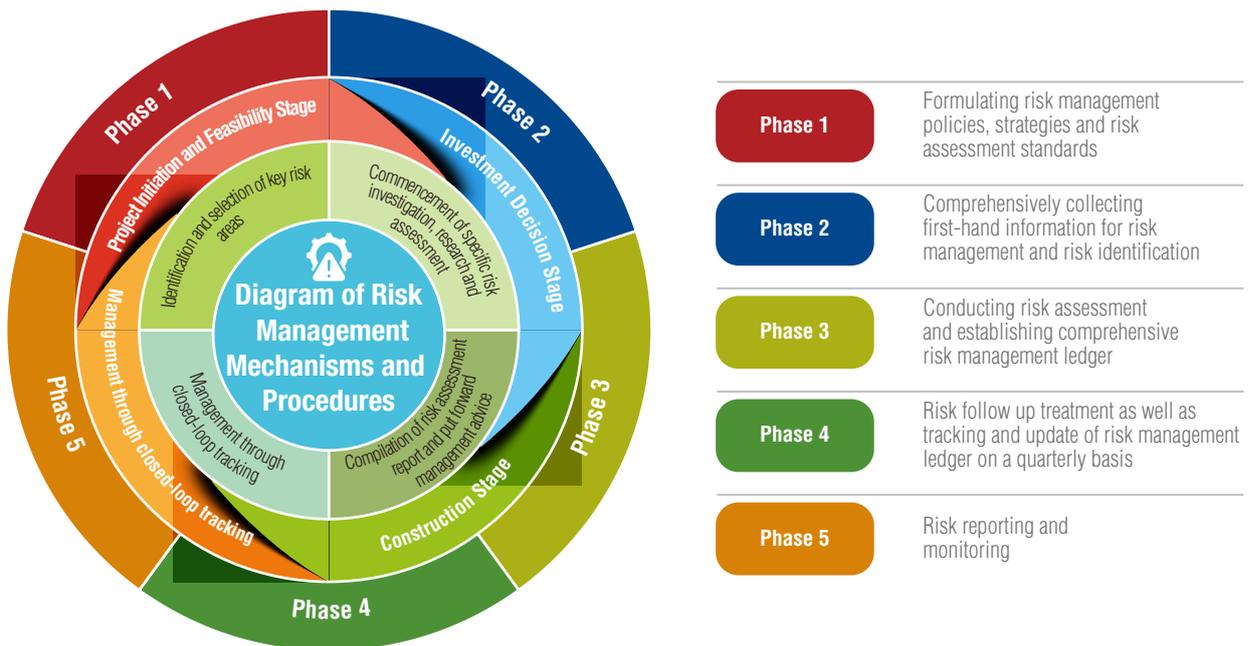
## Risk Management

We acknowledge that risk management is an important support and basic safeguard for the high-quality and sustainable development of an enterprise. We continue to be committed to building a comprehensive risk management mechanism with the Group’s characteristics, and constantly improve the risk management system covering the “Risk Management Regulations”, so as to integrate risk prevention and control into all aspects of the Group’s operations, and take multiple measures to improve the quality and efficiency of risk management.

### Risk management structure

We comply with the risk management standards of the Committee of Sponsoring Organisations of the Treadway Commission (COSO) and the International Organization for Standardization (ISO), and in conjunction with the latest “Three Lines Model” of the Institute of Internal Auditors (IIA), we have optimized and upgraded the established “Three Lines of Defense” risk management structure covering business risk management, risk management supervision and support, and independent assurance. By combining risk management with strategic goals, we have established a more comprehensive and efficient risk management system that pays equal attention to offence and defense.

Diagram of Risk Management Mechanisms and Procedures



### Cultivation of risk control culture

We continued to strengthen the building of the audit and risk control talent team and held the training course for key talents on audit and risk control in 2023 to further strengthen the building of audit capabilities and improve the professionalism of the risk control system, so as to better adapt to new trends in industry development. We continued to promote the development of risk control culture and incorporated risk management and control-related content into courses of specific reading class. At the same time, in conjunction with the relevant arrangements for the financial supervision training of the Group, we carried out specific training on internal risk control for the newly merged companies comprising the Company, new energy units and newly established projects to strengthen employees’ knowledge and understanding of risk management and jointly build solid risk-defense lines for the Group.

## Risk control training performance of China Power

Indicator	Unit	Value in 2023
Total hours of risk control related training	hour	158
Total number of participants in risk control related training	person-times	638

## Internal Control and Audit

In order to promote the accomplishment of the Company's goals and safeguard the legitimate rights and interests of the Company and all shareholders, we have formulated the "Internal Control Management Regulations", "Internal Audit Work Measures" and other institutional processes in accordance with relevant laws, regulations and regulatory provisions to specify the internal control management system and work procedures, enhance the Company's operation and management level and risk prevention capabilities, and promote the Company's standardized and sustainable development.

### Internal control management system

We have continued to improve the Company's corporate governance structure, and established an internal control management system that runs vertically through all levels and links all departments horizontally, consisting of the Board, Audit Committee, Executive Committee, the management, internal risk control management department and all employees, so as to ensure that all work is carried out in a standardized and orderly manner, and to continuously enhance the level of internal control.

### Internal control and audit

We have continued to strengthen the internal control audit and rectification mechanism of comprehensive coverage and internal closed loop, and have achieved three-year full coverage of the audit of the affiliated enterprises. During the reporting period, focusing on the Company's strategic positioning and direction, we carried out the specific internal control evaluations such as "Specific Supervision and Evaluation for Transformation Development" and "Basic Management + Key Areas" to effectively prevent internal control risks; in accordance with the "Economic Accountability Audit Measures", "Investment Project Audit Measures" and other internal audit policies, we solidly promoted various audit tasks such as regular audits and economic accountability audits, and actively promoted the implementation of the use of audit results, supervised the rectification of the problems identified, and supported the Company's compliant operations and high-quality development based on the rectification results.

### Internal control and audit training

We have actively strengthened and improved the audit professionalism and comprehensive capabilities of the Company's auditors. We carry out training and learning by organizing training classes for key personnel on audit and internal risk control, online courses, offline training as well as reading, self-study, pushing out quality tweets on WeChat Public Platform (such as Happy Audit) within departmental groups, encouraging employees to write papers and other channels, and continue to create a good atmosphere for learning and making progress.

### Internal control and audit training performance of China Power

Indicator	Unit	Value in 2023
Total hours of internal control and audit related training	hour	803
Total number of participants in internal control and audit related training	person-times	144

#### Case China Power held a training class for key talents on audit and internal risk control in 2023

From 30 October to 3 November 2023, China Power’s annual training course for key talents on audit and internal risk control was successfully held. A total of 77 employees from various units of China Power participated in the training. The training class invited a number of senior experts to give lectures, and also set up group discussions on topics. The trainees actively participated in the discussions. This further improved the professional level of the audit and risk control practitioners in each unit and promoted the high-quality development of the Group’s audit and risk control work.



Training class for key talents on audit and internal risk control together with the work meeting on risk prevention and control

## Compliance with Laws and Regulations

Pursuing compliance with laws and regulations as the premise and foundation of business management, we have established and improved the legal compliance management system, and continued to promote the integration of legal risk prevention, compliance management and legal supervision. Our legal governance capabilities have been continuously enhanced and the level of compliant operations has been significantly improved.

In March 2023, the Audit Committee reviewed the Company’s “Compliance Management Report” for 2022 and specified the seven key points of compliance work in 2023; and in August 2023, it reviewed the Compliance Management Report for the first half of 2023 and continued to supervise the development of the compliance management system and the implementation of compliance work.

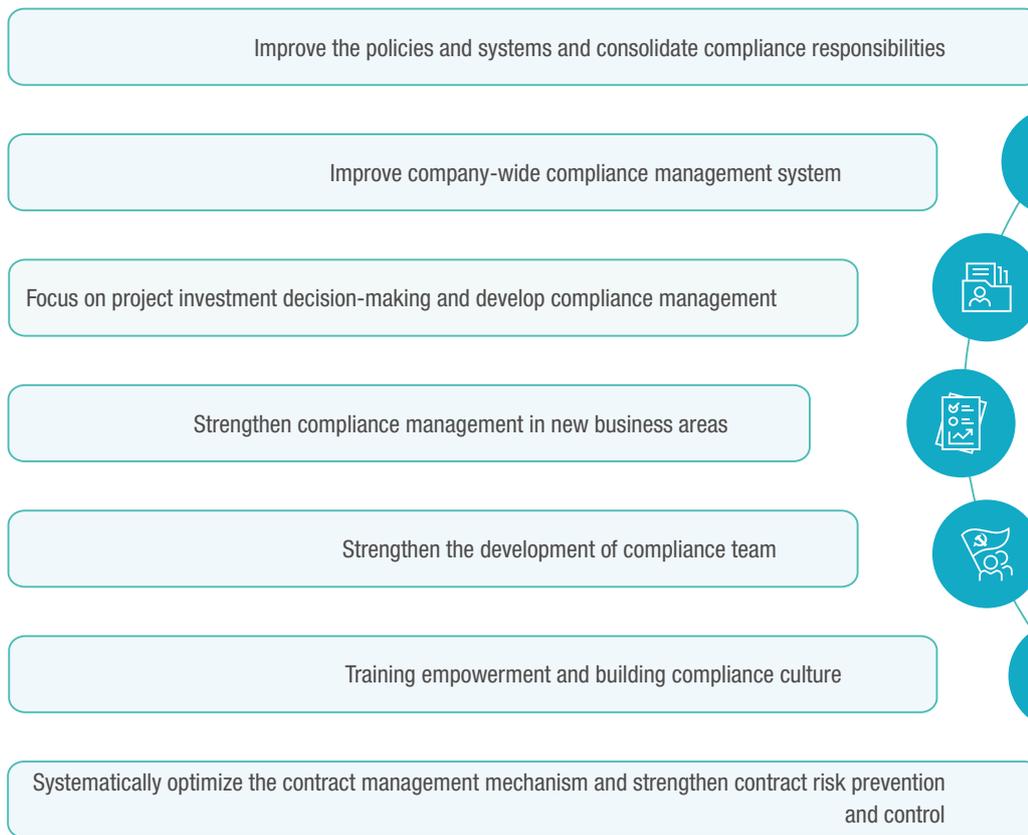


**4.304** RMB billion  
Total tax paid in 2023



**0** case  
Number of major legal disputes

### Key points of China Power's compliance work in 2023



### Compliance management system

We continue to improve the compliance management organizational system and institutional system. A comprehensive, efficient and collaborative compliance management organizational structure covering the Board, Audit Committee, Executive Committee, the management, business units, compliance management departments and all employees has been formed. At the same time, we have formulated and improved a number of institutional standards such as the "Compliance Management Regulations", "Compliance Management Measures for Overseas Operations", and "Negative List for Overseas Operations Management Compliance" to effectively improve the level of compliance management.

### Compliance operation management

Having taken into account of our own situation, we conducted compliance audits on key nodes such as the Company's policies, economic contracts, and major decisions of the Company's various governance bodies, and integrated the compliance audit work into the review process of decision-making meetings such as the Investment Coordination Meeting, the President's Office Meeting and the Executive Committee, to ensure that the compliance requirements were fully considered and implemented in the decision-making process. During the reporting period, we carried out compliance inspections with full coverage of newly acquired clean energy companies by China Power, and proposed differentiated treatment measures for different grades of risk.

We have continued to promote the building of compliance culture, actively improve the regular compliance training mechanism, and carry out specific training programs on areas such as contract management, dispute management, law firm engagement, compliance management, overseas anti-corruption and listing regulatory rules, so as to enhance the compliance awareness and practical capabilities of all employees.

## Strengthen legal protection

We have continuously increased the legal protection for industrial transformation and upgrading. In response to new legal issues and compliance challenges in the development of new energy, we have formulated the “Legal Compliance Review Guidelines for New Energy Projects”; we have customized legal protection mechanisms focusing on the characteristics of emerging industries, so as to effectively improve the pertinence of legal risk identification and the effectiveness of compliance risk prevention in “strategic emerging industries”. We continued to strengthen the prior control of legal review, conducted management and control of dispute risks in advance, completed the preparation of review guidelines for contract terms, corporate systems and the articles of association, and maintained regular updates to further protect the Group’s legitimate rights and interests.

We actively promoted the handling of legal dispute cases, established a special processing mechanism for legal dispute cases left over from history, and made comprehensive use of various means such as litigation, arbitration, mediation and reconciliation to vigorously safeguard the legitimate rights and interests of the subsidiaries.

## Tax compliance

We strictly abide by the tax laws and regulations in the regions where our operations are located, formulate sound tax policies, standardize corporate tax management, perform stringent tax computation, declare and pay taxes in a timely manner, and prevent violations in taxation. We have actively carried out tax planning and management, and have formulated the “Operation and Management Manual for Additional Deduction of R&D Expenses” and the “Tax Planning Manual for New Energy Enterprises”. We have steadily created a standardized full-process tax management model to ensure maximum entitlement of policy bonus, and maximize the Group’s interests under the premise of tax compliance.

### Legal compliance training performance of China Power

Indicator	Unit	Value in 2023
Total hours of legal compliance training	hour	91
Total number of participants in legal compliance training	person-times	2,608

#### Case

#### China Power held a training session on compliance management of new energy business

In December 2023, China Power held a training session on compliance management of new energy business, with more than 350 participants. This training made a systematic analysis on the common legal compliance risks and review key points of wind power and photovoltaic power projects, and gave a detailed explanation of land use issues and the key points of compliance documents. It effectively improved the participants’ awareness of legal compliance risks in new energy projects.



Training session on compliance management of new energy business

**Case** China Power held a training meeting on listing compliance

In November 2023, China Power held a listing compliance training meeting for the staff of the provincial companies which we newly acquired. This training systematically explained the laws, regulations and the “Listing Rules” that China Power shall comply with as a Hong Kong listed company, and based on actual transaction cases, analyzed the regulatory requirements for inside information, connected transactions and major transactions of listed companies in details. At the same time, it shared ESG-related disclosure requirements, current market practices and future trends to further enhance the Group’s overall compliance awareness and governance level.



Listing compliance training meeting

## Digital Transformation

We have empowered the Group’s business development by digital means, continued to promote the digital transformation of business systems and management systems, and improved the overall operational efficiency. While achieving results in digital development, we have strengthened information security management, prevented information security risks, and ensured the safety and stability of the Group’s production and operations.

### Digital Development

We have adopted comprehensive and multi-level strategies to comprehensively promote digital transformation and further strengthen the Group’s data management capabilities, laying a solid foundation for long-term corporate development.

#### Digital system development

We have actively carried out the development of the Enterprise Resource Planning (ERP) system and continued to enhance the achievements in the development of financial digitalization. During the reporting period, China Power’s ERP system integration and optimization project has been officially launched. Currently, demand research and difference analysis have been completed, and blueprint design is in progress. After the project is implemented in the future, it will provide the enterprise with more efficient and accurate management tools, and further promote the Group’s digitalization process.

#### Achievements in the development of financial digitalization of China Power in 2023



##### Actively carried out the development of ERP system

- Completed standardized financial sorting and master data management, and formed a standardized manual and consultation plan for the preliminary stage of the development of ERP system;
- The ERP system integration and optimization project was progressing smoothly, demand research and difference analysis have been completed.



### Improved the “digital intelligence” level of information systems

- Completed the launch of the Company’s hierarchical modeling indicator application and full-scale promotion of the application functions of the analysis system. The system operated smoothly and the automation rate reached 90%;
- Completed the launch of 3 robots of process automation (RPA) including the reconciliation robot, the voucher preparation robot and the tax return robot.



### Continued to promote one-click statement optimization

- Incorporated Wu Ling Power and Anhui Company into the “two-tier consolidation”<sup>2</sup> pilot units, expanded the application units of the offsetting platform, and cooperated in promoting the reduction of the statement preparation time of provincial companies from 3 days to 1.5 days.

## Digital transformation in the industry

We have actively promoted the digital transformation in the industry (for details on the digital transformation of green energy, please refer to the section headed “Driving Digital Transformation of the Industry” in this report), and accelerated the development of the data in thermal power industry, so as to realize real-time monitoring and situation analysis on the data of coal-fired power, environmental protection and combustion engine power stations, effectively realizing information management of thermal power industry, and improving operational efficiency and safety.

Giving full play to the centralized management and transfer advantages of Suzhou Data Center (the key data center of the Group), the Company determined the centralized management and transfer plan for collection of its hydropower and thermal power data, achieving centralized management of various production data. In 2023, we successfully completed the data access of 28 power generating units and the direct data capture of 5 new energy plants, further strengthening the Group’s data management capabilities and providing more reliable data support for corporate decision-making.

## Cybersecurity

We acknowledge that in today’s digital era, protecting customer and corporate information security is crucial. Therefore, we are always committed to establishing and maintaining a high-level cybersecurity management system.

### Cybersecurity management mechanism

The Company’s cybersecurity work follows the principle of territorial management, implements the system of level-by-level responsibility, and establishes a cybersecurity and information-based leading team as the leadership and decision-making body for cybersecurity work. The team has an office responsible for implementing decisions, coordinating and organizing cross-department and cross-unit cybersecurity work; the main person in charge of the leadership team of various subsidiaries is the first person responsible for the unit’s cybersecurity, and the members of the leadership team in charge of cybersecurity are the directly responsible individuals.

<sup>2</sup> “Two-tier consolidation” refers to getting rid of the original way of consolidation by tier and consolidating at the second tier of management units by directly aggregating the accounting data of all subordinated units below before any offsetting so as to directly obtain a consolidated statement for the second tier of units.

## Cybersecurity management measures

We have continued to monitor the dynamics of cybersecurity, constantly improve the cybersecurity defense system, revise the contingency plans for cyber and information security emergencies, and actively carry out emergency drills for cybersecurity incidents to improve the Group’s response capabilities to cyber attacks and security incidents. In addition, the Group has actively promoted information security level protection certification and improves information security management level through external standards. In 2023, a total of 13 project units completed the level protection assessment (assessment on information security level protection) of 36 systems.

Level protection assessment is an activity carried out by a qualified evaluation agency in accordance with the provisions and standards of the “Information Security Level Protection Specifications” to detect and evaluate the security level protection status of the information system. It is of great significance to improving the information security protection capabilities of corporate information systems. During the reporting period, the Group did not experience any information or data leakage incidents.

## Information security training

We have regularly carried out cyber information security training, covering many aspects such as cybersecurity defense systems, intelligent monitoring platforms for IT facilities and defense systems in the industrial control field, dynamic technologies responding to Bots automated attacks, and ideas for building corporate attack and defense technologies in the context of practices. Through training, we have continuously improved employees’ awareness and response capabilities of cyber information security, reduced security risks caused by human factors, strengthened the Group’s cybersecurity protection capabilities, and ensured the safe and stable operation of the Group’s cyber and information systems.

### Information security training performance

Indicator	Unit	Value in 2023
Total number of times for information security training	times	42
Total hours of information security training	hour	397.5
Total number of participants in information security training	person-times	5,868

#### Case

#### No. 2 power generating unit of Pingwei Power conducted practical exercise of cyber attack and defense

In August 2023, the Distributed Control System (DCS) of No. 2 power generating unit of Pingwei Power was selected as the core target in the 2023 National Cyber Attack and Defense Practical Drill. Through full preparation, scientific protection and close collaboration between various units, 51,671 attacks were successfully blocked during the drill, 6,092 attackers’ Internet Protocols (IP) were banned, and 30 technical and tactical reports were produced, of which one report by Pingwei Power was selected to be presented to the Ministry of Public Security of the People’s Republic of China. During the entire drill, China Power had no information system failure, recording the historically best performance with a total score of 4,500, which won the recognition and applause externally.

## Responsibilities for Investors

We are committed to establishing long-term and stable relationships with investors, formulating and abiding by the “Investor Relationship Management Measures”, standardizing the management of various information disclosures and connected transactions, strengthening communications with investors, and increasing investors’ understanding and recognition of the Company, so as to maximize the Company’s value, effectively protect the rights and interests of investors and creditors, and maintain a good brand image.

## Information Disclosure



# 84

announcements issued

Strictly abiding by the Listing Rules of the Hong Kong Stock Exchange and the “Management Measures for Statutory Information Disclosure” of the Company, adhering to high standards, we have fulfilled the statutory information disclosure obligations of listed companies, continuously improved the internal mechanism of information disclosure, and carried out training on information disclosure of listed companies, and ensured that the Company’s mandatory disclosures have been made in a compliant, timely, accurate and complete manner. In 2023, the Company issued 84 announcements on the websites of Hong Kong Stock Exchange and the Company.

We acknowledge that the sustainability report is an important integral part of the non-financial information disclosure of listed companies. Integrating with the public’s needs for the Company’s environmental, social and corporate governance and other non-financial information disclosure, we accurately prepared and released the sustainability report to provide an important basis for investors to evaluate the Company’s non-financial risks and sustainability potential.

## Connected Transactions

We have continued to strengthen the management of connected transactions and strictly performed the decision-making procedures and disclosure obligations of connected transactions. The Company’s Audit and Internal Control Department, in accordance with the relevant requirements of the Listing Rules for continuing connected transactions, inspects and supervises the execution of the Company’s continuing connected transactions on behalf of Audit Committee, conducts quarterly reviews on the execution of the Company’s existing continuing connected transactions to effectively enhance the Company’s level of standardized operations and protect the legitimate rights and interests of the Company and all shareholders. In 2023, the Company invited an external auditor to conduct assurance engagements on continuing connected transactions in accordance with Hong Kong Standard on Assurance Engagements 3000 (Revised) and other standards, and issued a letter indicating no qualified opinion.

## Shareholders’ Rights and Interests

We actively safeguard the interests of shareholders, promote the sustainable development of the Company’s operation management and business practices by continuously improving corporate governance, strengthening internal control management and other measures, respect the interests of investors, especially the minority shareholders’ interests, and strive to achieve a win-win situation in which the Company’s development and investors’ return on investment grow steadily.

We actively establish active investor relations and communicate with investors extensively through various methods such as mails, phone calls, video conferences, receiving visits and consultations from investors and research institutions, holding press conference after release of financial results, attending strategy meetings, roadshows and reverse roadshows, etc. to improve the transparency of the Company’s operations and ensure that investors have equal opportunities to obtain the Company’s information.

The Company has always maintained close communication with various domestic and foreign investors to strengthen its image and influence in the capital market. In 2023, the Company held 2 general meetings and reviewed 12 proposals; held more than 130 formal investor meetings, participated in more than 20 domestic and foreign strategy meetings of securities brokers, and met with investors for more than 1,200 person-times; and obtained continuous positive ratings from more than 15 domestic and foreign securities brokers, and was accredited with the “Best IR of Hong Kong Stock Companies” by New Fortune, the “Golden Hong Kong Stocks Award 2023” from Zhitong Financial Information Technology Service Company Limited in Shenzhen, and the “Innovative Capital Market Communication Team Award” from Futu Securities International (Hong Kong) Limited, among other honors.



Met with investors for more than

# 1,200

person-times



Best IR of Hong Kong Stock Companies



Golden Hong Kong Stocks Award 2023



Innovative Capital Market Communication Team Award

Case China Power held the 2023 Interim Results Press Conference

On 25 August 2023, China Power held the 2023 Interim Results Press Conference in Hong Kong. More than a hundred investors and analysts participated in this meeting onsite or online. HSBC, UBS, Citibank, JPMorgan Chase, Shenwan Hongyuan, Changjiang Securities, Greenwoods Asset Management and other institutions actively asked questions and paid close attention to the Company's issues such as strategic planning, new energy market-based tariffs, and recovery of government's subsidies. The management responded to the questions of all investors seriously, and once again clarified the Company's positioning and strategic goals. With the entire process of lively and enthusiastic exchange, the meeting achieved good results.



Press Conference of China Power's 2023 Interim Results

## Creditors' Rights and Interests

While pursuing the maximization of shareholders' interests, we establish and improve asset management and capital management systems, strengthen financial risk control, and ensure the asset and capital security. We strictly abide by the business rules of credit cooperation, use capitals in strict accordance with loan agreements, and pay principal and interest on schedule. The Company has never damaged the interests of creditors. During the reporting period, the Company has always maintained a good credit record, with a bond credit rating of AAA, and obtained an unqualified audit report issued by an external audit agency for the Company's 2022 Annual Report.

# Communication with Stakeholders

Based on the characteristics of our industry and business operations, we have established a regular and efficient communication mechanism with nine categories of stakeholders, namely, regulatory authorities, investors, employees, customers, suppliers, creditors, partners, peers, and community, to identify the expectations of stakeholders, to respond to the demands of all parties actively, and to enhance the Group's ESG performance.

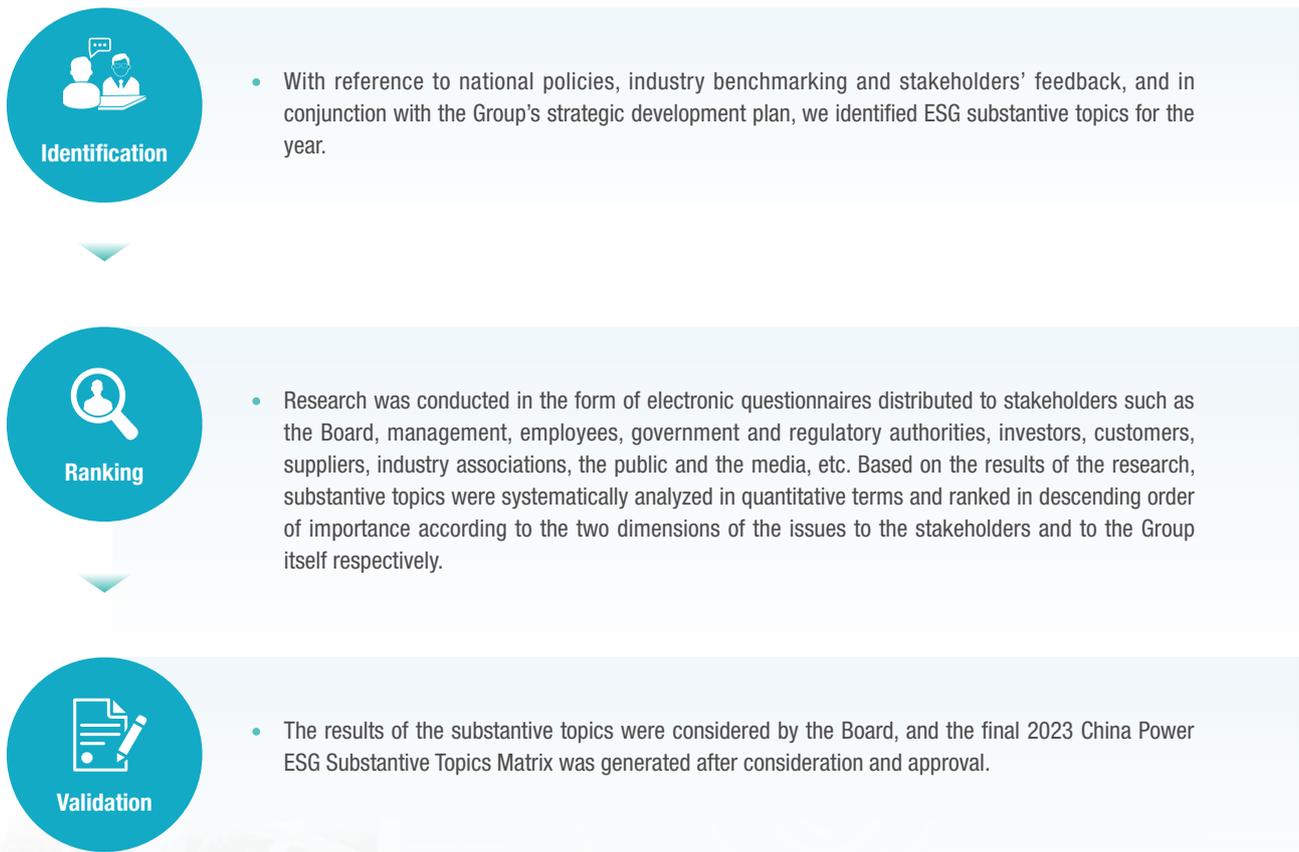
Stakeholders	Expectations and Requirements	Modes of Communication and Participation	Our Responses
 <b>Regulatory authorities</b>	<ul style="list-style-type: none"> <li>· Legal compliance</li> <li>· Compliance in operations</li> <li>· Paying taxes according to laws</li> <li>· Energy conservation and emissions reduction</li> <li>· Promoting employment</li> </ul>	<ul style="list-style-type: none"> <li>· Participating in relevant meetings</li> <li>· Reporting on work done</li> <li>· Information submission</li> </ul>	<ul style="list-style-type: none"> <li>· Complying with laws and regulations</li> <li>· Accelerating the development and transformation of business</li> <li>· Maintaining active communication and engagement with relevant regulatory authorities</li> </ul>
 <b>Investors</b>	<ul style="list-style-type: none"> <li>· Disclosure of information</li> <li>· Increasing profitability</li> <li>· Stable dividend distribution policy</li> <li>· Increasing market value</li> <li>· Mitigating operating risks of the Company</li> <li>· ESG performance</li> </ul>	<ul style="list-style-type: none"> <li>· Press conference for results announcement</li> <li>· Road show</li> <li>· Reverse roadshow</li> <li>· Investors conference</li> <li>· General meeting</li> <li>· Daily communication</li> </ul>	<ul style="list-style-type: none"> <li>· Communicating closely with investors and improving the timeliness of information disclosure</li> <li>· Striving to enhance profitability of the Group</li> <li>· Adopting market recommendations and improving management of the Group</li> </ul>
 <b>Employees</b>	<ul style="list-style-type: none"> <li>· Safeguarding legitimate rights and interests of employees</li> <li>· Ensuring occupational safety and health</li> <li>· Providing reasonable remuneration and benefits</li> <li>· Fostering fair career development opportunities</li> <li>· Caring for employees' lives</li> </ul>	<ul style="list-style-type: none"> <li>· Staff congress meeting</li> <li>· Staff forum</li> <li>· Reasonable suggestion</li> <li>· Openness of factory affairs</li> <li>· Daily communication</li> </ul>	<ul style="list-style-type: none"> <li>· Signing and performing labor contracts according to laws and implementing democratic management</li> <li>· Establishing occupational safety management system and strengthening prevention of occupational diseases of staff</li> <li>· Establishing sound remuneration and benefits policies</li> <li>· Providing systematic career planning and employee development trainings</li> <li>· Assisting the needy employees and carrying out services for retired employees</li> </ul>
 <b>Customers</b>	<ul style="list-style-type: none"> <li>· Contract performance</li> <li>· Quality assurance</li> <li>· Service guarantee</li> <li>· Mutual benefit and win-win result</li> </ul>	<ul style="list-style-type: none"> <li>· Sales and order-placing meetings</li> <li>· Customer satisfaction survey</li> </ul>	<ul style="list-style-type: none"> <li>· Providing quality, efficient, safe and green energy products and services</li> <li>· Keeping trade secrets strictly confidential</li> </ul>

Stakeholders	Expectations and Requirements	Modes of Communication and Participation	Our Responses
 <p><b>Suppliers</b></p>	<ul style="list-style-type: none"> <li>· Long-term cooperation</li> <li>· Meeting commitments</li> <li>· Open, fair and just procurement</li> <li>· Joint development</li> <li>· Mutual benefit and win-win result</li> </ul>	<ul style="list-style-type: none"> <li>· Supplier meeting</li> <li>· Transparency of tendering and bidding information</li> <li>· Strategic cooperation</li> <li>· Cooperation agreement</li> </ul>	<ul style="list-style-type: none"> <li>· Implementing open and transparent business principles and processes</li> <li>· Standardizing management and performing contracts and agreements</li> <li>· Implementing responsible procurement policy</li> </ul>
 <p><b>Creditors</b></p>	<ul style="list-style-type: none"> <li>· Strong solvency</li> <li>· Repaying principal and interest on time</li> <li>· Mutual trust and cooperation</li> </ul>	<ul style="list-style-type: none"> <li>· Periodic meetings</li> <li>· Cooperation agreement</li> </ul>	<ul style="list-style-type: none"> <li>· Protection against financial risks</li> <li>· Repaying loans as scheduled</li> <li>· Strengthening communication and engagement</li> </ul>
 <p><b>Partners</b></p>	<ul style="list-style-type: none"> <li>· Building harmonious, interactive and amicable relationship</li> <li>· Achieving win-win result and mutual growth</li> </ul>	<ul style="list-style-type: none"> <li>· Exchange visits among senior management</li> <li>· Strategic cooperation</li> </ul>	<ul style="list-style-type: none"> <li>· Broadening channels of communication and cooperation</li> <li>· Strengthening communication and cooperation</li> <li>· Enhancing the Industry-University-Research related work</li> </ul>
 <p><b>Peers</b></p>	<ul style="list-style-type: none"> <li>· Strict compliance with policies and industry regulations</li> <li>· Creating a healthy environment for competition</li> <li>· Promoting the development of power industry</li> </ul>	<ul style="list-style-type: none"> <li>· Industry associations</li> <li>· Seminars</li> </ul>	<ul style="list-style-type: none"> <li>· Ensuring strict compliance with industry policies and regulations</li> <li>· Abiding by business ethics and maintaining healthy market competition</li> <li>· Deepening power system reform and improving core competitiveness of the Group</li> <li>· Strengthening industry exchange and promoting industry development</li> </ul>
 <p><b>Community</b></p>	<ul style="list-style-type: none"> <li>· Supporting local economic development</li> <li>· Protecting the living environment of the community</li> <li>· Building harmonious relationship with the community</li> </ul>	<ul style="list-style-type: none"> <li>· Collaboration and joint contribution</li> <li>· Charitable activities</li> <li>· Publicity activities</li> </ul>	<ul style="list-style-type: none"> <li>· Supporting economic development of the areas where we operate</li> <li>· Organizing environmental protection and charitable activities</li> <li>· Organizing community volunteer service activities</li> </ul>

# Analysis of Substantive Topics

In 2023, we collected, collated and analyzed the topics of interest to our stakeholders through questionnaire surveys, and having taken into account of the development trend of the industry, our own business strategy and the regulatory requirements of ESG, we meanwhile, coordinated and sorted out 28 topics that had significant impact on the Group and stakeholders, which helped us to specify the focus of disclosure of information and the direction of future management of the Group.

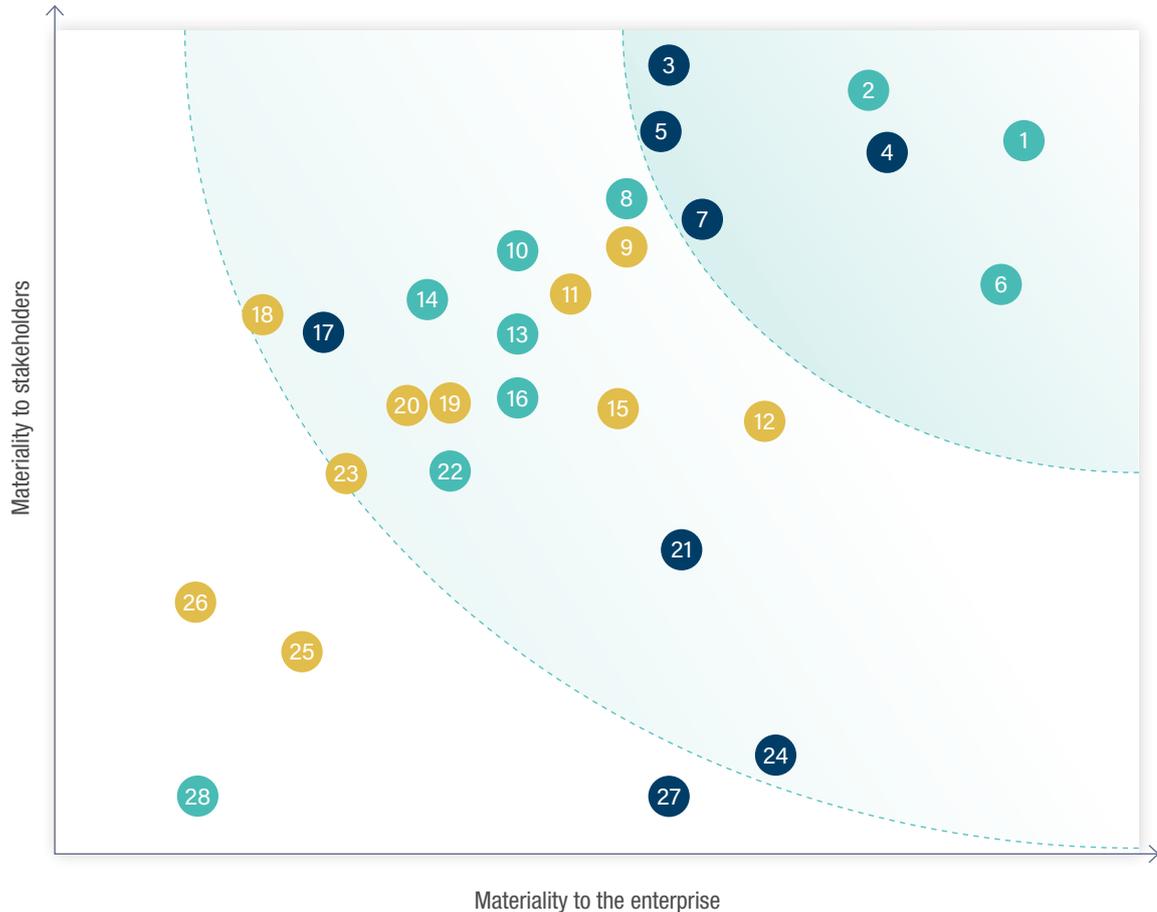
## Substantive topic determination process



## Matrix of substantive topics

After identification, ranking and validation, China Power has presented the degrees of importance of the 28 topics in the form of a matrix diagram, where very important topics are located in the top right of the matrix, while moderately important topics in the middle, and low importance topics in the bottom left.

2023 ESG Substantive Topics Matrix of China Power



### Materiality, Ranking and Dimension of Topics

Very Important	Moderately Important	Low-importance
1 Clean energy development and utilization	8 Technological renovation and innovation in relation to environmental protection	25 Social contribution
2 Addressing climate change	9 Ensuring energy supply	26 Customer responsibility
3 Anti-corruption	10 Resource management	27 Compliance risk control
4 Contributing to implementation of national strategies	11 Employee care and motivation	28 Green investment and financing
5 Safeguarding investors' rights and interests	12 Safety production	
6 Greenhouse gas emission	13 Emissions management	
7 ESG governance	14 Conservation of ecological environment	
	15 Occupational health and safety of employees	
	16 Green and low-carbon development	
	17 Disclosure of information	
	18 Stakeholder management	
	19 Career development and training	
	20 Safeguarding employees' rights and interests	
	21 Digital transformation	
	22 Environmental management system	
	23 Responsible supply chain	
	24 Innovative development	

# Environmental and Climate Governance

Actively responding to the national “Dual Carbon” Goals, China Power deeply integrates green and sustainable concepts with the Group’s business, actively responds to global climate change issues caused by greenhouse gas emissions, improves environmental management, implements energy saving and emissions reduction. Besides, it takes green actions, unswervingly accelerates the Group’s “green and low-carbon” transformation, explores the development path among green waters and green mountains, and develops together with the ecological environment.

Responding to the Sustainable Development Goals (SDGs) of the United Nations



## 2023 Performance Highlights

- Investment in environmental protection **0.176** RMB billion
- Environmental emergencies **0** incidents
- Net coal consumption rate **298.72** g/kWh
- Total greenhouse gas emissions **49,103,301** tCO<sub>2</sub>e
- Direct greenhouse gas emissions (Scope 1) **48,805,239** tCO<sub>2</sub>e
- Indirect greenhouse gas emissions (Scope 2) **298,062** tCO<sub>2</sub>e

# Responding to Climate Change

Climate change is one of the major risks in the world today. As a power generation enterprise, we attach great importance to the national “Dual Carbon” policy, actively respond to the risks and opportunities brought by climate change, and integrate climate issues into our overall corporate strategy. With reference to the “Sustainability Disclosure Standards of IFRS 1 – General Requirements for Disclosure of Sustainability-Related Financial Information” and “Sustainability Disclosure Standards of IFRS 2 – Climate-Related Disclosures” issued by the International Sustainability Standards Board (ISSB) in June 2023, we have further improved our environmental and climate governance system based on the recommendations of the TCFD in an effort to disclose climate-related working plans and performance.

## Indicators and Goals

In October 2021, China Power released the “Outline of the New Development Strategy”, and set the clear short-, medium- and long-term development goals. To ensure the realization of these goals, we have specified them into a series of performance indicators and been committed to systematically evaluating and assessing our annual performance with objective and quantitative criteria.

### Actions in 2023

- Promoted the leapfrog development of the principal clean energy segment and optimized the power asset structure
- Upgrade in clean development of coal-fired power assets
- Development and construction of large-scale power bases
- Participated in green power market trading
- Development of strategic emerging industries, integrated intelligent energy, energy storage and green power transportation
- Put all efforts to promote low-carbon technological innovation and digital transformation
- Expanded the scope and content of cooperation with, among others, local governments at all levels, sizable customers, and upstream and downstream enterprises involved in the power industry

### Goals Achieved

- Proportion of consolidated installed capacity of clean energy reached 75.39%
- Signed 210 strategic co-operation agreements with strategic sizable customers and strategic cooperation cities and counties

## Climate Governance System

In March 2023, the Company approved the establishment of “Strategic and Sustainable Development Committee” under the Board to provide leadership, guidance and supervision on the Group’s policy formulation for, and practical implementation of, sustainable development matters, which is responsible for identifying, evaluating and managing the Group’s risks and opportunities related to climate change and reporting regularly to the Board. At the same time, there is a Sustainability Working Committee under the Strategic and Sustainable Development Committee to assist in the implementation of relevant work. The Sustainability Working Committee sets up leading teams and working groups to coordinate and promote climate change-related management work, and ensure that climate change-related policies and measures are integrated into the Group’s daily operations.

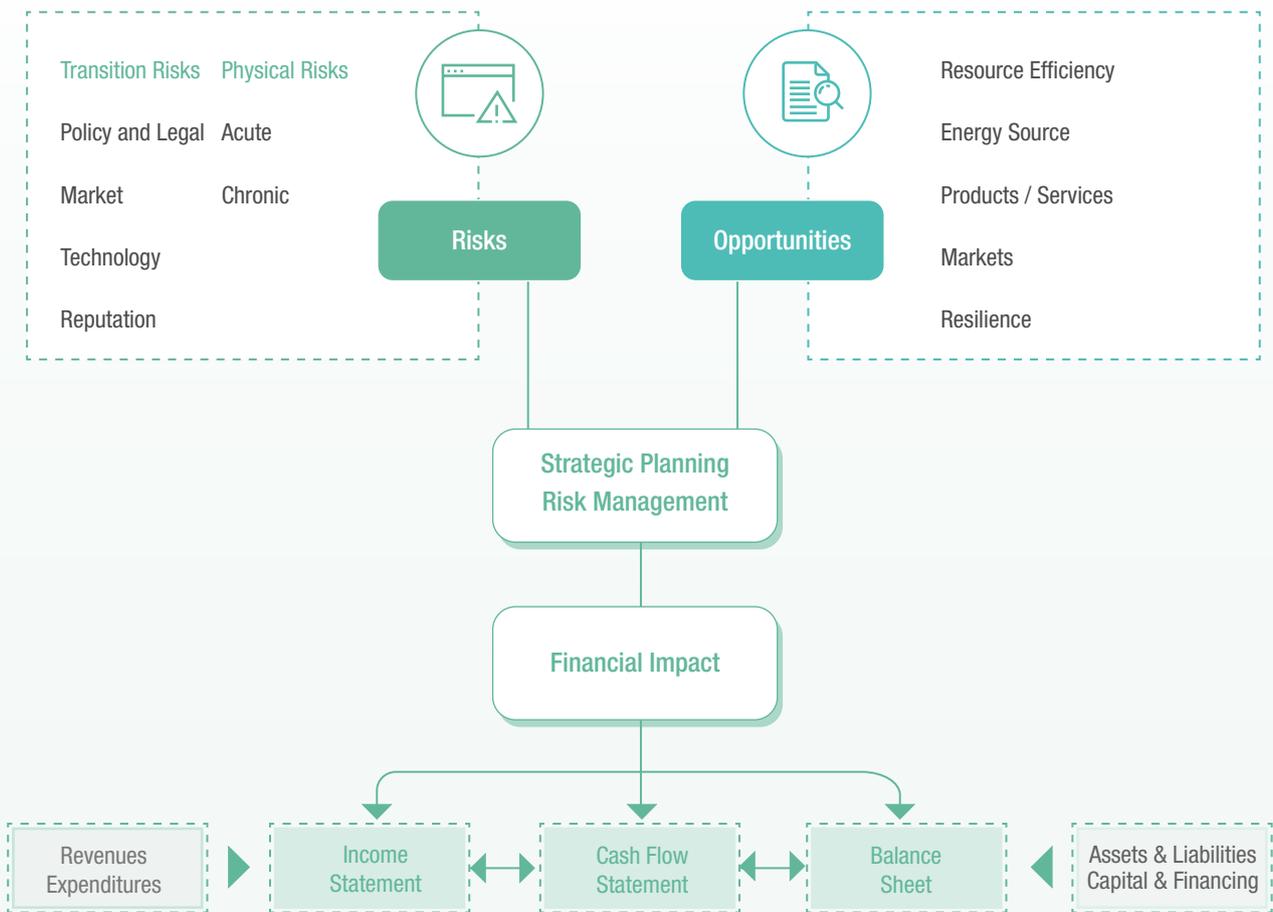
The Board and management hold regular meetings to review climate change-related issues, continue to carry out special ESG training, and strengthen the ESG awareness of all employees; at the same time, we strengthen cooperation with the institutions and units in the sustainable development service industry and participate in ESG exchanges and sharing.

## Climate Responsive Strategies

### Climate risk identification



We have established the climate risk management process according to the disclosure procedures in the “Guidance on Climate Disclosures” issued by the Hong Kong Stock Exchange, and followed the framework of “Climate-related Risks, Opportunities and Financial Impact” proposed by TCFD, to conduct climate risk identification and analysis. We have assessed the financial impact of each type of risk through qualitative means such as information analysis, management interviews and internal discussions, and quantitative means such as risk scoring, and consequently ranked relevant risks using indicators such as likelihood, level of impact, adaptability and recoverability, and have ultimately compiled a list of risks that China Power is exposed to and formulated countermeasures.



The “Climate-Related Risks, Opportunities and Financial Impacts” framework

### Analysis on climate change scenario

To adequately address the uncertainty of climate change impacts, we have adopted climate-related scenario analysis to identify and assess the complex impact of climate change risks on business performance at different levels. In order to fully consider the socio-economic and physical risks, we have selected the Shared Socio-Economic Pathways (“SSP”) of the United Nations’ Intergovernmental Panel on Climate Change (“IPCC”) and combined it with the attributes of the energy and power industry and the policy background of the “Dual Carbon Goals”, as well as China Power’s business layout for risk assessment.

### The IPCC's latest Sixth Assessment Report presents carbon dioxide emissions under different scenarios of the SSP

Scenarios	Descriptions	Carbon dioxide (CO <sub>2</sub> ) emissions
SSP1-1.9 SSP1-2.6	Low and very low greenhouse gas emission scenarios	CO <sub>2</sub> emissions will fall to net zero around or after 2050, followed by varying degrees of net negative CO <sub>2</sub> emissions
SSP 2-4.5	Medium greenhouse gas emission scenario	CO <sub>2</sub> emissions remain at current levels until the middle of this century
SSP3-7.0 SSP5-8.5	High and very high greenhouse gas emission scenarios	CO <sub>2</sub> emissions will double from current levels by 2100 and 2050, respectively

Complying with the principles of high comparability, balance and science-based selection of climate scenarios, we have selected three greenhouse gas emission scenarios, namely, very low, medium, and very high (i.e., mild, moderate and severe), for making our climate change scenario assumptions.

The IPCC has proposed a number of strategies for mitigating and adapting to climate change, including incentivizing emissions reduction through market mechanisms such as carbon pricing. By setting a price on carbon emission rights, enterprises and industries can be encouraged to take actions to reduce greenhouse gas emissions, which will help realize the global greenhouse gas emission reduction target. Therefore, we have selected the price of carbon emission rights (carbon dioxide emission quota price) as the key factor to quantify the economic impact of climate change risk on the Group's power generation business, in order to determine the price of carbon emission rights, related assumptions and testing technology roadmap under three stress scenarios, namely, mild, moderate and severe. At the same time, we adjusted the testing programs with reference to the global warming scenarios for the Central Bank and Supervisors Network for Greening the Financial System (NGFS) as well as the relevant scenario analysis and stress-testing programs of the regulatory authorities in Mainland China, taking into account of the industry attributes, policy background and the Group's planning.

Assuming an SSP scenario in which very low greenhouse gas emissions will be realized globally, a higher price for carbon emission rights may be needed to drive faster and more widespread emission reductions in order to achieve the stringent greenhouse gas reduction targets set in that scenario. Conversely, in a very high greenhouse gas emissions scenario, without effective policies and measures (including a sufficiently high price for carbon emission rights) to constrain emissions, there could be a significant increase in CO<sub>2</sub> emissions.

#### Based on the aforementioned climate change scenarios and analytical framework, the key assumptions include:

1. We assumed that the enterprise should pay a certain proportion of fees for the greenhouse gases such as carbon dioxide they emit, and the fees increase year by year.
2. We assumed that there is no technological advancement, and a single enterprise has no bargaining power in upstream and downstream supply chain.
3. We assumed that the Group and its key emission enterprises will implement the national "Dual Carbon" related strategies in the future, and the total carbon emissions and intensity will meet the relevant targets.
4. When a key emission enterprise has a shortage gap in carbon emission rights, the internal carbon pricing (ICP) will be used first for internal balance, and the ICP will follow the spot market price of carbon emission rights.
5. The balance of carbon assets on the book record will be carried forward indefinitely and will not be traded for cash.

### Carbon emission rights price and free quota allocation ratios under different future scenarios



### Stress Analysis

- The key emission enterprises under the Company will face certain operational and financial stresses under the pressure of year-by-year reduction in carbon emission free quota allocation and rising carbon emission rights price, mainly manifested in the generation of a certain carbon emission rights gap that will affect contract performance. After internal balancing using IPC, the carbon emission rights shortage gap will be bridged. From 2026 to 2030, the cash outflow caused by bridging the carbon emission rights gap will have a negative impact on the operations of some key emission enterprises of the Company, but the overall impact will be limited;
- The key emission enterprises have limited impact on the Group's consolidated statement results, with limited net profit reduction and limited decline in related debt repayment indicators; the risk-neutral default quantification model KMV shows that the increase in default probability is limited and the credit risk of the Group is controllable as a whole;
- The total amount of the Group's existing carbon emission rights will be affected to a certain extent in the future. However, as the Group actively implements the national "Dual Carbon" related strategies and continuously controls the total carbon emissions and intensity, the stress on the Group's carbon emission rights will be limited.

### Responsive Measures

- Actively implement the national "Dual Carbon" related strategies and improve the dual control of total carbon emissions and intensity;
- Incorporate the financial risks brought by climate risks into the comprehensive risk management system, regularly update the forecast results and promptly adjust operating strategies based on the results;
- Intensify the development of Chinese Certified Emission Reduction (CCER) projects, increase carbon asset reserves, implement the Company's green development strategy, and fulfill our corporate social responsibilities;
- Strengthen contract performance management and enhance internal coordination and trading of carbon emission rights.

Transition risk identification and response

Type of risks	Descriptions of risks	Potential opportunities	Potential major financial impact	Responsive strategies
Policy and legal	<p>The State Council issued the "Action Plan for Carbon Peaking Before 2030", and the Ministry of Ecology and Environment published the "Management Measures for Carbon Emission Rights Trading (Trial)" and other relevant institutional documents, resulting in changes in national policies and related requirements.</p>	<p><b>Clean energy development opportunities:</b> With the restriction and control of carbon emissions, it is likely for the Company to increase investment in and development of clean energy, such as wind energy, solar energy, etc., to meet the needs of low-carbon economy.</p> <p><b>Participating in the carbon trading market:</b> Carbon emission rights trading provides the Company with new business opportunities and creates additional revenue.</p>	<p><b>Impact on business layout:</b> Dual control policies on energy and consumption vary from region to region. The Company needs to optimize and adjust its business layout and asset portfolio according to local conditions.</p> <p><b>Increase in compliance costs:</b> The Company has to devote more resources to comply with increasingly stringent regulatory requirements, and implement higher quality information disclosure.</p> <p><b>Increase in operating costs:</b> There are stricter policy requirements for climate regulation, resulting in higher pricing for carbon emissions, which further restricts the environmental protection requirements of the Company's development projects.</p>	<p>Gradually adjusting the ratio of coal-fired power generation to new energy power generation, and implementing joint operations of coal and power enterprises;</p> <p>Expanding business presence in strategic emerging industries, promoting the development of integrated energy, energy storage and green power transportation and exploring new business segments;</p> <p>Developing and implementing emissions reduction strategies while paying close attention to carbon pricing mechanisms at the location of the relevant asset and at the global level;</p> <p>Building a high-quality data quality management system and laying a solid foundation for preparing high-quality disclosure reports on emissions.</p> <p>Improving the climate-related international evaluations to enhance corporate image and reputation through transparent disclosures.</p>

Type of risks	Descriptions of risks	Potential opportunities	Potential major financial impact	Responsive strategies
Market and technology	<p>The market demands lower-carbon emission products and services;</p> <p>Changes in electricity spot market trading rules;</p> <p>Higher requirements posed on carbon trading;</p> <p>Strict requirements on the technological upgrade in clean development of existing coal-fired power assets;</p> <p>High level of technical requirements for the stability of new energy power grid connection and consumption;</p> <p>Limited room for development of energy storage technology.</p>	<p><b>Driving technological innovation:</b> Low-carbon-oriented market and technical requirements accelerate the progress of the Company's technological innovation.</p> <p><b>New market opportunities:</b> subsidies and other opportunities brought about by government policy incentives.</p>	<p><b>Promote asset appreciation:</b> The R&amp;D of innovative technology and the addition of relevant patents will enrich the intangible assets of the Group, while technological breakthroughs will help prolong the useful lives of the Group's fixed assets.</p> <p><b>Increase in costs of technology R&amp;D:</b> Increase in the R&amp;D cost of technologies in the emerging segments such as technological upgrade and reform in environmental protection, new energy consumption technology and energy storage technology.</p> <p><b>Increase in costs of nurturing professional talents:</b> Talents constitute the foundation of technological innovation, therefore, the Group needs to establish and develop professional technological talent teams to strive their best for the development of new business areas.</p>	<p>Strengthening the cooperation among industry-university-research-application, and carefully selecting technological pathways in the process of low carbon transition;</p> <p>Promoting the joint application of energy storage with distributed power generation and centralized new energy power generation. Enhancing employee training on professional competence and enhancing technological innovation capability;</p> <p>Actively planning the business layout in the new energy power generation sector and increasing the proportion of new energy generation to meet market demand;</p> <p>Conducting research on various low carbon technologies through feasibility study and cost-benefit analysis to develop a sound cost management system.</p>
Reputation	<p>Penalties imposed by environmental-related regulatory authorities leading to doubts from market investors;</p> <p>Power-related incidents arising from extreme weather leading to negative public opinions.</p>	<p><b>Reputation management and rebranding:</b> prompting the Company to pay more attention to its reputation management, providing opportunities for rebranding, and enhancing public image by strengthening environmental protection and sustainable development measures.</p>	<p><b>Impact of negative environmental information on reputation of enterprises in the capital market.</b> If a company is subject to environmental regulatory penalties or has an environmental incident, its financing ability in the capital markets will be affected.</p>	<p>Strengthening management of investor relationship, protecting investors' right to be informed and enhancing the timeliness of information disclosures;</p> <p>Enhancing communication with the community and promoting the understanding of the public on the Company by running various forms of campaigns such as open-days;</p> <p>Pursuing the sustainable development strategy, strengthening the awareness of environmental management and improving the environmental management system.</p>

Physical risk identification and response

Type of risks	Descriptions of risks	Potential opportunities	Potential major financial impact	Responsive strategies
Acute risks	Extreme weather events such as floods, typhoons, droughts, etc.	<p><b>Opening up new market:</b> Develop and invest in disaster management emergency systems to create new business opportunities.</p>	<p>Frequent extreme weather can cause an increase in operating costs. On the one hand, extreme weather can cause damage to assets, reduce power generation and damage equipment, which will increase operating and maintenance cost. On the other hand, extreme weather may have an impact on upstream fuel suppliers, increasing the cost of supply chain management.</p> <p>Frequent extreme weather can cause an increase in staff costs. Under prolonged cold or high temperature weather, an enterprise input of subsidies and condolences for on-site working staff may increase.</p>	<p>Strengthening climate-related risks identification and management, and actively cooperating with institutions such as the Meteorological Bureau to improve emergency planning and emergency management capabilities;</p> <p>Performing equipment maintenance effectively and timely repairing damaged equipment following extreme weather events;</p> <p>Enhancing the management and training of suppliers and putting emergency plans in place for special conditions;</p> <p>Enhancing emergency response capabilities of staff and increasing the input for physical safety and protection of staff in extreme weather conditions.</p>
Chronic risks	Global warming; rising sea level.	<p><b>Developing low-carbon energy:</b> Climate warming has driven global demand for low-carbon and zero-emission energy.</p>	<p>Climate change increases management costs. Rising sea levels may damage some power facilities, resulting in the increase in the costs of infrastructure. Damage to water resources might cause shortage of water supply for hydropower stations and other power generation facilities for cooling, hence increasing the operating costs of enterprises. Furthermore, it will affect the stability of the power generation business and increase management costs in the long term.</p>	<p>Allocating different types of assets to diversify risks;</p> <p>Using climate models to assess the future operations of projects and the resilience of physical assets in the face of extreme weather.</p>

## Responsive measures

In 2023, China Power actively implemented work arrangements for the national carbon emissions peak policy, formulated the “Carbon Emissions Peak Action Plan” and carried out self-assessment on carbon emissions peak. At the same time, it clarified the target pathway and key tasks to achieve the goal of carbon emissions peak, and actively responded to climate change-related risks and opportunities.

### • Clean Energy Layout

We have continued to make efforts in the development of our principal business of clean energy, planned the construction of clean energy such as wind power and photovoltaic power, and striven to increase the installed capacity of clean energy. We have actively promoted a number of large-scale new energy base projects, continued to strengthen and expand the user-side integrated intelligent energy industry, promoted green power commercialization and the completion of “new energy +” projects, and facilitated the integrated development of new energy and rural revitalization. In 2023, the Group’s consolidated installed capacity of clean energy was 33,938.8MW, consolidated installed capacity of clean energy accounted for 75.39%, and clean energy power generation was 49,460,300MWh, which was equivalent to a reduction in carbon dioxide emissions of 32,928,961 tons and a reduction in standard coal consumption of 13,774,736 tons.

#### Consolidated installed capacity of China Power

Indicator	Unit	Value in 2023	Value in 2022
Proportion of consolidated installed capacity of clean energy	%	75.39	64.94
Proportion of consolidated installed capacity of coal-fired power	%	24.61	35.06

### • Upgrade in Clean Development of Coal-Fired Power

We have pushed forward the clean and low-carbon development of coal-fired power, actively and steadily implemented the “dual joint operations” of coal and power, accelerated the promotion of disposal of inefficient coal-fired power assets, established and improved the energy-saving and environmental protection systems for production capacity, and strengthened the energy-saving and environmental protection upgrade of thermal power sector. In 2023, the Group’s investment in the category of energy conservation and environmental protection was RMB0.176 billion, the flexibility upgrade of four power generating units was completed, and the net coal consumption rate was reduced by 3.65g/kWh compared with 2022.



Investment in the category of energy saving and environmental protection

**0.176** RMB billion



Net coal consumption rate in 2023

**298.72**

g/kWh

Net coal consumption rate in 2022

**302.37**

g/kWh

Change

**-3.65**

g/kWh

Change (%)

**-1.21%**

### Case Energy saving optimization of Pingwei #6 unit condenser vacuum system

Pingwei Power Plant III took the initiative to deal well with energy-saving management as well as energy saving and consumption reduction, and carried out energy-saving optimization of the #6 unit condenser vacuum system. This project designed a vacuum system of three-stage steam ejector to replace the original electric-driven water ring vacuum pump. The power steam heat of the ejector was used to reheat the condensation water, which reduced the energy consumption of the vacuum system. At the end of December 2023, the performance test after the ejector was put into operation confirmed that the vacuum ejector can reduce the deviation between the unit's operating back pressure and theoretical back pressure by approximately 1kpa, equivalent to a reduction in net coal consumption rate of 1.5g/kWh.

### Case Upgrade of the compressed air conveying system of Wuhu Power

In 2023, Wuhu Power implemented the project of sonic soot blowing renovation in the tail flues of #1 and #2 boilers and increasing the capacity of the compressed air conveying system. A 40 cubic-meter intermediate air storage tank was added between the air compressor and the freeze dryer to upgrade the conveying air compressor by replacing the small one with a larger one. Two sets of L300 screw direct-coupled air compressors (first-level energy efficiency) was used to replace 2 sets of L250 screw air compressors, and the power supply was optimized to effectively improve the air compression efficiency, and the conveying power consumption rate was reduced from 0.15% to 0.12%, saving the plant power consumption by approximately 1,350MWh a year.

#### • Low Carbon Technology R&D

We are fully committed to promoting low-carbon technological innovation, strengthening cooperation between government, industry, university and research in green technology, promoting decarbonization innovation, and improving the overall effectiveness of green and low-carbon technological innovation. In 2023, we achieved the commercialization of six green and low-carbon technological achievements, covering energy storage, colored photovoltaic, green power transportation and other fields.

#### • Carbon Emissions Management

We continue to improve our carbon management capabilities and carry out carbon emissions calculation research and emissions monitoring, laying a solid foundation for subsequent greenhouse gas statistics and emission reduction work. In 2023, the Group's total greenhouse gas emissions (scope 1 and scope 2) was 49,103,301 tCO<sub>2</sub>e, achieving a reduction in greenhouse gas emissions of 20.67 %.



### Specific Measures

- Improve carbon emissions management**

  - We have formulated the “Carbon Emissions Management Measures” and “Carbon Emissions Peak Action Plan” to standardize and promote energy saving and emission reduction in production, construction and at office.
- Enhance carbon emissions auditing**

  - We have commenced carbon emissions management, and organized subsidiaries to carry out carbon emissions auditing in accordance with the relevant requirements of the “Corporate Greenhouse Gas Emissions Accounting Methodology and Reporting Guide for Power Generation Facilities (2022 edition)” to avoid the risk of non-compliance with carbon emissions requirements;
  - We have entrusted qualified third-party organizations to assist in carbon emissions auditing so as to improve the accuracy of carbon emissions data management.
- Strengthen carbon emissions monitoring**

  - We have carried out carbon emissions management inspections, strictly followed the relevant requirements of the national accounting guidelines, carried out sampling, analysis and testing of carbon content data of coal fired in the process of power generation on a monthly basis, and further standardized fundamental statistics on carbon emissions.
- Improve carbon management capabilities**

  - We have carried out carbon emissions exchange training and carbon emissions management knowledge training, and carried out carbon emissions management exchanges to jointly improve the level of carbon emissions management;
  - We have organized and carried out exchange of carbon emissions management experience and carbon emissions reduction technology exchange and promotion, and regularly reported updates on the status of the Group’s carbon emissions management.

### Greenhouse gas measurement scope and statistical methods

The scope of greenhouse gas measurement is within the scope of China Power and its consolidated financial statements for the same period. The statistical methodology makes reference to the “Greenhouse Gases Part I Specification at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals” (ISO14064-1-2018), “Greenhouse Gas Accounting System: Corporate Accounting and Reporting Standard”, and at the same time, complies with the principles of relevance, completeness, consistency, accuracy and transparency. The emission factors are mainly from the standard documents “Guidelines for Accounting Methods and Reporting of Greenhouse Gas Emissions for Enterprises – Power Generation Facilities”, “2006 IPCC Guidelines for National Greenhouse Gas Inventories”, “Guidelines for Accounting Methods and Reporting of Greenhouse Gas Emissions of Enterprises in Other Industries”, and “Notice on Management of Greenhouse Gas Emissions Reporting for Power Generation Enterprises 2023–2025”.

Calculation method: greenhouse gas emissions from a business activity = data of a business activity x emission factors

In particular, the scope of calculation of China Power’s greenhouse gas emissions includes carbon dioxide, methane and nitrogen dioxide, and the specific business activities that generate greenhouse gas emissions (Scope 1) include (1) emissions from the combustion of fossil fuels in the production process; (2) fugitive emissions from the use or leakage of refrigerants and fire extinguishers; (3) emissions from the industrial process of desulphurization and denitrification using limestone, urea, etc.; (4) emissions from the consumption of electric power by office buildings, factories, new energy vehicles, etc., and greenhouse gas emissions (Scope 2) of the specific business activities that produce greenhouse gas emissions, including the emissions from purchased electricity.

### Total greenhouse gas emissions



## Greenhouse gas emissions performance of China Power

Indicator	Unit	Value in 2023	Value in 2022
Total greenhouse gas emissions	tCO <sub>2</sub> e	49,103,301	61,899,321
Direct greenhouse gas emissions (Scope 1)	tCO <sub>2</sub> e	48,805,239	61,730,728
Indirect greenhouse gas emissions (Scope 2) <sup>3</sup>	tCO <sub>2</sub> e	298,062	168,593
Greenhouse gas emission intensity	g/kWh	456.42	548.06
Greenhouse gas emissions reductions	tCO <sub>2</sub> e	12,796,020	–
Greenhouse gas emissions reduction ratio	%	20.67	–

- Participating in Market-oriented Trading



1,796,400 certificates

completed green certificate transactions in 2023

Against the backdrop of ever-changing market and policies of the power industry, we intensively participated in green power market transactions. Under the increasingly stringent policy requirements on management and control over carbon emissions and related transactions, we complied with the requirements of a series of policies such as the “Administrative Measures for Carbon Emission Rights Trading (Trial) (Order No. 19 of The Ministry of Ecology and Environment)”. We have actively studied, researched, analyzed and planned the business layout of carbon market trading.

In 2023, we actively broadened the green power transaction market and strengthened the nurturing of talents related to carbon trading. We completed green power transactions of 2,592,000MWh, completed green certificate transactions of 1,796,400 certificates, and green value premium income exceeded RMB100 million. Among them, CP Chaoyang achieved the goal of 100% green power transaction, becoming China Power and SPIC’s first new energy project with full coverage of green power transaction.

## Green power transaction performance of China Power in 2023

Indicator	Unit	Value in 2023
Sales of carbon emission allowances	tCO <sub>2</sub> e	2,240,224
Revenue from selling carbon emission allowances	RMB'000	145,614.6
Revenue from green certificate transactions	RMB'000	37,655.6
Revenue from green power trading	RMB'000	138,293.1

<sup>3</sup> The increase in values of indirect greenhouse gas emissions (Scope 2) in 2023 was mainly due to an increase in purchased electricity from the newly acquired clean energy companies as compared to 2022.

Case China Power green power product presentation

In July 2023, the “Green-empowerment, Mutual Achievements” green and low-carbon energy service and product presentation was held in Haishu District, Ningpo City, Zhejiang Province. China Power and its subsidiaries entered into contracts with 13 renowned manufacturing companies, power companies and research institutes from or outside of the province. Through China Power (Zhejiang) Energy Investment Co., Ltd., which was established in February 2023, we strove to build a green energy trading platform and investment platform, and actively leveraged the advantages in asset, technology, talent and management accumulated by China Power in the fields of green power and green certificate transactions, integrated intelligent energy, energy storage, colored photovoltaic, green power transportation, etc., to provide green and low-carbon energy services such as integrated intelligent energy, green power and green certificate transactions, energy storage and virtual power plants.



Green power product presentation of China Power

Case Changshu Electric Power held a special lecture on green power and green certificate policies

In November 2023, Changshu Electric Power held a special lecture on green power and green certificate policies. Titled “Green Power, Green Certificate, Carbon Market Related Policies and Industry Development”, it gave the lecture on four aspects: current green and low-carbon transition background, green power and green certificate market conditions, green power and green certificate trading cases, green power, green certificate and carbon market. A total of 87 people attended the lecture. The training activity further enhanced the awareness and understanding of the Company’s employees on green power policies, trading rules and related knowledge, conducted green power and green certificate transactions in a standardized and orderly manner, and served green energy consumer clients.



Training on carbon asset trading

# Environmental Management

China Power optimizes environmental management in an all-round manner, is committed to building and improving its environmental management system, and strengthens environmental management, environmental compliance, hidden defect identification, education and training to effectively ensure the effectiveness of environmental management. In 2023, the Company invested RMB0.176 billion in environmental protection, with no serious environmental pollution incidents occurred.

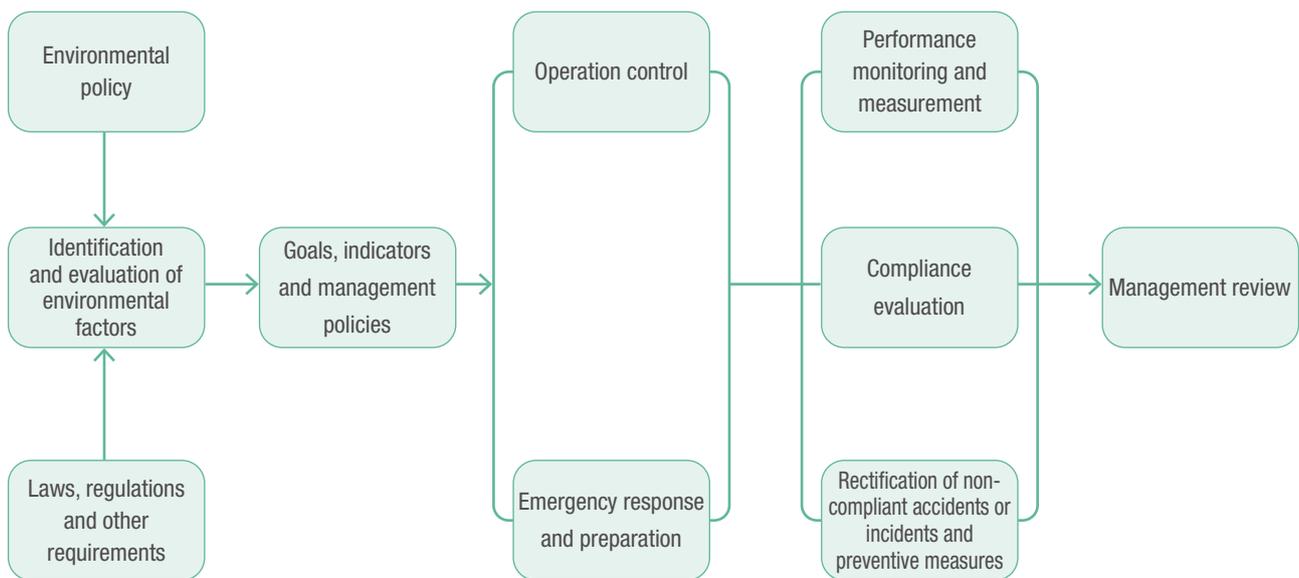
## Environmental management performance of China Power in 2023



**0.176** RMB billion  
Investment in environmental protection



**0** incidents  
Environmental emergencies



## Environmental Management System



### Organizational structure

The Company has established and improved the environmental management responsibility system, specified the primary person responsible for the ecological and environmental protection, signed the goal and responsibility statement, specified the ecological and environmental protection goals and tasks; and also set up the three-tier environmental management system including (i) the establishment of safety production and emergency management committee, which is responsible for coordinating and managing, (ii) the safety, quality and environmental protection supervision department, which is responsible for supervising and inspecting, and (iii) relevant functional departments, which are responsible for coordinating and supporting, so as to comprehensively safeguard the supervision and management of environmental protection in all aspects of production and operation.



## System development

The Company has continuously improved environmental management rules and regulations, revised the “Regulations on Ecological Environment Protection and Management”, increased and improved the environmental protection-related responsibilities of the Board and relevant departments on the basis of the original system; standardized the basic requirements for ecological and environmental protection, and well-defined the coordination responsibilities for the central ecological and environmental protection inspection and the ecological and environmental protection management requirements for construction projects and production processes, established a long-term mechanism for ecological and environmental protection; formulated and implemented the “Action Plan for Implementing the Spirit of the National Conference on Ecological and Environmental Protection”, formed 40 action plans, strengthened the implementation of the main responsibilities for ecological and environmental protection, and steadily improved the management level of ecological and environmental protection.

### Development of the environmental management rules and regulations

- “Regulations on Ecological Environment Protection and Management”
- “Management Measures for Environmental Protection Assessment (Trial)”
- “Management Regulations on Supervision of Ecological Environment Protection”
- “Carbon Emissions Management Measures”
- “Solid Waste Management Measures”
- “Management Measures for Air Pollutants”
- “Management Measures for Water Pollutants”



## Management of goals

The Company has sub-divided the ecological environment protection goals in a stratified manner, assigned the tasks of ecological environment protection and energy saving to each subordinate unit, and regularly assessed the completion of each unit’s goals and tasks. At the same time, we have incorporated the corresponding indicators into the performance appraisal system to stimulate the subjective initiative of each unit.



## System certification

The Company has established a comprehensive and systematic environmental management system and has obtained the certification of ISO14001:2015 environmental management system. 40 of its subsidiaries have passed ISO14001 certification.

## Environmental Compliance Governance

We have integrated environmental compliance management and control into the full-process management of project development, construction and operation, prepared ecological environment protection compliance list for each stage throughout the entire cycle, and strengthened the environmental management during the entire life cycle of the projects to ensure the sustainable development of environment.

### Project development stage



- Carry out due diligence on environmental protection laws and regulations in the location of the projects
- Conduct a detailed environmental impact assessment to identify potential environmental risks and impacts
- Take into account the site selection, avoid ecologically sensitive areas to reduce negative impact on the environment
- Carry out water resources survey studies and apply for permit for water usage in compliance with regulations



### Project design stage

- Ensure that the design and planning are in compliance with all relevant environmental laws, regulations and standards
- According to local conditions, adopt advanced technology to save energy and reduce consumption, and improve the utilization efficiency of resources



### Equipment procurement stage

- Conduct environmental protection qualification review on suppliers
- Encourage the purchase of environmentally friendly raw materials



### Project construction stage

- Formulate the “Management Measures for Green Construction of Projects” and adopt green construction technologies for noise control, dust prevention, soil and water conservation and waste management
- Carry out environmental monitoring and auditing regularly to ensure that all construction activities comply with environmental regulations
- Organize environmental protection acceptance, implement post-environmental impact assessment of projects, check the implementation of environmental protection measures, and supervise the completion of environmental assessment and water conservation acceptance for the new construction projects



### Operation and maintenance stage

- Regularly identify possible environmental risks, purchase environmental pollution liability insurance to effectively control pollution and reduce environmental pollution in case of any emergencies (93 business units have prepared contingency plans for environmental emergencies, and conducted 52 contingency plan drills in 2023)
- Carry out special supervision and identification of ecological and environmental protection; organize the business units to carry out special supervision of ecological and environmental protection and special inspection of hazardous chemicals (a total of 610 problems were identified and 473 problems have been rectified in 2023)
- Strengthen pollutant monitoring management, monitor air pollutants in thermal power plants in real time by Continuous Emission Monitoring System of flue gas, and transmit the data to competent departments of ecological and environmental protection at all levels; for water pollutants (if any) of each thermal power plant, in accordance with the requirements of the license for discharging pollutants, online monitoring system for water pollution sources and manual self-monitoring have been adopted
- Carry out compliance checks on the information of the license for discharging pollutants and the implementation status

## Environmental Protection Training

We attach great importance to environmental protection training and education. In 2023, the Group organized special training on environmental protection issues such as ecological and environmental protection management, emergency management, hazardous waste management, environmental system standardization construction, and pollutant emission management, and actively participated in special training on ecological environment protection organized by local environmental protection departments to effectively enhance employees’ professional theoretical knowledge and dual prevention capabilities.



Shentou Power Plant II carried out training on environmental hazard identification and risk assessment methods

### Environmental protection performance of China Power in 2023

Indicator	Unit	Value in 2023
Number of times for environmental protection training	times	495
Total number of participants in environmental protection training	person-times	7,584
Hours of environmental protection training	hour	961

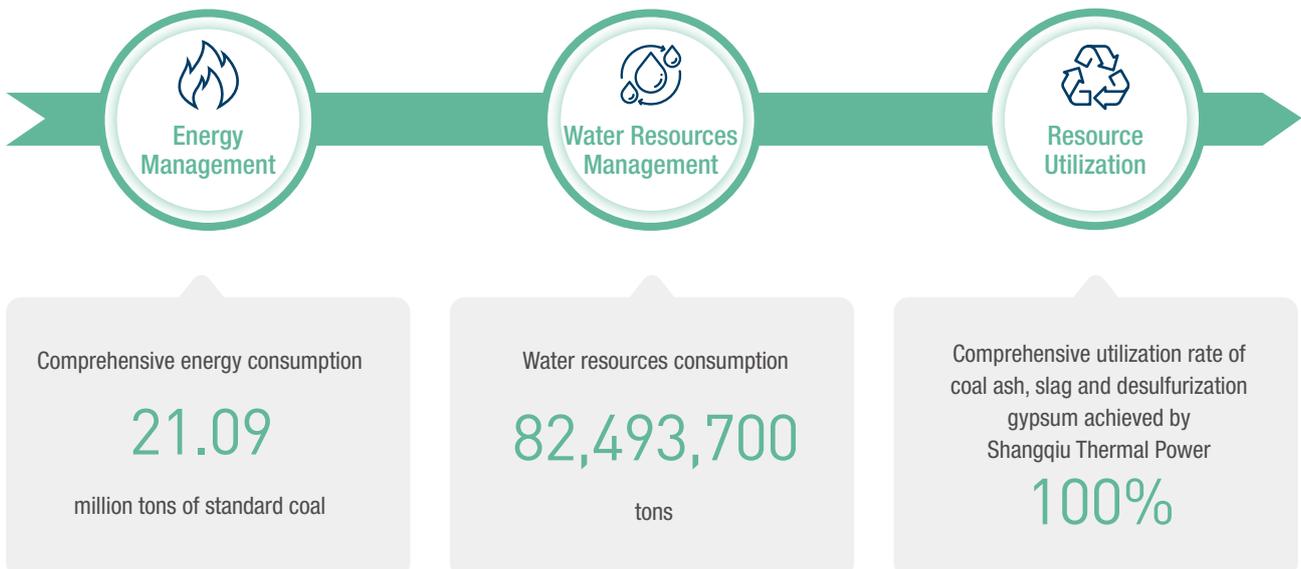
#### Case

#### 2023 Ecological Environment Protection Management Training Symposium

From 19 to 22 September 2023, China Power held the 2023 ecological environment protection management training course at Shandong Yantai Safety Skills Training Base. The training covered various knowledge such as Xi Jinping’s Thought on Ecological Civilization, ecological environment protection laws, regulations and systems, and the ecological environment protection compliance management of new energy projects, interpretation of the management measures for environmental protection equipment and case analysis, wastewater management of thermal power units, interpretation of 25 countermeasures, and carbon emission data management of emission control enterprises, to effectively improve employees’ ability and competence in energy saving and ecological environment protection.

## Resource Management

In strict accordance with the requirements of relevant laws and regulations such as the “Energy Conservation Law of the People’s Republic of China”, the “Renewable Energy Law of the People’s Republic of China”, and the “Water Law of the People’s Republic of China”, China Power adheres to the green and low-carbon development strategy, focuses on strengthening the integrated management of energy, water resources and waste, promoting energy saving, water recycling and waste recovery, and improving the overall utilization efficiency of resources.



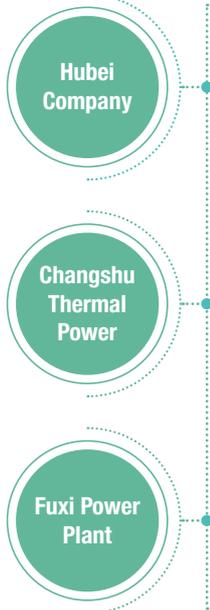
## Energy Management

The Company has formulated relevant policies such as the “Energy Saving Management Measures”, and improved the utilization efficiency of energy through multiple measures such as specifying the annual energy saving plan, improving the three-tier (company, department, team) energy saving network of power generation enterprises, establishing and improving energy saving management documentation, regularly conducting energy saving supervision and inspections, promoting advanced energy saving technologies and processes, procuring energy-saving and low-consumption equipment to eliminate high-energy-consuming and obsolete equipment, and carrying out energy-saving publicity and education. In 2023, the Group’s comprehensive energy consumption was 21.09 million tons of standard coal.

### Energy consumption performance of China Power in 2023

Indicator	Unit	Value in 2023
Total comprehensive energy consumption	million tons of standard coal	21.09
Comprehensive energy consumption intensity	gram of standard coal/kWh	196
Direct energy consumption	million tons of standard coal	21.07
Natural gas	m <sup>3</sup>	205,961,462
Coal consumption	ton	27,054,163
Gasoline consumption	ton	311
Diesel oil consumption	ton	1,022,588
Other energy consumption	ton	0
Indirect energy consumption	ton of standard coal	23,233
Electricity purchased externally	MWh	189,040
Heat purchased externally	GJ	0
Steam purchased externally	m <sup>3</sup>	0
Non-fossil energy use types	/	Solar energy, wind power, hydropower
Non-fossil energy consumption	MWh	15,060
Proportion of non-fossil energy consumption for power generation	%	7.38

### Work Highlights in 2023



In response to the problem of power loss in some photovoltaic power stations, the original 4MW old centralized inverters were replaced with string inverters, which improved the power generation efficiency of the system by 1.28% and reduced the annual power loss due to inverter failure by about 200MWh.

The steam-water separation device inside the upper drum of the emergency boiler was modified. After the modification, the unit gas consumption was reduced by 2.44m<sup>3</sup>/ton, and the pollutant emissions were reduced by 15%, which saved natural gas and reduced pollutant emissions at the same time.

It invested RMB2.31 million in replacing the barrel lining of coal mill, reducing the operating current of the coal mill by 10A (amperes) on average, saving approximately 550MWh of power consumption of the coal mill in 2023, while reducing the use of chilled primary airflow volume, and effectively reducing the temperature of boiler exhaust flue gas.

### Water Resources Management

The Group attaches great importance to the sustainable management of water resources and carries out comprehensive water resource risk assessment. Before the construction of new construction projects, we strictly conduct water resource survey studies, evaluate the impact of projects on local water resources, and try to minimize the negative impact on water resources. We evaluate the rationality of project water use through water balance test, and precisely identify, improve and implement water-saving measures. At the same time, we strictly implement the regulations on permit for water usage and make rational use of water resources in accordance with the annual approved water volume. In 2023, the Group's total water consumption was 82.4937 million tons, representing a decrease of 29.58% compared with 2022.



As compared with 2022, water consumption in 2023 decreased by

**29.58%**

#### Specific Measures

<p><b>Set water use target</b></p>	<p>Set water use target in different processes of production and operation, such as zero discharge of wastewater</p>
<p><b>Develop water use plan</b></p>	<p>Supply water in strict accordance with the designed water resource allocation plan to achieve the best results of "water supply according to water quality", "expanding capacities without increasing pollution" and "expanding capacities without increasing water use"</p>
<p><b>Improve management mechanism</b></p>	<p>Inspect, maintain and repair the pipe network to prevent any leakage and save water resources</p>

<b>Strengthen supervision and management</b>	Install flow meters in the water inlet pipes of each major process system, such as the supply water inlet main pipe, the industrial water pipes into the main factory building, to conduct unified supervision and management of the main process systems
<b>Enhance comprehensive utilization</b>	Adopt water-efficient processes and technologies to improve the utilization efficiency of water resources  Actively carry out wastewater recycling and reclaimed water reuse projects, use leachate and other wastewater for water replenishment of the cooling circulation system, and reused water for sprinkler watering for greening or other purposes

### Work Highlights in 2023

- 
> Recycled water from Changshu Chengdong Water Purification Plant was used as the source of circulating water replenishment. It was expected that 3,000 cubic meters of recycled water would enter the cooling circulation system every day, promoting efficient use of water resources and reducing the consumption of new water input.
- 
> Established a leading team for water saving to effectively strengthen the overall management of water saving in the whole region.
- 
> Completed the recovery of condensed water from heating network, reducing new water usage by 700,000 cubic meters per year; fully utilized water resources in a cascade manner, recycling approximately 150,000 tons of water per year, and reducing the annual water consumption for power generation in the whole plant by approximately 10%.

### Water resources management performance of China Power in 2023



### Resource Utilization

We emphasize the recycling of production resources. Through systematic management, platform construction, model optimization and capability improvement, we have increased the utilization efficiency of resources and effectively saved energy and resources. The power generation by-products of new coal-fired power projects and newly-built generating units of the Group's domestically are centrally and uniformly developed and managed by CP Guorui, so as to enhance the management capability of comprehensive utilization of power generation by-products. The solid wastes generated by Shangqiu Thermal Power mainly include boiler fly ash, slag and desulfurization gypsum. We have entered into a contract with Shangqiu Branch of CP Guorui for comprehensive utilization of fly ash, slag and gypsum, and have achieved a comprehensive utilization rate of 100%.

<sup>4</sup> Total water withdrawal refers to the amount of water actually withdrawn from various water sources, including withdrawn surface water, groundwater, tap water, sewage treatment compliant water, non-compliant sewage, rainwater collection for utilization.

<sup>5</sup> Water resources consumption refers to the net amount of water consumed in the process of using water that is not recyclable.

<sup>6</sup> Recycled water refers to the water resources that can be reused after proper treatment.

<sup>7</sup> Recycling rate of water resources = (total water withdrawal - water resources consumption) / total water withdrawal.

### Systematic management

Complying with the “Management Measures for Integrated Utilization of Coal-Fired Power By-product Resources”, we have strengthened the standardized management of integrated utilization of resources by power generation companies

### Platform construction

Through the cloud-based platform for the resource utilization of solid waste developed by CP Guorui, taking the solid waste resource (fly ash) of thermal power generation units as a sample, we have built the one-stop management, control and transaction cloud platform for resource utilization of solid waste to realize the online standardization of solid waste resource transactions

### Model optimization

We have continuously optimized and improved the sales model of power generation by-products, and adopted the sales model of “annual long-term agreement” and “monthly bidding” to improve the continuity and stability of sales of power generation by-products and the operating efficiency

### Capability improvement

We have increased electronic monitoring facilities for key aspects of resource utilization, and improved preventive measures from a technical perspective. We have established a system of regular supervision and inspection with monthly summaries and quarterly inspections, carried out mutual inspection and exchange within the system, and improved the standard of management

## Pollutant Management

In strict accordance with the requirements of relevant laws and regulations such as the “Air Pollution Prevention and Control Law of the PRC”, the “Law of the PRC on the Prevention and Control of Water Pollution”, and the “Law of the PRC on the Prevention and Control of Environmental Pollution by Solid Waste”, we have continuously improved internally relevant management systems and strictly controlled the source, process and final emissions to reduce pollutant emissions.



### Waste Gas Management

The air pollutants generated by the Group mainly include sulfur dioxide, nitrogen oxides, smoke, etc. generated during the production process of thermal power plants. We advocate the purchase of coal with low sulfur content, low ash content, low nitrogen content and appropriate volatile content to control the generation of pollutants from the source; we select air pollution prevention and control technologies according to local conditions and upgrade waste gas treatment facilities. At present, we have completed the ultra-low emission renovation of all thermal power generating units (including coal-fired power, natural gas power, environmental power and biomass power generating units) of the Group, effectively reducing the impact of air pollution. In 2023, the Group’s air pollutant emissions met the standards throughout the year, with no incidents in relation to exceeding the average hourly indicators.

## Waste gas management performance of China Power

Indicator	Unit	Value in 2023 <sup>8</sup>	Value in 2022	Change	Change (%)
Total waste gas emissions	ton	14,785.22	22,607.70	-7,822.48	-34.60
Flue gas and dust/particulate emissions	ton	534.48	–	–	–
Density of flue gas and dust/particulate emissions	g/kWh	0.005	0.008	-0.003	-37.50
SO <sub>2</sub> emissions	ton	4,215.36	–	–	–
Density of SO <sub>2</sub> emissions	g/kWh	0.04	0.07	-0.03	-42.86
NO <sub>x</sub> emissions	ton	10,035.38	–	–	–
Density of NO <sub>x</sub> emissions	g/kWh	0.09	0.13	-0.04	-30.77

## Wastewater Management

Complying with the management principles of “reduction, comprehensive utilization, and discharge in compliance with standards”, the Group has generally further focused on the comprehensive treatment of wastewater, equipped every power plant with its wastewater treatment facilities, and regularly carried out operation, maintenance and upgrades. We have treated the industrial and domestic sewage, coal-containing, oil-containing and desulfurization wastewater generated during operations, discharged them after meeting the standards or reuse them. At the same time, we actively promoted the fulfilment of zero discharge of wastewater in qualified projects through rain and sewage separation, cascade utilization, slag water recycling and other methods.

## Wastewater management performance of China Power

Indicator	Unit	Value in 2023 <sup>9</sup>
Total wastewater discharge	10,000 ton	1,085.99
COD emissions	10,000 ton	0.07
Density of COD emissions	g/kWh	0.0065
Total phosphorus	10,000 ton	0
Density of total phosphorus emissions	g/kWh	0
Ammonia nitrogen	10,000 ton	0.01
Density of ammonia nitrogen emissions	g/kWh	0.0009
Total nitrogen	10,000 ton	0
Density of total nitrogen emissions	g/kWh	0

<sup>8</sup> The scope of statistics covers the thermal power business of the Group, which includes coal-fired power, natural gas power, environmental power and biomass power.

<sup>9</sup> The 2022 wastewater data statistics are based on a non-attainment discharge (direct discharge of environmental wastewater is zero) and the 2023 wastewater data statistics are based on a full discharge (including production wastewater generation, of which direct discharge of environmental wastewater is zero), accordingly there exist a relatively large difference in the data and therefore not comparable.

Case Comprehensive control and treatment to achieve zero discharge of wastewater

Shangqiu City is located in the water-scarce area of the Central Plains and is severely lacking in water resources. Shangqiu Thermal Power has vigorously carried out the construction of drainage cascade utilization and zero wastewater discharge projects. Using domestically advanced technology combining low-temperature flash-distillation concentration with high-temperature flue gas concentrated liquid drying, it strengthened wastewater recycling and alleviated the pressure on local water consumption. In 2023, the system treated a total of 63,600 tons of desulfurization wastewater, and the drying tower treated 10,800 tons of concentrated liquid, which achieved the environmental protection goal of zero discharge of desulfurization wastewater.



Wastewater treatment system

Waste Management

The Group continues to strengthen waste management, and implements classified collection, storage and transfer management of industrial waste, domestic waste, hazardous waste, solid waste and waste liquid generated at the work site, and transfers them to units with corresponding qualifications for treatment. At the same time, we carry out system upgrades to reduce waste generation from the source. In 2023, Shangqiu Thermal Power completed the capacity expansion and renovation project of desulfurization system, which can reduce the waste oil of 212L every year.

General waste



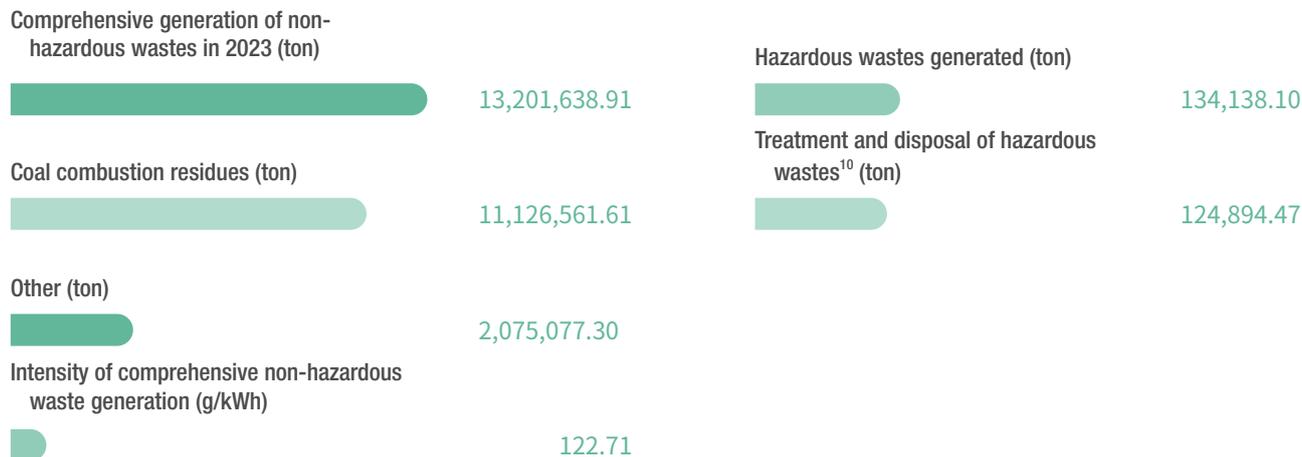
- Encouraged the comprehensive utilization of fly ash, slag and desulfurization gypsum generated by power plants after treatment upon external sales;
- Established statistical ledger for monthly statistics of the indicators such as the comprehensive utilization volume and utilization rate of fly ash, slag and desulfurization gypsum;
- General industrial waste and construction waste that cannot be recycled were promptly removed and disposed of harmlessly in accordance with local government regulations;
- Domestic waste was disposed of by entrusted units in a standardized manner.

Hazardous waste



- Identified and developed the "Hazardous Waste List";
- Supervised and inspected the entire process of generation, collection, storage, usage, transportation and disposal of hazardous waste;
- Strictly implemented the manifest system for hazardous waste transfer, and hazardous waste such as waste lubricant was entrusted to third-party professional organizations with licenses for proper disposal;
- Fly ash was chelated and stabilized, and after passing the test, it was transported to the landfill for safe landfill disposal, or synergistically disposed of by cement kilns.

### Waste management performance of China Power in 2023



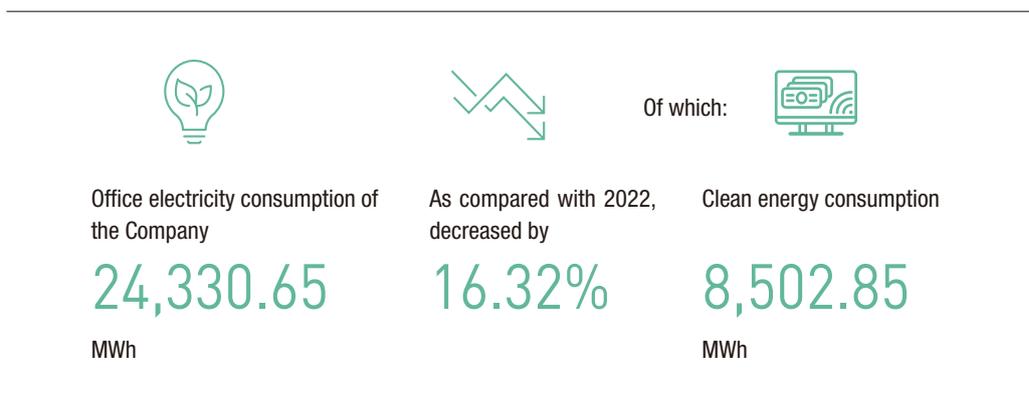
## Green Action

China Power adheres to the concept of green development and insists on being a practitioner of promoting green operations, maintaining eco-diversity and strengthening environmental protection. We actively advocate low-carbon life, promote the “new energy +” model, carry out environmental protection public welfare and other green practices, and promote the development of ecological civilization to a new level with actions.

### Green Operations

We actively integrate green, low carbon and environmental protection concepts into the Group’s production and operation processes, promote intelligent and energy-saving management, reduce office energy consumption and waste emissions by taking multiple measures, so as to create a good atmosphere of green office for all employees, and achieve dual improvements in environmental protection effectiveness and office efficiency. In 2023, the Company’s office electricity consumption was 24,330.65MWh, representing a decrease of 16.32% compared with 2022, among which the clean energy consumption was 8,502.85MWh.

### Green operation performance of China Power in 2023



<sup>10</sup> There is a certain difference between the generation of hazardous waste and the treatment and disposal of hazardous waste because the Group has followed the principle of regular centralized treatment and commissioned third-party organizations with professional qualifications to carry out standardized treatment after the accumulation of waste to a designated scale, so as to ensure the efficiency and compliance of treatment.

Water saving

- We have carried out year-on-year and month-on-month analyses of water consumption every month, identified areas with abnormal water use, identified the causes, and solved the problems requiring rectification in a timely manner.
- Property service personnel have conducted regular inspections to check whether there is any running, emitting, dropping or leakage, and timely repaired if any.

Electricity saving

- We have replaced with smart meters to realize peak and valley statistics of electricity consumption, and charged the uninterruptible power supply (UPS) during low electricity price time periods at night, effectively reducing the operating costs.
- We have replaced incandescent lamps with more energy-saving and efficient LED lamps to save electricity while ensuring lighting brightness.
- We have adopted the lighting strategy of “area and time division”, turned on or off the lighting in office areas at specified points of time every day, and adjusted the switching on and off time of the neon lights in the front elevator hall and outdoors in a timely manner according to seasonal changes and weather conditions.



Tips for saving electricity



Smart meter

Office supplies saving

- We have formulated the “Paperless Office Management Measures” to standardize the management responsibilities of relevant departments and implement supervision and evaluation.
- We have promoted paperless office, advocated “no printing unless necessary” and “duplex printing when necessary”, and rationally reused the used papers.

Vehicle management

- We have strictly regulated the purchase of gasoline for corporate vehicles. The fuel cards of all corporate vehicles are in the form of primary and secondary cards, which are bound to the designated vehicle, and the recharging of the primary card is the responsibility of the vehicle dispatcher or the special personnel in charge.

Canteen management

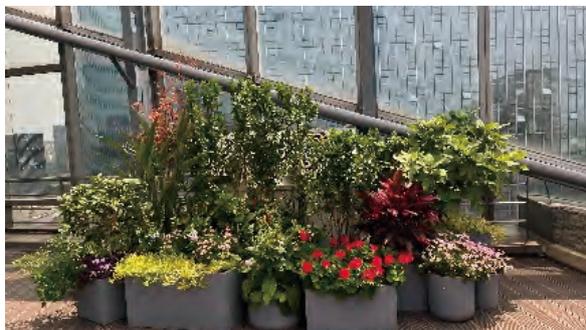
- We have pursued the principles of “take what you need” and “save food and refuse to waste”.



Advocating food conservation

Office greening

- We have actively carried out greening activities and selected diversified green plant varieties. The Company has a total of approximately 1,975 pots of green plants. We have paid attention to nurturing and regular updates to create a clean and beautiful office environment for employees.



Placement of green plants

## Operation and office consumption of China Power

Indicator	Type	Unit	Value in 2023	Value in 2022
Office electricity consumption	Total	MWh	24,330.65	29,075.30
	Intensity	kWh/RMB'000	0.550	0.678
Clean energy consumption	Total	MWh	8,502.85	-
	Intensity	kWh/RMB'000	0.192	-
Gasoline consumption	Total	liter	1,140,842	1,186,703
	Intensity	liter/RMB'000	0.026	0.028
Office water consumption	Total	ton	560,907	272,848
	Intensity	ton/RMB'000	0.0127	0.0064
Office paper consumption	Total	ton	211	77.14
	Intensity	kg/RMB'000	0.0048	0.0018
Domestic waste generated	Total	ton	6,919	-
Kitchen waste generated	Total	ton	787	-

## Case

## “Low Carbon e-Activities” to create a green office atmosphere

Fujian Company actively advocates green office culture and is committed to enhancing employees' environmental protection awareness and participation through a series of innovative initiatives and activities. In 2023, the Group carried out the publicity and promotion of the “Low Carbon e-Activities” among employees, and posted energy-saving and environmental protection reminder labels in offices. The contents of the labels covered everything ranging from saving electricity and water to reducing the use of disposable items, which reminded employees to practice environmental protection behaviors in daily work, advocated and encouraged employees to save electricity and water, promoted paperless office, stimulated employees' enthusiasm for environmental protection, and jointly created a green and efficient working atmosphere.

Case

“Low Carbon Recycling Fair” to disseminate environmental protection concept

Shandong Energy promoted its environmental protection and sustainable development, and encouraged employees to actively participate in the “Low Carbon Recycling Fair” activity, which provided employees with a platform to exchange, give or sell their items they no longer needed at certain prices. Through the form of environmentally friendly fair, it accelerated the flow of idle items, gave old items new life, effectively promoted resource recycling and waste reduction, enhanced employees’ knowledge of circular economy and resource conservation, and further strengthened the low-carbon concept of making the best use of everything and green recycling.



Environmental protection fair

Ecological Protection

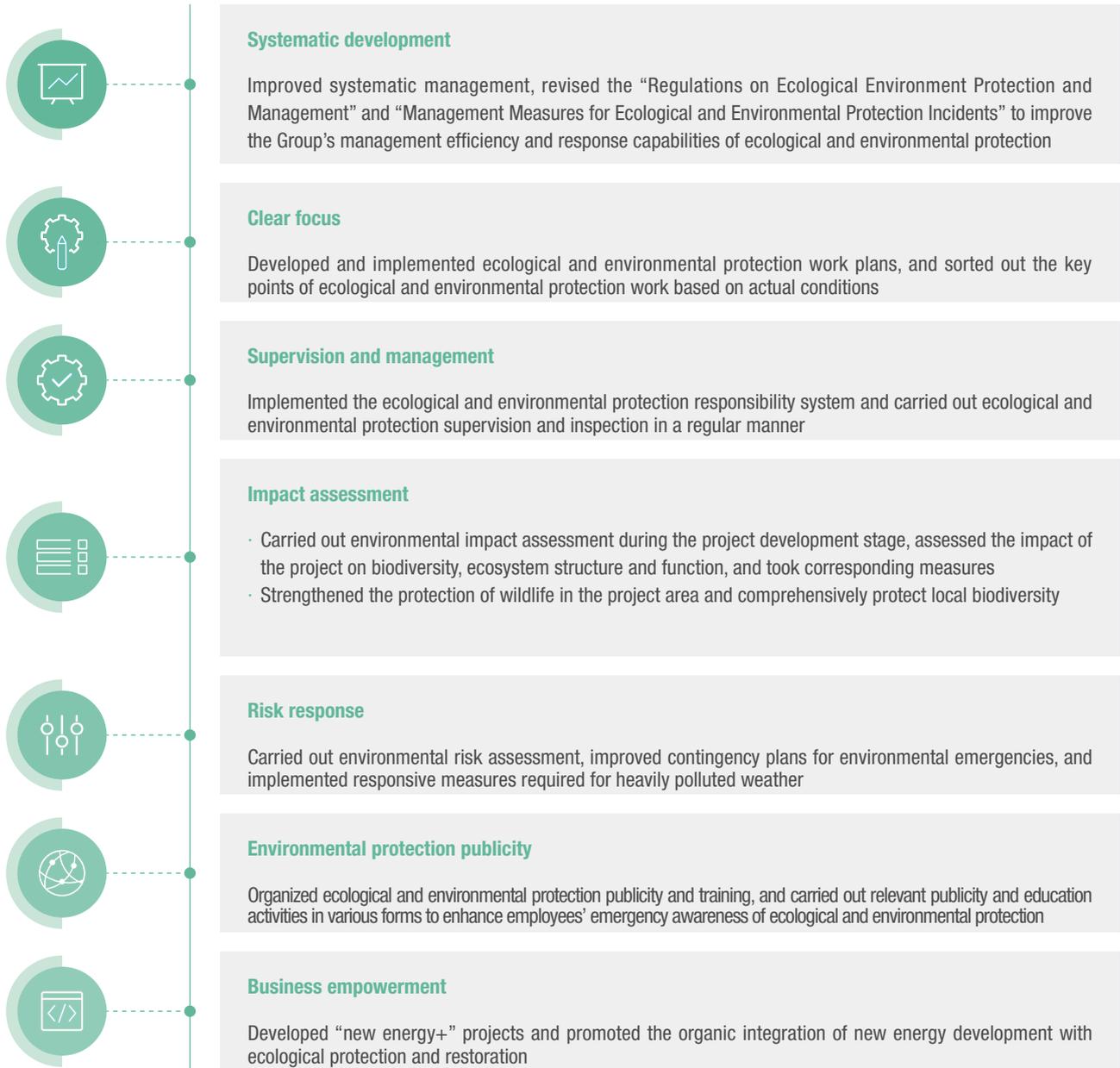
We coordinate and promote the protection and construction of the ecological environment, improve the Group’s ecological and environmental protection management system, actively engage in the ecological environment restoration and biodiversity conservation, and make positive contributions to the sustainable development of the ecological environment. The Risk Management Committee reviewed the “Safety and Environmental Protection Risk Management Report of China Power for the First Half of 2023”, identified the Group’s “ecological and environmental protection compliance risks”, and proposed to continue to strengthen ecological and environmental protection risk management, and guided each unit to carry out a series of ecological and environmental protection tasks in a standardized manner throughout the entire process of project “pre-production, construction, operation and decommissioning”. In 2023, the Group had no ecological and environmental protection violations.

Ecological conservation performance of China Power in 2023



Incidents of violation of ecological and environmental protection

0 case



Comparison before and after desertification control and restoration of the 100MW Integrated Photovoltaic Sand Control and Husbandry Promotion Demonstration Project in Dalad Banner



Comparison before and after the construction of the 20MW “agriculture and photovoltaic complementary” project in Changjiang, Hainan

Case

Further protection of fishery resources

In 2023, Guangxi Company continued to strengthen the management of fishery resources and invested RMB1 million in carrying out fishery proliferation and releasing activities. A total of 6 fry species including herring, grass carp and silver carp were released, totaling more than 5 million fry, to continuously enhance the fish diversity and ecological balance in local waters. In order to further promote the sound development of fish resources, we upgraded and maintained the fishway facilities to comprehensively summarize the effects and patterns of flow of fry in the fishway through hydroacoustic monitoring and video surveillance. At the same time, we actively communicated with the local fishery administration and public security departments to establish a joint prevention mechanism to ensure the safety of the environment surrounding the fishway, effectively maintain the natural habitat of fish, and promote the conservation of biodiversity.

Case

“Proliferation and Releasing” to protect ecological balance

In 2023, Shandong Energy carried out proliferation and releasing activities in the waters of the “Peninsula No. 3 offshore wind power project” for the second consecutive year, and released 177 million units of seedlings of aquatic species for Haiyang City, with a total investment of RMB6 million, and released seedlings of aquatic species such as 160.85 million Chinese shrimp, 14.17 million swimming crabs, 2.11 million sebastes schlegelii, 520,000 sepia esculenta, and 950,000 sepiella maindroni. The releasing sea areas included Dingzi Bay Haiyang sea area and offshore area of Haiyang City, which further improved and enriched marine aquatic living resources and promoted the sustainable and sound development of fishery industry.



Proliferation and releasing in Haiyang sea area

**Case** “Desertification control” to create a new oasis

In order to reduce the impact of sandstorms from the sand source area in Beijing and reduce the inflow of yellow sand from the Yellow River, the Company implemented a comprehensive ecological management demonstration project in the Ulan Buh Desert, Inner Mongolia. Through the construction of protective forests and sand-blocking belts, the development of photovoltaic-related cash crops and the Source-Grid-Load-Storage integrated energy ecological project, we demonstrated and promoted the new model and new technology of “new energy + desertification control”. In 2023, the 300MW pilot project of Beijing Company in Dengkou County, Inner Mongolia, was connected to the power grid at full capacity. The project effectively utilized solar resources and planted sand plants and high value-added medicinal materials under the panels to achieve a win-win situation between environmental protection and economic development. The desertification control area of the project was about 8,000 mu. At the same time, it improved soil quality, increased comprehensive vegetation coverage, and achieved the ecological function goals such as carbon sequestration, soil and water conservation, regulating local microclimate and enhancing biodiversity.



Photovoltaic desertification control in Dengkou County, inner Mongolia

**Case** Protecting the Torrent Duck

In the process of operating hydropower stations, Chile S.A. (the Entrusted Assets of China Power) actively took measures to protect environment and promote biodiversity to ensure the minimum impact of power generation activities on the surrounding ecosystem. After a detailed investigation of the ecological environment in the Cachapoal watershed, a unique subspecies, Torrent Duck, was discovered. Since 2007, it has carried out a 14-year research and conservation plan to further study the species’ behavior, feeding habits and migration habits so as to reduce the impact of hydropower stations on it. In May 2023, Chile S.A. released this study externally, demonstrating the Company’s continued efforts in biodiversity conservation.



Unique subspecies – Torrent Duck

Case The first low-temperature water treatment technology to protect the aquatic ecological environment

The temperature of the water discharged from the reservoir of Wu Ling Power's Sanbanxi Hydropower Station is lower than the natural water temperature. In order to solve the possible impact on the water quality and ecological balance of the downstream rivers and the utilization of water in the reservoir area, and to provide suitable water temperature for fish during spawning period, the Company teamed up with Zhongnan Engineering to explore, research and demonstrate the feasibility of layered water withdrawal at the Sanbanxi Hydropower Station and improving the temperature of the water discharged from the reservoir. It pioneered the use of water-isolating curtain wall solutions to treat the low-temperature water. In 2023, according to the first-year water temperature monitoring results, the water temperature during the warming period increased by 2.3°C to 4.5°C compared with the same period in previous years, with remarkable results in the treatment of low-temperature water in impounded reservoirs.



Water-isolating curtain wall pilot project for low-temperature water treatment of Sanbanxi Hydropower Station

Environmental Protection and Public Welfare

We have implemented the concept of green and environmental protection and regularly organized employees to participate in environmental protection and public welfare activities, so as to strengthen employees' awareness of environmental protection, motivate employees' consciousness and enthusiasm to participate in environmental protection, and jointly build a better ecological environment.



Learn-from-Lei Feng and planting activity of Hubei Company

Case Arbor Day themed-activity

On 9 March 2023, Anhui Company carried out Arbor Day activity together with Zhuyuan community and schools. More than 100 people, including employees, volunteers and students, participated in the activity with theme of planting, cherishing and protecting trees. Volunteers earnestly explained professional knowledge such as the planting conditions to students, which inspired young people's consciousness and action to care about greening, care for nature and attach importance to environmental protection. During the activity, everyone divided the work and cooperated to cultivate the saplings in the spring. They practiced the concept of green development with actions and devoted themselves to the actions of greening and environmental protection.



Arbor Day themed-activity

# Innovation Empowerment for a Green Future

Under the trend of clean, diversified, digitalized, and intellectualized energy transformation, China Power has promptly responded to changes and proactively sought changes, and continuously deepened systematic reform and innovation in development concepts, policies and mechanisms and strategic transformation.

## Responding to the Sustainable Development Goals (SDGs) of the United Nations





## 2023 Performance Highlights

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- Proportion of consolidated installed capacity of clean energy **75.39%**
- Energy storage revenue **2,548,183** RMB'000
- R&D Expenses **306,351** RMB'000
- Number of R&D personnel **733** persons
- Number of technological innovation projects **338**

## Innovation-driven Sustainable Development

China Power adheres to green, innovative and high-quality development, and accelerates innovation-driven sustainable development around the new development strategy of transforming into a “world’s leading green and low-carbon energy provider”. In 2023, we continued to expand our advantages in the principal business of clean energy and further develop the key large base projects. We actively promoted the implementation of the user-side projects, and realized leapfrog growth in installed capacity of clean energy. Meanwhile, we vigorously promoted technological innovation and actively cultivated strategic emerging industries such as energy storage, green power transportation, and utilization of colored photovoltaic, with a view to building a green and intelligent energy ecosystem.

With the goal of “building a world’s leading technology innovation-driven clean energy enterprise”, China Power accelerates the promotion of technological innovation and the cultivation of emerging industries.

China Power has accelerated the development of energy by incorporating its innovative technologies and stepped up its investment in technological research and development with a view to promoting its development in the emerging energy industries. Upon the successful progress of various reform and innovation plans, it has effectively enhanced its level of digitalization and intelligence development. Besides, with a strong emphasis on innovating key techniques, recruiting and nurturing key personnel, we have also accelerated the incubation of new business forms and modes, thereby initiating a new phase of innovation-driven development.

In 2023, we continued to accelerate technological innovation and industrial incubation, and establish a number of all-round companies in various emerging energy industries such as green power transportation, novel energy storage, utilization of colored photovoltaic and recycling, of which four were recognized as national high-tech enterprises, one was awarded “Specialized and New” enterprise, and one was awarded as a model benchmark enterprise of technological reform by the SASAC. At the same time, we actively promoted the establishment of companies in various emerging industries including those in relation to the efficient and safe application of PEDF and geothermal energy.

## Vigorously Developing Clean Energy

The development of clean energy is an important task to improve the energy structure, ensure energy security and promote the development of ecological civilization. In 2023, we continued to develop the principal business of clean energy. We captured the development opportunities of photovoltaic power, wind power, hydropower and other clean energy projects, and rapidly increased the proportion of installed capacity of clean energy. Our large base projects were connected to the power grid successively, and the acquisition projects of clean energy companies and “new energy +” high-quality projects were completed successfully and launched in succession.



75.39%

Proportion of consolidated installed capacity of clean energy



49,460,300 MWh

Clean energy power generation



32,928,961 tons

CO<sub>2</sub> emissions reduced



13,774,736 tons

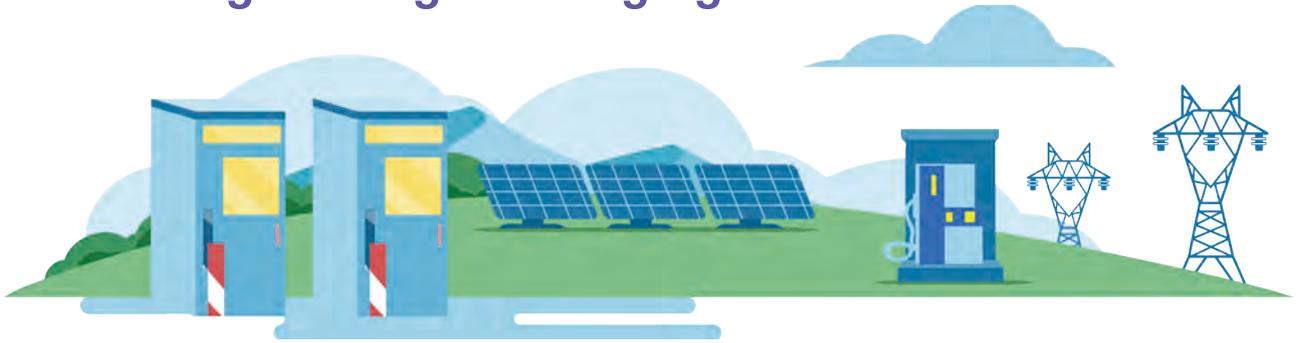
Standard coal consumption reduced



## 2023 Strategic goal and approved project targets

Indicator	Unit	Target in 2023	Completion status in 2023	Achieved
Proportion of consolidated installed capacity of clean energy	%	over 70%	75.39	✓
Proportion of revenue from clean energy	%	over 50%	50.71	✓
Number of confirmed strategic sizable customers and confirmed cities, counties and districts for strategic cooperation	customers/ cities/ counties/ districts	over 100	210 signed strategic cooperation agreements	✓
Approved project capacity	MW	11,937.8	22,953.7	✓
Of which: Photovoltaic power	MW	4,978.3	8,617.9	✓
Wind power	MW	3,660.5	2,850	
Integrated intelligent energy	MW	1,023	8,625.3	✓
Energy storage	MW	26	1,360.5	✓
Offshore wind power	MW	2,250	1,500	

# Cultivating Strategic Emerging Industries



## Novel energy storage has realized new breakthroughs

**Xinyuan Smart Storage**, a subsidiary of the Company, rapidly promoted market development and confirmed approximately 40 projects with a capacity of 5.05GWh during the year. Xinyuan Smart Storage continued to strengthen its technological innovation capabilities, led two Beijing Science and Technology Program Projects, and was approved to co-build the “National Research and Development Center for Energy User-Side Energy Storage Innovation”. It developed the hundred-MW-level high-voltage grid-connected cascade energy storage system, which was included in the third batch of the “First (Set of) Major Technological Equipment Project in the Energy Sector”. It formally released an operation system for centralized control of energy storage, intelligent battery cluster control system and other innovative achievements, with new breakthroughs in the development of core technology of energy storage, all of which contributed to in-depth integration and wide application of energy storage technology in the power system.



Energy storage revenue

2,548,183 RMB'000

### Case

### Henan Province's first independent energy storage power station demonstration project was successfully connected to the power grid

In September 2023, Xinyuan Smart Storage, as the main contractor of the project, developed the first independent energy storage power station demonstration project with a capacity of 100MW/200MWh in Henan Province, which was successfully connected to the power grid for the first time. The project adopts the mature and advanced 1500V high-voltage liquid-cooled energy storage system, and innovatively uses the “Firewall + Cabin Level” multiple progressive fire extinguishing and protection system, which greatly improves the safety of the system and effectively guarantees the safety of the energy storage power station. The grid connection of the project can increase the consumption of new energy power by 100,000MWh per year, which is equivalent to reducing coal consumption by about 30,000 tons. It is expected to reduce carbon dioxide emission by 76,000 tons per year, hence contributing to the development of new energy demonstration zone and the promotion of green and low-carbon development in Henan Province.



76,000 tons

Estimated annual CO<sub>2</sub> emissions reduction

First 100MW/200MWh Independent Energy Storage Power Station in Henan Province

Case China Power's "Emergency Safe Shelters"

China Power's "Emergency Safe Shelter" uses the household energy storage products independently developed by Xinyuan Smart Storage as the core and installs the 11kW colored photovoltaic power generation facilities produced by Xinyuan Jinwu at its rooftop, thereby building a microgrid system integrating source, grid, load and storage with off-grid connection. With its advantages such as high degree of integration, safe and reliable, highly-functional, efficient and convenient in use, and the ability to cope with a variety of disasters, the emergency safe shelter has fulfilled the functions of "undisrupted power and water supply and uninterrupted communication" in the case of emergency to safeguard the daily basic needs of people and the public. In December 2023, a 6.2 magnitude earthquake occurred in Gansu Province. China Power set up the "Gansu Disaster Relief Operation" team with its technology subsidiaries, Xinyuan Smart Storage and Xinyuan Jinwu, and invested in the construction of five emergency safe shelters in the disaster-stricken area, fully launching the "Technological Assistance" operation.



"Emergency Safe Shelter" system



"Gansu Disaster Relief Operation"

## Colored photovoltaic advancing steadily

The first production, research and development base of **Xinyuan Jinwu**, a subsidiary of the Company, in Tongzhou, Beijing for full color photovoltaic functional materials and comprehensive utilization of obsolete photovoltaic modules was completed, while the construction of the Longgang base in Shenzhen has been progressing in an orderly manner, which marked a new breakthrough in the innovation of full color photovoltaic technology. The achievements of these technological results not only promoted the technological advancement and industrial upgrade of the photovoltaic industry, but also pushed forward the application of colored photovoltaic products in a number of key projects, such as the Chongqing Expressway, Dongfeng Motor Group and Jieyang Qianzhan Wind Power, etc. It fully reflected the extensive applicability and excellent performance of the full color auto-powered photovoltaic signage products and the full color photovoltaic functional materials, which have brought a new profit growth driver for the photovoltaic industry. Further, it has also provided China Power with more green energy solutions and promoted the optimization of energy structure and diversification of power supply.



2,963.04 tons

Approximate CO<sub>2</sub> emissions reduction achieved through recycling of obsolete photovoltaic modules in 2023



The rendering of colored photovoltaic

Case

The “Full Color Auto-powered Photovoltaic Signage” was launched for the first time

In September 2023, the “Full Color Auto-powered Photovoltaic Signage” launched by Xinyuan Jinwu at the 2023 China International Fair for Trade in Services garnered attention. Based on the full color micro-coating technology, the “Full Color Auto-powered Photovoltaic Signage” product series has been innovatively designed by using obsolete photovoltaic modules, equipped with distributed micro-grid functions such as auto-powering, auto-lighting and auto-grid formation, which can be used as energy nodes to provide off-grid electricity for monitoring, surveillance and other equipment for intelligent cities. With a power capacity of about 190W, the full color modules charge about 1kWh of electricity a day for 5 hours of work per day. Xinyuan Jinwu has entered into cooperation agreements with multiple regional enterprises in China and has also received multiple international intended orders of interest from Mexico, the Philippines and other countries, which provides new showcases and experiences for China to fulfill its commitment of emission reduction to the world, and strengthens the image of China as a responsible major country in the world.



Xinyuan Jinwu participated in the China International Fair for Trade in Services

## Green power transportation continues to expand and grow



24,400

battery-swap heavy duty trucks and construction machinery



580

charging and battery swapping stations

As a leading enterprise in the field of battery-swap heavy-duty trucks in China, **Qiyuanxin Power**, a 27.12%-owned associate of the Company, leverages technological innovation to promote the in-depth expansion of the regional network layout of its charging and battery swapping infrastructure in 31 provinces, cities and autonomous regions across the nation. The battery swapping networks for Tangshan city’s three vertical highways and one horizontal highway, the Beibu Gulf in Guangxi, the Shenyang-Dalian Expressway and Hainan Island Transportation Highway have been built successively, which greatly improve the efficiency of logistics and transportation. Meanwhile, Qiyuanxin Power actively explores new areas such as motive battery-powered transportation, new energy vessels and echelon utilization of motive batteries, and participates in applying for national key research and development programs and projects in 2023, so as to further broaden the boundaries of new energy applications.

By the end of 2023, 24,400 battery-swap heavy-duty trucks and construction machinery have been put into operation and 580 charging and battery swapping stations have been built. Qiyuanxin Power ranked first in the industry in terms of market share of battery-swap heavy-duty trucks and the number of charging and battery swapping stations being put into construction and operation.



Qiyuanxin Power’s Zhanjiang Steel Battery Swapping Station

## Exploring PEDF Demonstration Scenarios

The PEDF Direct-Current Micro-grid Project in Zhuangshang Village, Ruicheng County, won the “Energy Transition Changemakers” award at the 28th United Nations Climate Change Conference (COP28), which further diversified the scenarios, such as “Zero-Carbon Industrial Park”, “Zero-Carbon Building” and “Zero-Carbon Village”, for demonstration and application purposes”. China Power’s in-depth exploration and application in the field of PEDF system have promoted the transition from a traditional power system to a more flexible, efficient and environmentally friendly energy supply, providing reliable energy solutions for rural and remote areas, and contributing Chinese wisdom and Chinese solutions to building a sustainable future.

### Case

#### Assisting in the rural energy revolution, the construction of zero-carbon village and town in Zhuangshang Village, Ruicheng County has achieved initial results

On 24 April 2023, Zhuangshang Village in Ruicheng County, Yuncheng City, Shanxi Province, was awarded the title of “China’s Zero-Carbon Villages and Towns Demonstration Village” by the Representative Office of the United Nations Development Programme (UNDP) in China. 71 villagers’ households have already installed the PEDF system using rooftop photovoltaic + energy storage + direct-current distribution + flexibility power, and the village’s cultural tourism scenic spots, themed exhibition halls, zero-carbon canteen, kiln compounds, and some villagers’ homes have used flexible direct-current appliances. At the same time, individual villagers used ultra-low-voltage direct-current off-grid system that comprises two-way charging piles, electric tricycles and electric production tools. These efforts contribute to the creation of a new zero-carbon mode of production and energy consumption for daily lives, and the set up of pilot zero-carbon villages and towns as exemplary models.



“PEDF” Direct-Current Micro-grid Demonstration Project in Zhuangshang Village, Ruicheng County

## Expanding the new business segment of geothermal energy

China Power and Beijing Taili Hechuang Technology Co., Ltd. (北京泰利合創科技有限公司), a high-tech enterprise engaged in the development of geothermal-based clean and renewable energy, have jointly formed a geothermal platform company, Xinyuan Taili. It focuses on the comprehensive development and utilization of geothermal energy, and aims to drive the implementation of Zhongguancun Hi-Tech Industrial Base Research Institute Phase III project and the office building project of the Fangshan Municipal Ecology and Environment Bureau, promoting the diversification and cleanliness of energy supply and accelerating the transition to a low-carbon energy system.

# Expanding Integrated Intelligent Energy

## Pilot trial of virtual power plant

China Power signed a strategic cooperation agreement with the Wuhu Municipal Government, successfully built the country's first city-level virtual power plant, and set up Xinyuan Poly-Energy and Xinyuan Zhonghui, which actively promote the Fangshan District Integrated Intelligent Zero-Carbon Project with Zhoukoudian Town as a pilot town. In addition, we completed the preparation of the planning scheme for the Anhui Hefei Municipal Area Integrated Intelligent Zero-Carbon Power Plant Project, realized the connection of 52MW distributed photovoltaic power generation project to "Tianshu I"<sup>11</sup> system in the Chaoyang County area of Liaoning Province and other businesses, thereby vigorously promoting the transformation of traditional energy into clean energy and enhancing energy utilization efficiency.

**Case**

**Developing the country's first city-level virtual power plant**

In December 2023, Wuhu Power's self-developed user-side energy storage project for Wuhu Fuchun Dye and Weave Co., Ltd.\* ( 蕪湖富春染織股份有限公司 ), a listed company, was connected to the power grid at full capacity, being the first user-side energy storage project of China Power in Anhui Province, and also the user-side energy storage project with the largest capacity that has been put into operation by China Power. The successful commissioning of the project marks the full implementation of Fuchun Dye and Weave's 12.19MW distributed photovoltaic power + 3MW/6MWh energy storage + steam heating supply, creating a new path of energy innovation. While facilitating the development of the integrated intelligent zero-carbon power plant with the "thermal power +" mode, it has also initially realized the utilization of the integrated intelligent zero-carbon power plant for supporting existing thermal power assets in return.



Integrated Intelligent Zero-Carbon Power Plant in Wuhu

## Breakthrough development of integrated intelligent energy

Wu Ling Power actively responded to the national "Belt and Road Initiative" and invested in the construction of the first integrated intelligent energy project in Bangladesh. The project was successfully connected to the power grid for power generation in July 2023, marking the groundbreaking progress in integrated intelligent energy project in Bangladesh, and assisting Bangladesh to accomplish its renewable energy development goals under "Vision 2041".

<sup>11</sup> "Tianshu I" system is a comprehensive intelligent energy control and service platform, integrating intelligent energy monitoring, forecasting, regulation, analysis and service. It is widely used in a variety of energy application scenarios such as residential, commercial, industrial and various parks.



Wu Ling Power met with Bangladeshi ambassador to China

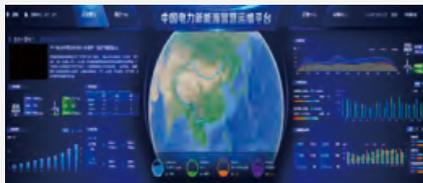
## Driving Intelligent Transformation of the Industry

In September 2023, Xinyuan Smart Storage launched the self-developed AIOPS 2000 general centralized control intelligent operation platform for energy storage, which focuses on three major areas, namely safe operation, precise operation and maintenance, and efficient operation. The platform integrates advanced technologies such as big data and artificial intelligence (AI) with energy storage business, and replaces on-site manual operation and maintenance with AI automatic inspection in a comprehensive and efficient way, thereby safeguarding the ultimate safety of the energy storage power stations, and ensuring the operational efficiency to the greatest extent.

In addition, we are actively applying digital and intelligent technologies to intensively support the transformation of new energy stations into a new operation and management mode of “unmanned, few staff on-duty, and regional maintenance”. In this process, we have successfully completed the digital upgrade of the Suzhou New Energy Intelligent Operation and Maintenance Platform, and implemented the application of robot inspection at the booster station in Dafeng Wind Power’s and Datong Photovoltaic’s projects, hence effectively improving the operation and maintenance efficiency and safety performance.



Automatic inspection robot



Intelligent operation and maintenance platform



## Organizational Safeguards in the field of Innovation

China Power adheres to energy production and consumption driven by technological innovation, takes clean, low-carbon, safe and efficient energy as the main direction of technological innovation, continues to improve technological innovation strategy and development system, strives to promote the integration of innovation results and value, and consolidates the Company's core competitiveness, so as to create a high-quality development engine for the Group's safe, reliable, green, low-carbon and digitally intelligent energy system.

### Innovation System

Driven by scientific development, and guided by the "14th Five-Year" Science and Technology Innovation Development Plan for the Energy Sector", China Power has strictly implemented the "Science and Technology Work Management Regulations", "Management Measures for Assessment and Evaluation of Science and Technology Work", "Scientific Research Project Management Measures" and "Management Measures for Science and Technology Awards", established a leading team for technological innovation, and continued to introduce high-quality scientific research talents, with 5 full-time doctors and 19 postgraduates<sup>12</sup>. It has effectively promoted various technological innovation work, clarified various tasks such as scientific research project management and innovation rewards, enhanced independent innovation capabilities, and given full play to the role of technological innovation in technical guidance and support for the Group's production and operation, engineering construction, planning and development.



### Investment of China Power in technological innovation

Indicator	Unit	Value in 2023
R&D expenses	RMB '000	306,351
R&D expenses as a proportion of revenue	%	0.69
Number of R&D personnel	person	733

<sup>12</sup> Including 3 part-time postgraduates.

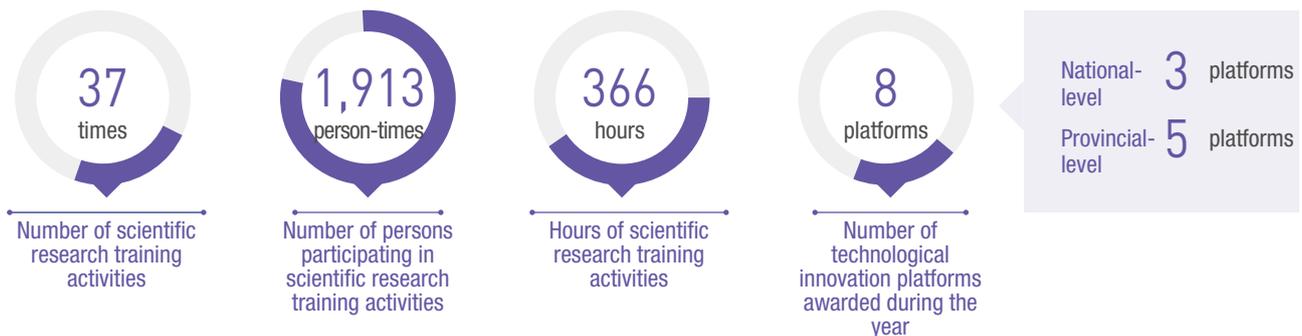
## Driven by Innovation

Relying on the “Management Measures for Transformation of Scientific and Technological Achievements”, we carry out internal learning and exchanges around innovation achievements, participate in external seminars and forums, and strengthen “industry-university-research-application” collaborative innovation to achieve technological empowerment and value creation, and expand new path for technological innovation empowerment.

### Stimulating internal vitality

We actively create an innovation ecosystem, build a R&D platform for technological innovation, conduct internal learning and discussions with a focus on the theme of technological innovation, so as to build a high-level talent base, and create new momentum and potential for development by technological innovation. In 2023, the Group carried out a total of 37 scientific research training activities.

#### Technological innovation performance of China Power in 2023



#### Construction of technological innovation platform



Xinyuan Smart Storage and the Academy of Industrial Internet of the Ministry of Industry and Information Technology entered into a strategic cooperation agreement for exploring the establishment of the novel energy storage industry sub-center of the National Industrial Internet Big Data Center, with a focus on building the “data leading position” and “industry leading position” of the novel energy storage industry and helping achieve the dual carbon goals.



China Power actively participated in the construction of the National Energy User-side Energy Storage Innovation R&D Center. Driven by the innovation needs of user-side energy storage development, it organized joint units to develop the comprehensive advantages of core technology, energy storage industry services based on heat storage, policy research and business model innovation, product testing, standard customization, technology demonstration and industrialization promotion, etc., in a bid to promote the construction of the platform’s industry-university-research-application” system in full force.



CP Hua Chuang was responsible for building the “Power Membrane Engineering Laboratory of the National High-Performance Membrane Materials Innovation Center”, which is a national innovation center for the industrialization of high-performance power membrane materials in China, promotes the engineering and industrialization of key technologies in power membrane material industry, and is committed to solving the constraints on the development of power membrane industry. It is of great significance in filling the gap in independent R&D of power membranes in China and realizes the substitution with domestically-manufactured power membranes.

Case

Publicity lecture of China Power on the development of new businesses

In October 2023, China Power invited six emerging energy industry units to provide publicity lecture on emerging industries for affiliated units of China Power. The lecture covered many technological innovation technologies such as the leading technology R&D for geothermal energy exploration and development, R&D and solutions of electrochemical energy storage product series, photovoltaic module full color coating technology R&D and product development, urban and rural transportation energy services. It improved the quality and skills of employees, promoted innovation-driven development, and further promoted the layout and development of the Group in new energy and strategic emerging industries.



Collaborative development

The Group actively participates in innovation seminars and science and technology forums, gives full play to the advantages of industry, university and research resources, joins hands with all parties to promote the construction of new energy system, and comprehensively promotes the breakthrough and transformation of key technologies. In 2023, the Company signed strategic cooperation agreements with the China Academy of Industrial Internet, Hunan University, Nanjing Tech University, Beijing Institute of Graphic Communication, International Academicians Science and Technology Innovation Centre Company Limited, College of Electrical Engineering, Sichuan University, and Guangxi University, to strengthen the cooperation in the fields of advanced energy technology, comprehensive energy services, digital transformation and joint talent cultivation, jointly promote comprehensive technical cooperation between enterprises and universities, and realize mutual promotion and common development of “industry-professionalism”. In 2023, the Group had a total of 76 industry-university-research partners.



Number of industry-university-research partners

76 partners



Accumulating innovation achievements

The Group continues to promote the transformation and implementation of achievements, improves independent innovation capability, and provides strong support for the transformation and development of industry technology. In 2023, the Group obtained another 198 authorized patents and applied for 414 patents.



Case

China Power released the energy safety technological innovation achievements

In October 2023, the technological innovation achievement presentation hosted by the China Electricity Council and the China Industry-University-Research Institute Collaboration Association and organized by China Power was held in Beijing. At the presentation, China Power released a number of scientific and technological innovation achievements, covering energy storage intelligent operation, photovoltaic colorization and recycling, green power transportation, intelligent safe operation and maintenance and others, focusing on “safety, integration and low carbon”, demonstrated the new development trend of emerging industry clusters and comprehensively opened a new chapter of a world’s leading green and low-carbon energy provider driven by technological innovation.



**Xinyuan Smart Storage released the technological innovation achievement of the “Intelligent Operation Platform with Digital Twin Application in Generally Centralized Control of Energy Storage”**, opened up a new era of unmanned operation in the energy storage industry, and pioneered the full-life-cycle unified modeling of all equipment of energy storage power station, safe penetration of massive characteristic data across networks of energy storage power station, digital twin simulation of energy storage power station based on AI big data operations, and a full-scenario active safety warning and evaluation system for energy storage power station, which enabled the development of novel energy storage industry with digital “intelligence” and accelerated the construction of novel power systems.



**Xinyuan Jinwu released the technological innovation achievement of “Full Color Photovoltaic Functional Material and Product Innovation and Application”**. Through the original full color coating technology (CMT technology), it adopts colored processing to produce various photovoltaic modules and create different series of products for different scenarios, providing full color new options for building integrated photovoltaic, environment integrated photovoltaic and the reuse of decommissioned inventory photovoltaic.



**Qiyuanxin Power released the technological innovation achievement of “Key Technologies and Solutions for Integration of Transportation and Energy”**, which created a standardized battery system “Energy Cube” shared by vehicle and storage and the technical solutions, realized battery cluster management, full-life-cycle monitoring, interaction between vehicle network and station network, and the optimization of charging and battery swapping mechanism, and built a community of transportation and energy integration.



**CP Yuchuang launched the first five comprehensive robot solutions in China**, including intelligent high-voltage cabinet inspection and operation, inspection of strong magnetic and high-temperature environment at the bottom of electrolyzer, intelligent underwater operation exploration, inspection of ultra-low temperature coal conveying trestle, and intelligent dispatch control of garbage storage, empowering the transformation and upgrading of traditional production modes through AI, deeply exploring data value for the manual work scenarios of “high risk, high pollution and high difficulty” in the power industry, and making power operations more accurate, more efficient and safer.

### Case Pure hydrogen gas turbine test platform project

The pure hydrogen gas turbine test platform project carried out by Hubei Company is an important part of the research of Beijing heavy-duty MW-level pure hydrogen gas turbine, a key scientific research project. By completing the R&D and integration transformation of combustion system, fuel system and control system in the pure hydrogen gas turbine, it conducted the gas turbine performance test to check whether the pure hydrogen gas turbine can meet the designed performance requirements, and obtained relevant performance data to prepare for the trial operation of the gas turbine at the demonstration site.

This project is the first in China to build a fully functional MW-level pure hydrogen gas turbine test platform, and lays a test foundation for the development of China's first MW-level pure hydrogen gas turbine product with independently controllable intellectual property rights. It helps traditional industries transform to be more environmentally-friendly and efficient, promotes the R&D and application of hydrogen energy, significantly reduces carbon emissions, and lays the foundation for green and sustainable development.

### Case Construction of the first 1,000MW prefabricated cabin modular offshore booster station in China

Shandong Energy has completed the 1,000MW prefabricated cabin modular offshore booster station in Shandong Peninsula South U Project. It has built the million-kW-level prefabricated modular offshore booster station with the largest single-unit capacity in China. It has been successfully put into operation, connected to the power grid and achieved a number of "first-of-its-kind achievements in China".

It adopted the distributed energy-saving ventilation system and control method with integrated layout of prefabricated cabins for the first time in China; adopted the water supply solution of seawater desalination in offshore booster station for the first time in China, hence achieving self-sufficiency in water for living, production and firefighting, etc. around-the-clock, and comprehensively solving the difficulties in relation to water consumption during offshore construction and commissioning; adopted the aspirating smoke sensing system in fire alarm system of offshore platform for the first time in China, hence improving the accuracy and reliability of fire detection. It also adopted a centralized fire alarm system for offshore wind farm cluster, thereby realizing the fire alarm of multiple offshore booster stations and the monitoring and control of linkage control system via one main machine in the onshore centralized control center, and achieving a breakthrough in the design of offshore platform fire alarm system.

## Technological innovation achievement performance of China Power in 2023

Indicator	Unit	Value in 2023
Technological innovation projects carried out during the year	project	338
Total number of authorized patents by the end of the year	patent	1,083
Authorized invention patents	patent	198
Authorized utility model patents	patent	878
Authorized design patents	patent	7

Indicator	Unit	Value in 2023
Cumulative authorized patents during the year	patent	198
Authorized invention patents	patent	53
Authorized utility model patents	patent	145
Authorized design patents	patent	0
Cumulative patents applied for during the year	patent	414
Invention patents applied	patent	280
Utility model patents applied	patent	131
Design patents applied	patent	3
Number of honorary awards for technological innovation	award	23

## Formulation of Standards

As a leading enterprise in the power industry, China Power plays a good leading and exemplary role, continues to promote industry progress, and further improves the standardization management level of the industry around production safety, generating unit operation and maintenance, equipment inspection and maintenance, engineering construction technology inspection and maintenance, etc. In 2023, the Group chaired or participated in the formulation and revision of a total of 35 industry standards.

### Standard formulation of China Power in 2023



## Intellectual Property Rights

China Power strictly abides by the “Trademark Law of the People’s Republic of China” and the “Patent Law of the People’s Republic of China”, formulates and strictly implements internal systems such as the “Intellectual Property Rights Management Regulations” and the “Management Measures for Transformation of Scientific and Technological Achievements”, establishes and improves the Group’s internal intellectual property rights management systems and processes and organizes their implementation. While preventing infringement of others’ patent rights, we also conduct intellectual property layout of the Group and enhance the effective protection of our technological innovation achievements. In 2023, China Power had no legal cases regarding intellectual property rights.

# Promoting Quality Services

China Power is committed to building a win-win ecosystem with multiple partners, constantly improving the quality and efficiency of power engineering, products and services. Focusing on the core needs of users, it is committed to building a sustainable supply chain and opening up “new business segments” for transformation and development led by technological innovation, so as to ensure high-quality development of the Company.

## Responding to the Sustainable Development Goals (SDGs) of the United Nations

9 Industry, innovation and infrastructure

11 Sustainable cities and communities

12 Responsible consumption and production

17 Partnerships for the goals



## 2023 Performance Highlights

- Number of service-related complaints received 0 case
- Customer satisfaction 100%
- Proportion of new suppliers selected based on environmental and social criteria 75.07%

## Quality Projects

China Power strengthens its responsibilities in respect of quality, strives for excellence in promoting quality projects, continues to improve its quality management system, optimizes quality management processes, defines quality management goals, and improves quality management capabilities. It is committed to building safe, stable and reliable benchmark power plants and a strong driver for high-quality development.

### Quality Management

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China Power has formulated special quality management measures such as the “Implementation Measures for Quality Management of Thermal Power Project Construction” and “Measures for Quality Management of New Energy Project Construction” based on the construction characteristics of different power industry projects. We have established a quality management network with the Company’s thermal power management department and new energy management department as the competent departments, the safety, quality and environmental protection supervision department as the supervisory arm, and the construction unit as the responsible entity, to specify quality management responsibilities and comprehensively standardize quality behavior.

In 2023, we further focused on the full-process quality management of project construction, and strengthened preliminary control, in-process supervision and inspection, subsequent quality control and completion acceptance of projects to ensure the level of process craftsmanship of project construction.

### Quality Enhancement

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China Power has strictly implemented the “Quality Supervision and Management Measures”, and established quality supervision and control management systems such as the “Measurement Management Measures”, “Management Measures for Process Control of Maintenance Quality” and “Technical Standards Management Measures”. Leveraging its Integrated Application Platform (HIAP) system, China Power has carried out quality inspection for the generating units with an aim to improving the quality of projects and electricity, ensuring safe, stable and reliable operation of the generating units, and giving full play to the effectiveness of its quality infrastructure.

## Sincere and Heartfelt Services

China Power adheres to the awareness of providing “customer demand-oriented” services. While effectively protecting the legitimate rights and interests of customers, it further explores customer needs and creates customer value, and is committed to providing low-carbon, safe and sustainable energy services.

### Protecting Customers’ Rights and Interests

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China Power has strictly implemented the “Law of the People’s Republic of China on the Protection of the Rights and Interests of Consumers” and formulated the “Account Manager Management Measures (Trial)” and carried out comprehensive tracking of user’s feedback on after-sales management, information maintenance, return visits and other matters, so as to avoid deviations in electricity consumption of users caused by subjective factors such as improper management. Besides, in accordance with the “Management Measures for Power Value-Added Services”, we have provided value-added services for users, strictly abide by various requirements such as project schedules and quality management, and maintained strict confidentiality of customer information obtained in the course of business activities to effectively safeguard rights and interests of customers. In 2023, the Company did not have any incident of leakage of customers’ privacy.

### Improving Service Quality

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China Power has proactively adapted to market development trends, strengthened research on policies of power system reform, proactively empowered its customers and developed new development channels, enhanced its awareness of market services, and continued to enhance brand influence and market competitiveness.

We have formulated the “Management Regulations on Power (Heating) Marketing and Sales” and the “Management Measures for Customer Satisfaction Survey” to regulate the Company’s entire marketing and sales management process. We have established service plans based on the nature of customers, and regularly collected customer satisfaction information on the power products and services provided by the Company, fully identified customer expectations and potential needs, and achieved targeted improvements in product and service quality.

In July 2023, we organized the affiliated units to carry out the “Customer Service Month” activity, and carried out diversified user services such as return visits to user units and face-to-face exchange with customers for their suggestions, thereby fulfilling user-side needs to achieve mutual benefits and common development with customers.

Diversified customer service measures



Pingwei Power provided special services such as power use safety training, tool testing and interpretation of policy key points in response to user demand for value-added services. It also guided user units to optimize energy consumption planning during peak hours and actively avoid energy use during peak hours.



Changshu Electric Power provided customers with market policy presentations, demand surveys and Q&A. It had in-depth exchanges with customers on digital energy consumption and the role of management system. It continuously optimized the energy management platform and opened up user-side operation login interface. It improved virtual power plant software, completed demand-side response, and medium and long-term adjustable auxiliary service, short-term adjustable load baseline calculation and other functions, which greatly improved the response and decision-making speed and solved the existing difficult situations involving energy consumption and electricity bill management of customers.

Shentou Power Plant II achieved 100% return visits to its users, and provided monitoring system and service platform for power consumption of electricity users with a focus on businesses such as customer service, energy consumption monitoring and load regulation, so as to achieve real-time monitoring of customers’ power, strengthen the monitoring capabilities of power consumption curves, and thus enhance user stickiness continuously.

In addition, we conduct customer satisfaction surveys through the marketing WeChat official account, covering indicators such as service quality, service effectiveness, timeliness and quality of complaints, and cooperation needs, etc., to further enhance the service connotation and expand the Company’s brand influence. In 2023, customer satisfaction rate of the Company was 100%. No complaints have been received about products or services.

Customer satisfaction survey of China Power in 2023



Customer satisfaction



Number of service-related complaints received

# Responsible Procurement

China Power insists on building a sustainable and highly resilient supply chain, organically integrates ESG concept with the procurement system, regularly identifies, evaluates and manages major ESG risks of suppliers, implements green procurement, promotes the development of supplier capability, improves collaboration and cooperation capabilities with suppliers. It is committed to building a responsible supply chain and realizing open and transparent procurement.



**8,029** suppliers

Total number of suppliers of the Company



**75.07%**

Proportion of new suppliers selected based on environmental and social criteria

## Overview of Suppliers

In 2023, the Group had a total of 8,029 suppliers, covering supplier categories such as fuel procurement, infrastructure construction, production and information projects, office, management consultancy and services, and scientific research projects.

### Number and distribution of suppliers of China Power

Indicator	Unit	Value in 2023
Number of suppliers	supplier	8,029
Of which: Number of domestic suppliers	supplier	8,014
– North China	supplier	1,053
– East China	supplier	1,870
– Central China	supplier	1,248
– Southern China	supplier	2,550
– Northwest China	supplier	822
– Northeast China	supplier	471
Number of overseas suppliers	supplier	15
Proportion of domestic suppliers	%	99.81
Number of suppliers exited	supplier	455

## Supply Chain Management

Adhering to the principles of “fairness, impartiality and openness”, we have formulated a series of bidding and supply chain management policies such as the “Procurement Management Regulations”, “Bidding Procurement Supervision and Management Regulations” and “Fuel Procurement Management Regulations”, and revised the “Supplier Management Measures” in December 2023 to further improve the supplier management system, improve procurement quality and reduce procurement risks.

### Supplier management mechanism

#### Supplier access

In terms of access, taking the credit qualifications, quality assurance, contract performance capabilities, legal proceedings and other aspects as the evaluation basis, the Company has confirmed supplier access according to the procurement category, and required suppliers to describe the status of system certifications such as environmental protection, quality management, occupational health and safety, and included qualified suppliers in the “List of Qualified Suppliers”.

In the “Tender Document”, we have explicitly required the suppliers to comply with relevant regulations on intellectual property rights, including intellectual property ownership, licensing, claims, etc.; suppliers were required to obtain the certification of the three standards in ISO (International Organization for Standardization); the quality requirements, relevant parameters and the maximum allowable deviation range of the procurement target are stipulated therein.



#### Supplier assessment and evaluation

In accordance with the principle of “dynamic updates and annual evaluation”, the Company has conducted performance evaluation at various stages for all suppliers participating in procurement activities based on supplier qualification, environmental management, quality management and service conditions. In addition, based on the evaluation results and strategic cooperation status, it has classified suppliers into strategic suppliers, excellent suppliers, good suppliers, general suppliers and unqualified suppliers.



#### Supply chain risk identification and management

The Company has identified supply-chain risk points including environmental and social risk points based on aspects such as bulk commodity prices and project cost control, strengthened key supply chain risk analysis and responsive mechanisms, and selected the top five supply chain risks covering production safety, corruption, environmental pollution, financial status and product quality for focused management.



#### Supplier misconduct and exit management

The Company has compiled a list of supplier misconduct, carried out graded punishments for supplier misconduct, and selected unqualified suppliers through the evaluation methods such as “individual evaluation of each order”<sup>13</sup> and “summarized evaluation of multiple orders”<sup>14</sup>.

In 2023, in accordance with the “Implementation Measures for Management of Supplier Misconduct Record”, the Company censured 225 suppliers with severe misconduct. 73 suppliers with severe misconduct censured by SPIC were included in the “blacklist”, and the one-vote veto system<sup>15</sup> was implemented.



<sup>13</sup> “Individual evaluation of each order” refers to conducting one evaluation for each order.

<sup>14</sup> “Summarized evaluation of multiple orders” refers to conducting multiple evaluations for a few orders at the same time, which would then be summarized to form the final evaluation results for the supplier.

<sup>15</sup> One-vote veto system refers to the direct ban of suppliers with severe misconduct.

### Supply chain management of China Power

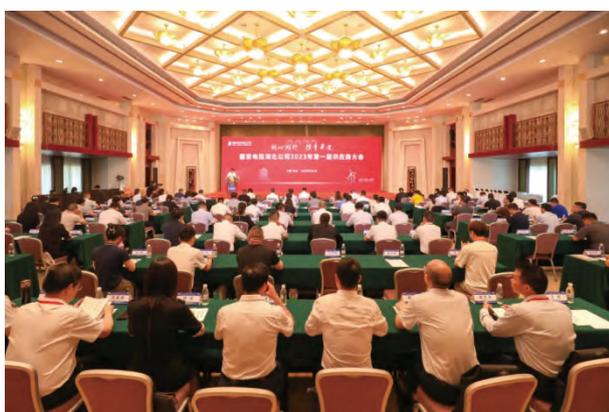
Indicator	Unit	Value in 2023
Number of suppliers subject to supplier management procedures	supplier	8,029
Of which: Number of new suppliers selected based on environmental and social criteria	supplier	6,027
Proportion of new suppliers selected based on environmental and social criteria	%	75.07
Number of major risk incidents of supply chain	incident	0
Number of suppliers involved in major risk incidents of suppliers	supplier	0
Number of persons involved in major risk incidents of suppliers	person	0

### Synergistic Development of Suppliers

We have continued to support the growth of suppliers, and developed mutually beneficial and win-win cooperative relationships with suppliers through activities such as supplier training and supplier exchange conferences, and promoted the synergistic development of suppliers. In 2023, 6 training sessions or capacity building activities for suppliers were organized. The Group has provided exchanges and publicity for selected suppliers, and uploaded training manuals, operation manuals and other materials through the e-procurement platform for suppliers to learn, thereby actively enhancing suppliers' contract performance capabilities.

#### Case Hubei Company held the first supplier conference

In June 2023, Hubei Company held the first supplier conference to deepen the cooperation with strategic suppliers. It actively tracked the development trends of strategic suppliers, accelerated the commercialization of results, promoted project implementation, and presented the "Excellent Suppliers" awards.



Hubei Company held the first supplier conference and presented the "Excellent Suppliers" awards

## Open and Transparent Procurement

China Power has strengthened the development of supplier business ethics management and integrity among suppliers, comprehensively strengthened the supervision and management of fuel and material bidding procurement, required the implementation of the anti-corruption policy when entering into business contracts in accordance with laws and defined the responsibilities of both parties. Besides, the suppliers who try to win the bid from bid evaluation experts through bribery means or affect the fairness of bid evaluation, which are considered as severe misconduct, will be censured so as to prevent various violations of laws and disciplines. It has also required suppliers to sign the “Agreement on Business Contract Integrity” before entering into contracts.

## Green Procurement

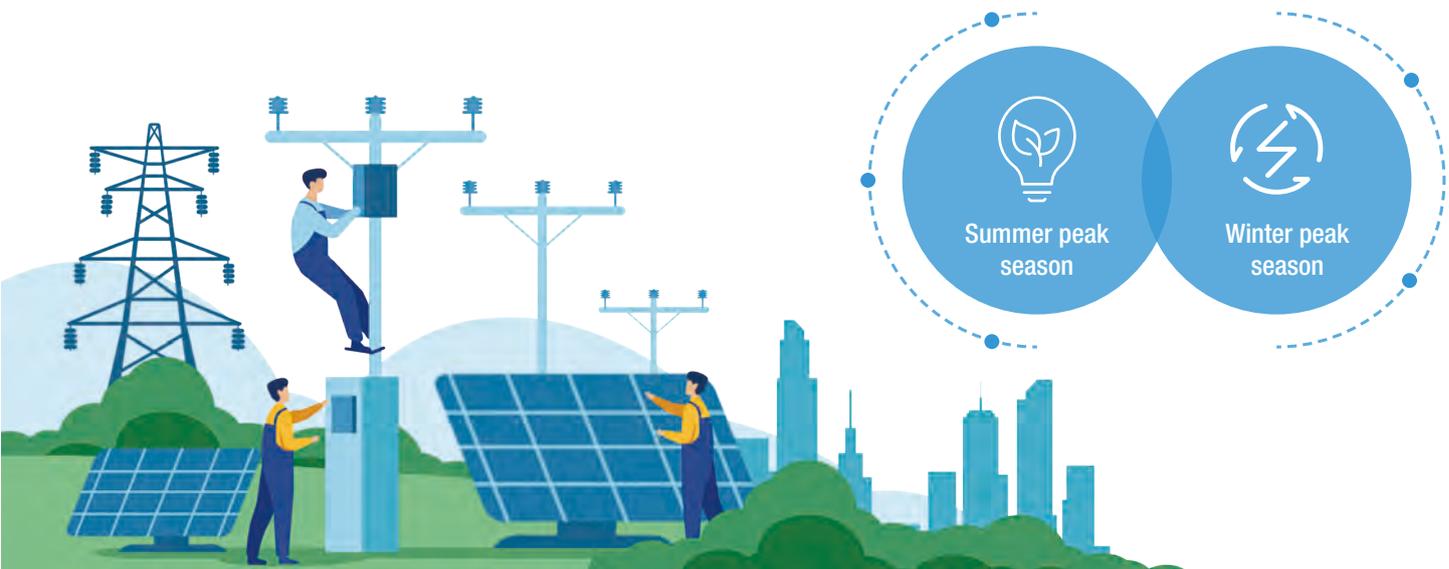
We have integrated the “green and low-carbon” concept into the Company’s product procurement, strictly controlled the emissions of various pollutants from suppliers during the project construction process, and actively promoted the sustainable development of supply chain.



# Ensuring Energy Supply

China Power has actively responded to the government’s call and intensively deployed to stabilize production and ensure supply, meet the energy needs for social and economic development and people’s livelihood, and achieve safe, stable and reliable energy supply.

We have formulated the “Work Plans of China Power for Ensuring Energy Supply in 2023” and the “Work Measures of China Power for Ensuring Energy Supply During Winter Peak Season in 2023”, and established 6 special working groups (including the special emergency repairing and maintenance team) under the leading team of ensuring energy supply, which are responsible for special tasks such as ensuring power and heat supply, fuel supply and production safety. We have stored coal during non-peak periods to guarantee supply of coal-fired power, strengthened the supervision and maintenance of generating unit operation, thus comprehensively ensuring the implementation of energy supply projects.



## Case

## Shoulder the responsibility of central enterprises to ensure supply during winter peak season

In January 2023, China Power, as a central enterprise of energy, resolutely shouldered the responsibility of ensuring supply during winter peak periods of Spring Festival, and continuously delivered electricity to huge numbers of families.

During the Spring Festival, hundreds of cadres and employees of Shentou Power Plant II insisted on staying at the front line of production, and adjusted the operating mode of generating units based on the operating characteristics and load characteristics of the power grid during Spring Festival. In response to cold wave weather, they increased the number of inspections in areas prone to freezing in order to ensure the normal operation of equipment. In the evening of the New Year's Eve, the load of #4 generating unit operating on the grid was 900MW, with the load rate remaining above 90%.

During the Spring Festival, the operators of Fuxi Power Plant insisted on staying at the front line of production to ensure stable power supply during the festival.

The employees of Pu'an Power persisted in staying at their jobs and overcame difficulties under the severe conditions of low temperature, rainfall and freezing cold, ensured that more than 100 trucks of coal entering the plant were unloaded every day, made every effort to ensure the stable supply of coal for the generating units and provided reliable guarantee for power supply.



Cadres and employees of Shentou Power Plant II insisted on staying at the front line of production to ensure power supply



Centralized control inspector performed boiler fire inspection and slag cleaning



Pu'an Power's duty officers persisted in staying at their jobs

**Case** Shouldered the responsibility of central enterprises to ensure supply during summer peak season

In the summer of 2023, hot weather lasted for long. As a central enterprise of energy, China Power resolutely shouldered the responsibility of ensuring supply during summer peak season.

In June 2023, All six generating units of Pingwei Power operated on the grid. We put all-out efforts in ensuring production safety and power supply during the summer peak season. Adhering to the dispatch plan and operating conditions of generating units, we planned ahead and took multiple measures to expand as well as ensure and stabilize power generation.

In June 2023, the power generation of Zhongping New Energy Dalad Banner 100MW Integrated Photovoltaic Sand Control and Husbandry Promotion Demonstration Project hit a record high. In view of the climatic characteristics of the desert area, the station formulated the plan for summer peak season in advance, and inspected more than 24,000 small grounding wires scattered in the 3,075-mu desert area and the grounding resistance of each compact substation one by one to ensure safe and stable power supply.

Pu'an Power continued to strengthen the performance of its responsibilities, laid a solid foundation for production safety management, paid close attention to summer flood prevention, enhanced the monitoring of the operation of and elimination of defects in generating units, and continued to do a good job in fuel procurement. In 2023, the annual cumulative power generation of Pu'an Power increased by 49.42% year-on-year, reaching a record high.



Pingwei Power put all-out efforts in works during the summer peak season



Zhongping New Energy overcame weather problems to conduct equipment inspection



Pu'an Power enhanced the monitoring of the operation of and elimination of defects in generating units

## Valuing Employee Well-being

China Power adheres to a talent-centered approach, effectively safeguards various basic rights and interests of employees, persists in empowering employee development by creating a good and favorable environment for talents. Continuing to enhance their sense of happiness and belonging, it works hand in hand with employees for mutual growth, thereby adding vitality to the high-quality development of the Group.

### Responding to the Sustainable Development Goals (SDGs) of the United Nations





## 2023 Performance Highlights

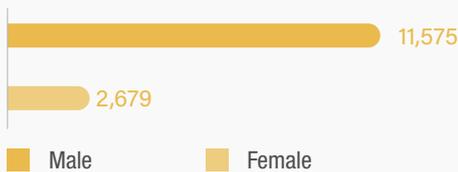
- Percentage of employees who received training **100%**
- Total hours of employee training **965,950 hours**
- Total investment in employee training **94,523.5 RMB'000**

# Employee Rights and Benefits

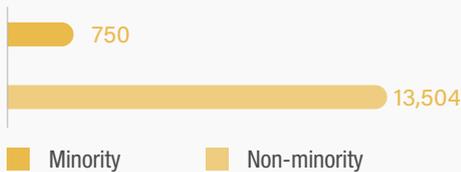
China Power recruits employees in compliance with laws and regulations, develops a stable and harmonious employment relationship with employees, and establishes a diverse, equal, democratic and harmonious working environment. In 2023, the Group had a total of 14,254 employees, including 1,053 new employees, and the overall employee turnover rate was 4.76%.

**14,254** Total number of employees

Number of employees by gender



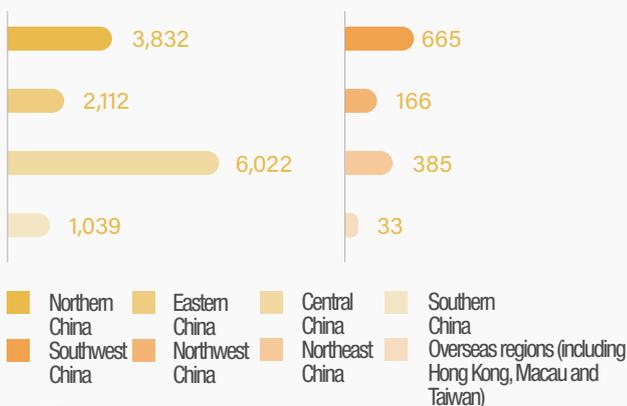
Number of employees by ethnicity



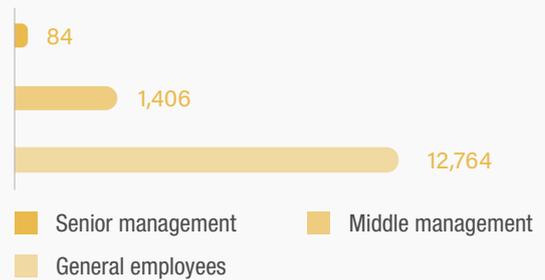
Number of overseas employees



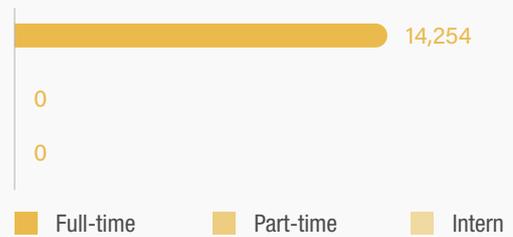
Number of employees by geographical region



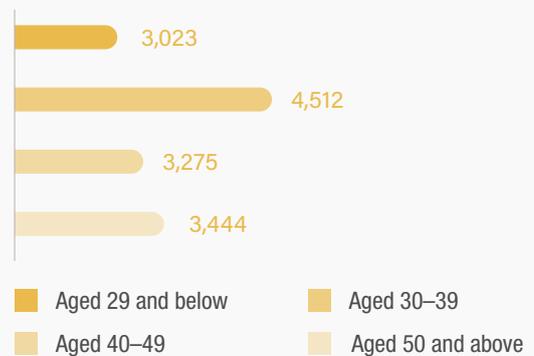
Number of employees by position



Number of employees by employment type



Number of employees by age group

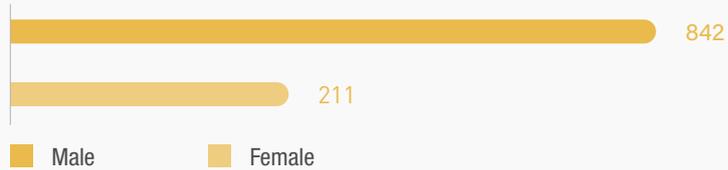


**1,053** Number of new employees

● Percentage of new employees

7.39%

Number of new employees by gender



**4.76%** Overall employee turnover rate<sup>16</sup>

Employee turnover rate by gender



Male 4.51%



Female 5.82%

Employee turnover rate by ethnicity

● Minority

4.27%

● Non-minority

4.78%

Employee turnover rate by job position

● Senior management

15.48%

● Middle management

4.98%

● General employees

4.66%

Employee turnover rate by age group

● Aged 29 and below

2.81%

● Aged 30–39

2.88%

● Aged 40–49

1.53%

● Aged 50 and above<sup>17</sup>

11.99%

Employee turnover rate by geographical region

● Northern China

6.84%

● Eastern China

4.55%

● Central China

3.35%

● Southern China

8.37%

● Southwest China

2.26%

● Northwest China

1.20%

● Northeast China

2.60%

● Overseas regions (including Hong Kong, Macau and Taiwan)

12.12%

<sup>16</sup> Staff turnover refers to the number of employees in each category who voluntarily left, retired or deceased and terminated their employment with the Group during the reporting period = the number of employees in that category who left ÷ the total number of employees in that category × 100%.

<sup>17</sup> The increase in the number of retirements in 2023 resulted in an increase in the overall employee turnover rate as compared to the prior year.

## Equal Employment by Law

In strict accordance with the laws and regulations such as the “Labor Law of the People’s Republic of China”, the “Law of the People’s Republic of China on Labour Contracts” and the “Hong Kong Employment Ordinance”, China Power has formulated internal human resources management systems such as the “Employee Recruitment Management Measures” and the “College Graduate Recruitment Management Measures”, and revised the “Management Measures for Labor Contracts” in 2023, which was approved by the staff congress meeting.

We strictly comply with laws and regulations such as the “Regulations on Prohibiting the Use of Child Labor”, and support international standards such as the “Universal Declaration of Human Rights”. We also abide by the employment principles of legality, fairness, voluntariness, equality, consensus and integrity and trustworthiness, strictly implement anti-discrimination principles in recruitment, employment, promotion and other aspects, resolutely avoid the employment of child or forced labor, respect different religious beliefs and customs, provide sufficient protection to the staff, and ensure that both male and female employees will be entitled to equal pay for the same position with equal development opportunities.

In March 2023, the Board reviewed the implementation of the diversity of the Board and overall employees of China Power and clarified the Company’s overall employee employment and turnover in 2022, to promote the scale, quality and structure of the Company’s human resources, property and material resources in line with the Company’s transformation and development needs.

### Completion status of gender diversity of the Company

Indicator	Unit	Value in 2023 <sup>18</sup>	Value in 2022 (base year)	2030 (target year)	
Senior management	Total	person	84	51	9%-11%
	Number of female	person	4	3	
	Proportion of female	%	4.76	5.88	
Executive	Total	person	5,757	3,319	33%-35%
	Number of female	person	1,440	1,076	
	Proportion of female	%	25.01	32.42	
Skilled personnel	Total	person	8,413	7,459	13%-15%
	Number of female	person	1,235	933	
	Proportion of female	%	14.68	12.51	

## Democratic Management

China Power has continued to improve the development of trade unions and systems, established the “Management Regulations for Staff Congress Meeting”, and built a closed-loop communication and feedback channel, which is top-down or vice versa, for employees to communicate with each other. It has protected employees’ rights to information, participation and supervision through staff congress meetings and other means.

We have continued to promote measures such as “SPIC-homeland”, disclosure of factory affairs, proposals from employee representatives, and collection of rational recommendations on a regular basis to keep close contact with employees, open the channels for employees to provide recommendations, timely respond to employee grievances and demands, and give full play to the role of trade unions as “a bridge of communication”.

<sup>18</sup> The percentage of female senior management and executives decreased in 2023 due to the completion of the Company’s clean energy company acquisitions in 2023 and the addition of new senior management and executives therefrom are predominantly male.

## Remuneration and Benefits

China Power has continued to establish and improve the remuneration management and performance appraisal management system, and has formulated institutional documents such as the “Management Measures for Remuneration of Headquarters” and the “Management Measures for Remuneration of Members of Operations” to ensure the balance between the external competitiveness and internal fairness of the Company’s remuneration. Besides, based on the value of employees’ position, professional skills, performance assessment and a diversity of other factors, it has scientifically set up a rational remuneration structure, while protecting employees’ rights and benefits such as paid annual leave, enterprise annuity, supplementary medical insurance, holiday benefits, heating fees and high temperature subsidy.

We have formulated the “Management Measures for Headquarters Performance Appraisal” to conduct quarterly and annual performance appraisals on key tasks for employees, and issue performance bonuses based on the appraisal results. In addition, the Company has set up supporting indicators for the annual and tenure comprehensive performance appraisal responsibility statement of leaders, covering indicators such as production safety and ecological environment protection.

In order to further improve the incentive and discipline mechanism of the Company, facilitate its transformation and development, fully mobilize the Company’s senior management, middle management and key officers of core businesses, effectively integrating shareholders’ interests, the interests of the Company and the personal interests of key employees, and procure all parties to commonly focus on the long-term development of the Company. The Company has formulated a share incentive scheme on the premise of fully safeguarding the interests of our shareholders and in accordance with the principle of reciprocity between income and contribution, and pursuant to the requirements of relevant laws, regulations and regulatory documents such as the “Trial Measures for Implementing the Equity Incentives by State-Controlled Listed Companies (Overseas)”, the “Notice on the Regulation of Relevant Issues Concerning the Implementation of the Equity Incentive System by State-Controlled Listed Companies”, “Work Guidelines for the Implementation of Equity Incentives by Listed Companies Controlled by the Central Enterprises”, the Listing Rules, and the provisions of the Articles of Association of the Company. The participants under the scheme are the Directors, senior management and backbone management, technical and business personnel (who have a direct impact on the Company’s operating results and sustainable development) of the Company (including its controlled subsidiaries).

The implementation of the share incentive scheme is an important step in the launch of the Company’s strategic transformation. According to the requirements of the national strategy of “2030 Carbon Peak and 2060 Carbon Neutral”, China Power has implemented strategic transformation from a coal-fired power based traditional power generation enterprise to an innovation-driven world’s leading low-carbon energy provider focusing on clean and low-carbon energy. The Company will provide medium- and long-term incentives to support this transformation.

At the same time, the Company actively pushed forward policy of the reform of share incentive for the enterprises focused on “technological reform demonstration”, and implemented share incentive scheme for its technological innovation enterprises to maximize employees’ sense of ownership and collective honor. In 2022, Xinyuan Smart Storage was included in the list of “Demonstration Enterprises in Technological Reform” and was accredited with the qualification of High-and-New-Tech Enterprises in 2023. In May 2023, Xinyuan Smart Storage was approved to implement its share incentive scheme, with the medium- and long-term incentives covering a total of 24 senior management and core backbone personnel of the Company.



93,060,000 shares

Number of share incentives (share options)



# Employee Care

China Power actively creates a warm and harmonious working atmosphere, takes actions to care for employees in need, and pays attention to the rights and interests of female employees. By establishing employee associations, it regularly organizes a variety of cultural and sports activities for employees, and formulates marriage leave, bereavement leave, family visit leave, maternity leave, parental leave and other systems. It highly concerns about the work-life balance of employees. We show our care to the retired employees by fostering twofold safeguard mentally and physically. We organize seminars and send our condolence from time to time, offer them with holiday benefits, medical support, protection for serious illnesses, heating fees and other retirement guarantees, and remain committed to creating a warm home with love and hope for employees.



**24,537.7** RMB'000

Total investment in employee care and assistance



**651** times

Total number of employee activities

## Employee Assistance

We have formulated and implemented the “Management Measures for Headquarters Labor Union to Care for Employees”, “Management Measures for Subsidies of Headquarters Employees in Need”, “Management Measures for Extreme Medical Condition Relief Fund” and “Management Measures for Employee Caring”, and regularly carried out employee condolences, assistance and caring activities.



China Power carried out the summer care activity of “Share a Happy Summer”, and organized visits and studies of science and technology museums, art galleries, etc. for employees’ children, which not only relieved employees’ “caring” pressure in summer, but also helped children spend a safe, happy and meaningful holiday.



Pingwei Power dynamically improved the family files of employees in need or abroad, completed the employee mutual assistance plan, employee medical mutual assistance guarantee, and extreme medical condition relief, and applied for a subsidy of RMB138,000 in total for 24 employees.





During the New Year’s Day and Spring Festival, Changshu Electric Power visited 68 employee families, distributed sympathetic money and supplies of about RMB103,000, and distributed a subsidy of RMB305,000 to employees whose families had suffered misfortunes or special difficulties. It also applied for a “mutual assistance” relief fund of RMB60,000 from the Suzhou Federation of Trade Union for four seriously ill employees.



Wuhu Company continuously cared for the employees and families of project departments stationed abroad or overseas project departments, established “one-to-one” assistance files, carried out condolences during holidays, and carried out employee home activities in each project department stationed abroad to enhance team cohesion.



CP Lvneng conveyed condolences for front-line employees, model workers, veterans and retired employees on holidays such as New Year’s Day, Spring Festival, May Day, Dragon Boat Festival, Double Ninth Festival and Army Day, contributing a total of RMB295,300 in condolences.



## Female Employee Care

China Power has earnestly monitor the rights and interests of female employees, and formulated the “Management Measures for the Selection and Commendation of Exemplary Individuals for Heroine Achievement (Trial)” to commend female employees who have fully played an exemplary role in production and operation activities, and further motivate the enthusiasm, initiative and creativity of female employees in enterprise reform and development.

At the same time, we attach great importance to the physical and mental health activities of female employees, provide half-day leave for all female employees on the Women’s Day on 8 March, carry out maternity condolences for existing female employees who have given birth, and strengthen the protection of female employees during pregnancy, childbirth and lactation. We set up baby care rooms, organize female employees to receive examinations on gynecological diseases and breast diseases, and other special examinations for female employees in need, and actively protect the rights and interests of female employees.

In addition, the Company has organized the “Make Contribution and Strive for Excellence” selection and commendation of exemplary individuals for heroine achievement to motivate and guide outstanding female employees to play a role in favor of the strategic goals of China Power for transformation and development.

## Cultural and Sports Activities

China Power has enriched employees’ spare-time life by organizing various cultural and sports activities, and continued to create a corporate culture and atmosphere of team spirit and friendship.



Dabieshan Operation organized cultural and sports activities such as “Celebration for Spring and Lantern Festival”, strawberry picking and balloon volleyball games, and won the “Best Competitive Spirit Award” in the SPIC Hubei Regional Employee Basketball Game



Jiangmen Comprehensive Energy strengthened the development of trade union propaganda, cultural and sports activity base, carried out outing activity and online activity themed “Excelling to be elites of the times”, and actively interacted with local enterprises in Jiangmen to launch the “Social Networking Friendly Match” and give full play to the role of cultural and sports activities in cultivating sentiments and relaxing the state of mind



Shenyang Energy Investment organized and carried out the employee walking activity of and the low-carbon themed campaign of “realize low carbon easily” to provide higher-level mental and cultural services, promote employees’ personal green and low-carbon actions, and promote the creation and value recognition of China Power’s characteristic brand of “Lower Carbon Empower Better Life”

# Employee Growth

China Power regards human resources as a treasure for the Company's high-quality development. Adhering to the talent strategy and highly valuing employee growth, it establishes diversified talent development channels, creates a sustainable employee cultivation system, and provides vast space and platform for the career development and self actualization of employees.

## Talent Cultivation

We regard talent cultivation as an important support for the Company's transformational development and strategy implementation. We have formulated internal management measures such as the "Management Measures for Education and Training" and specified the requirements for employees, professional technicians and operational skilled personnel at all levels to participate in training planning and systems according to different employee categories.

We have established the China Power Technical Training Center to promote all-employee training by optimizing and integrating technical skill training resources, developed training management and distance education platforms, planned and implemented the Company's technical skill training. In addition, the Company has 5 training bases in Pingwei, Changshu, Yaomeng, Wuhu and Fujian, which provide practical platforms for theoretical innovation, skill training and technological development of the Company.



## Employee training in 2023

### Graduate traineeship programs

In 2023, the Company set up cutting-edge training camps at various training bases and organized pre-appointment intensive training for newly joined fresh graduates to help new employees integrate into the Company as soon as possible, become familiar with the Company's systems, master necessary knowledge and skills, and enhance team spirit and cohesion, enhance their awareness of the Company and their sense of belonging and honor, and promote graduates to complete the transition from campus to workplace.

- ▶ Guangxi Company organized induction training for 23 fresh graduates, and strengthened employee training on the Company's five major business segments, production safety, quality and environmental protection, etc.



### Job-specific development training

In 2023, the Group prepared a job-specific development training plan for employees based on the key business directions under the development strategy and the needs of enhancing employee capability, so as to achieve full coverage of all employees within the Group.

- ▶ Planned the training on development of transformational development capability
- ▶ Conducted two phases of lectures and special topic series training of China Power in the form of live streaming
- ▶ In the form of live streaming, held professional training courses such as new energy project construction and production, operation and maintenance management training, thermal power production and operation training, news and publicity work business training, and new energy maintenance standardization training



### Staff professional skill training

Pre-appointment training, on-the-job training and vocational qualification training were provided to the Company's professional technicians and skilled personnel according to their position capabilities.

- Organized on-the-job certification training for coal mining and chemical processing personnel in 2023
- Technical supervision training
- Electrical (primary) inspection and maintenance skill training
- Chemical professional and technical skill training
- New energy power station operation and maintenance training and other professional energy saving training



### Management leadership training

The Company's cadre training focused on policies and regulations, leadership, business management, business knowledge, moral conduct, scientific and humanistic qualities.

- In 2023, the Company organized the followings for senior management to participate in:
  - Special seminar for the principal officers in charge of systems
  - Further study class for management cadres
  - Special training such as seminars on the strategic emerging industry and new energy industry



**Joint training programs with educational institutions**

In 2023, the Group cooperated with external educational institutions to empower life and work of employees, improve their professional capabilities and management levels, and actively promote the Company's transformational development.

- CP Hua Chuang joined hands with Suzhou Huiquan Management Consulting Co., Ltd., with theme of “make joint efforts to empower co-development”, to select management improvement training courses in a bid to enrich employees' ideas
- Invited the teachers from the Red Cross Society to carry out training on rescuer certification and enhance employees' emergency self-rescue capabilities. All participated employees passed the training certification examination
- Cooperated with Xiamen Savant Enterprise Management Consulting Co., Ltd. to carry out training courses to improve the management capabilities of the middle-level cadres and core business personnel



In addition, the Group encourages employees to obtain work-related certificated qualification certificates, supports employees in studying for degrees and obtaining professional qualifications, and gives rewards to employees who have obtained nationally prescribed or internationally recognized professional qualifications (excluding vocational and technical titles) such as the legal professional qualifications, certified public accountants, intermediate and above certified safety engineers. In 2023, the Company had additionally 59 employees who have obtained certificated qualification certificates.

**Talent Development**



**1,009**

Number of staff promoted internally in 2023

**100%**

Percentage of employee who received training

We have continuously innovated the talent pipeline development mechanism, formulated the “Management Measures for Vocational Development of Employees” and “Management Measures for Leadership Selection and Appointment”, set up 3 career development channels and 2 vocational development stages, and set up 4 levels for senior positions, to comprehensively coordinate a high-quality talent team that meets the Company's strategic development requirements. In 2023, the Company promoted 1,009 people internally, selected and appointed 100 young cadres.

In 2023, China Power issued the “Circular on Carrying out the Sorting and Development of Professional Talent Pool of China Power” to sort out the current status of professional human resources in the Company's business units, and initially completed the ledger management of the first batch of China Power's professional backbone talent pool, to provide talent support for the Company's business development, production safety, professional training and technical support.

### Employee training performance of China Power in 2023

Indicator	Unit	Value in 2023
Total training expenses	RMB'000	94,523.5
Total hours of training	hour	965,950
Total number of persons trained	person-times	167,070
Average training hours of employees	hour	68

Category	Average training hours (hour)	Training coverage (%)
Senior management	75	100
Middle management	69	100
General employees	71	100
Male employees	70	100
Female employees	58	100

### Talent Introduction



# 236

Number of talents introduced in 2023

Comprehensively considering the strategic planning and the development needs of key businesses of the Group, China Power reasonably carried out human resource allocation planning, conducted social recruitment through multiple channels, and introduced professional talents in the areas of internationalization, corporate governance, ESG, legal affairs, auditing, electrochemical energy storage and emerging industries, as well as scientific research and innovation teams from Tsinghua University, etc., laying a solid foundation for the Group's high-quality development and technological innovation empowerment.

In addition, China Power was committed to reserve and build up talents for the Company's transformational development, carried out high-quality campus recruitment in 2023, announced talent introduction plans for overseas companies, enhanced talent vitality and motivation, and took multiple measures to introduce and retain professional talents. In 2023, the Group introduced a total of 236 talents.



## Health and Safety



**0** person  
Number of work-related fatalities  
for three consecutive years



**100%**  
Occupational health screening  
coverage

We regard occupational health and production safety management as the foundation for the Group's high-quality development. We establish an intrinsically safe enterprise, pay attention to employees' occupational health, improve the Company's safety management system, strictly control the critical line of production safety, and implement safety management in all aspects of the Company's production and operation.

In 2023, the Risk Management Committee reviewed the "China Power Safety Risk Management Work Report in 2022 and Safety Risk Management Concepts in 2023", identified the Company's safety risks such as equipment damage risk and personnel injury risk, and strengthened safety risk management and control throughout the year. In August 2023, the Risk Management Committee reviewed the "Safety Risk Management Report of China Power for the First Half of 2023" to identify and handle the staff injury risks such as operational risk, contractor safety management risk, and safety production personnel shortage risk, and the equipment damage risks such as equipment defect risk, obsolescent generating unit safety risk and coal-fired power generating units' long-term operation risk, and specified the corresponding mitigation measures to ensure that all types of risks are controllable and under control.

### Safety risk management goals



Ensured continued stability of production safety in 2023, and no production safety incidents affecting the image of the listed company had occurred.

## Occupational Health

We are committed to protecting the occupational health of our employees, strictly abide by laws and regulations such as the “ Law of the People’s Republic of China on Prevention and Control of Occupational Diseases” and the “Regulations on the Supervision and Management of Occupational Hygiene in Workplace”, implement the “Quality, Safety, Health and Environment Management Manual” and “Occupational Health and Labor Protection Management Measures” to provide protective management measures for preventing and mitigating business-related occupational diseases, and provide a safe, hygienic and comfortable working environment for employees.

### Protective management measures for preventing and mitigating occupational diseases



- Accept supervision and management by relevant departments in workplaces with hazardous factors
- Well perform the “three-simultaneous”<sup>19</sup> work of occupational hygiene protection facilities in construction projects



- Develop sound management of occupational disease prevention and labor protection supplies
- Places with occupational disease hazards should be equipped with effective protective equipment
- Provide labor protection supplies based on job requirements and workplace risks



- Provide occupational health and safety examinations for employees



- Through the “Mental Energy” platform, regularly provide psychological counseling for employees to relieve the stress and negative emotions of employees in life and work

## Safety Production

We adhere to the safety concept of “any risk can be controlled, any violation can be prevented, and any incident can be avoided”. We have improved the safety system, controlled safety risks, strengthened emergency management, innovated safety management modes, cultivated safety culture, and guaranteed safety front by front throughout the operations to build a solid safety barrier for transformational development.

<sup>19</sup> Designed, constructed and commissioned simultaneously with the main construction project.

## Safety management performance of China Power

Indicator	Unit	Value in 2023	Value in 2022	Value in 2021
Number of work-related fatalities	person	0	0	0
Ratio of work-related fatalities	%	0	0	0

Indicator	Unit	Value in 2023	Value in 2022
Lost days due to work injury	day	26	0
Number of serious work-related injuries (excluding fatalities)	times	0	0
Proportion of serious work-related injuries	%	0	0
Number of employees with recordable work-related injuries	person	2	2
Proportion of employees with recordable work-related injuries	%	0.01	0.02
Near miss frequency rate (NMFR)	%	0	0
Equipment safety accident rate	%	0	0
Electrical safety accident rate	%	0	0
Number of breaches of cybersecurity standard regulations	case	0	0
Duration of system interruption due to unplanned outages	hour	1,537	2,390
Number of system interruption due to unplanned outages	times	16	20
Average duration of interruption experienced by customer due to unplanned outages	hour	0	0



### Development of Safety System

We strictly abide by the “Law of the People’s Republic of China on Production Safety”. In 2023, we revised and issued 14 production safety management systems including the “Regulations on Production Work Safety”, “Management Measures for Production Safety Supervision” and “Regulation for Administration on Production Safety Reward and Penalty”. We require all business units to establish the production safety committee and set up the work office, adhere to the production safety goal of “zero serious injury”, and implement the principles of “three managements and three musts” and “whoever is in charge should be responsible”. Focusing on the two main themes of “Implementation under strong supervision and construction on strong foundation”, we establish, improve and implement the accountability system of production safety for all employees, and strictly perform the supervision responsibility for production safety.

In 2023, adhering to the Company’s decision-making and deployment on production safety, we formulated and issued the “Key Points for Supervision of Safety, Quality and Environmental Protection of China Power in 2023” and “Guarantee Measures for Production Safety with ‘Zero Serious Injury’ Work of China Power in 2023”, which established 105 action tasks and 58 action measures to provide an effective means for the Company to comprehensively improve the level of production safety management. The Company also conducted due diligence inspections for production safety in all aspects on a two-year cycle, covering all affiliated companies engaging in production and operation.

In addition, we urged base-level station managers to sign the production safety target responsibility statement and so publicly announced, so as to fundamentally consolidate the main responsibilities of core positions at stations for production safety.



### Development of Standardized Safe Production

We have actively carried out the development of standardized safe production, and formulated standard system documents for production safety of environmental protection power stations such as the “Implementation Rules for Supervision of Electrochemical Energy Storage Technology”, “Management Rules for Production Safety of Electrochemical Energy Storage Power Stations” and “Biogas Station Safety Management Guidelines”, explored and studied the development of standardized safe production in the arena of energy storage and environmentally friendly power station management with China Power’s characteristics.



### Development of Safety Culture

Further combining the Company’s business features, focusing on theme of “everyone focuses on safety and is capable of responding to emergencies”, we have effectively carried out a series of activities on theme of production safety, such as safety culture publicity and safety emergency drills, in both prescribed and optional manner at home and abroad. In addition, we have carried out a series of special training activities such as the “Production Safety Lecture Class” oriented with safety risk management to promote the initiative of employees in safety management and establish the awareness of production safety among all employees.



Launching ceremony of Fujian Energy Investment’s “Production Safety Month”



Changshu Electric Power signed the safety statement of undertaking



Shandong Energy held the safety lecture

In addition, we have established the Safety Skill Training Base at the China Power Technical Training Center. Catering to the Group's business needs and the safety training needs of different types of production sites, we have adopted the digital means such as virtual reality (VR) and augmented reality (AR) to develop a number of training courses, covering safety theory training and safety skill practice training, for the Group's front-line production employees, production management personnel and safety supervision personnel to enhance safety awareness and safety management level of employees.



### Safety Production Risk Prevention and Control

We have formulated “Management Measures for Safety Risk Grading Control and Potential Hazards Investigation and Rectification” to strengthen the identification, evaluation, prevention and control measures of safety risk, covering all workplaces, production activities and processes, comprehensively regulate production safety management and prevent production safety accidents.

The Company issued the ““Piercing the Rock” Action Plan for Production Safety” and implemented 17 safety, quality and environmental protection supervision and improvement actions by using four tools of risk management. Taking Pu'an Power as a pilot unit, we have built an intelligent management and control platform system for operation safety of power plants, and initially established an intelligent management and control platform for safety risk early warning and analysis model, to strengthen the control and management of operation safety risk and further boost the efficiency of safety supervision.

### Potential Safety Hazard Inspection

We have established the potential safety hazard investigation mechanism and carried out special safety production actions such as the special inspection and rectification on safety, quality and environmental protection of construction projects, special inspection on fire prevention of gases, special inspection and rectification on contractor safety management, and comprehensive rectification of mine safety, and carried out in-depth inspection and rectification of major incidents of potential hazards. In 2023, the Group had no major incidents of potential hazards, and carried out 3,468 inspections in total for potential safety hazards with a rectification completion rate of 99.82%. We have contained and eliminated various risks and potential hazards and ensured the overall stability of production safety.

### Potential safety hazard inspection of China Power

Indicator	Unit	Value in 2023	Value in 2022
Number of safety hazard inspection	times	3,468	2,019
Potential safety hazard rectification rate <sup>20</sup>	%	99.82	100

### Safety Emergency Management

In 2023, on the basis of performing proper safety risk management, the Company formulated the “Comprehensive Emergency Plans for Emergencies” and 12 safety emergency plans based on actual situation, and established the emergency management committee to improve the Company’s emergency response capabilities and reduce the impact and losses caused by emergencies. In addition, the Group regularly organized fire emergency drills and fire drills to ensure that the emergency management work is more prepared and the response is quicker.

We organized the preparation of the “Report on the Production Safety of Overseas Projects of China Power” to comprehensively sort out the safety production management model of overseas projects and managed projects, conducted production safety inspection based on the specific safety modes of the countries where the projects are located, analyzed the differences in safety management between China and foreign countries, and explored ways to solve problems to further enhance the safety management level of overseas projects.



China Power carried out fire drill

### Safety emergency management performance of China Power



**2,878** times

Number of safety emergency drills



**8,776.16** hours

Total duration of safety emergency drills



**27,213** person-times

Number of participants in safety emergency drills

<sup>20</sup> As some of the potential safety hazards were identified at the end of 2023 and hence the rectification and implementation could only be completed in 2024, as such, the rectification and completion rate for 2023 failed to reach 100%.

# Connecting Community Development

China Power actively requires to the society. As it develops and grows, it establishes strong ties with the communities, continues to empower community construction, and fulfills its social responsibilities with practical actions.

Responding to the Sustainable Development Goals (SDGs) of the United Nations



## 2023 Performance Highlights

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- Donated education fund **300,000 RMB**
- Cumulative number of students assisted **1,058 person-times**
- Total charity donation **3,142,800 RMB**
- Total number of times participating in charitable activities **121 times**
- Total hours of participation in charitable activities **3,285 hours**

## Rural Revitalization

We have actively responded to the national call, formulated and implemented the “Management Measures for Targeted Assistance and Counterpart Relief”, carried out the education support activities under the “Yingshanhong – CP Act of Light and Hope” Program, drove “rural revitalization” by “green development”, and continued to explore the new sustainable development model of “new energy + rural revitalization” to empower the development of beautiful countryside with “zero carbon”.



### Case

Carried out various education support campaigns with “Yingshanhong – CP Act of Light and Hope”

Pursuing the volunteer spirit of “dedication, friendship, mutual assistance and progress”, we committed ourselves to actively participating in public welfare undertakings. With the charitable brand of “Yingshanhong – CP Act of Light and Hope” to support people’s livelihood, we established the “Yingshanhong Love Bookstore” and carried out activities such as the dual-carbon classes in campus and sending warmth to children in special education schools. In 2023, we donated a total of RMB300,000 to impoverished students in Qinglong County of Guizhou Province, Huaihua City of Hunan Province, and Chaoyang County of Liaoning Province. As at the end of 2023, the Company has donated a total of more than RMB2,000,000 to education, with more than 1,058 students assisted.



Huaihua education support activity under the “Yingshanhong – CP Act of Light and Hope” of China Power in 2023

Case

China's first commercial infrared remote sensing satellite "CP Nongchuang" was successfully launched

In July 2023, China's first commercial infrared remote sensing satellite "CP Nongchuang" was launched. The launch of the remote sensing satellite will effectively promote the high-quality development of agriculture and green energy, and its observation data will be applied in the areas such as land resources survey and monitoring, crop pests and diseases, drought and flood monitoring, crop growth assessment and yield prediction, disaster prevention and mitigation, agriculture, forestry and water conservancy, ecological environment, and wind-photovoltaic-new energy. The extensive applications of its observation data will provide immense support to China Power's industrial development of "Dual-Carbon Rural Revitalization".



Opening ceremony of the "CP Nongchuang" satellite

Case

Barren mountains turned into treasure land, Gansu Energy Investment Tongwei 100MW centralized photovoltaic power generation project was successfully connected to the power grid for the first time

In September 2023, Gansu Energy Investment Tongwei 100MW centralized photovoltaic power generation project, a key project of the National Energy Administration for rural revitalization and targeted assistance in Tongwei County, was successfully connected to the power grid for the first time. It is the first mountain photovoltaic power generation project of Gansu Energy Investment in Central Gansu, which is expected to provide 140,000MWh clean energy every year when fully commissioned. Compared with coal-fired power generating units of the same capacity, it can save approximately 49,000 tons and reduce carbon dioxide emissions by approximately 121,000 tons. During the entire production and operation period, it can increase local tax revenue by approximately RMB70 million. While reducing pollutant emissions, it actively promotes employment for people, which is of great significance in promoting high-quality development of the county economy and helps achieve local poverty alleviation and rural revitalization.



Gansu Energy Investment Tongwei 100MW centralized photovoltaic power generation project

Case

**Shandong Energy Yanggu 65MW agriculture-photovoltaic complementary power generation project was successfully connected to the power grid for the first time**

In December 2023, Shandong Energy Yanggu 65MW agriculture-photovoltaic complementary power generation project was successfully connected to the power grid for the first time. The project is a key project of Shandong Province and the first project of Shandong Energy adopting horizontal single-axis automatic tracking brackets. After the project is put into operation, the average annual power generation is expected to exceed 90,000MWh, saving 27,500 tons of standard coal every year. The photovoltaic modules are guaranteed to be more than 2.5m above the ground, forming the photovoltaic agriculture cycle model of “power generation on the panels and planting under the panels”, which is conducive to the efficient use of land resources and promotes the integrated development of new energy and rural revitalization.



Shandong Energy Yanggu 65MW agriculture-photovoltaic complementary power generation project

## Contributions to the Community

Adhering to the principle of mutual benefit and reciprocity, we are actively further involved in community construction, , engage in volunteer services, and strengthen community investment. While focusing on our own development and operations, we continue to empower local communities, and fulfill our social responsibilities with practical actions.



### Contributing to Social Welfare

We have formulated the “Management Measures for External Donation” and the “Management Measures for “Yingshanhong” Youth Volunteer Service Activity”, carried out various forms of social welfare activities, and regarded contributing to the society as an important mission. In 2023, the Group’s total charity donation were RMB3,142,800, and a total of 121 social welfare activities were carried out.

### Social welfare performance of China Power

Indicator	Unit	Value in 2023
Charity donation	RMB	3,142,800
Total number of times participating in social welfare activities	times	121
Total number of participants in social welfare activities	person-times	6,809
Total hours	hour	3,285

#### Case Carried out the event of “Yingshanhong • Special School Assistance, Love Warms Children”

In December 2023, Hubei Company carried out the activity of “Yingshanhong • Special School Assistance, Love Warms Children” in Hong’an County Special School. Volunteers sent schoolbags, stationery and daily necessities to the children, a total of 714 items, to actively fulfill social responsibilities and nourish the growth of children with love.



Volunteers and children had a handcraft class together

#### Case China Power Hong Kong Volunteer Team conducted charitable donation program

In February 2023, China Power Hong Kong Volunteer Team responded to the call of the Kwun Tong Methodist Social Service to conduct a flag-selling charitable donation program on streets to raise funds for the low income grassroots in Hong Kong. Members of the Volunteer Team gave full play to the team spirit and planned the activity program carefully. By selling charity flags to the public and patiently introducing the significance of the program to the public, the team members attracted the attention and participation of many people and provided substantial help to the low-income people.



China Power Hong Kong Volunteer Team conducted flag-selling charitable donation program on streets

## Building Cross-border Friendship Together

China Power continues to converge its strength to promote the improvement of education levels in the areas where the entrusted management projects are built, provides high-quality educational resources, builds school supporting facilities, and enables the Company's achievements to benefit community development.

### Case Built a power plant to benefit people's livelihood

CPHGC (the Entrusted Assets of China Power) has sponsored a school for local children, Gadani CPHGC-TCF School, near the site of two 660MW supercritical coal-fired generating units in Pakistan.

Gadani CPHGC-TCF School is the first TCF school funded by the CPEC (China-Pakistan Economic Corridor) Project. It provides basic education for locally impoverished school-age children and realizes the educational dream beyond the reach of local families who make a living by fishing. As of the end of December 2023, the school had 212 teachers and students, of which 46% were girls. The students were all children from nearby impoverished villages.

During 2023, CPHGC has invested INR4.2 million to assist the school in daily teaching and infrastructure maintenance, fully demonstrating the good corporate brand image of central enterprises going global under the "Belt and Road Initiative", and receiving good social response. It has won the social responsibility commendation of Pakistan government for four consecutive years.



Exchange between CPHGC employees and TCF students



Appearance of the TCF school building, operation of which is funded by CPHGC

### Case Chile S.A. established the fund of "Mutual Growth"

Chile S.A. (the Entrusted Assets of China Power) established the fund of "Mutual Growth" in 2007 to integrate the concept of a community with a shared future for mankind throughout the process of the construction of the "Belt and Road Initiative" since 2013. As at the end of 2023, the company has approved the implementation of more than 270 proposed community projects such as building bridges and paving roads, donating for education support, helping the poor and serving the elderly, and invested nearly US\$1.2 million to improve the living conditions of tens of thousands of people in Cachapoal valley, O'Higgins area and Punta community.

The "Mutual Growth" fund has established a set of definite operating mechanisms and selection criteria to ensure that the projects are fair and transparent while promoting comprehensive development of communities and strengthening close cooperation between the company and communities.

In 2023, a total of 9 projects won the selection of "Mutual Growth" fund, including the solar-powered community radio station, the technology project at the Bellavista School Parent Center, the home heating project at the Bellavista Senior Center, etc. It awarded the basic education graduation scholarships to 10 children in the community, bringing tangible economic development and improved living standards of people to the local area, and actively promoting the kindred spirits and emotional ties between the people of China and Chile.

# Technical Glossary and Definitions

Technical Glossary and Definitions	
Belt and Road Initiative	the Silk Road Economic Belt and the 21st-Century Maritime Silk Road, being the multinational economic belts advocated and led by the government of the People's Republic of China in 2013. The initiative invested in nearly 70 countries and international organizations, covering major development plans in Mainland China, Central Asia, North and West Asia, coastal regions of the Indian Ocean, coastal regions of the Mediterranean Sea, South America, Africa and Atlantic regions along the China historic Silk Road and the Maritime Silk Road
Board	the board of Directors of the Company
consolidated installed capacity	100% installed capacity of a company that is deemed as a subsidiary in the Group's consolidated financial statements
Director(s)	director(s) of the Company
Entrusted Assets	the relevant assets covered under the Entrusted Management Framework Agreement signed by China Power for the provision of planning, operation and management services to the counterparties of the contracts, please refer to the announcement of the Company dated 3 April 2023 for details
"Going Global" Strategy	the major decision made by the Central Committee of the Party and the State Council based on, among others, the new landscape of economic globalization and inherent needs for the development of the national economy, which is an important measure for developing an open economy and comprehensively enhancing the level of opening-up to other countries. It is also an effective means to achieve long-term development of the Chinese economy and society, as well as promote the joint development with other countries around the world
green certificate	an "electronic ID card" for green power issued by a renewable energy power generation enterprise. It is identified with a unique serial number and used to prove and account for the power generation and use of renewable energy. The generation of each green certificate means that 1,000 watt (1,000 kWh) of electricity generated by renewable energy has been connected to the power grid
green power	The electricity generated by renewable energy power generation projects, but the types of technologies covered vary from country to country (or from region to region). The current concept of green power in the PRC refers specifically to electricity generated by photovoltaic power (excluding distributed photovoltaic) and wind power generation projects
green power transactions	green power transactions refer to medium and long-term electricity transactions with green electricity products as the subject matter, to meet the needs of electricity users to purchase and consume green electricity, and to provide corresponding green electricity consumption certification. It is a brand-new trading product established within the framework of the medium- and long-term electric power market system
Hong Kong	Hong Kong Special Administrative Region of the PRC
Hong Kong Companies Ordinance	Companies Ordinance, Chapter 622 of the Laws of Hong Kong (as amended from time to time)
Hong Kong Stock Exchange	The Stock Exchange of Hong Kong Limited

Technical Glossary and Definitions	
installed capacity	the manufacturers' rated power output of a generating unit or a power plant denominated in kW, MW
kW	that is, 1,000 watts
kWh	a standard unit of energy used in the electric power industry. One kilowatt-hour is the amount of energy that would be produced by a generator producing one thousand watts in one hour
Listing Rules	the Rules Governing the Listing of Securities on the Hong Kong Stock Exchange
MW	that is, one million watts
MWh	equals to one thousand kWh
net coal consumption rate	average consumption of standard coal for supplying 1kWh power (deducting self-used power)
PEDF	photovoltaic, energy storage, direct current and flexibility
PRC or China	the People's Republic of China
RMB	the lawful currency of the PRC
SASAC	the State-owned Assets Supervision and Administration Commission of the State Council
standard coal	coal with an energy content of 7,000 kilocalories per kilogram
TCFD	Task Force on Climate-Related Financial Disclosure

## Description of Title

Description of Title	
Anhui Company	國家電投集團安徽電力有限公司 (SPIC Anhui Electric Power Co., Ltd.*)
Beijing Company	國家電投集團北京電力有限公司 (SPIC Beijing Electric Power Co., Ltd.)
Changshu Electric Power	江蘇常熟發電有限公司 (Jiangsu Changshu Electric Power Generating Company Limited)
Changshu Thermal Power	中電常熟熱電有限公司 (China Power Changshu Thermoelectric Co., Ltd.*)
Chile S.A.	太平洋水電智利公司 (Pacific Hydro Chile S.A.)
China Power, Company or We	中國電力國際發展有限公司 (China Power International Development Limited)
CP Chaoyang	中電（朝陽）新能源有限公司 (China Power (Chaoyang) New Energy Co., Ltd.*)
CP Guorui	中電國瑞供應鏈管理有限公司 (China Power Guorui Supply Chain Management Co., Ltd.*)
CP Hua Chuang	中電華創電力技術研究有限公司 (China Power Hua Chuang Electric Power Technology Research Company Limited*)
CP Intelligent	中電智慧綜合能源有限公司 (China Power Integrated Smart Energy Co., Ltd.*)
CP Lvneng	中電綠能綜合能源服務（天津）有限責任公司 (China Power Lvneng Comprehensive Energy Services (Tianjin) Co., Ltd.*)
CP Nongchuang	中電投新農創科技有限公司 (China Power Investment Xinnongchuang Technology Co., Ltd.*)
CP Snow Salt	中電雪鹽（衡陽）儲能科技有限公司 (China Power Snow Salt (Hengyang) Energy Storage Technology Company Limited*)
CP Yuchuang	中電昱創（蘇州）智能科技有限公司 (China Power Yuchuang (Suzhou) Intelligent Technology Co., Ltd.*)
CPHGC	中電國際胡布發電有限責任公司 (China Power Hub Generation Company (PVT.) Limited*)
Dabieshan Operation	黃岡中電大別山發電運營管理有限公司 (Huanggang China Power Dabieshan Power Operation Management Company Limited*)
Datong Photovoltaic	大同中電光伏發電有限公司 (Datong China Power Photovoltaic Power Generating Company Limited*)
Fujian Company	國家電投集團福建電力有限公司 (SPIC Fujian Electric Power Co., Ltd.)
Fujian Energy Investment	中電能投（福建）有限公司 (China Power Energy Investment (Fujian) Co., Ltd.*)
Fuxi Power Plant	四川中電福溪電力開發有限公司 (Sichuan CPI Fuxi Power Company Limited*)
Gansu Energy Investment	中電（甘肅）能源投資有限公司 (China Power (Gansu) Energy Investment Co., Ltd.*)
Guangxi Company	國家電投集團廣西電力有限公司 (SPIC Guangxi Electric Power Co., Ltd.*)

Description of Title	
Heilongjiang Company	國家電投集團黑龍江電力有限公司 (SPIC Heilongjiang Power Co., Ltd. *)
Hubei Company	國家電投集團湖北電力有限公司 (SPIC Hubei Electric Power Co., Ltd. *)
Jiangmen Comprehensive Energy	中電（江門）綜合能源有限公司 (China Power (Jiangmen) Comprehensive Energy Company Limited*)
Jingmen Lvdong	國家電投集團荊門綠動能源有限公司 (SPIC Jingmen Lvdong Energy Company Limited*)
Pingwei Power	安徽淮南平圩發電有限責任公司 (Anhui Huainan Pingwei Electric Power Company Limited)
Pingwei Power Plant III	淮南平圩第三發電有限責任公司 (Huainan Pingwei No. 3 Electric Power Generation Co., Ltd.)
Pu'an Power	中電（普安）發電有限責任公司 (China Power (Pu'an) Power Generating Company Limited*)
Qiyuanxin Power	上海啟源芯動力科技有限公司 (Shanghai Qiyuanxin Power Technology Co., Ltd. *)
Shandong Energy	國家電投集團山東能源發展有限公司 (SPIC Shandong Energy Development Co., Ltd. *)
Shangqiu Environmental	商丘中電環保發電有限公司 (Shangqiu China Power Environmental Power Generation Co., Ltd. *)
Shanxi Company	國家電投集團山西電力有限公司 (SPIC Shanxi Power Co., Ltd. *)
Shentou Power Plant II	山西中電神頭第二發電有限責任公司 (Shanxi China Power Shentou No. 2 Power Generating Company Limited*)
Shenyang Energy Investment	中電（沈陽）能源投資有限公司 (China Power (Shenyang) Energy Investment Co., Ltd. *)
SPIC	國家電力投資集團有限公司 (State Power Investment Corporation Limited)
Wu Ling Power	五凌電力有限公司 (Wu Ling Power Corporation*)
Wuhu Power	蕪湖發電有限責任公司 (Wuhu Electric Power Generating Company Limited*)
Xinyuan Jinwu	新源勁吾（北京）科技有限公司 (Xinyuan Jinwu (Beijing) Technology Co., Ltd. *)
Xinyuan Poly-Energy	新源聚合能源科技（北京）有限公司 (Xinyuan Poly Energy Technology (Beijing) Co., Ltd. *)
Xinyuan Smart Storage	新源智儲能源發展（北京）有限公司 (Xinyuan Smart Storage Energy Development (Beijing) Co., Ltd. *)
Xinyuan Taili	新源泰利能源科技（北京）有限公司 (Xinyuan Taili Energy Technology (Beijing) Co., Ltd. *)
Xinyuan Xin'an	新源芯安科技（北京）有限公司 (Xinyuan Xin'an Technology (Beijing) Co., Ltd. *)
Xinyuan Zhonghui	北京新源中慧科技有限公司 (Beijing Xinyuan Zhonghui Technology Co., Ltd. *)
Zhongping New Energy	河南中平電新能源投資有限公司 (Henan Zhongpingdian New Energy Investment Company Limited*)

# Appendix

## Appendix I: Assurance Report



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Beijing, China 100738

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ey.com

### Independent Limited Assurance Report

Ernst & Young Hua Ming (2024) No.70055157\_A01  
China Power International Development Limited

#### Board of Directors of China Power International Development Limited:

##### Scope

We have been engaged to perform a limited assurance engagement, as defined by International Standards on Assurance Engagements, on the specified assurance information ("Key Information") from Page 148 to Page 150 of China Power International Development Limited ("China Power") 2023 Sustainability Report ("ESG Report").

Other than as described in the preceding paragraph, which sets out the scope of our engagement, we did not perform assurance procedures on the remaining information included in the ESG Report, and accordingly, we do not express a conclusion on this information.

##### Criteria applied by China Power

In preparing the Key Information of ESG Report, China Power applied the Environmental, Social and Governance Reporting Guide issued by the Stock Exchange of Hong Kong Limited (HKEx) and the criteria as defined and disclosed in the ESG Report ("Criteria").

##### Management's responsibilities

China Power's management is responsible for selecting the Criteria, and for presenting the Key Information of ESG Report in accordance with the criteria above, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the subject matter, so that such key information is free from material misstatement due to fraud or error.

##### EY's responsibilities

Our responsibility is to express a conclusion on the presentation of the Key Information of the ESG Report based on the evidence we have obtained. We conducted our engagement in accordance with the *International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* ('ISAE 3000 (Revised)'), and the terms of reference for this engagement as agreed with China Power on 8 January 2024. The standard requires that we plan and perform our engagement to express a conclusion on whether we are aware of any material modifications that need to be made to the Key Information in order for it to be in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error. We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

##### Our independence and quality management

We have maintained our independence and confirm that we have met the requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants and have the required competencies and experience to conduct this assurance engagement.

EY also applies International Standard on Quality Management 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services engagements*, which requires that we design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

##### Description of procedures performed

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance. Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the Key Information and related information, and applying analytical and other appropriate procedures.



**Independent Limited Assurance Report (Continued)**

Ernst & Young Hua Ming (2024) No.70055157\_A01  
China Power International Development Limited

*Description of procedures performed (Continued)*

Our procedures included:

- 1) Conducted interviews with personnel to understand the business and reporting process
- 2) Conducted interviews with key personnel to understand the process for collecting, collating and reporting the Key Information during the reporting period
- 3) Checked that the calculation criteria have been correctly applied in accordance with the methodologies outlined in the Criteria
- 4) Undertook analytical procedures of the data and made inquiries of management to obtain explanations for any significant differences we identified
- 5) Tested, on a sample basis, underlying source information to check the accuracy of the data; and
- 6) Other procedures deemed necessary

*Conclusion*

Based on our procedures and the evidence obtained, we are not aware of any material modifications that need to be made to the Key Information of ESG Report, in order for it to be in accordance with (or based on) the Criteria.

Ernst & Young Hua Ming LLP

Ernst & Young Hua Ming LLP  
China Beijing  
26 April 2024

## Appendix II: Index of Indicators

### SEHK ESG Guidelines Index

Aspects	Content	Page No. in the Report	Specified Assurance Information
Mandatory Information Disclosure	Board Statement	30	-
	Materiality	4	-
	Quantitative	4	-
	Consistency	4	-
	Scope of Reporting	3	-
A1 Emissions	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.	67–69 78–80	Yes
	A1.1 The types of emissions and respective emissions data.	79–81	Yes
	A1.2 Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	67–69	Yes
	A1.3 Total hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	81	Yes
	A1.4 Total non-hazardous waste produced (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	81	Yes
	A1.5 Description of emission target(s) set and steps taken to achieve them.	79–81	-
	A1.6 Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them.	79–81	-
A2 Use of Resources	General Disclosure Policies on the efficient use of resources, including energy, water and other raw materials.	74–78	Yes
	A2.1 Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	75	Yes
	A2.2 Water consumption in total and intensity (e.g. per unit of production volume, per facility).	77	Yes
	A2.3 Description of energy use efficiency target(s) set and steps taken to achieve them.	75	-
	A2.4 Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	76–77	-
	A2.5 Total packaging material used for finished products (in tons) and, if applicable, with reference to per unit produced.	N/A	-

Aspects	Content	Page No. in the Report	Specified Assurance Information
A3 The Environment and Natural Resources	General Disclosure Policies on minimizing the issuer's significant impacts on the environment and natural resources.	84–88	-
	A3.1 Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	84–88	-
A4 Climate Change	General Disclosure Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	59–70	-
	A4.1 Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	59–70	-
B1 Employment	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	117–123	Yes
	B1.1 Total workforce by gender, employment type (e.g. full-time or part-time), age group and geographical region.	117	Yes
	B1.2 Employee turnover rate by gender, age group and geographical region.	118	Yes
B2 Health and Safety	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards.	129–134	Yes
	B2.1 Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	131	Yes
	B2.2 Lost days due to work injury.	131	Yes
	B2.3 Description of occupational health and safety measures adopted, and how they are implemented and monitored.	129	Yes
B3 Development and Training	General Disclosure Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	124–128	Yes
	B3.1 The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	128	Yes
	B3.2 The average training hours completed per employee by gender and employee category.	128	Yes
B4 Labour Standards	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labor.	119	-
	B4.1 Description of measures to review employment practices to avoid child and forced labour.	119	-
	B4.2 Description of steps taken to eliminate such practices when discovered.	N/A	-

Aspects	Content	Page No. in the Report	Specified Assurance Information
B5 Supply Chain Management	General Disclosure Policies on managing environmental and social risks of the supply chain.	109–112	Yes
	B5.1 Number of suppliers by geographical region.	109	Yes
	B5.2 Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored.	109–112	Yes
	B5.3 Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	109–112	Yes
	B5.4 Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	109–112	Yes
B6 Product Responsibility	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress.	107–108	-
	B6.1 Percentage of total products sold or shipped subject to recalls for safety and health reasons.	N/A	-
	B6.2 Number of product and service related complaints received and how they are dealt with.	107–108	-
	B6.3 Description of practices relating to observing and protecting intellectual property rights.	104	Yes
	B6.4 Description of quality assurance process and recall procedures.	N/A	-
B7 Anti-corruption	B6.5 Description of consumer data protection and privacy policies, and how they are implemented and monitored.	N/A	-
	General Disclosure Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering.	39–41	Yes
	B7.1 Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	40	Yes
	B7.2 Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	39–41	Yes
B8 Community Investment	B7.3 Description of anti-corruption training provided to directors and staff.	41	Yes
	General Disclosure Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	137–141	-
	B8.1 Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	137–141	-
	B8.2 Resources contributed (e.g. money or time) to the focus area.	137–141	Yes

## Index of Climate-Related Financial Disclosure (TCFD) Content

TCFD recommendations	Page no. or direct explanation
<b>Governance: Disclose the organization's governance around climate-related risks and opportunities</b>	
a) Describe the board's oversight of climate-related risks and opportunities	59
b) Describe management's role in assessing and managing climate-related risks and opportunities	59
<b>Strategy: Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning</b>	
a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	61–65
b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning	61–65
c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	61–65
<b>Risk Management: Disclose how the organization identifies, assesses, and manages climate-related risks</b>	
a) Describe the organization's processes for identifying and assessing climate-related risks	60
b) Describe the organization's processes for managing climate-related risks	60
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management	60
<b>Metrics and Targets: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities</b>	
a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process	59
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas emissions, and the related risks	69
c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	59

## International Sustainability Standards Board (ISSB) “Sustainability Disclosure Standards of IFRS 2 – Climate-Related Disclosures” (IFRS S2)

IFRS S2 Recommendations	Page no. or direct explanation
<b>Governance: The governance processes, controls and procedures used to monitor and manage sustainability-related risks and opportunities</b>	
Information on the governance body or individual responsible for the oversight of climate-related risks and opportunities	59
The management’s role in monitoring, managing and overseeing climate-related risks and opportunities during the governance process	59
<b>Strategy: Approaches for managing sustainability-related risks and opportunities</b>	
Climate-related risks and opportunities that may affect the company’s prospect	61–65
Expected timeframe for the occurrence of the climate-related risks and opportunities	61–65
Climate-related risks and opportunities in the value chain	61–65
Effect of the climate-related risks and opportunities on strategies and decision-making	61–65
Climate-related transition plan	61–65
Current and anticipated effects of the climate-related risks and opportunities on financial position	61–65
Climate resilience	61–65
<b>Risk Management: The processes used to identify, assess, prioritize and monitor sustainability-related risks and opportunities</b>	
Information on the processes and related policies for identifying, assessing prioritizing and monitoring climate-related risks	60
Information on the processes for identifying, assessing prioritizing and monitoring climate-related opportunities	60
Describe how processes for identifying, assessing prioritizing and monitoring climate-related risks and opportunities are integrated into the overall risk management process and how it affects the company	60
<b>Metrics and Targets: The performance in relation to climate-related risks and opportunities, including progress towards any targets the entity has set or is required to meet by law or regulation</b>	
Metrics used to measure and monitor climate-related risks and opportunities	59
Disclose information in relation to the categories of cross-industry metrics	N/A
Quantitative and qualitative climate-related goals set for monitoring the progress of realization of its strategic goals, the approaches for examining the goals, and the performance against the goals	59

## Appendix III: Readers' Comments Form

Dear readers,

Thank you for reading this report. We value and look forward to hearing your feedback on this report. Your opinions and suggestions will be an important basis for us to continue to improve the level of corporate ESG information disclosure and promote corporate ESG management and practice. We welcome and sincerely appreciate your valuable feedback!

1. What is your overall evaluation on our implementation of ESG?

Very good    Good    Average    Not good    Poor

2. What is your overall evaluation on this report?

Very good    Good    Average    Not good    Poor

3. How do you think we are doing in terms of stakeholder communication?

Very good    Good    Average    Not good    Poor

4. How do you think we are doing in terms of corporate governance?

Very good    Good    Average    Not good    Poor

5. How do you think we are doing in terms of environmental management?

Very good    Good    Average    Not good    Poor

6. How do you think we are doing in terms of social responsibility?

Very good    Good    Average    Not good    Poor

7. How do you think we are doing in terms of ESG?

Very good    Good    Average    Not good    Poor

8. What comments and suggestions do you have on our implementation of ESG and this report?

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Lower Carbon Empower Better Life



CHINA POWER INTERNATIONAL DEVELOPMENT LIMITED

中國電力國際發展有限公司