中广核 CGN

H-share Stock Code:1816

A-share Stock Code:003816

中國廣核電力股份有限公司
CGN Power Co., Ltd. *

(A joint stock company incorporated in the People's Republic of China with limited liability)

2022 | CGN Power Co., Ltd*

Environmental, Social and Governance Report

*For identification purpose only

目录

Employee Growth

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About This Report

This is the eighth *Environmental, Social and Governance (ESG) report* published by CGN Power Co., Ltd. (**the "Report"**) which aims to openly and transparently present our performance in environmental, social and governance (**"ESG"**) aspects in 2022. In this Report, we aim to disclose our sustainability vision, strategy and practices to stakeholders in a more comprehensive and objective manner, and facilitate their understanding of our thoughts and practices on corporate social responsibility.

Reporting Period

This Report covers data and information of the Company, our subsidiaries and major affiliated companies from January 1, 2022 to December 31, 2022 (the **"Reporting Period"**). The reporting coverage is consistent with *2022 annual report*.

With regard to continuity and comparability, certain information in this Report will be appropriately extended when necessary, and if applicable, historical data will also be presented for comparison.

Reporting Standards

This Report is prepared in accordance with the *Appendix 27 Environmental, Social and Governance Reporting Guide of the Rules Governing the Listing of Securities* (**"Listing Rules"**) *on the Stock Exchange of Hong Kong Limited* (**"SEHK"**), and the *Shenzhen Stock Exchange* (**"SZSE"**)'s *Guidelines No. 1 for Self-Regulation of Listed Companies - Standardized Operation of Companies Listed on the Main Board* (**"Standardized Operation of Companies Listed on the Main Board"**) and *Shenzhen Stock Exchange's Self-discipline Supervision Guide for Listed Companies No. 1* - Business Handling. We strictly comply with all "comply or explain" provisions in the *Environmental, Social and Governance Reporting Guide*, and prepare this Report based on reporting principles of materiality, quantitative, balance and consistency and disclose climate related issues with reference to the *Guidance on Climate Disclosure of the Stock Exchange of Hong Kong Limited*. This Report also strictly adheres to the relevant requirements of SZSE and discloses our fulfillment of social responsibility. In preparing this Report, we also refer to the reporting standards or principles, including the *GRI Sustainability Reporting Standards* (**GRI Standards**) issued by Global Reporting Initiative, the *United Nations Global Compact, ISO 26000: 2010 Guidance on Social Responsibility* of the International Organization for Standardization, the *Guidelines to the State-owned Enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities* of the State-owned Assets Supervision and Administration Commission of the State Council (**"SASAC"**) and the *Basic Framework of the Guidelines on Corporate Social Responsibility Reporting* for Chinese Enterprises (CASS-CSR5.0) of Chinese Academy of Social Sciences.

Name Description

For ease of expression, CGN Power Co., Ltd. in this Report is also expressed as **"CGN Power"**, **"the Company",** or **"we/our"**. CGN Power and its subsidiaries are also expressed as **"the Group"**, Subsidiaries and major associated companies are also expressed as **"subsidiaries"**. Unless otherwise defined, the terms used in this Report shall have the same meanings as those defined in the H-share *Annual Report 2021* published by the Company on April 7, 2022.

Reliability and Assurance

The contents of this Report are compiled from internal documents, statistical reports or relevant public information of the Company. The Company undertakes that the contents of this Report, for which the Company accepts full responsibility for, are true, accurate and complete and are free of any false statement, misleading representations or material omissions.

To ensure its truthfulness and reliability, this Report has been submitted to Ernst & Young Hua Ming LLP (Special General Partnership) for a third-party assurance, which was conducted in accordance with *the International Standard on Assurance Engagements 3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information* (**"ISAE3000"**) with an independent assurance report and statement provided on pages 134 of this Report.

Access to This Report

This Report is available in simplified Chinese, traditional Chinese and English. The electronic copy can be downloaded from the websites of SEHK (www.hkexnews.hk), SZSE (www.szse.cn), CNINFO (www.cninfo.com.cn) and our website (www.cgnp.com.cn). For any discrepancy between different versions, the simplified Chinese version shall prevail.

Feedback

Your precious opinions and suggestions are critical to our sustainable development. Please contact IR@cgnpc.com.cn if you have any comments and suggestions regarding this Report and sustainable development of the Group.

Board Statement

CGN Power highly recognizes the significance of environmental, social and governance (ESG) for the Company's sustainable development. Since the construction of the first nuclear power plant, we have regarded the ESG concept as the core of our operation, and made ESG rooted in our strategies and business operation to actively promote the coordinated development with environment and society. In the new era, the Company and the Board of Directors (the **"Board"**) have established an effective ESG management and operation mechanism and strengthened the supervision of ESG matters in accordance with the requirements of the *Governance Rules for Listed Companies* issued by the China Securities Regulatory Commission, the *Environmental, Social, and Governance Reporting Guide* issued by the SEHK and the *Guidelines for Standardized Operation of Main Board* of SZSE.

ESG supervision

The Board is responsible for improving the Company's governance system, formulating overall strategic plans, setting long-term performance and management objectives, evaluating business performance, supervising management performance and identifying risks to maintain a high governance level. As an important part of corporate governance, ESG is integrated into the Company's overall governance system and risk management. The Board regularly receives briefings on ESG issues such as operational management and safety management, and puts forward ESG requirements at the Board meetings. During the recess of the Board, Board members are provided with monthly corporate management reports, including ESG issues.

The Audit and Risk Management Committee of the Board shall report to the Board after reviewing major ESG issues and ESG reports. The Board shall make decisions after deliberation to strengthen its supervision on ESG issues. The relevant agenda of the Nuclear Safety Committee of the Board and the concerns and suggestions raised by the Board members also involve ESG issues.

ESG management principles and strategies

Committed to the concept of "Natural Energy Powering Nature", the Board and its subordinate committees integrate ESG topics such as corporate governance, operation, nuclear safety, climate change and social responsibility into the management, deliberation and decision making processes. The responsibilities of the Audit and Risk Management Committee of the Board involve management of ESG risks such as construction safety, employee occupational health, industrial safety and fire risks, climate change risks and natural disasters affecting nuclear safety, and the identification and management of relevant risks. The annual internal control evaluation report shall be submitted to the Board for approval after being reviewed by the Audit and Risk Management Committee of the Board, so as to establish an effective and reliable internal control system. In addition, the agenda of the Audit and Risk Management Committee of the Board and concerns and recommendations made by the Board members, which also cover climate related issues, such as actionable steps to deal with high temperature and extreme weather, are reported to the Board.

In addition, the Board participates in the Company's material topics questionnaire survey and reviews the identification and evaluation results of material ESG topics through the approach of "identification-selection-survey-review". For details, please refer to the "Materiality Analysis" section of this Report.

ESG progress review

CGN Power sets ESG key performance indicators based on the actual situation of the Company. The Board regularly tracks, reviews and follows up on the achievement of the objectives of key ESG topics to bridge the gaps and opportunities between the current progress and the expectations, and ensure that the Company's policies are accurately and constantly implemented.

Under the supervision of the Board, the Company's *Three-Year Action Plan on Safety, Quality and Environment* ("SQE") was successfully concluded in 2022. The progress of the Company's *Action Plan for Safety and Quality Improvement in the Nuclear Power Industry (2022-2025)* was reported to the Board and the Nuclear Safety Committee of the Board, which covered topics such as climate change and water resources, with the aim of comprehensively improving our overall management and performance in SQE protection.

The 2022 Environmental, Social and Governance Report of the Company was approved by the Board of Directors on March 15, 2023.

About Us

Our Business

CGN Power (SEHK stock code: 1816, SZSE stock code: 003816) was incorporated on March 25, 2014. After it was officially listed on the Main Board of SEHK on December 10, 2014, CGN Power was listed on SZSE on August 26, 2019. Its main businesses include construction, operation and management of nuclear power plants (NPPs), nuclear power sales, and organizing the design and scientific research of the development of NPPs.

Upon the completion of Daya Bay NPP, the Company has accumulated rich experiences through introduction, digestion, assimilation and innovation in nuclear power construction and operation. The Company has established professional systems in nuclear power maintenance and operation, design and construction, R&D and personnel training in line with international practices. As of the end of the Reporting Period, the Company had managed 9 nuclear power bases, 26 units in service and 7 units under construction[1], with a total installed capacity of more than 35 GW.

CGN Power continues to develop nuclear power efficiently on the basis of safety. With safe, economical and reliable power supply, we strive to become a leader in the development and application of new nuclear energy technologies, maintain a leading position in domestic nuclear power generation, and improve our competitiveness in the international nuclear power market.

Equity Structure[2]

Main Affiliated and Associated Companies

Name	China Nuclear Power Operations Co., Ltd. (**CGN Operations**)	China Nuclear Power Engineering Co.,Ltd. (**CNPEC**)	China Nuclear Power Technology Research Institute Co., Ltd. (**CNPRI**)	Suzhou Nuclear Power Research Institute (**SNPRI**)	Ling Ao Nuclear Power Co., Ltd. (**Ling'ao Nuclear**)	Lufeng Nuclear Power Co., Ltd. (**Lufeng Nuclear**)	Power Sales Company
Shareholding ratio	100%	100%	100%	100%	100%	100%	100%

Name	Lingdong Nuclear Power Co., Ltd. (**Lingdong Nuclear**)	Daya Bay Nuclear Power Operations and Management Co., Ltd. (**DNMC**)	Guangdong Nuclear Power Joint Venture Co., Ltd. (**GNPJVC**)	Yangjiang Nuclear Power Co., Ltd.(**Yangjiang Nuclear**)	Taishan Nuclear Power Co., Ltd. (**Taishan Nuclear**)	Hongyanhe Nuclear Power Co., Ltd. (**Hongyanhe Nuclear**)	Fangchenggang Nuclear Power Co., Ltd. (**Fangchenggang Nuclear**)	Ningde Nuclear Power Co., Ltd. (**Ningde Nuclear**)
Shareholding ratio	93.88%	87.5%	75%	61.72%	51%	38.88%	36.6%	32.76%

[1] Including 4 units under construction entrusted by the controlling shareholder of the Company

[2] Equity structure of the Company as of December 31, 2022

Business Presence[3]

CGN Power keeps investing in the construction of safe and efficient nuclear power units and develops clean nuclear power energy. On June 23, 2022, Hongyanhe Unit 6 completed all commissioning work, and was put into commercial operation. On April 20, 2022, Lufeng Unit 5 and Unit 6 were approved by the State Council, and the construction of Unit 5 was officially started on September 8, 2022. As of the end of 2022, our businesses are as follow.

Nuclear power units in operation

26

Nuclear power units under construction[4]

7

In-service installed capacity

29,380MW

Installed capacity of units under construction[5]

8,380 MW

CGN Power's share of installed capacity in China

52.81 %

CGN Power's share of installed capacity under construction in China

34.64 %

CGN Power's share of installed capacity in operation and under construction

47.30 %

Daya Bay Nuclear Power Base

Gigawatt-level units in operation

6

Lufeng Nuclear Power Base

Gigawatt-level units under construction

1

Gigawatt-level units approved to start construction

1

Yangjiang Nuclear Power Base

Gigawatt-level units in operation

6

Taishan Nuclear Power Base

1.75GW units in operation

2

Hongyanhe Nuclear Power Base

Gigawatt-level units in operation

6

Fangchenggang Nuclear Power Base

Gigawatt-level units in operation

2

Gigawatt-level units under construction

2

Ningde Nuclear Power Base

Gigawatt-level units in operation

4

Cangnan Nuclear Power Base

Gigawatt-level units under construction

2

Huizhou Nuclear Power Base

Gigawatt-level units under construction

2

Units in Operation and Under Construction

Company	Shareholding	Unit	Model	Commercial Operation date	Installed Capacity(MW)
Consolidated Subsidiaries					
Ling'ao Nuclear	100%	Ling'ao Unit 1	M310	May 2002	990
		Ling'ao Unit 2	M310	January 2003	990
Lufeng Nuclear	100%	Lufeng Unit 5	HPR 1000	Under Construction	1,200
Lingdong Nuclear	93.14%	Lingdong Unit 1	CPR1000	September 2010	1,087
		Lingdong Unit 2	CPR1000	August 2011	1,087

[3] For more details on our businesses (excluding nuclear power projects entrusted by the controlling shareholders), please refer to the H-Share *Annual Report 2022* .

[4, 5] Including units under entrusted management

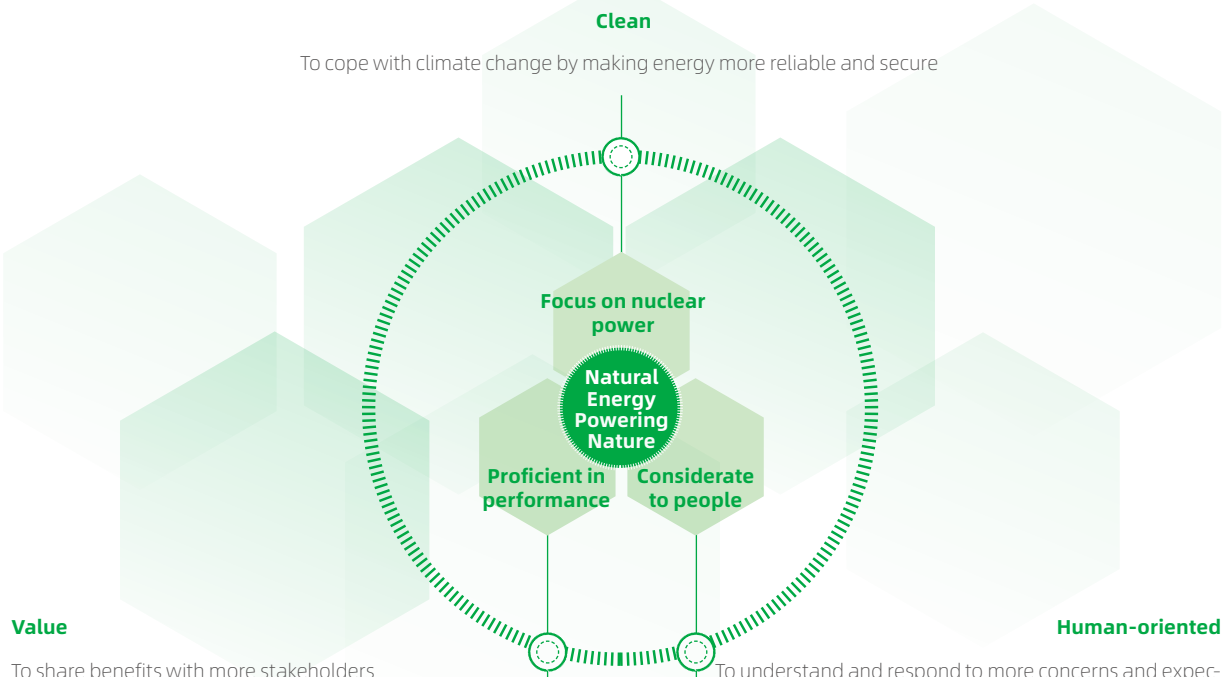
Company	Shareholding	Unit	Model	Commercial Operation date	Installed Capacity(MW)
GNPJVC	75%	Daya Bay Unit 1	M310	February 1994	984
		Daya Bay Unit 2	M310	May 1994	984
Yangjiang Nuclear	61.72%	Yangjiang Unit 1	CPR1000	March 2014	1,086
		Yangjiang Unit 2	CPR1000	June 2015	1,086
		Yangjiang Unit 3	CPR1000+	January 2016	1,086
		Yangjiang Unit 4	CPR1000+	March 2017	1,086
		Yangjiang Unit 5	ACPR1000	July 2018	1,086
		Yangjiang Unit 6	ACPR1000	July 2019	1,086
Taishan Nuclear	51%	Taishan Unit 1	EPR	December 2018	1,750
		Taishan Unit 2	EPR	September 2019	1,750
Fangchenggang Nuclear	36.6%	Fangchenggang Unit 1	CPR1000	January 2016	1,086
		Fangchenggang Unit 2	CPR1000	October 2016	1,086
		Fangchenggang Unit 3	HPR 1000	Under Construction	1,180
		Fangchenggang Unit 4	HPR 1000	Under Construction	1,180
Ningde Nuclear	32.76%	Ningde Unit 1	CPR1000	April 2013	1,089
		Ningde Unit 2	CPR1000	May 2014	1,089
		Ningde Unit 3	CPR1000	June 2015	1,089
		Ningde Unit 4	CPR1000	July 2016	1,089
Associates					
Hongyanhe Nuclear	38.88%	Hongyanhe Unit 1	CPR1000	June 2013	1,119
		Hongyanhe Unit 2	CPR1000	May 2014	1,119
		Hongyanhe Unit 3	CPR1000	August 2015	1,119
		Hongyanhe Unit 4	CPR1000	June 2016	1,119
		Hongyanhe Unit 5	ACPR1000	July 2021	1,119
		Hongyanhe Unit 6	ACPR1000	June 2022	1,119
Companies entrusted by the controlling shareholders					
Huizhou Nuclear	Not applicable	Huizhou Unit 1	HPR 1000	Under Construction	1,202
		Huizhou Unit 2	HPR 1000	Under Construction	1,202
Cangnan Nuclear	Not applicable	Cangnan Unit 1	HPR 1000	Under Construction	1,208
		Cangnan Unit 2	HPR 1000	Under Construction	1,208

Our Culture

Holding onto the brand positioning of safe energy, CGN Power takes "Natural Energy Powering Nature" as the brand slogan and fully practices the brand development concept of "safe, green and responsible development". We operate on the basis of safe and steady nuclear power operation, and incorporate sustainable development in the decision-making process and daily operations based on the brand characteristics of low-carbon and green nuclear power. With these efforts, we strive to build a responsible concept model to develop clean energy that facilitates economic and environmental development as well as social progress.

Clean

To cope with climate change by making energy more reliable and secure



Value

To share benefits with more stakeholders

Human-oriented

To understand and respond to more concerns and expectations of the public

Mission

Developing Clean Energy to Benefit Mankind

Committed to power supply and services by nuclear power generation, we follow the principles of "safety first, quality foremost and pursuit of excellence" and work style of "strict compliance, prudent decision-making, detail-oriented and fact-based approach" to create the best values for customers, shareholders, employees and the society

Vision

A World-class Nuclear Power Suppliers and Service Providers with Global Competitiveness

Targeting the domestic and international markets, we pursue a higher level of public trust, responsibility, technology, strength, sustainable development and value to become a well-respected world-class nuclear power company.

Basic Principles

Safety First, Quality Foremost and Pursuit of Excellence

We adhere to the basic principles of "safety first, quality foremost and pursuit of excellence" and make them the guiding principle of all decision-making in production and operation management.

Working Style

Strict Compliance, Prudent Decision-making, Detail-oriented and Fact-based Approach

"Strict compliance, prudent decision-making, detail-oriented and fact-based approach" is our work style and attitude. Only in this way can we ensure safety, quality, excellence, and realize our mission and vision.

Our Strategy

Excellence

We pursue excellent safety performance and improve the safety performance of nuclear power plants (NPPs) according to international first-class indicators of World Association of Nuclear Operators (**"WANO"**). Our "Specialization, Centralization, and Standardization"(SCS) Management is practiced diligently to increase the control of multiple units. We implement lean management to optimize the costs of operation and project building.

Stability

Based on the development characteristics of the nuclear power industry, we adhere to high standards, pursue high quality, and ensure stable production, operation, and engineering construction performance. We seek stable profitability, insist on sound financial policies, and constantly optimize the capital structure and financing costs to assure fund security. We provide long-term and stable returns to shareholders and implement long-term and stable dividend policies.

Cleanness

We are always committed to developing clean energy, concentrate on the comprehensive utilization of nuclear power and nuclear energy, and strictly control the discharge of radioactive substances during NPPs operation to protect the environment with every effort. We reasonably use resources, continuously improve resource utilization, reduce resource consumption in the Company's business activities, and actively implement corporate social responsibility.

Growth

We keep improving our core competitiveness, grasp the strategic opportunities of nuclear power development, and promote the approval and commencement of new nuclear power projects to strive to maintain the leading business size in China. Guiding the Company's development through technological innovation, we insist on innovation-driven development, continuously promote the development and application of new technologies, and maintain the potential and competitiveness of development.

Development goals during the "14th Five-Year Plan" period and under the Long-Range Objectives Through the Year 2035

Five "first-class" goals

- First-class safety and quality
- First-class engineering construction
- First-class scientific and technological innovation
- First-class operating effectiveness
- First-class corporate management

We focus on consolidating the foundation, promoting advantages, remedying our weakness, and strengthening and expanding the industry to achieve higher quality, more efficient, more equitable, more sustainable, and safer development.

Our 2022

Major awards of the year

Governance	CGN Power won Top 100 Enterprises Award 2022. CGN Power was granted Grade A in information disclosure assessment from Shenzhen Stock Exchange. CGN Power Annual Report received the LACP Platinum Award for the first time. CGN Power was awarded 2022 Best Practices of the Office of the Board of Directors by China Association for Public Companies, and the "Special Contribution Award of Corporate Governance" of the 17th "Golden Round Table Award" for Boards of Listed Companies in China. CGN Power won the 5th New Fortune Best IR Hong Kong Listed Company (A + H) award. CGN Power was listed in Forbes 2022 China ESG 50 .
Safety	CGN Engineering was listed in the 2022 National Supply Chain Innovation and Application Demonstration Enterprises jointly issued by eight units including the Ministry of Commerce and the Ministry of Industry and Information Technology. Two projects of Ningde Nuclear won the 2022 China Quality Benchmark and the Demonstration Level of China Quality Innovation and Improvement (the highest award). Hongyanhe Nuclear won two outstanding prizes and one excellence prize in the recommended results exchange of the International Convention on Quality Control Circles (ICQCC).
Technology	CNPRI won the Silver Award of the 23rd China Patent Award with an invention patent DNMC's one patent won the 23rd China Patent Silver Award. CGN Engineering's three invention patents won the 23rd China Patent Excellence Awards. CGN Operations' two invention patents won the 23rd China Patent Excellence Awards. CGNPC Inspection Technology Co., Ltd.'s one invention patent won the 23rd China Patent Excellence Award. SNPI's one project won the first prize in 2022 Science and Technology Award of China Industry Anticorrosion Technology Association.
Employee	The Reactor Control Division of Yangjiang Nuclear's Instrumentation and Control Department received the National Workers Pioneer title from the All-China Federation of Trade Unions. An employee from DNMC won the title of National Technical Expert. An employee of CGN Operations won the title of National Youth Expert.
Society	Taishan Nuclear Power Base won the title of National Education and Science Popularization Base. Yangjiang Nuclear received the 2022-2026 National Nuclear Science Popularization and Education Base awarded by the China Nuclear Society

Major annual ESG ratings

Domestic				
CNI ESG	CSI ESG	Wind ESG	IIGF	SynTao Green Finance
AAA	AAA	AA	A+	A-

Overseas				
S&P Global CSA Rating	FTSE ESG Rating	MSCI ESG Rating	CDP- climate change	Sustainalytics ESG Risk Rating
39	2.8	B	C	29.98

Overview of Annual Key Figures

On-grid Power Generation

1,983.75 Gwh

Installed Capacity of Units in Operation

29,380 MW

Financial Data

about

409,015.57 million yuan

Total Assets

about

82,82.40 million yuan

Operating Revenue

about

18,699.18 million yuan

Total Profit

about

9,806.14 million yuan

Tax Payment

about

3,852.54 million yuan

R & D Investment

Safe and Stable Operation

79.17%

WANO indicators achieving[6] the world's advanced level (the world's top quartile)

Nuclear incidents of level-2 or above

0

Nuclear engineering construction safety accident rate

0

Patents

854

Green Development

approximately

59.81 million tons

Standard coal consumption reduced converted from on-grid nuclear power generation

approximately

16,425.43 million tons

Total CO_2 emissions reduction equivalent

approximately

2.00 tons

SO_2 emission reduction equivalent

approximately

3.02 tons

NO_x emission reduction equivalent

Employee Development

Employees in total

18,968

Average training hours per employee

139.5 hours

Training coverage

100%

Win-win Cooperation

Qualified suppliers in total

7,147

Supplier's environmental performance review rate

100%

Harmonious Communities

about

40.3758 million yuan

Total donation

about

11,600

Participants in charitable activities

for

103,000+ hours

Participants in popular science activities on campus

30,000+

[6] Compared with all 12 yearly performance indicators of WANO peers.

CSR Feature

Gathering "Nuclear" Power and Marching Towards a New Journey

2022 is a critical year for implementing China's 14th Five-Year Plan. Upholding the new development concept, CGN Power maximizes our professional strengths, takes up responsibility, firmly develops the nuclear power in an active, safe and orderly manner, and continuously promotes the innovative development of nuclear power. We not only proactively support China's "30·60" Decarbonization Goal, but also consolidate and expand the poverty alleviation outcomes to effectively link the rural vitalization strategy, striving to write a new chapter of modernization with man-nature harmony.

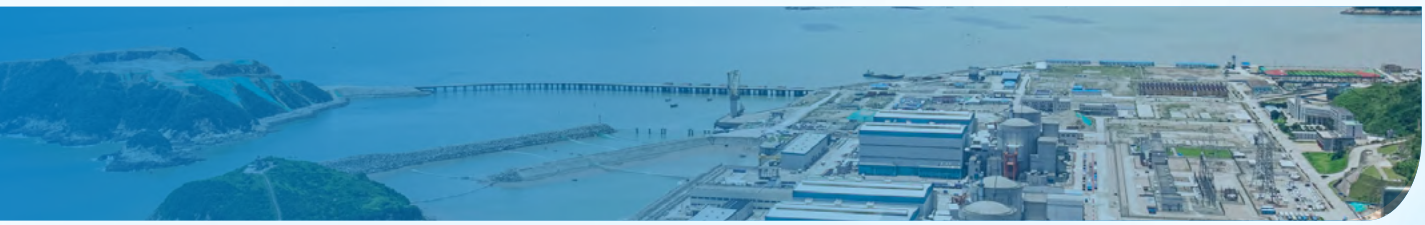
Fulfilling the Mission to Achieve the Safe and Orderly Development of Nuclear Power

CGN Power firmly guards nuclear safety to ensure energy security and stability in China. We insist on considering nuclear safety issues from the perspective of overall national security. Adhering to the policy of "developing nuclear power in an active, safe and orderly manner", we continue to improve the nuclear safety management for the development of nuclear power.

In 2022, 79.17% of CGN Power's 26 operating units have reached world-advanced WANO indicators. CGN Power generated 29,380 MW of installed capacity in operation and 198,375 GWh of on-grid power generation, ensuring energy security for China's socio-economic development.

Case **The State Council approves Units 5 and 6 of the Lufeng Nuclear**

On April 20, 2022, the State Council approved the construction of units 5 and 6 of the Lufeng Nuclear. Those two units both adopt nuclear power technology HPR1000 and have a single unit capacity of 1,200 MW. The construction of unit 5 was officially began on September 8, 2022.



Case Unit 6 of Hongyanhe NPP Put into commercial operation

On June 23, 2022, the success of the 168-hour commissioning test suggested that the unit 6 of Hongyanhe NPP in Liaoning Province was officially qualified for commercial operation. It marked the full commissioning of a total of six units of Phase I and Phase II of Hongyanhe NPP, making it the largest nuclear power plant with installed capacity in operation in China.

Introducing Green Leadership to Support the 30·60 Decarbonization Goal

As a safe, reliable, green, clean, economical and efficient energy, nuclear power is a realistic choice for addressing climate change, fulfilling carbon reduction commitment and achieving low-carbon development. CGN Power is determined to follow the ecology-prioritized, green, low-carbon and high-quality development path, actively promote the quality development of comprehensive utilization of nuclear energy, and continuously provide safe, economic and reliable clean energy for socio-economic development, thus contributing to the "30·60" Decarbonization Goal.

In 2022, CGN Power's on-grid nuclear power generation was equivalent to the reduction of approximately

59.81 million tons

of standard coal, which equals to the reduction of about

164.2543 million tons of CO_2 emissions.

Equivalent converted emission reduction data of on-grid energy of nuclear power stations in 2022

	Daya Bay NPP	Ling'ao NPP	Lingdong NPP	Ningde NPP	Yangjiang NPP	Fangchenggang NPP	Taishan NPP	Hongyanhe NPP
On-grid power generation (Gwh)	154.34	143.00	163.98	314.06	499.29	165.83	124.11	419.13
Equivalent reduction of standard coal consumption (10,000 tons)	465.33	431.15	494.40	946.89	1,505.36	499.99	374.19	1,263.69
CO_2 emissions reduction (10,000 tons)	1,277.93	1,184.04	1,357.76	2,600.43	4,134.12	1,373.10	1,027.63	3,470.43

Case **Nuclear energy heating project of Hongyanhe NPP officially in operation**

On November 1, 2022, the Hongyanhe NPP's heating project, the first nuclear energy heating project in Northeast China, was officially put into operation. It covers Hongyanhe town, Wafangdian in Dalian, and benefits nearly 20,000 residents, with a planned heating area of 242,400m² and a maximum heating load of 12.77 MW. The project extracts steam from the Hongyanhe NPP as the heat source to replace 12 original coal-fired boiler houses and achieve clean heating in Hongyanhe town.

The project built a new primary pipe network of nearly 10 km, a secondary pipe network of 5.7 km and four new heat transfer stations. According to the calculation, the project can annually reduce coal consumption by 5,726 tons, CO_2 emission by 14,100 tons, soot emission by 209 tons, SO_2 emission by 60 tons, NO_x emission by 85 tons and ash residue by 2,621 tons. As a conclusion, it has significant environmental benefits and can effectively improve the atmospheric environment of the heating area.

The indoor temperature of Wafangdian No.12 Middle School in Hongyanhe town is 26 °C after heating.

Shouldering the Responsibility to Ensure Energy Supply

With energy supply as our priority, CGN Power, in accordance with the highest level and strictest requirements, takes multiple measures to guarantee the safety and stability of the units and more nuclear power generation to secure the power supply and provide sufficient clean energy for social and economic development and to meet people's needs.

Building an energy supply team

- Setting up a project team and implementing responsibilities at all levels to secure the cooling water availability.

Developing an energy supply plan

- Developing the 2022 Summer Power Supply Action Plan as well as the regular electricity supply plan.
- Implementing strict energy supply measures in nine major areas such as daily production, equipment management, emergency duty and safety management.

Ensuring supply deployment

- Strengthening equipment management and fulfilling the responsibility to ensure that the equipment is in good condition.
- Carrying out seasonal natural disaster response preparations and drills.
- Carrying out risk classification and control and potential hazards investigation and management in a systematic way.

Case Three major nuclear power bases serve the Guangdong-Hong Kong-Macao Greater Bay Area

CGN Power integrates our corporate development into the development strategy of the Guangdong-Hong Kong-Macao Greater Bay Area and focuses on optimizing energy structure and energy interconnection to promote the high-quality development of clean energy in the area. In 2022, our three major nuclear power bases in Guangdong Province, as in Daya Bay, Yangjiang and Taishan, supplied approximately 108,472 GWh of on-grid nuclear power, including 12,348 GWh supplied to Hong Kong. The power supplied by the three bases is equivalent to a reduction of 32.743 million tons of standard coal consumption or 89.8148 million tons of CO_2 emission, which contributed to the low-carbon energy transformation and the development of ecological civilization in the Guangdong-Hong Kong-Macao Greater Bay Area.

Case Hongyanhe NPP takes multiple measures to ensure energy supply in summer

Hongyanhe NPP set up a power supply project team, formulated a special plan for power supply, fulfiled responsibilities at all levels, and made specialized deployments to all organizations, employees, and partners. At the same time, it secured the supply of cooling water based on the characteristics of the unit's operation in summer. In view of the high frequency of severe weather in summer, the Plant strengthened the monitoring and early warning of natural conditions, such as meteorological and hydrological factors to prevent typhoon, flood, lightning, tide and high temperature, upgraded the emergency plan in time and conducted emergency drills.

Strengthening Independent Innovation to Promote the Nuclear Power Business

CGN Power seizes the opportunity of the period in the energy technology revolution driven by technological development and strengthens our sci-tech innovation capability to promote key scientific research projects and technology research. At present, we have achieved a series of landmark achievements such as the "HPR 1000", "FirmSys", "Smart Site" and "Nuclear Robots" and are steadily moving towards the independence of nuclear power technology.

November 25, 2022, the Chinese standards of technical specification of the Daya Bay Nuclear Power Base were officially released, marking China's first move to develop technical specification of second-generation nuclear power technology on its own.

On November 7, 2022, the nuclear safety guideline Design of Auxiliary Systems and Supporting Systems for Nuclear Power Plants (HAD102/22-2022), compiled by CGN Engineering, was officially released on the official website of the National Nuclear Safety Administration.

Case Scientific and technological innovation achievements at the CHTF

On November 15, 2022, CGN Power's nuclear power robots, autonomous nuclear fuel assemblies and other sci-tech innovations were exhibited at the 24th China Hi-Tech Fair (**"CHTF"**). We have developed different kinds of special nuclear power operating robots whose works cover daily operation, maintenance of nuclear power, nuclear emergency relief and nuclear decommissioning and so on, providing intelligent solutions to ensure the safe and stable operation of nuclear power units. Several robots have been successfully applied in Daya Bay, Yangjiang, Fangchenggang and other nuclear power bases.

Consolidating the Poverty Alleviation Outcomes to Link the Rural Vitalization

As an active response to the national strategy of rural vitalization, CGN Power draws on our advantages in capital, technology, talents and management to consolidate and expand the poverty alleviation outcomes to effectively link the rural vitalization strategy, thereby effectively promoting rural vitalization and contributing to agricultural and rural modernization.

We continue to provide rural vitalization assistance in many regions, including Guangxi Zhuang Autonomous Region, Guangdong Province and Fujian Province. We provide comprehensive support for the targeted villages to make a head start in rural vitalization through various forms of actions.

In 2022, the investment in

12 assistance projects

of rural vitalization was

30.8 million yuan

Yangjiang Nuclear was awarded "**Top 100 Caring and Benevolent Enterprises in Guangdong Province**".

Industrial support

To ensure the smooth transition from consolidating and expanding the achievements in poverty alleviation to rural vitalization, Ningde Nuclear focuses on improving living environment, participates in developing rural culture, and guides the public to vigorously promote rural tourism. Its efforts help Yujing Village grasp the opportunity to build a rural vitalization demonstration zone of "Coastal Village with She Features" in Fuding City, Fujian Province and fully implement the rural vitalization strategy.

Talent vitalization

Yangjiang Nuclear fully integrates internal and external resources to help villagers get employed and transform into "industrial blue-collar workers". In July 2022, with its assistance and guidance, a talent pool for rural vitalization in Yunpo Village, Dongping County, Yangdong District, Yangjiang City, Guangdong Province, was formed. Meanwhile, a training ceremony for "Guangdong Technician" class was held. In this event, Yangjiang Nuclear guided its six partners to sign a memorandum of cooperation with Dongping County People's Government. The aim was to carry out order-based talent training and special recruitment activities to solve the unemployment problems of villagers in this region, creating an exemplary model of talent vitalization with the integration of the government-enterprise cooperation, talent training and stable employment.

Strengthen Compliance and Governance

Opportunities and Challenges

Good corporate governance is an important cornerstone for stable operation and sustainable development. As a large-scale company specializing in clean energy, we should establish a sound governance mechanism, keep compliant and transparent practices in line with business ethics and integrate ESG into our corporate strategies to continuously improve the operation transparency and earn the long-term trust and support of stakeholders, ushering in a new era of sustainable development.

Our Strategies

We strive to establish a sound corporate governance system, implement comprehensive risk management, and enhance compliance operation and honest practices to promote high-quality corporate development and to protect the rights of the investors. Besides, we integrate ESG into the corporate strategies and operation and constantly improve ESG governance structure and operation mechanism to boost our ESG governance.

Our Performance

100%
Coverage of employees receiving the anti-corruption education

0
Occurrence of anti-corruption lawsuit

Corporate Governance

A sound corporate governance system is crucial to creating values in a sustainable manner. Strictly abiding by relevant laws and regulations, CGN Power keeps improving the governance structure and establishes a dutiful Board and a sound governance mechanism, to steadily enhance the Company's corporate governance.

Governance framework

Committed to maintaining a high level of governance standards as well as transparent and effective operation. CGN Power strictly complies with the *Company Law of the People's Republic of China*, *Securities Law of the People's Republic of China*, and *Corporate Governance Code* set out in Appendix 14 of the *Listing Rules of SEHK*, and has developed a series of policies, including the *CGN Power Articles of Association* (the "Articles of Association"), with an aim to keep improving the corporate governance structure and management system, and safeguard the rights and interests of shareholders and other stakeholders. Since the listing of A-share in 2019, we have revised the governance regulations in accordance with the relevant regulatory requirements of SEHK and SZSE, improving our corporate governance system on an ongoing basis.

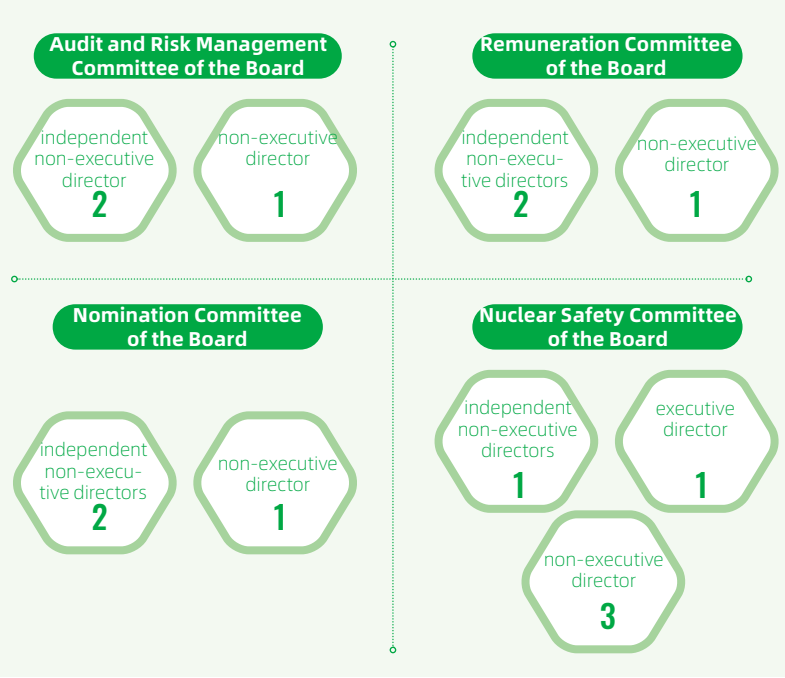
Our internal governance framework mainly consists of the General Meeting of Shareholders, the Board and special committees of the Board, the Supervisory Committee, internal auditors as well as the management and staff members. In addition, external auditors are engaged to conduct independent reviews of the Company's governance performance to help improve our internal governance continuously. At the same time, we maintain long-term cooperative relationships with other business partners (including customers, partners, media, regulatory agencies, communities and the public etc.) to empower corporate governance.

Board of Directors

The Board is responsible for formulating and reviewing corporate governance policies and regulations, developing strategies and principles, setting long-term performance and management targets, assessing business performance, monitoring the management's performance and reviewing risks. Based on the Corporate Governance Code set out in Appendix 14 of *the Listing Rules of SEHK*, the Board has formulated the *CGN Power Code of Corporate Governance* in accordance with the Company's corporate governance structure which explains how we ensure that the corporate governance meet requirements and expectations through a range of policies, procedures and measures.

According to the Articles of Association, the Board has established the Audit and Risk Management Committee of the Board, the Remuneration Committee of the Board and the Nomination Committee of the Board. According to the characteristics of the industry, we also set up the Nuclear Safety Committee of the Board to ensure safe and stable operation of the Company. The Chairmen of the Audit and Risk Management Committee of the Board, the Remuneration Committee of the Board and the Nomination Committee of the Board are undertaken by independent non-executive directors, and Chairman of Nuclear Safety Committee is undertaken by non-executive director.

Distribution of board members of each committee of the Board (as of the date of this Report)



As of the reporting date, the Company's Board consists of

9 members, of which

4 were independent non-executive directors,

4 were non-executive directors and

1 was executive director, with a high degree of independence

According to the Articles of Association, directors shall be elected at the General Meeting of Shareholders and each of them serves for a term of three years. Upon expiration, the term is renewable through re-election. The list of candidates for directors shall be submitted to the General Meeting of Shareholders for resolution in the form of proposal. Candidates for directors other than independent non-executive directors shall be nominated by the Board, the Supervisory Committee, or shareholders who individually or jointly holding more than 3% of the Company's voting share, and be elected at the General Meeting of Shareholders.

To establish a Board with diverse backgrounds, we have formulated the Diversity Policy for Board Members and Working Rules of the Nomination Committee of the Board of Directors, and authorized the Nomination Committee of the Board to regularly review the policy. The current Board members have backgrounds in power industry management, financial accounting management, audit, macroeconomics, safety management and supervision and management of state-owned enterprises with over 20 years of experience in their respective industries. Their professional skills, industry experience, age and qualifications embody our efforts in promoting differentiation and diversity in many aspects.

In 2022, the Nomination Committee of the Boarddeveloped a gender diversity plan for the Board, which proposed the appointment of at least one female director at the 2023 Board renewal. In accordance with the Articles of Association, we have sent letters to shareholders who are entitled to recommend nominees for female directors.

During the Reporting Period, the Board held 8 meetings, on which 41 resolutions were deliberated and 10 resolutions reviewed. The specialized committees held 15 meetings, on which 35 resolutions were deliberated and 19 resolutions reviewed.

Board members and their titles

Name	Age	Gender	Educational background	Title	Area of expertise
Yang Changli	58	Male	Master's degree	Chairman of the Board, Chairman of Nuclear Safety Committee of the Board	Management experience in nuclear power, nuclear fuel, science and technology R&D, safety and quality, etc.
Gao Ligang	57	Male	Master's degree	Executive Director and President	30 years of experience in nuclear power industry
Shi Bing	55	Male	Master's degree	Non-executive Director	25 years of experience in finance, accounting, audit and management in large nuclear power companies
Feng Jian	55	Male	Master's degree	Non-executive Director	Rich experience in enterprise management, financial management, investment management, etc.
Gu Jian	59	Male	Master's degree	Non-executive Director	35 years of experience in nuclear power engineering and operation management
Li Fuyou	67	Male	Bachelor's degree	Independent Non-executive Director, Chairman of Nomination Committee of the Board	Rich experience in energy, coal and safety management
Yang Jiayi	64	Male	Master's degree	Independent Non-executive Director, Chairman of Audit and Risk Management Committee of the Board	Rich experience in financial accounting, audit, investment and financing management, etc.
Xia Ceming	65	Male	Master's degree	Independent Non-executive Director, Chairman of Remuneration Committee of the Board	Rich experience in national macroeconomic policies and operation control, enterprise operation management and supervision, etc.
Tang Chi Cheung	64	Male	Master's degree	Independent Non-executive Director	25 years of experience in nuclear power management, finance and audit

Trainings for Board members

During the Reporting Period, we organized the Board members to participate in relevant trainings to improve governance efficiency and operation efficiency of the Board.

On February 16 and 23, 2022

The independent non-executive directors attended the online training organized by the China Association for Public Companies , which focused on the risk concerns of 2021 annual report of independent non-executive directors of listed companies, the new judicial risk of misrepresentation and the special training on legal risks of listed companies.

On April 21, 2022

We invited the chief economist of an investment bank to explain the international and domestic macroeconomics.

On June 24, 2022

The first specific training session in 2022 for directors, supervisors and senior management of listed companies in Shenzhen was organized by the Shenzhen Public Companies Association, which primarily covered details of the 2021 annual report, annual report disclosure and review.

Governance mechanism

We attach great importance to effective implementation and operability of documents for standardized governance, which guides the Company's corporate governance practices. Based on the actual conditions, we have revised and updated important documents to further our corporate governance according to the requirements of relevant laws, regulations and regulatory rules .

Important governance documents of CGN Power[7]

Articles of Association

Rules of Procedure for the Board of Directors

Working Rules of the Nomination Committee of the Board of Directors

Working Rules of the Nomination Committee of the Board of Directors

Regulations on the Management of Raised Fund

Measures for the Regulations of Guarantee

During the Reporting Period, we revised our Code of Corporate Governance four times, mainly in accordance with the domestic regulatory requirements in the Rules for the Shareholders' Meetings of Listed Companies (2022 Revision) issued by China Securities Regulatory Commission (CSRC) and the Guidelines No. 1 for Self-Regulation of Listed Companies- Standardized Operation of Companies Listed on the Main Board issued by Shenzhen Stock Exchange(SZSE) as well as the latest version of the Corporate Governance Code of SEHK. In the Code, we added our good practices of corporate governance in recent years.

Based on the actual conditions, we revised our Regulations on the Insider Information and Insiders, the Management Rules of Investor Relations and the Management Rules of Connected Transactions in accordance with the laws and regulations, such as the Administrative Measures on Information Disclosure by Listed Companies (2021 Revision), Guideline No. 5 for the Supervision of Listed Public Companies --the Management System for the Registration of Insiders of Listed Public Companies , the Shenzhen Stock Exchange Listing Rules (2022 Revision) and the Guidelines No. 1 for Self-Regulation of Listed Companies- Standardized Operation of Companies Listed on the Main Board and Guidelines No. 7 for Self-Regulation of Listed Companies- Transactions and Connected transactions issued by Shenzhen Stock Exchange(SZSE).

During the Reporting Period, our practices in relation to corporate governance met the regulatory requirements set by Chinese laws and regulations, CSRC, and SEHK. We will also make adjustments in line with the latest laws and regulations. The Company, the directors, the supervisors and the senior managers didn't receive any administrative penalty, public criticism or denunciation.

On September 1, 2022

The second specific training session in 2022 for directors, supervisors and senior management of listed companies in Shenzhen was organized by the Shenzhen Public Companies Association, which primarily covered non-compliant transactions by shareholders of listed companies, relevant regulations on changes in shareholding and case studies.

On October 26, 2022,

We invited the chief analyst of an investment bank in electric power and utilities industry to give a lecture on capital market concerns and development path of power industry in the context of China's goals of carbon peaking and carbon neutrality. The lecture on latest ESG regulatory rules and development was given by our lawyers at home and abroad.

[7] More governance documents are available on the official website of CGN Power.

Investor communication

50 Annual results roadshow and mid-term results roadshow meetings held, with **90** Participants

Investors received through on-site communication and telephone communication **about 1,269**

5 Regular telephone conferences held, with **278** Participants

1 Reverse road show held, with **19** Participants

Committed to maximizing the value of shareholders as well as open and transparent business, CGN Power continues to enhance interaction with investors to receive their opinions and suggestions and get the recognition from the market and investors on the Company's value.

The opinions and feedback of shareholders and investors are always valued by CGN Power. We keep communication with shareholders and investors through roadshows, reverse roadshow, teleconferences and results announcement conferences. These efforts help us know more about their suggestions or opinions with respect to the Company's development strategy, production and operation. Later, we provide feedback to the Board, management and related departments through our briefings, special reports and other methods, promoting the unity between the Company's development and shareholder value.

According to the rights of decision-making prescribed by the Articles of Association, the General Meeting of Shareholders is entitled to legally exercise its decision-making rights on major matters such as operation policies and profit distribution of the Company. All general meetings of shareholders held by the Company have met the requirements of relevant laws and regulations and the Articles of Association. In terms of profit distribution, the Company comprehensively considers current-year business performance, future development plans, relevant commitments and other factors, and approves them at the General Meeting of Shareholders in the financial year to provide stable dividend returns for the Company's shareholders.

In 2022, we held the 2021 Annual General Meeting of Shareholders, the 2022 first General Meeting of H-share Shareholders, and the 2022 first General Meeting of A-share Shareholders.

ESG Governance

A complete ESG governance system contributes not only to our supervision on ESG issues, but also to the formulation of a top-down ESG improvement mechanism. CGN Power has established an ESG governance framework with the Board as the highest decision-making body. The Board is in charge of supervising every aspect of ESG issues in the Company and leading the management and employees at all levels in acting upon ESG policies to realize ESG goals.

ESG management system

We have established the three-tier ESG management system to improve our strategic, standardized and institutionalized sustainable development. In doing so, we are able to effectively engage all departments and subsidiaries in ESG practice.

An ESG improvement team is established to take charge of the following issues: internal and external ESG materiality assessments, ESG goal setting, goal analysis, improvement of ESG data collection system, promotion of goal achievements, continuous peer benchmarking, ESG management improvement and ESG disclosure. At the same time, we invite experts to provide irregular training on sustainable development trends to further improve our ESG management.

Our three-tier ESG management is as follows:

Management Level

After reviewing major issues and ESG report, the Audit and Risk Management Committee of the Board reports to the Board for deliberation and approval. Senior management puts decisions into practice.

Organization Level

The Company sets up several project teams based on business and functions to coordinate the implementation of work such as collection, analysis and preparation of performance indicators among major subsidiaries and associated companies.

Execution Level

Major subsidiaries and associated companies set up specialized working groups comprising special members to carry out the work based on its own business features, such as regular collection and reporting of performance indicators.

Materiality analysis

Following the materiality principle, we continuously improve the process of identifying and determining ESG topics, fully disclose material ESG topics, respond to the concerns of stakeholders regarding our CSR fulfillment and strengthen the ESG management and fulfillment in daily operations

We are able to preliminarily identify relevant ESG topics based on results of the past materiality assessment, with reference to the disclosure guidelines of SEHK and other international sustainable development reports and in combination with peer benchmarking analysis. By fully considering the Company's business nature and development strategy, we select and evaluate potential material ESG topics in the Reporting Period, while collecting stakeholder opinions through questionnaires to obtain the materiality analysis results. The questionnaire in 2022 increased the participation of directors of the Company. According to the results of the assessment, the identification results of material topics by the directors based on the "importance to CGN power's development" are basically consistent with that by other stakeholders based on " importance to their vital interests". It helped the Company to better respond to the expectations and demands of stakeholders, strengthen stakeholders' recognition on the Company's efforts in ESG, and promote corporate ESG governance in the ESG management and practices.

As nuclear power safety is vital to the Company, it is directly listed as a material topic, and thus is excluded in the scope of the materiality survey. In the evaluation process, we not only consider the impact of topics on the Company and stakeholders, but also take into consideration of their impacts on the economy, environment and society. The results are then reviewed by the senior management of the Company.

Identification

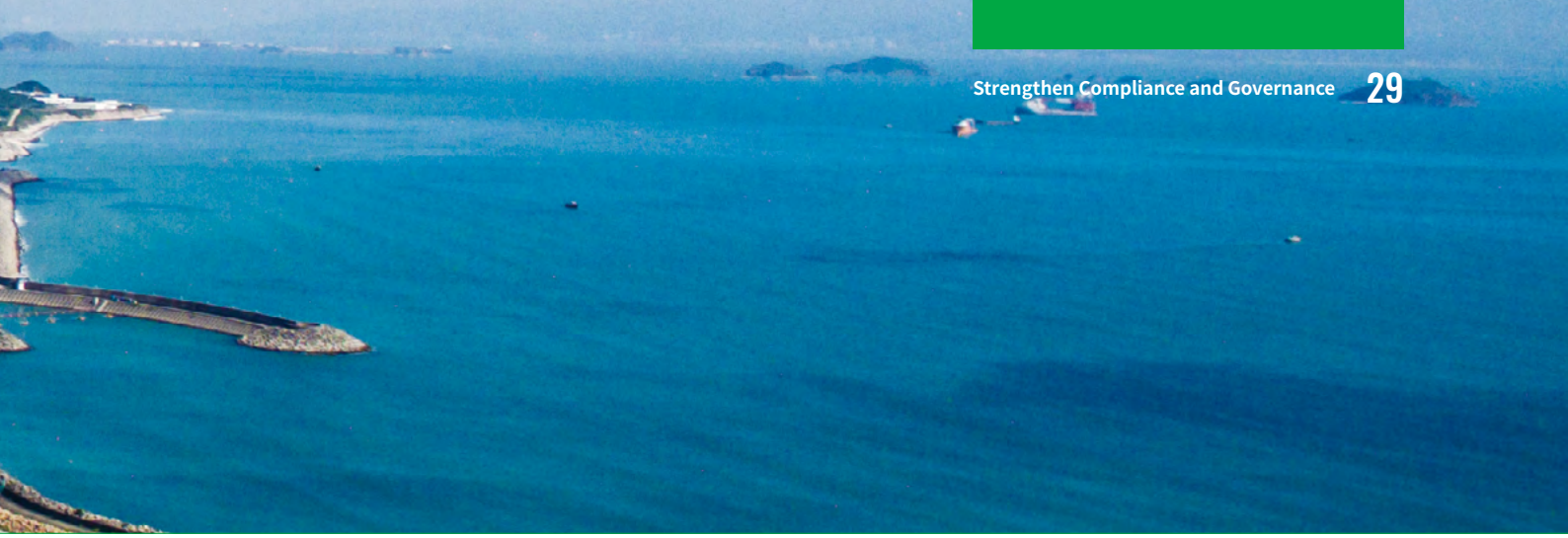
Through background research of internal management policy, media analysis, peer benchmarking and analysis and other related documents, identify the potential material topics that can reflect the impact of CGN Power on the environment and society, and that influence the decisions and evaluations of stakeholders for CGN Power.

Prioritization

Develop a stakeholder communication plan to conduct a survey via questionnaire and have an interview to thoroughly identify the issues prioritized by stakeholders; review potential material topics, prioritize them and form a materiality matrix.

feedback

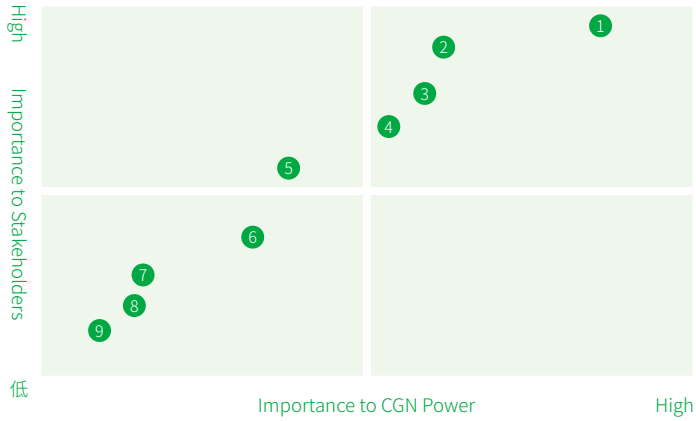
Review the material topics selected by stakeholders and confirm their impacts on CGN Power and ESG performance by senior management



We categorize potential material topics by environment, society, governance and employee, and identify the following material topics after analyzing the survey results:

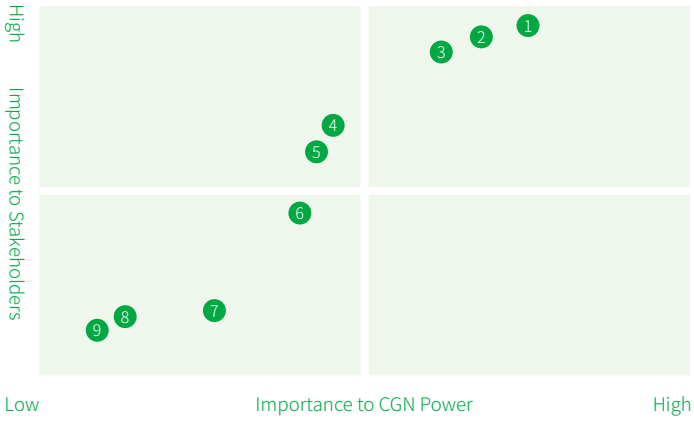
Environmental	Social	Governance	Employee
Radioactive material management	Transparency and accuracy of public information	Business ethics	Employee compensation and benefits
Resource utilization	Product responsibility	Corporate governance and risk control	Occupational health and safety
Non-radioactive discharge and management	Supply chain management	Risk management of investment projects	Employee development and training
Formulation and implementation of corporate environmental policies			Employee incentive mechanism

Environmental



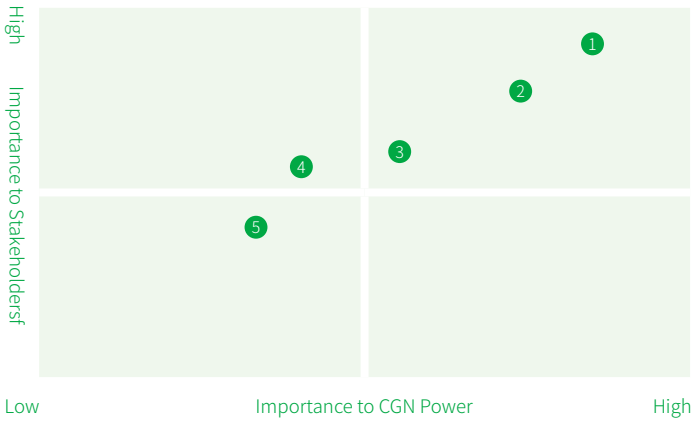
1.Radioactive material management
2.Resource utilization
3.Non-radioactive discharge and management
4.Formulation and implementation of corporate environmental policies
5.Carbon emission management
6.Green and low-carbon investment opportunities
7.Taking responsibility for environmental protection
8.Biodiversity protection
9.Addressing climate change

Social



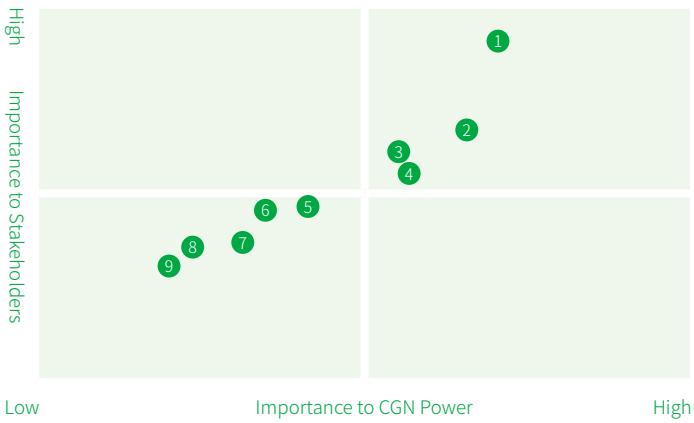
1.Transparency and accuracy of public information
2.Product responsibility
3.Supply chain management
4.Network and data security
5.Intellectual property protection
6.The public and media opinion
7.Community relations
8.Rural vitalization and public welfare charity
9.International exchanges and cooperation

Governance



1.Business ethics
2.Corporate governance and risk control
3.Risk management of investment projects
4.Strengthening independent innovations
5.Investor relations

Employee



1.Employee compensation and benefits
2.Occupational health and safety
3.Employee development and training
4.Employee incentive mechanism
5.Employment and labor rights protection
6.Employee engagement
7.Work-life balance
8.Diversity and equal opportunities
9.Labor standards

Stakeholder communication

We attach great importance to the daily communication with stakeholders, and have established a sound stakeholder communication mechanism. In daily communication, we solicit and respond to their expectations and concerns. Besides keeping in touch with them through various channels, we also timely disclose our information on production, operation and development strategy to enhance stakeholders' understanding and recognition of the Company. During the Reporting Period, in addition to daily communication, we invited stakeholders to have a questionnaire survey to understand their expectations for the Company, and integrated their expectations and concerns into our strategy and operation management, striving to win their support for CGN Power.

Stakeholders	Expectations and Concerns	Methods of Communication and Response
Government and Regulatory Authorities	Ensuring nuclear safety Optimizing energy structure Legal compliance and tax payment Value preservation and appreciation of state-owned assets Energy conservation and emission reduction	Compliance with laws and regulations Execution of national energy policies Improvement of corporate governance Acceptance of regulatory audit Regular reporting
Shareholders and Investors	Constant and steady return Transparent information disclosure Protection of shareholder's rights Enhanced communication	Timely information disclosure Regular reporting of operating information Improvement in daily management A variety of communication activities held from time to time
Customers	Stable supply Quality management and service guarantee	Effective communication Active cooperation for power grid dispatching
Suppliers and Partners	Commitment fulfillment Open, fair and just procurement Experience sharing	Strategic cooperation Public disclosure of procurement information Regular communication activities
Employees	Competitive remuneration package Employee health and safety Fair promotion and development Employee care	A healthy working environment Fair promotion channels More employee trainings Caring for distressed employees
Media	Transparent information disclosure Enhanced communication	Regular press conferences Interview by reporters Timely disclosure of public information
Community Residents	Environmental protection in the community Nuclear power operation safety Promoting community development	Community communication meetings Enhancement of environmental monitoring and protection Participation in community construction
The Public	Charity Public relations Popularization of nuclear power science	Participation in rural vitalization Promotion of employment Education and promotion of nuclear power

Risk Management

Adequate and effective risk management and internal monitoring system are crucial to guaranteeing the realization of strategic objectives. We closely focus on the corporate strategy and management theme to continuously enhance our risk management ability, develop a robust risk management culture, and improve our risk management system. Our risk management has been incorporated throughout all steps of business processes.

In accordance with the risk management provisions of IAEA-TECDOC-1209 and the risk management framework of Committee of Sponsoring Organizations of the Treadway Commission ("**COSO**"), we include environmental, social, economic, development prospects and other important factors and have established a risk management system under "Unified Leadership and Hierarchical Management", which consists of risk management strategies, risk management organizational function system and risk management information system. A dedicated risk management team is set up to analyze and rank the identified risks through dynamic identification, regular evaluation, and active management based on a combination of qualitative and quantitative methods and according to the possibility and influence of risk occurrence. While improving operation efficiency, we adopt risk management strategies such as reduction, evasion, transfer and control, to guide each unit to predict risk in advance during its business process, and transform early warning risks into proactive risk management, which will consolidate the first line of defense for risk management and thus secure healthy and sustainable development of the Company.

Risk events, including ESG risks and those involving the business and development of the Company are on the top of our agenda. In the annual Comprehensive Risk Management Report, we summarize the work of the past year and put forward ideas, goals, plans and major risk assessments for the next year. The Report would be submitted to the Board for approval after being reviewed by the Audit and Risk Management Committee of the Board, ensuring the Board's understanding of and participation in the Company's risk management.

Reasonable risks that are acceptable to the Company must be in line with its development strategy, be fully recognized and managed, and will not cause the following risk situations to the Company:

- Subversive impact on the development of the Company
- Significant financial loss that results in a damage on the Company's ability on business development or a serious impact on the Company's ability on financial management
- Serious accidents that result in the interruption of operation/supply
- Serious violations of laws and external regulations that result in suspension of operations or licenses, or substantial fines
- Incidents affecting safety and health of employees, contractors and the society
- Some behaviors affecting the Company's reputation and brand

To effectively manage risks from various areas such as strategy, finance, market, operation and legality, CGN Power has established an effective and reliable internal control system. The internal audit department has continuously improved the internal control management. In accordance with basic specifications and evaluation guidelines, the internal audit department conducts regular internal audits for the Company's functional departments, business centers, subsidiaries and major associated companies in aspects of finance, commerce, engineering, production, information transfer, and economic responsibilities to check and evaluate the effectiveness of the internal control system's design and operation of all departments. In 2022, the internal audit department carried out special audits on key management areas such as the Company's internal control, asset management, business management, risk management and financial management, and conducted special inspections on matters of concern to the management. The audit results were notified to the senior management, and the annual internal control evaluation report was reviewed by the Audit and Risk Management Committee of the Board and submitted to the Board for approval.

Regarding the major risks and countermeasures identified by CGN Power in business development during the Reporting Period, please refer to the section "Risk Management Report" in the H-share *Annual Report 2022*.

Compliance Management

Major risk event of violation in 2022

0

Honors

Ningde Nuclear won the title of Advanced Company in the Rule-of-Law for 2020-2021

According to the relevant requirements, including the *Notice on Carrying out the Work of "Compliance Management Strengthening Year" of Central State-owned Enterprises (SASAC [2022]* No. 1), and the *Notice on Strengthening the Compliance Management of Central State-owned Enterprises*, CGN Power has fully implemented the work of "Compliance Management Strengthening Year" Campaign and gradually stepped into the key and difficult areas of compliance management based on the achievements of the compliance system in recent years.

In line with the working principle of "comprehensive coverage, enhanced responsibility, collaboration, independent and objective judgment", we keep strengthening compliance management and improving the organizational system and operating mechanism, further promote the IT-based compliance management, and comprehensively integrate compliance management and business.

We continuously optimize the compliance review mechanism, with a focus on promoting the standardized and sheet-based compliance review in all businesses and highlighting the gate-keeper role of compliance review. We have been improving compliance operation risk checks and the major risk warning mechanism to optimize compliance risk management, so that the requirement of "Business must be managed in compliance" can be implemented at all levels to maximize the role of "Three Lines of Defense" of compliance management. In 2022, we organized a comprehensive investigation and rectification of business compliance management problems and risks. 114 compliance risks were identified and 212 targeted rectifications were formulated. As of the end of the Reporting Period, the completion rate of rectification reached 91.2%. Besides, 153 regulations were introduced or improved, and 48 management processes were optimized, timely and effectively plugging up management loopholes.

To foster the compliance culture, we comprehensively learn Xi Jinping Thought on the Rule of Law, and regard the improvement of employees' awareness of the rule of law and compliance as a key task in 2022. Attaching great importance to compliance responsibilities, our chairman and president take the lead in launching the initiative and all leaders and key employees of the Company and our subsidiaries sign the compliance commitment letters to effectively bear the concept and requirements of compliance in mind. We strengthened the promotion and education of compliance and carried out over 30 publicity campaigns on various compliance topics for all employees through law popularization column, themed posters, videos and other ways, effectively raising employees' awareness of the rule of law and compliance. Through case presentations, special lectures of external lawyers, etc., more than 30 compliance training sessions were organized for personnel in key areas and high-risk positions, effectively improving the compliance awareness and professional skills of employees in key positions.

Anti-corruption

Based on institutional and cultural development, we reinforce the use of electronic information system to completely eradicate corruption and violations. In the areas of preventing bribery, extortion, fraud and money laundering, the Company performs strictly in accordance with Chinese laws and regulations including the *Criminal Law*, the *Law for Countering Unfair Competition*, the *Anti-money Laundering Law*, and regulatory documents including *Several Suggestions Concerning the Applicable Law in Handling Criminal Commercial Bribery Cases Issued by the Supreme People's Court and the Supreme People's Procuratorate*, etc., we have formulated the group-wide *Discipline Handbook of Listed Companies and the Implementation Rules of Eight-Point Decision Made by the CPC Central Committee on Improving the Party and Government Conduct*. The two documents clearly stipulate the rules and methods for handling violations of regulations and disciplines. A complete system and countermeasures are developed to forestall, detect and prevent corruptions. During the Reporting Period, our anti-corruption system was operated effectively, as manifested by the fact that there is no lawsuit against the Company or our employees in bribery, extortion, fraud and money laundering.

Integrity supervision

We promote the sound risk prevention and control mechanism of corporate integrity by formulating strict supervision regulations. The Integrity File Binder and the Gift Reporting Regulation have been established to record and dynamically monitor employees' integrity, violations of rules and disciplines during employment. The Gift Reporting Regulation requires employees to declare gifts that they cannot refuse or return for any reasons at work to the Company within 15 days upon the receipt of gifts. The Company has also set up an anti-corruption coordination group with the operating rules formulated and the responsibilities of all parties defined. The group is to realize the joint supervision by discipline inspection, audit, finance, and human resources departments, to share supervision information, and to strengthen coordination and communication on major and difficult corruption issues.

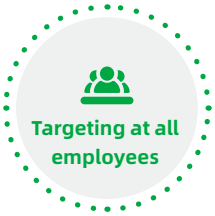
Incident reporting and handling

The Company has established regulations on oversight, discipline, and accountability, and formulated working procedures for receiving and handling whistle-blowing and set up secure whistle-blowing channels to make employees and related third parties report any violations to the disciplinary investigation department through calls, in-person visits, or emails with confidentiality. After receiving whistle blowing reports, the disciplinary investigation department proceeds with proper recording and initiates an internal investigation process while keeping relevant information confidential. If the reported object involves the management personnel of the Company, the disciplinary investigation department shall handle the matter in accordance with relevant procedures. If the reported object is an employee of our subsidiary, he or she will be referred to the disciplinary investigation department of the subsidiary according to procedures.

According to the Company's confidentiality policy, information of whistle-blowing and reporting parties is confidential, and disclosure on privacy of the informant is prohibited. The Company has clarified response requirements and protection provisions for real-name informants in relevant systems and procedures. We will prioritize the handling of real-name informants, and strictly protect real-name informants. If the informant is found to make false accusation or retaliate, we will firmly and seriously hold such informant accountable .

Culture of integrity

The company fully acts upon the "Opinions on Strengthening the Construction of a Culture of Integrity in the New Era" by promoting excellent culture of integrity, and stepping up efforts on the reporting mechanism of typical corruption cases and regular warning education to create and strengthen the integrity atmosphere within the Company. In doing so, we can also ensure that we have employees of integrity.



In September and October 2022, we launched the Discipline Education Month campaign. During the two months, we organized all employees to watch a precautionary film on the corruption cases of grassroots employees, Campaigns Against Organized Crime. We also carried out 100 training sessions to improve the awareness of red line and bottom line among primary-level Party organization members. With 3,000 Party members attending the sessions, we ensured that all Party branches received the training. The videos of 12 typical cases were played on a loop via the video terminals of our subsidiaries, with a playtime of over 20,000 hours.

On September 7, 2022, we held the conference of warning education and launch ceremony of the learning month of discipline education. We organized the staff to watch precautionary films and analyzed key cases. Senior management of the Company and of subsidiaries joined the conference in person or via video.

Actively learning about integrity through various channels

Case **Pilot scheme in joint supervision mechanism in nuclear power bases**

In 2022, based on the anti-corruption measures and the features of nuclear power bases, CGN Power took the initiative to explore the joint supervision mechanism of nuclear power bases. We made Huizhou Nuclear Power Base the pilot base and implemented the principle of "focusing on the localized management of nuclear power bases and strengthening the supervisory responsibility of the owner". Based on the combination of personnel management authority and localized management, we further clarified the supervisory responsibilities of all units in the base. With the establishment of the Commission for the Joint Supervision on Nuclear Bases led by Commission for Discipline Inspection of the owner, we enhanced the supervision, education and management on the staff and organizations dispatched from our internal units to the nuclear power base, and encouraged the officials and employees to abide by rules to create an environment of integrity.

Case **Leveraging the cards on integrity risk tips to prevent from corruption**

In December 2022, the Commission for Discipline Inspection of CGN Operations led relevant departments to identify key areas with potential corruption risks, sort out the management requirements, and bottom lines in the routines, and made the "Corruption Risk Tips Cards". The tips on the cards are concise, practical and easy to understand and memorize, covering 65 points in 13 business fields. In a concrete, effective and pithy way, they enable employees to familiarize themselves with possible pitfalls, therefore guarding themselves against corruption.

Operational Safety

Opportunities and Challenges

As China has been actively developing nuclear power in a safe and orderly manner and taking solid steps toward the goals of achieving peak carbon dioxide emissions and carbon neutrality, the development of nuclear power and the comprehensive utilization of nuclear energy are still and will remain in an important period of strategic opportunity for a long time. At the same time, the high-quality development of nuclear power is facing challenges in safety supervision and independent equipment R&D.

Our Strategies

Adhering to the basic principles of "safety first, quality foremost and pursuit of excellence", CGN Power prioritizes nuclear safety and develops a comprehensive safety management system, making every effort to ensure that nuclear power is perfectly safe. The Company firmly upholds innovation-driven development, and improves the technological innovation system to achieve breakthroughs in core technologies, contributing to the high-quality development of nuclear energy.

Our Performance

76.92%
WANO indicators achieving the world's excellent level (the world's top decile)

79.17%
WANO indicators achieving the world's advanced level (the world's top quartile)

3,852.54 million yuan
R&D Investment about


CGN
安全第一 质量第一 追求卓越

Safety Management

We attach the greatest significance to "nuclear safety is our overriding priority". While strictly abiding by the Chinese nuclear safety laws and regulations such as the *Nuclear Safety Law*, the *Regulations on Civil Nuclear Facility Safety Supervision and Administration*, the *Regulations on the Safety of Site Selection for Nuclear Power Plants*, the *Safety Requirements for Nuclear Power Plant Operation*, and *the Regulations on Safety of Management Systems of Nuclear Power Plant*, we also implement the Opinions of Communist Party of China Central Committee and State Council on Promoting Reform and Development of Work Safety, the Three-year Action Plan for the Rectification of National Work Safety and other requirements of regulatory authorities on production safety. For details regarding laws and regulations, please refer to the part "Laws and Regulations of the Nuclear Power Industry" in "Section 6 Business and Technology" of the A-share prospectus published by the Company in August 2019.

By introducing and absorbing the world's advanced safety management experience, we continue to improve the Company's safety management system. To achieve the goal of nuclear safety, we implement it in the design, manufacturing, construction and operation of NPPs. All operation units have maintained safe and stable operation for years, meeting the requirements of international advanced standards for four consecutive years.

The principle

- Nuclear safety is our overriding priority
- Safety first

Safety management system

- Defense-in-depth system for nuclear safety management
- Top-down nuclear safety culture for all employees
- Completely independent system for safety oversight
- Highly transparent and effective system for empirical feedback
- Emergency response and disposal system for nuclear power

The overall goal of nuclear safety

- To establish and maintain an effective defense system at NPPs to protect people, society and the environment from radiological hazards.

Safety management system

A sound nuclear power safety management system is the basis for nuclear power safety. With the objective of "Zero Injury, Zero Defect, Zero Violation", CGN Power strives to establish a comprehensive management system for nuclear power safety, consolidating the foundation for nuclear power safety management.

Defense-in-depth system for nuclear safety management

CGN Power follows the principles of defense-in-depth and multiple redundancy in the design, equipment layout, safety measures, equipment measurement, management system, and employee performance of nuclear power plants. As for equipment, personnel, and organizational structure, we have established a nuclear safety management system that includes prevention, monitoring, and correction. We also consider the establishment of defense-in-depth barriers and their effectiveness in all operational procedures to achieve safe production, control, and supervision.

We have further promoted the "SCS" Management, and operate our NPPs in a professional, intensive, and standardized way to maintain their stable operation. During the Reporting Period, CGN Power aimed to promptly identify potential hazards, control defects, and prevent human errors, and strengthened the identification of potential hazards and defect control to continuously improve work safety management.

Specialization

- Specialized work division
- Specialized talent team
- Specialized capability building

Centralization

- Centralized resources allocation
- Centralized technical support
- Centralized information sharing

Standardization

- Standardized organization
- Standardized management system
- Standardized operating procedures

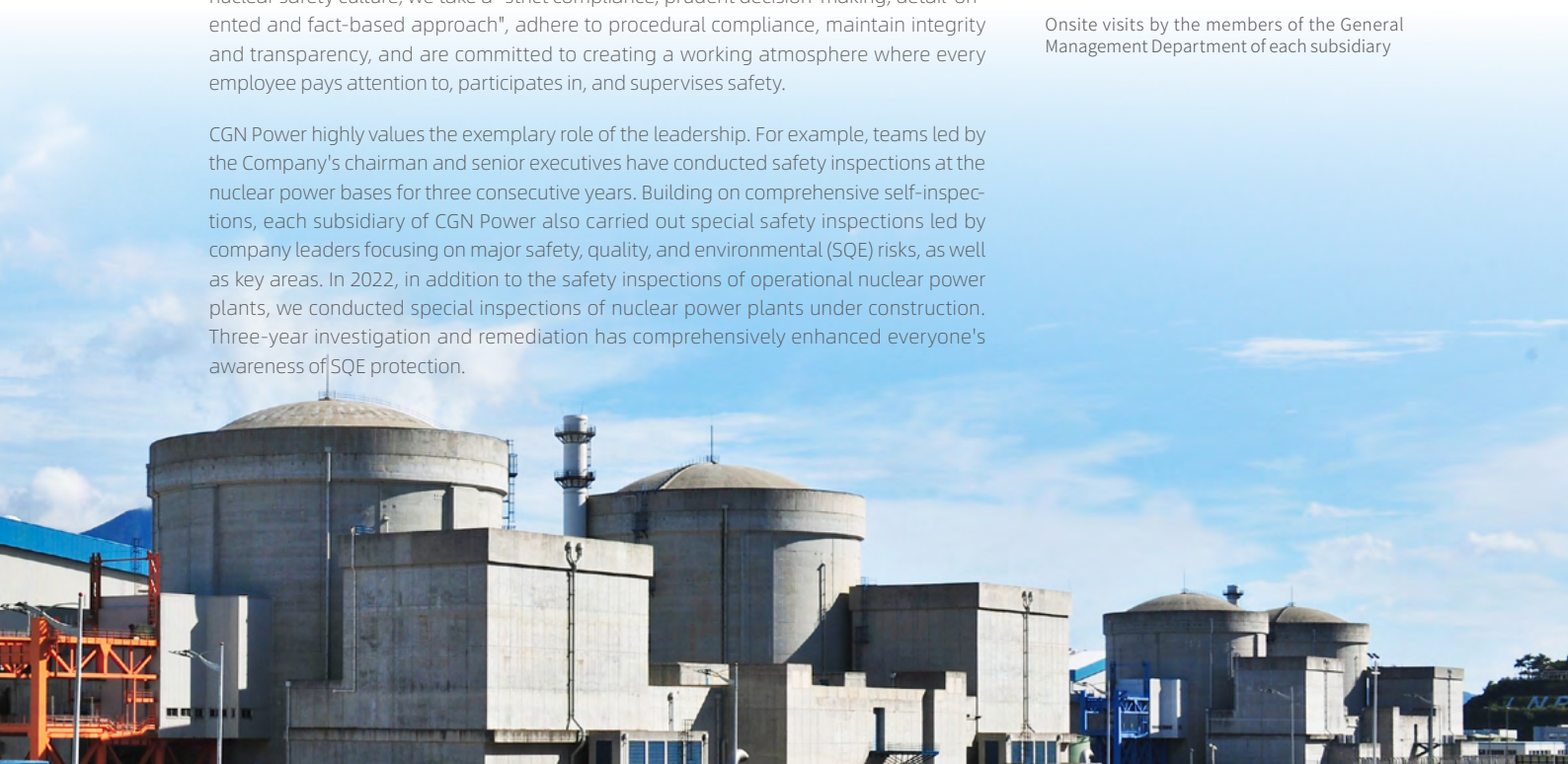
Top-down nuclear safety culture for all employees

CGN Power has developed a top-down nuclear safety culture for all employees, and advocates that "everyone is a safety barrier". In an effort to continuously cultivate our nuclear safety culture, we take a "strict compliance, prudent decision-making, detail-oriented and fact-based approach", adhere to procedural compliance, maintain integrity and transparency, and are committed to creating a working atmosphere where every employee pays attention to, participates in, and supervises safety.

10.18 times per person per month

Onsite visits by the members of the General Management Department of each subsidiary

CGN Power highly values the exemplary role of the leadership. For example, teams led by the Company's chairman and senior executives have conducted safety inspections at the nuclear power bases for three consecutive years. Building on comprehensive self-inspections, each subsidiary of CGN Power also carried out special safety inspections led by company leaders focusing on major safety, quality, and environmental (SQE) risks, as well as key areas. In 2022, in addition to the safety inspections of operational nuclear power plants, we conducted special inspections of nuclear power plants under construction. Three-year investigation and remediation has comprehensively enhanced everyone's awareness of SQE protection.



Case Leaders On-site

In April 2022, an inspection team, with Chairman Yang Changli as the team leader, Deputy Safety Director Huang Xiaoheng as the deputy team leader, and experts in various fields, conducted a safety management inspection at the Daya Bay Nuclear Power Base. The inspection team conducted inspections on environmental protection, spare parts quality management, reactor-related critical systems, and important pump groups at the Daya Bay Nuclear Power Base.

Vice President Qin Yuxin and the leadership of subsidiaries conducted safety inspections at nuclear power bases in Daya Bay, Yangjiang, Cangnan, Ling'ao, Ningde, Hongyanhe, Fangchenggang, and Taishan.

Inspection of Yangjiang Nuclear by Vice President Qin Yuxin

Inspection of the Company's power plant by Tian Huiyu, Chairman of Ningde Nuclear

Case DNMC builds an "iron triangle" of safety capabilities

Daya Bay Nuclear Power Operations and Management Co., Ltd. (DNMC) has been building a safety culture to ensure the implementation of safety responsibilities and to establish an "iron triangle" (managers, supervisors, and implementers) of safety capabilities. Building on a dual-prevention mechanism, the company applies systematic thinking to enhance intrinsic safety while improving lean safety management through technological innovation. With a series of measures properly implemented, the company has enhanced safety management, and also completed a shift in employees' perception from "they want me to be safe" to "I want to be safe".

Improvements in intrinsic safety can be seen around every corner of the nuclear power plant. In every outage, for example, the lifting of the condensate pump in the steam engine plant is a routine task. The guardrails around the 16m perimeter of the plant need to be removed and reinstalled. DNMC has transformed some guardrails into guardrail doors that can be opened and closed at any time, eliminating the need for a time-consuming two-hour process of removing and reinstalling the guardrails. This has greatly reduced the operational risks.

DNMC installs a guardrail on the 20m T-shaped beam in the reactor building, reducing 6 Level 1 high-risk tasks.

Completely independent system for safety oversight

Complying with relevant international and national nuclear safety regulatory requirements, CGN Power establishes an independent internal safety supervision system, and accepts irregular inspections and supervision of NPPs by national regulatory agencies. We also fully take advantage of internal and external supervision to promote the implementation of various actions in the independent supervision and improvement plan at all NPPs, and ensure that the indicators of units fulfill or exceed the regulatory requirements.

Inside the Company, we set up the Nuclear Safety Supervision and Assessment Department to supervise and assess the safety of all NPPs operated and managed by CGN Power. We have established the Center of Independent Supervision and Assessment for Nuclear Safety ("**Nuclear Safety Supervision Center**") to independently monitor and assess the safety management of nuclear power bases, covering safety culture cultivation, unit safety management, equipment reliability, project safety and quality control, cyber security, NPP security and emergency management. The Nuclear Safety Supervision Center reports directly to the President and is completely independent from operations departments. In addition, we develop and implement safety improvement plans with all our NPPs.

Outside the Company, our NPPs accept the national nuclear safety regulators' irregular and targeted inspection, and the regular independent safety assessments by international industry organizations, including IAEA and WANO. Through experience exchange with peers, we keep improving our safety management of nuclear power.

During the Reporting Period, we accepted three peer reviews as planned by WANO for Fangchenggang Nuclear, Ningde Nuclear, and DNMC, and also three reviews by the National Nuclear Safety Administration for Hongyanhe Nuclear, Lufeng Nuclear, and Fangchenggang Nuclear.

Internal safety supervision system

Level

- On-site safety supervision team with NPP safety engineers as the core
- The safety management authority with the basic functions of the safety and quality management of NPPs
- Nuclear Safety Supervision Center to monitor plants

Scope of Supervision

- Ensuring the effectiveness of NPP daily production in terms of safety
- Ensuring and overseeing the effectiveness of safety management system at the organizational level
- Carrying out independent safety supervision and assessment at each nuclear power base

External supervisions

Level

- National Nuclear Safety Administration
- International peers' independent safety assessments (including IAEA & WANO)

Scope of Supervision

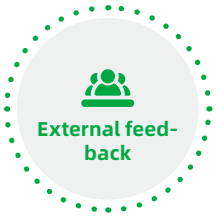
- Supervising and inspecting compliance with nuclear safety regulations
- Assessing and supervising the safe operation in NPPs

Experience feedback system

The experience feedback system is an important part of safe NPPs operation. We continue the collection of internal and external historical experiences to analyze the root causes of accidents, develop plans to correct our actions and form a dynamic and transparent experience feedback system to prevent any recurrence of accidents. We have established a system that encourages the reporting of operational incidents relating to nuclear power. Management and supervisory departments are required to report the incidents with the transparency measurement indicators in place. Meanwhile, we manage feedback on operational incidents intensively, analyze the root causes of the incidents and deviations for taking corresponding corrections, summarize best practices, and publicize them in all NPPs.

The two-way experience feedback mechanism between the engineering and operations departments helps both parties share and use experiences, promoting nuclear power unit improvement in areas such as design, supplier process, equipment replacement, construction and commissioning management, operation optimization, maintenance strategy and regular safety reviews, etc.

We actively conduct experience feedback analysis among NPPs, regularly organize the screening of experience feedback and arrange professionals from power plants to learn from each other. At the same time, we have compiled a series of historical experiences and lessons in industrial safety, fire safety, environmental safety, operation and maintenance, etc. into publications.



We carry out SOER (Significant Operating Experience Report) and WANO performance analysis. We timely track the issues related to safety of nuclear operation in WANO assessment results, and continuously verify and optimize the improvement measures, so as to provide support for managers to make reliable decisions. Meanwhile, we organize a comparative analysis of SOER among plants to identify common issues and improvement directions, with an aim to enhance the management's awareness of risk management and improve their risk management capabilities.

Nuclear emergency response and management system

CGN Power attaches great importance to enhancing emergency response capabilities of nuclear power plants. The Company continuously improves the organizational systems for nuclear emergency response, and has developed a comprehensive emergency response system centering on nuclear emergencies and a multi-line emergency defense mechanism. The mechanism is supported by specialized emergency equipment and facilities, as well as sufficient and qualified personnel who participate in emergency drills on a regular basis. With a sound and vigilant nuclear emergency response system, the Company ensures that nuclear emergencies can be handled in time, thus safeguarding the residents around.

Improving the emergency response system

- We continuously improve our emergency response plans from "completeness and operability". We have upgraded the comprehensive emergency response plan, and emergency response plans for typhoons, heavy rain, thunderstorms, and infectious disease prevention and control, effectively enhancing our emergency response capabilities.
- The upgraded version of *Response Plan for On-Site Nuclear Accident Emergency*, which incorporates Units 3 and 4 of Fangchenggang Nuclear into the nuclear emergency response system, is our first emergency response plan that specifically addresses nuclear accidents involving HPR1000.

Enhancing emergency response capabilities

- Construction of *Emergency Drills*, and conducted emergency drills on 12 types and 6 types of personal injury accidents in in-service NPPs and NPPs under construction, respectively, laying a foundation for further improving the effectiveness of emergency drills.
- By upgrading the emergency command center at the headquarters, the Company has realized real-time command coordination for nuclear accident response, remote support for reactor core status prediction, comprehensive scheduling of emergency support, and auxiliary support for decision-making, and has enhanced the application of modern information technology to the nuclear emergency command system.
- DNMC has launched the design of a model for improving nuclear emergency organizational capabilities and core capabilities of core posts, laying a solid foundation for enhancing organization capabilities to respond to nuclear emergencies of nuclear power plants.

Strengthening nuclear emergency preparedness and performance

- CGN Power has carried out a benchmarking assessment of nuclear emergency preparedness regarding, among others, emergency organization, implementation of emergency responsibilities, and emergency activation in order to further enhance the operational feasibility of emergency response plans.

Case A joint emergency drill to combat super typhoon "Mulan"

On March 23 and 24, 2022, CGN Power and ten subsidiaries jointly launched an emergency drill to combat "Mulan", the No. 7 super typhoon in 2022. The exercise simulated the direct landfall of "Mulan" on the Yangjiang Nuclear Power Base as well as its impact on Guangdong Province and Guangxi Zhuang Autonomous Region. All emergency organizations took actions under the unified direction of the emergency commanding center.

SQE management

CGN Power has continued to improve our SQE management system, and complied the *Three-year Action Plan on Safety, Quality and Environment (2020-2022)* and the *Action Plan for Improving Safety and Quality in the Nuclear Power Industry (2022-2025)* to enhance SQE management and performance. The Company also reports implementation performance to the Board and the Nuclear Safety Committee of the Board. In 2022, we further enhanced SQE management around system construction and personnel training.

Optimizing the SQE management system

In 2022, we fully optimized the SQE management system and its processes, and developed a complete, comprehensive and clear procedural framework for the SQE management system. The framework includes 14 management systems, 48 management rules and procedures, and 132 management standards and technical standards, covering areas such as nuclear safety, SQE, nuclear emergency, as well as counter-terrorism and security.

Enhancing SQE training

We focus on improving the professional competence and abilities of our SQE staff, establishing a "customized training for each profession" safety personnel training material system, and fostering a SQE supervisory team featuring "specialist + adherence to principle". We have organized six training sessions, including, but not limited to, training for key personnel in charge of the enterprise, work safety management, quality inspectors, and backbone staff in environmental management, with nearly 3,000 participants. In addition, we organized industrial safety skills competitions to enhance the core competitiveness of safety supervisors and managers. We have also developed individual performance records for key personnel in the SQE regulatory team, and emphasized an evaluation mechanism that combines quantitative and qualitative approaches. This has created a foundation for objectively evaluating the professional capabilities and managerial skills of key personnel in the SQE team.

During the Reporting Period, the Company's SQE performance has steadily improved, and the goal of "two eliminations and six zeros" has been successfully achieved, which refers to the elimination of level-2 nuclear incidents, the elimination of major and serious personal casualties, and the realization of zero serious injuries, zero fire accidents, and zero major radiation protection incidents , zero major equipment damage accidents, zero concealment and false report, and zero social responsibility incidents with serious adverse impact.

2023 SQE objectives

The Company will continue to thoroughly implement the principles in the important instructions issued by the Chinese government and relevant regulatory agencies, vigorously follow the "Strict Compliance, Prudent Decision-making, Detail-oriented and Fact-based Approach" work style, and constantly improve the management system, governance capabilities and skills to ensure "absolute safety". We will adhere to the bottom line and control the red line by realizing "two eliminations and six zeros", to ensure zero safety issues, zero quality defects, and zero behavioral violations. We will also ensure that our SQE monitoring performance gets ahead of our peers' in the industry on a year-on-year basis, and that we achieve excellence in key indicators.

Outstanding safety performance

We believe that "a safe NPP is also an economical NPP, with which the Company can achieve sustainable development". All operation units have maintained safe and stable operation for years, meeting the requirements of international advanced standards with an average capacity factor of more than 89% for five consecutive years.

2022 CGN Power Unit Capacity Factor

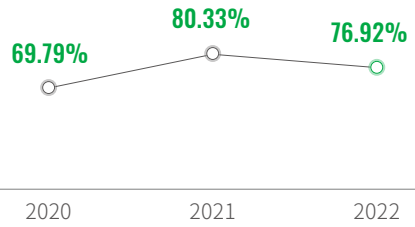
"Unit Capacity Factor" is mainly used to measure the availability of nuclear power units and serves as an important indicator that reflects the electricity generation capacity of nuclear power units. It is also recognized by the international nuclear power industry as the indicator that can best reflect the business performance of nuclear power operation and the level of nuclear power safety management.

Daya Bay Unit 1 91.96%	Daya Bay Unit 2 93.24%	Ling'ao Unit 1 82.03%	Ling'ao Unit 2 91.14%
Lingdong Unit 1 89.65%	Lingdong Unit 2 99.77%	Yangjiang Unit 1 94.41%	Yangjiang Unit 2 91.78%
Yangjiang Unit 3 99.99%	Yangjiang Unit 4 93.07%	Yangjiang Unit 5 92.72%	Yangjiang Unit 6 93.56%
Fangchenggang Unit 1 98.93%	Fangchenggang Unit 2 93.09%		
Ningde Unit 1 99.99%	Ningde Unit 2 93.65%	Ningde Unit 3 92.41%	Ningde Unit 4 91.16%
Taishan Unit 1 29.03%	Taishan Unit 2 57.65%		
Hongyanhe Unit 1 92.71%	Hongyanhe Unit 2 99.99%	Hongyanhe Unit 3 91.81%	Hongyanhe Unit 4 91.82%
Hongyanhe Unit 5 87.93%	Hongyanhe Unit 6 99.76%		

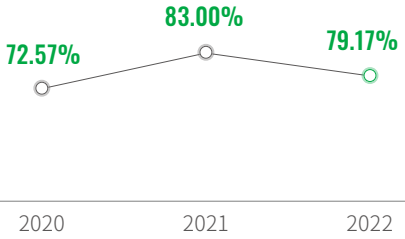
CGN Power Annual Comparisons in WANO Indicators (2020-2022)

The WANO indicator is an important international statistical indicator for nuclear power operation performance and an important reference for evaluating the safety and reliability of nuclear power project operations. The dozens of assessment indicators directly reflect the nuclear power unit's operation safety level. Members of WANO organization formulate internationally accepted performance indicators for unified management and coordination, which is conducive to strengthening the exchange on nuclear power technology, experience and accident information, and continuously improving the safety and reliability of NPPs worldwide.

Ratio of units achieving the world's excellent level (the world's top decile) in WANO indicators



Ratio of units achieving the world's advanced level (the world's top quartile) in WANO indicators



26
Nuclear power units in operation

89.74%
Average capacity factor of units in operation, reaching the world's advanced level

0
Operational incidents at level-2 or above in INES1 occurred at our NPPs

28 years
Safe operation period of Daya Bay Unit 1, the first nuclear power unit of CGN Power by now

5,925 days
Continuous safe operation period of Ling'ao Unit 1 as of December 31, 2022

0
Customer complaints on our products and services received during the Reporting Period

NPP	Industrial safety accident rate of employees per 200,000 man hours[9]			Industrial safety accident rate of contractors per 200,000 man hours[10]		
	2020	2021	2022	2020	2021	2022
Daya Bay NPP	0	0	0	0.117	0	0
Ling'ao NPP	0	0	0	0.107	0	0.074
Lingdong NPP	0	0	0	0	0	0
Yangjiang NPP	0	0	0	0	0	0
Fangchenggang NPP	0	0	0	0	0	0.05
Ningde NPP	0	0	0	0	0	0
Hongyanhe NPP	0	0	0	0	0	0.035
Taishan NPP	0	0	0	0	0	0

[8] According to the International Nuclear Event Scale (INES), there is a 7-level event classification system. Events of lesser safety significance (Levels 1 or above) are termed "incidents" or "accidents". Events without safety significance are termed "deviations" and not classified.

[9] Industrial safety accident rate of employees per 200,000 man hours=200,000×(Annual employee accidents/annual employee hours)

[10] Industrial safety accident rate of contractors per 200,000 man hours=200,000×(Annual contractor accidents/annual contractor hours)

Case Executing strategies and systematically building benchmarks in the nuclear power industry

DNMC has developed four major strategic objectives: "first-class production and operation, first-class technological innovation, first-class business efficiency, and first-class enterprise management". It has also put forward 25 benchmark indicators, and set benchmark management as a long-term mechanism in implementing strategies. DNMC updates WANO indicators for global nuclear power units annually, and carries out benchmarking work. In 2021, the company was selected as a benchmark enterprise in the State-owned Assets Supervision and Administration Commission's campaign for creating benchmarks.

Among the 29 nuclear power companies of similar size around the world, DNMC ranks first in indicators including consecutive days of safe operation, years of unplanned automatic reactor shutdown, and unit capacity operating costs. As of December 31, 2022, Ling'ao NPP's Unit 1 had been operating safely for 5,925 consecutive days, extending the record for the longest safe operation of its kind globally.

Honors

DNMC received the Special Award for the "First Electric Power Company Compliance Management Achievements" from the China Enterprise Evaluation Association.

Stable Operation

Adhering to the job requirements of "Always Act Based on Rules, Be Responsible, and Keep Supervision and Documentation", CGN Power strictly implements operating procedures, and maintains equipment in a regular and orderly manner. We effectively implement plants management to ensure long-term stable development and continuous improvement of business performance.

Standardized operation

Human error is a vital factor that results in unit safety issues. In order to reduce human error, we have established a human error prevention management model, set up the management objective, and continuously enhanced staff skill training and incorporated safety and quality requirements into staff management on violations of rules and regulations. At the same time, we implement the accountability system and the reporting system, thereby ensuring the timely reveal of fraud and concealment and continuous improvement of the human error management.

Human error prevention management mechanism

A human error prevention management model has been established to improve the human error management. Accordingly, we carry out special rectification, improve the mechanism for admission, selection, training and assessment for operating personnel, and organize job training for production and operation personnel to strengthen their operational skills, thus reducing the safety impacts caused by human error greatly.

Human Error Prevention Management Model

Management objective

Driven by the vision of "Zero Human Error", we improve the human error performance of plants in three stages, from passive defense to proactive management

Passive Defense

Analysis-Correction-Feedback

Proactive Management

Management-Tracking-Prevention

Operation Mode

1 Remedy Shortcomings	2 Improve the System	3 Keep Improvement	4 Vision of Zero Human Error
	Improving management organization for human performance Introducing new theories and technologies Reducing human error of contractors	Identifying single-point failure and repairing barriers Applying and popularizing new technologies for prevention of human errors	Integrating into daily work Regular benchmarking, check and evaluation

During the Reporting Period, we continued with human performance improvement with single-point failure identification and barrier repair as the core. Key tasks included the application of new technologies to prevent human errors by combining the theory with practice, and developing improvement methods suitable for management and technical personnel. We also conducted in-depth analysis of incidents caused by human errors in operating power plants and implemented the accountability system, and required tighter supervision on contractors for units under construction with a focus on preventing their fraudulent behaviors.

Case **Making human error management more intelligent with the first application of the "Personnel Status Diagnosis System"**

In April 2022, during the 17th outage of Unit 2 at Ling'ao NPP, the first domestically developed "Personnel Status Diagnosis System" with independent intellectual property rights was applied. It is the first system for reliability diagnosis and proactive warning of nuclear power personnel status in China. The system utilizes super-sensing heart rate detection technology, which uses a high-definition camera to capture facial data, and then analyzes heart rate based on the impact of blood flow on facial skin tissue. Researchers developed an analysis model for the system based on data collected from nearly a thousand people during the earlier theoretical research phase, enabling it to extract four indicators, including "fatigue index", "pressure index", "emotional index", and "health index", and promptly eliminate potential hazards caused by human errors.

Case **First "Zero Human Error-Caused Incidents" training seminar**

From May 17 to 19, 2022, CGN Power's first "Zero Human Error-Caused Incidents" training seminar started. The project, developed by human performance experts from various power plants over eight months, integrated the Company's good practices in nearly 3 decades, references theories and experiences of domestic and foreign peers, such as INPO and WANO. The project established a "new common language for human performance management" with single-point failure identification and barrier repair as its core, achieving a significant upgrade of the company's human error prevention theory and forming results with CGN Power's characteristics and independent IP rights. A total of 37 key management and technical personnel from 7 units participated in the training seminar, where they shared and exchanged knowledge on topics such as single-point failures, barrier management, and document compiling.

Equipment operation and maintenance

The reliability of equipment is vital to NPPs operation. In order to ensure that nuclear power equipment operates in high stability, CGN Power fully ensures reliable operation in design, operation and other stages. At the design stage, we make full consideration for installation of NPPs equipment; during operation, we follow the regulatory requirements including NPPs operation technical specifications, strengthen risk prevention management of major sensitive equipment, regularly monitor and maintain nuclear power equipment, and adjust and optimize equipment reliability to achieve normalized, programmed and standardized equipment management.

Equipment management

During the Reporting Period, CGN Power strengthened potential hazard inspection in daily production as well as risk identification and control, and achieved early warning of equipment failures; improved maintenance strategies to enhance equipment reliability; optimized the operation of major equipment, strengthened monitoring of the operating status of key equipment, and resolved major common technical issues more efficiently; and made significant progress in developing and applying the information technology platform for Critical Component Management (iCCM).

Nuclear power plants of CGN Power carried out "8+1" major equipment management based on the principles of "defect elimination, improvement, and value creation." Overall, the "8+1" major equipment management indicators are in good conditions. In 2022, five major common technical problems in operation were closed, and 38 technical instruction orders were sent to the plants for implementation, facilitating the resolution of a group of common problems. We also implemented 77 equipment reliability improvement projects through the application of new technologies.

0
Major equipment damage

0.02%
Forced loss rate caused by major equipment

96.1%
Units reached the world's advanced level in terms of the WANO indicators for emergency diesel engines

Refueling outage

Based on the design of PWR NPPs, the nuclear reactor of each unit in operation must be shut down for refueling after a certain period. Taking safety and economic factors of NPPs into consideration, nuclear power operators usually arrange some preventive and corrective repairs, inspections, tests and partial modification projects of the unit during the refueling period, which is commonly referred to as the refueling outage. We usually uniformly plan and rationally deploy personnel to perform outage activities. Meanwhile, NPP equipment is categorized and analyzed to continuously improve efficiency of refueling, detect equipment abnormalities in real time and ensure outage activities are carried out in an orderly manner.

In 2022, we further pushed ahead the safety standard visualization for nuclear power plant outages. We developed over 200 safety standard booklets that intuitively demonstrate the layout of work sites, important procedures, and the standardized implementation of general specifications. The booklets, which were referenced in various rounds of outages, effectively guided the safe and orderly implementation of on-site work.

Case **Ensuring the fulfillment of the primary responsibility for managing nuclear power plant outages**

To ensure the fulfillment of the responsibility for managing nuclear power plant outages, DNMC has implemented the "integrated outage" management model where the power plant assumes its primary responsibility, and adopted the "1 goal, 1 command center, 1 command line, 1 person in charge, 1 rhythm" big team cooperation method for quality and harmonious outages. DNMC implements the management model in various links, and has established a power plant-based outage command organization. In the organization, the company's deputy general manager/vice chief engineer presides over the daily safety meeting for shutdowns, the deputy manager of each department serves as managers taking charge of outages in their respective fields, and the power plant's technical officials deeply engage in whole-process technical problems analyses and decision-making. The implementation of a series of measures ensures the NPPs' primary responsibility to be fulfilled at all levels.

Jiang Xinghua, Chairman of DNMC, praises the outage team for their outstanding work.

During the Reporting Period,

19 Refueling outages carried out and completed including

1 Initial outage

10 **year outages** The overall safety and quality was in good condition

Hongyanhe Nuclear completed the first outage of Unit **5**, and broke the **record for the shortest outage period** for a CPR1000 unit.

Honors

After its one project was awarded the "**2022 National Quality Model**", Ningde Nuclear became the only company in the industry that won the title twice within three years.

China Nuclear Power Technology Research Institute Co., Ltd. (CNPRI) received the 7th "**Guangdong Provincial Government Quality Award**".

Hongyanhe Nuclear received **2 winning prizes and 1 excellence prize** at the exchange activity of achievements recommended by the International Convention on Quality Control Circles (ICQCC).

Two projects of Ningde Nuclear won the "**Typical Experience of National Quality Model 2022**" award, and the "**First Prize of the 5th Central SOE QC Group Achievement Presentation Competition 2022**".

Fleet management

Based on the characteristics of our multi-technology platform and multi-site operations, we have established the standardized, specialized and centralized plants management system, to ensure efficient management of plants.

In 2022, we continued with the SCS (Specialization, Centralization and Standardization) management strategy, and maintained excellent work safety. For example, we continued to implement the policy of using domestically-produced spare parts, which included air filters for the nuclear island ventilation system and nuclear-grade metal graphite reinforced gaskets. This reduced supply chain risks and inventory costs. With the independently developed high-sensitivity leakage detection device for nuclear fuel damage components, we effectively improved the safety of nuclear power units. Pooling NPPs' technical resources, we solved the defects of major equipment such as steam generators and condensers. As a result, the forced loss rate due to major equipment failures decreased to the lowest level in history.

Standardized

Based on the OPST model (the operation standard management system) in the core areas of operations, we achieve the unified organizational management system, the unified technical standards and procedures system, the unified post qualifications and the authorized training system, as well as the unified operation management tools.

Specialized

Our specialized subsidiaries such as CGN Operations, CNPRI, SNPI, CGN Engineering, provide professional services for NPPs in refueling outage, engineering modification, equipment management, spare parts management, and NPP design and construction. According to the characteristics of the production and operation management of NPPs, we have gathered the superior resources of NPPs and specialized subsidiaries, and established a number of functional field peer groups ("**PG groups**"), each of which is composed of professional and technical managers of the Company, NPPs and specialized subsidiaries. The PG groups focus on cross-organizational overall planning and coordination management in terms of sharing and communication, problem orientation, capacity building, etc., concentrates professional forces to solve the common technical problems of each NPP, promote and apply new tools, new technologies and good practices, and enhances the professional capabilities in various fields, pursuing excellence in each NPP.

Centralized

We continue to maximize the economical efficiency and overall value in centralized management like resource allocation, effective platform operation and information sharing. We set up a unified bidding center to continuously promote the standardized and informatized bidding management and spare parts management, make full use of big data to improve management efficiency, and gradually expand the scope of centralized procurement of spare parts and public materials. It also helps implement the overall allocation of resources, enhance the bargaining power of centralized procurement, and optimize procurement channels, thus achieving significant cost-effectiveness.

Exemplary Projects

Safety and quality are the prerequisites of nuclear power engineering construction. To realize the goal of "Zero Behavior Violation, Zero Quality Defect", CGN Power insists on building projects with the highest standards and requirements, actively implements the quality management measure,and continuously strengthens our management capability to ensure the safety and quality of engineering construction.

Engineering management

Certification

Major CGN Power's subsidiaries were certified by **ISO 9001 Quality Management System.**

CGN Power continues to improve the engineering safety and quality management. We adopt various initiatives such as optimizing the system, strengthening supervision and standardizing operations to comprehensively improve the safety and quality management of engineering construction and elevate our safety and quality performance of nuclear power projects to the world's leading level.

Improving quality management

Centering on the *Nuclear Power Engineering Construction Management Outline* released in early 2022, we, with accountability and strict supervision as the core, continuously optimize our management system and procedures related to nuclear power engineering construction to build a new model of engineering construction.

Strengthening quality management supervision

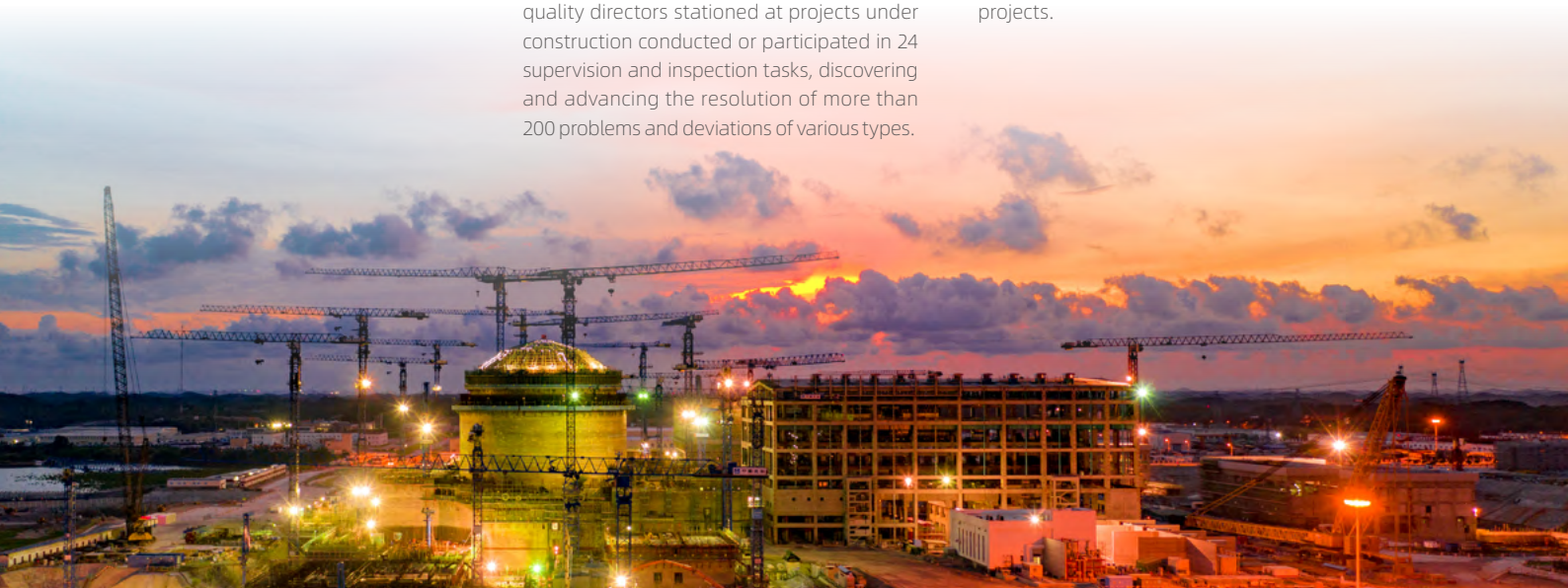
According to the three-tiered SQE inspection plan in 2022, CGN Power conducted inspections on quality system effectiveness, including inspections of project preparation, quality supervision, and management system research. During the inspections, we focused on the construction and implementation of the quality management system, and promoted effective implementation of the quality responsibility system in various units.

Developing the on-site quality director system for nuclear power projects

The Company has released the *Operation and Management Measures for On-site Quality Directors of Nuclear Power Projects*, which further clarifies working methods and requirements of quality directors stationed at the project sites, and improves the efficiency and effectiveness of supervision over nuclear power projects under construction. In 2022, all quality directors stationed at projects under construction conducted or participated in 24 supervision and inspection tasks, discovering and advancing the resolution of more than 200 problems and deviations of various types.

Promoting the standardization of safety technology for nuclear power projects

Based on across-the-board risk identification and evaluation, we have developed standardized safety management guidelines (trial) for 23 specific areas, such as lifting, traffic, flaw detection, etc. The guidelines unify the safety management requirements for relevant operations, and effectively ensure the safety of engineering projects.



Quality projects

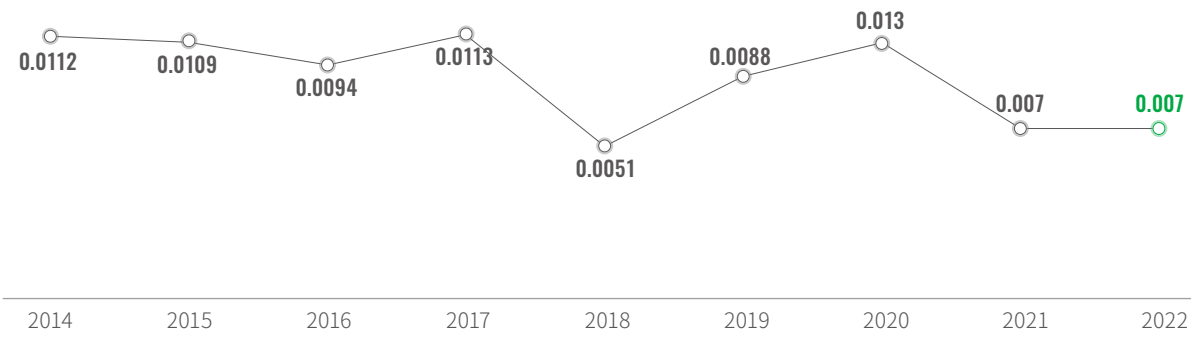
Quality nuclear power projects ensure our stable growth and sustainable development. Therefore, CGN Power is making every effort to steadily and efficiently promote the construction of quality nuclear power projects.

Overall SQE benchmarking rating of nuclear power projects under construction

For nuclear power projects under construction, the regulatory authority conducts a comprehensive assessment on project safety, quality, and environmental impact in terms of performance standards, site selection, and management based on the *QHSE Standardized Management and World-class Benchmarking Assessment Manual for Nuclear Power Engineering*. The rating system is divided into ten levels, of which level 5 and 6 are good, level 7 and 8 are advanced, level 9 and 10 are international benchmark.

	Hongyanhe[11] NPP	Fangchenggang NPP	Lufeng[12] NPP Phase II Project	Huizhou NPP Phase I Project	Cangnan[13] NPP Phase I Project
2020	8	7	NA	7	NA
2021	8	6	NA	5	5
2022	NA	8	5	6	6

2014-2022 Industrial Safety Accident Rate per 200,000 Man Hours in Engineering Construction [14]



[11] All six units were put into operation in 2022.

[12] The Unit 5 started construction in 2022.

[13] The Unit 1 started construction in 2020 and Unit 2 started construction in 2021.

[14] Industrial Safety Accident Rate per 200,000 Man Hours= 200,000× (number of accidents for both employees and contractors per year / total man hour of both employees and contractors per year).

Key projects

We value both quality and progress, and have developed special optimization measures to ensure the completion of project construction goals. As of the end of 2022, seven nuclear power units were under construction. Among them, two were in the civil construction stage, four were in the equipment installation stage, and one was in the commissioning stage. On January 10, 2023, Unit 3 of Fangchenggang Nuclear completed its first grid connection and entered the grid-connected stage.

Case Unit 1 of Cangnan Nuclear's Phase I project completes dome installation

On November 3, 2022, the completion of dome installation for Unit 1 of Cangnan Nuclear's Phase I project marked the transition of installation phase to civil construction phase of Unit 1.

Crane work with millimeter accuracy

The dome, a critical component of the third safety barrier of the nuclear power plant, is at the top of the nuclear island. It weighs 238.5 tons and has a diameter of 45m. However, the steel wall of the nuclear island cylinder is only about 6mm thick. The ratio of the dome diameter to the steel wall is 7,500:1. During the dome installation process, the crane operator needed to overcome challenges such as sway caused by wind and thermal expansion and contraction caused by changes in temperature. The crane lifted the dome to a height of 70m, and then smoothly connected the dome to the nuclear island cylinder with only 1-3mm thick welded edges. This required extremely high precision in hoisting control. The project had installed limit devices in the circumferential and radial directions on the cylinder, which firmly "locked" the dome in all four directions and ultimately achieved precise dome installation.

First application of new technique increases work efficiency by 4 times

During the dome installation process, the project team applied part of the nuclear-grade mechanical welding technique to a nuclear power project for the first time. Its efficiency was four times that of traditional manual arc welding, with a radiographic inspection pass rate reaching 100%. The dome installation process used the whole hoisting technique, and applied intelligent nuclear power construction techniques such as BIM (Building Information Modeling) 3D modeling and simulation animation, which ensured precise hoisting to the millimeter level and completed dome hoisting at one attempt.

Information Security

In 2022, facing increasing challenges from cyber security, CGN Power complied with Chinese laws and regulation such as the *Cybersecurity Law*, the *Data Security Law*, and the *Personal Information Protection Law*. The Company continues to strengthen the protection of critical information infrastructure, network security monitoring, early warning, and defense, etc., has built strong network security barriers and successfully completed tasks of safeguarding network security. In 2022, no major network security incidents occurred.

Optimizing the cyber security management system

The Company has added and revised four cyber security procedural systems, enhanced the cyber security organization, and increased cyber security staff while ensuring the implementation of cyber security responsibilities. We have also strengthened the cyber security assessment mechanism, improved the cyber security management process, and incorporated cyber security into our overall security management.

Strengthening cyber security protection capabilities

The Company has continued to tighten internet outlets, improved the in-depth network structure, optimized the cyber security sensor system, improved cyber security monitoring, analysis, judgment, and risk control. At the same time, we have promoted internal and external synergy, and conducted regular and systematic attack and defense drills to comprehensively enhance our ability to protect cyber security.

Raising awareness of cyber security

We organize various types of publicity campaigns on cybersecurity, create videos and courses, post daily reminders, and organize quizzes for all staff. These efforts have effectively enhanced employees' awareness of cybersecurity and their skills in protecting against cyber security risks, creating an atmosphere where "every employee is a security barrier".

Protecting data and personal privacy

We conduct inspections on sensitive data and data security risk assessments for outsourced third-party technical services; analyze overseas laws on personal privacy protection and implement relevant requirements; strengthen the review of data security and personal privacy protection plans for key projects to ensure that all activities involving data security and personal information comply with laws and regulations.

Certification

The information security system certification (GB/T22080-2016/ISO/IEC 27001:2013) has been obtained.

0

Serious cyber security incidents at Level III or above occurred.

0

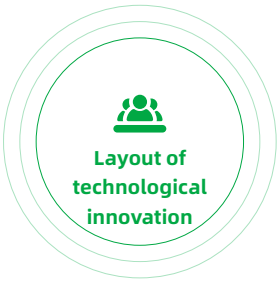
Large-scale computer virus infections

Nuclear Power Innovation

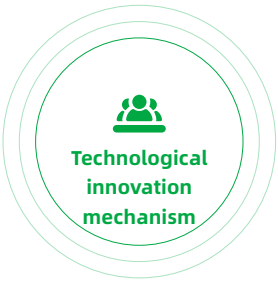
Technological innovation is the primary driving force behind high-quality development. Therefore, CGN Power adheres to the innovation-driven development strategy, and always places technological innovation at the core of our development. We keep improving our technological innovation system while pursuing breakthroughs in core technologies, so that we can register more advances in nuclear power technologies that promote our high-quality development.

Technological innovation system

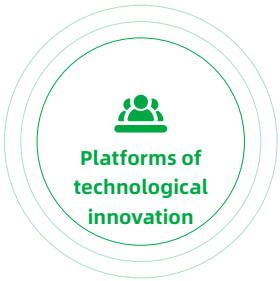
CGN Power has adhered to the path of "Introduction, Digestion, Assimilation and Innovation", deployed and implemented the key task of "achieving the complete self-reliance and control of core equipment in key fields of nuclear power", and continued to make technological improvements and independent innovation. We continuously improve our technological innovation mechanism. The technological innovation system has been continuously improved in terms of innovation layout, institutional mechanisms, platform construction, and IP protection etc. These efforts have allowed us to constantly consolidate the foundation of technological innovation.



In accordance with the "four-in-one" layout of scientific and technological innovation, we have developed and implemented four key tasks, including the implementation of specific strategies, the enhancement of technological independence, top plans, and digital transformation. Based on our independent third-generation nuclear power technology, we have continued to promote R&D and the comprehensive utilization of nuclear energy, and fully leverage nuclear energy in carbon emission reduction in fields like heating and gas supply. Meanwhile, we actively engage in national sci-tech strategies. For example, we have embarked on the construction of the China Southern Atomic Energy Science and Technology Innovation Center, and strive to become an important part of the world's atomic energy tech innovation and the international scientific and technological innovation center in the Guangdong-Hong Kong-Macao Greater Bay Area through constructing a batch of major nuclear energy infrastructure and demonstration projects.



To stimulate the vitality of innovation, we continue to improve the Company's technological innovation mechanism. During the Reporting Period, we optimized the top-level design of technological innovation system. The positioning and division of labor of major R&D organizations are clarified to focus on technological innovation, perform their due responsibilities and improve their core capabilities. We also optimized the system and mechanism according to the principles of "better managing" and "further empowering", reducing unnecessary management processes with no added value, and effectively improving the overall operating efficiency of scientific research activities.



We have established the R & D platform system at state, group and company levels. At present, we have seven state-level R & D centers and key laboratories, and have built multiple large-scale advanced laboratories in the industry, including thermal-hydraulic and safety research laboratories and material performance analysis laboratories. The independent R & D platforms provide technological support for the Company to introduce and absorb foreign technologies. They efficiently gather the innovation resources so that we can shorten the transformation cycle of technological achievements, improve the maturity, compatibility and engineering level of existing technologies and effectively promote the technological upgrading.

CGN Power's Seven State-level R&D Centers and Key Laboratories

5 state-level energy research and development centers

- tate Energy Nuclear-grade Equipment R&D Center
- State Energy Ocean Nuclear Power Platform Technology R&D Center
- State Energy Advanced Nuclear Fuel
- Elements R&D (Experiment) Center
- State Energy Nuclear Power Operation and Life-cycle Management Technology R&D Center
- State Energy Nuclear Power Engineering & Construction Technology R &D (Experiment) Center

1 state-level engineering and technology center

- State Nuclear Power Plant Safety and Reliability Engineering Technology

  Research Center

1 state key laboratory

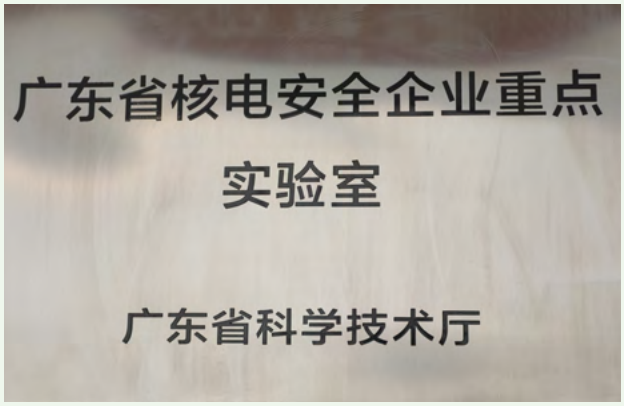
- State Key Laboratory of Nuclear Power Safety Monitoring Technology and Equipment

Building the China Southern Atomic Energy Science and Technology Innovation Center

In 2022, focusing on national strategic needs and facing the frontier of technological development, focusing on advanced nuclear energy technologies and innovations regarding the fourth-generation reactor type and advanced nuclear fuel, CGN Power established the China Southern Atomic Energy Science and Technology Innovation Center in the Guangdong-Hong Kong-Macao Greater Bay Area. We have established three R&D bases in Shenzhen, Yangjiang, and Zhongshan to fully leverage their advantages as the forefront of China's reform and opening-up. We have gathered scientific research resources from the Greater Bay Area and across the country, attracted top research personnel and technological talents, accelerated the technological development and innovation in key technologies and enhanced our technological strengths.

Case "Guangdong Province Key Laboratory for Nuclear Power Safety Enterprises" officially established

On June 1, 2022, CNPRI's first provincial key laboratory, the "Guangdong Province Key Laboratory for Nuclear Power Safety Enterprises", was officially established after passing the acceptance inspection and public disclosure by the Department of Science and Technology of Guangdong Province. The laboratory focuses on cutting-edge production forces, and is committed to achieving breakthroughs in core technologies in key fields. It will boost innovation in three key areas: key technologies for the third-generation NPPs' safety, key technologies for the safety of the fourth-generation nuclear power technologies, and theoretical research on nuclear reactor safety systems.

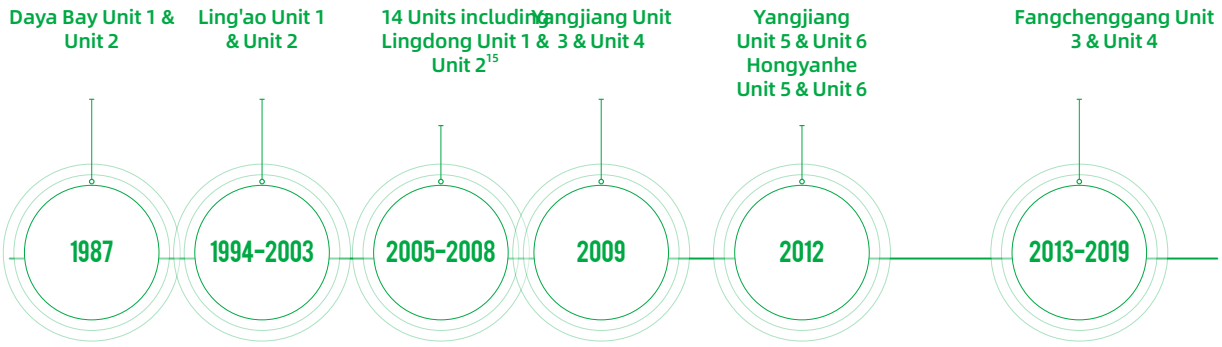


Suzhou Nuclear Power Research Institute (SNPI) has been awarded the **"Suzhou Digital Economy Demonstration Enterprise in 2022".**

R&D of nuclear power technology

Strong technical foundation and R&D capability is one of the core competitiveness of CGN Power. Since the adoption of M310 reactor technology at Daya Bay NPP in the 1980s, we have followed the technical guidelines of "Introduction, Digestion, Assimilation and Innovation", and promoted the R&D of nuclear power in line with the technological development roadmap "Leading Plan". We are committed to developing technological capabilities for the Company's future development and contributing to the high-quality development of nuclear power industry.

Based on the HPR 1000 technology demonstration project and on the premise of ensuring safety first, we continuously optimized our design and upgraded our technology to improve our nuclear power technology and equipment, and the economics of our projects. This has laid a technological foundation for the high-quality production of the HPR 1000 nuclear power project and the Company's nuclear power development.



M310 Reactor Technology	M310 Reactor Technology 37 major technological improvements	CPR1000 16 safety technology improvements	CPR1000 + 28 safety technology improvements	ACPR1000 31 safety technology improvements	HPR 1000
Introduction	**Digestion → Assimilation**	**Innovation**		**Innovation**	**Re-innovation**
Use internationally advanced PWR technology in the 1990s	Implement 37 major technical improvements based on Daya Bay NPP	**CPR1000、CPR1000+** Implement 16 and 28 safety technology upgrades respectively and achieve "self-design, self-manufacturing, self-construction and self-operation". Major improvements include: ○ 60-year design lifecycle for reactor pressure vessel and containment ○ 18-month refueling intervals ○ Main control room habitability improvement ○ Use LBB technology etc.		**ACPR1000** ○ Core Damage Frequency (CDF) less than 1X10-5 / (Reactor year) ○ Fulfill safety requirements for newly built NPP under the "12th Five-Year Plan (Fulfill 14 improvement requirements of national regulatory authorities after the Fukushima accident)	**HPR 1000** ○ Single-reactor layout, double-layered containment ○ Three safety loops ○ CDF less than 1X10-6 /(Reactor year) ○ Large Early Release Frequency (LERF) less than 1X10-7 / (Reactor year) ○ Core thermal safety margin larger than 15% ○ Design basis seismic rating raised to 0.3g ○ Proprietary nuclear-class digital control product system platform, FirmSys

[15] Including Lingdong Unit 1 & Unit 2, Hongyanhe Unit 1-4, Ningde Unit 1-4, Yangjiang Unit 1 & Unit 2, Fangchenggang Unit 1 & Unit 2.

Collaborative innovation

CGN Power actively deepens scientific research cooperation, and has established long-term partnerships with domestic and foreign R&D institutions, industry organizations, and universities. We are committed to working together with all parties to promote innovation and crack the hard nut in the industry.

CGN Power maintains good cooperative relationships with various institutions, including the Chinese Academy of Sciences, China Academy of Engineering Physics, National Natural Science Foundation of China, Tsinghua University, Harbin Institute of Technology, and Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA), and has built closer ties with them through various channels.

Since 2020, the Company has been releasing research needs to scientific research institutions across China through the Enterprise Innovation and Development Joint Fund of the National Natural Science Foundation of China. Currently, more than 20 top domestic teams are working on our primary research issues.

The Company has collaborated with Harbin Institute of Technology to promote technological research and talent training while allowing researchers greater autonomy in selecting research topics.

The Company has also been collaborating with the University of Science and Technology Beijing to create an integrated "R&D-transformation-engineering application" platform on energy equipment materials and service safety.

Intellectual property protection

CGN Power attaches great weight to intellectual property protection, and strictly complies with Chinese laws and regulations such as the *Patent Law, Trademark Law*, and *Copyright Law*. The Company has formulated regulations on proprietary technology management, and upgraded the intellectual property management system to standardize the activities of creating, using, protecting, and managing IP rights. We have combined the protection of patents and proprietary technologies, and actively carried out registration and identification of proprietary technologies through major scientific research projects and R&D platforms. We have strengthened the organization of our achievements in technological innovation, and reserved high-value patents and high-quality copyrights in key technology fields. In addition, we have built a patent pool to facilitate IP rights use. Intellectual property publicity and training has also been enhanced to improve employees' awareness of IP protection and safeguard the legitimate rights and interests of the Company to the greatest extent.

Case **DNMC wins the 23rd China Patent Silver Award**

To increase the storage of spent fuel at nuclear power plants in operation, DNMC developed the technique to replace racks with fuel underwater in the full-capacity spent fuel pool grid, and expanded the spent fuel pool at the Daya Bay Nuclear Power Plant. In July 2022, DNMC won the 23rd China Patent Silver Award. By end of 2022, DNMC's total number of valid patents was leading among other domestic nuclear power operators.

Case **First study on RCP's mechanical seal reliability in China's nuclear power industry**

The reactor coolant pump (**RCP**), commonly known as the nuclear primary pump, is one of the most important equipment in a nuclear power plant. CGN Power has established a comprehensive test bench for the Type 100 RCP mechanical seal, and developed a finite element analysis model for the mechanical seal based on its own structure and sealing principle. The Company has also developed simulation software and conducted simulation studies under various special operating conditions, providing a reference for the reliable and stable operation of the Type 100 pump. This research project is the first of its kind in China, and its results have been applied to the analysis and evaluation of on-site issues at multiple NPPs. It has helped the Company achieve the first re-evaluation of the refurbishment of the pump's mechanical seal using China-made equipment, providing technical support for RCP's safe and reliable operation while ensuring NPPs' safe and reliable operation.

CNPRI and DNMC both won the **23rd China Patent Silver Award** issued by the China National Intellectual Property Administration (CNIPA) with their respective invention patent.

CGN Engineering and CGN Operations won the **23rd China Patent Excellence Award** issued by the CNPIA with three and two invention patents respectively, and CGN Inspection Technology Co., Ltd. (CITEC) won the same award with one invention patent.

Digital transformation

Driven by the new round of technological revolution and industrial transformation, digital transformation has become an inherent requirement driving the high-quality corporate development. Therefore, CGN Power has formulated strategies targeting digital economy, data governance, and digital transformation of the nuclear power industry, and steadily implemented various tasks to stimulate new momentum for digital transformation.

Launching the business process re-engineering (BPR) project.

The Company officially launched the BPR project on July 27, 2022, with the aim of making management data thoroughly transparent. The project enables us to organically integrate functional transformation, process transformation, and process re-engineering, and optimize existing processes through digital means. The main parts of the project were completed by the end of 2022.

Transforming the nuclear power industry with digital technologies

After conducting extensive training and research, we have developed preliminary implementation plans for the digital transformation of the nuclear power industry, as well as data governance plans, offering top-level guidance for the digital transformation of the nuclear energy industry. In 2022, 59 mid-level and senior managers were interviewed, and 1,049 trainees participated. Each nuclear power base actively analyzed their digital scenarios, and a total of 61 effective demonstration scenarios were developed.

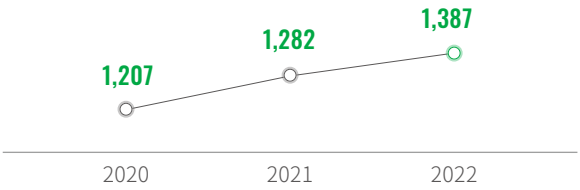
Achieving a series of results in digital construction

We have achieved multiple results in digital construction by centering on the pain points in our business operations. In 2022, a number of achievements were applied, including the Technical Support Center for Outage Management at CGN Operations, CGN Engineering's intelligent construction site standardized demonstration products, Yangjiang Nuclear's Production Command Center, and Ningde Nuclear's intelligent inspection.

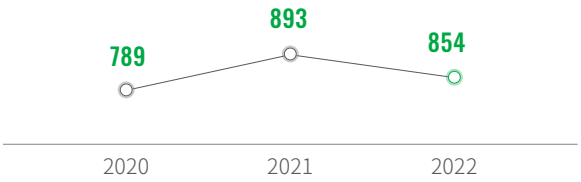
Scientific and technological advances

With independently developed research platforms, CGN Power has always maintained our innovation vitality with increasing sci-tech advances.

Patents Applied



Patents Approved



CGN Power won **1 gold award, 1 bronze award, and 4 merit awards at the innovation competition finals of the 17th "Zhenxing Cup" National Youth Vocational Skills Competition (employee group).**

Two projects led by CNPRI won **the first prize and the second prize for technological progress of the 2021 Guangdong Province Science and Technology Award.**

A project led by SNPRI won **the first prize of the 2022 Science and Technology Award by China Industry Anticorrosion Technology Association.**

A project led by CNPRI won **the first prize in the 5th "Bloom Cup" 5G Application Competition (Guangdong competition zone).**

Developing key technologies

Smart construction site

Based on big data platforms, the "Smart Construction Site" system developed by CGN Engineering achieve one-stop management and all-round monitoring, realizing the integration of "Internet plus construction site". Through the system, we can comprehensively monitor and manage all the key elements in project construction, such as "personnel, machines, materials, methods, and environment", in real-time and intelligently. The system has been applied to multiple nuclear power projects, improving the work efficiency and quality of front-line construction personnel, and reducing their workload. Thanks to the system, we have promoted high-quality project construction through improved intelligent management.

Case **Human-computer interaction through AR helmets**

Operations and maintenance (O&M) is crucial to the safe and stable operation of nuclear power plants. The staff need to strictly execute instructions on the work order, and promptly record the execution results. However, frequent switching between processes, equipment, and tools always imposes significant burdens on them. To solve this problem, Ningde Nuclear has introduced the AR smart helmets. Through the diffractive waveguide technology, the helmet displays information, such as videos, 3D models, and images, to O&M personnel in real-time. The equipment also allows wearers to interact with the system through voice commands. AR helmets has significantly improved work efficiency, reduced labor costs by 50%, reduced overall on-site work duration by 35%, and increased comprehensive efficiency by 23%.

Robots for nuclear power plants

As the number of nuclear power units in operation is increasing and the public is paying more attention to nuclear safety, applying advanced robotics to special tasks such as daily maintenance and accident handling at nuclear power plants has become an important trend. Focusing on the needs of equipment inspection, maintenance, and fault handling, as of the end of 2022, CGN Power has developed over 50 robot products, applying intelligent technology to nuclear power projects as well as O&M management. These robots cover multiple areas such as nuclear power daily Q&M, emergency response and nuclear facility decommissioning, and offer intelligent solutions to ensure the safe and stable operation of nuclear power units. Several robot products have been successfully applied at nuclear power bases such as Daya Bay, Yangjiang, and Fangchenggang.

Case **Avoiding generator rotor removal with the new "Wukong 3.0" robot**

To avoid removing the generator rotor during outages, Mr. Wang Jiantao's team from CGN Operations came up with the idea of developing an "inspection robot that can enter the inside of the generator" in 2016. The R&D project was officially implemented in 2018, and the robot developed was named "Wukong". In May 2022, the team launched the upgraded "Wukong 3.0" robot on version 1.0. The new robot is lighter and smaller in size, and can slowly enter the inside of the generator along the circular air gap of the stator. It can detect the internal condition of the generator in circles according to instructions, and then transmit images and data in real-time through sensors, which has greatly improved the safety and efficiency of equipment examination.

Case **Specialized robot completes demonstration application for the Yellow River Crossing Project tunnel of the Eastern Line of South-North Water Transfer Project**

In November 2022, the "Development and Demonstration Application of Underwater Detection Robot System for Large-Diameter Long-Distance Water Diversion Tunnel" project, a key national "Intelligent Robot" R&D program led by CNPRI, successfully completed the robustness testing of the Yellow River Crossing Project tunnel of the Eastern Line of South-North Water Transfer Project, with all performance indicators meeting the requirements of project inspection. With an immersive virtual drill platform, the remotely controlled robot accurately reached the detection location after passing through ultra-low visibility water areas and heavily silted areas, and then performed online detection without stopping water supply. The project successfully filled the blank of large-diameter, long-distance tunnel detection in China.

Low-carbon Development

Opportunities and Challenges

As China pursues its 30·60 Decarbonization Goal, nuclear power is a form of clean energy that operates reliably on a long refueling cycle, can replace traditional fossil fuel as a baseload power source on a large scale. Together with other clean energy such as wind, solar, and hydropower, nuclear power can contribute to a clean, low-carbon, safe, and efficient energy system. In China, better growth and a stronger market are expected for nuclear power and the comprehensive utilization of nuclear energy.

Our Strategies

Answering the call to realize the national 30·60 Decarbonization Goal, CGN Power promotes the development of nuclear power and the comprehensive utilization of nuclear energy. Efforts are made to strengthen environmental management, improve the efficiency of nuclear fuel and water resources, develop green nuclear power ecology, and carry out environmental protection public welfare activities. These actions show our contributions to the new development philosophy and the preservation of lucid waters and lush mountains.

Our Performance

about 59.81 million tons

Standard coal consumption reduced by on-grid nuclear power generation

164.2543 million tons

Carbon dioxide reduced by on-grid nuclear power generation

0

Major environmental pollution and ecological damage accident(s)

Response to Climate Change

Climate change has become a common challenge for all mankind, making climate change mitigation and adaptation an urgent priority. The State Council's Report on the Work of the Government delivered on March 5, 2022 mentioned that the government will "take well-ordered steps to achieve peak carbon emissions and carbon neutrality", "put into effect the action plan for peaking carbon emissions", "ensure energy supply", and "push forward the transformation toward low-carbon development". In June 2022, seven authorities including the Ministry of Ecology and Environment and the National Development and Reform Commission jointly issued the Implementation Plan for Pollution and Carbon Reduction for Synergistic Effects. It makes the overall deployment and proposes to "coordinate energy security and green and low-carbon development, promote a clean and low-carbon energy supply system and electrification of final energy consumption." On January 13, 2023, the State Council Information Office held a press conference on "maintaining energy supply for heating in winter", and the National Energy Administration noted that several nuclear heating projects, including the Hongyanhe Nuclear, were put into operation for heating, benefiting all parties. Further development of nuclear heating is supported and will be promoted as safety is guaranteed.

CGN Power, a specialist in clean energy, gives full play to our industrial strength for high-quality nuclear power development and comprehensive nuclear energy utilization and provides safe, efficient, and clean energy for economic and social development. We will reduce carbon emissions in construction and operation, making our contributions to China's 30·60 Decarbonization Goal.

Climate change governance

To enhance our response to climate change, CGN Power has identified climate change risks, improved climate risk prevention strategies, and supported climate actions in accordance with the recommendations on climate-related financial disclosures issued by the Task Force on Climate-related Financial Disclosures (**TCFD**).

Climate risk governance

As an important issue, climate change has been incorporated into the discussions, reviews, and supervision of the Board. Within the Reporting Period, the Audit and Risk Management Committee of the Board reviewed the comprehensive risk management report including climate-related risks. When reviewing relevant proposals, members of Nuclear Safety Committee of the Board recommended that the Company should continue to improve its climate-related risk prevention mechanisms and capabilities. In addition to reports of the Audit and Risk Management Committee and the Nuclear Safety Committee of the Board, the Board also reviewed the regular safety management report (including climate and environment-related management) by senior managers and raised management requirements. The Board and the Audit and Risk Management Committee of the Board were also briefed on the latest regulatory trends on climate and ESG issues at home and abroad.

Strategies

Actual risks, mainly include acute (such as typhoons, torrential rain, and snowstorm) and chronic risks induced by climate change, may affect the operational continuity of some NPPs. Therefore, we have developed operational emergency plans and conducted regular drills. Safety assessments are held every ten years in accordance with China's nuclear safety regulatory requirements and all nuclear safety-related design parameters are reviewed to prevent and tackle climate risks posed by extreme weather and emergencies.

Transitional risks are brought by market and policy changes in the transition to a low-carbon economy. The 30·60 Decarbonization Goal in China ushers in a period of rapid development for clean energy but also fierce competition. In response to that, we develop nuclear power in a proactive, safe, and orderly manner, coordinate with power plants in the same region, and delegate responsibilities hierarchically to secure scheduled power generation assigned by the government. In addition to the main business of nuclear power generation, we study the comprehensive utilization of nuclear energy, diversify nuclear energy products, and create a nuclear-centered comprehensive utilization mode supplemented by multiple energy sources to support the development of the nuclear power business and address the economic impact on nuclear power projects brought by the market-oriented electricity industry reform.

Reputational risks concern whether we can contribute to the 30·60 Decarbonization Goal. We adhered to high-quality nuclear power development and comprehensive nuclear energy utilization, strengthened energy management and reduced operational energy consumption to make greater contributions to carbon peaking and carbon neutrality.

Climate change, despite its potential risks, brings important development opportunities for CGN Power. We believe that in the context of accelerated global energy transitions, the nuclear energy industry embraces important strategic opportunities now and this will continue in the long run.

Risk management

We incorporate climate-related risks, such as high temperatures, freezing cold, and extreme weather, into our overall risk management, and the Audit and Risk Management Committee of the Board regularly monitors and evaluates these risks and issues and promptly reports to the Board.

Goals

We will pursue high-quality nuclear energy business, maintain a safe and stable energy supply, build more efficient and advanced nuclear energy projects, and continue to invest funds, human resources, and equipment. Nuclear safety management will be enhanced and new nuclear energy technology will be developed to help China achieve carbon peak and carbon neutrality.

Climate actions

There is a critical period from now until 2030 for China to peak its carbon emissions. Based on how the clean energy industry stands now, CGN Power has formulated our goal of carbon peak and carbon neutrality and clarified a pathway and strategy to help China achieve the goal and contribute to transitions to low-carbon energy at home and abroad.

CGN Power's pathway and strategy of carbon peak and neutrality

Steadily increasing nuclear power installed capacity, improving the quality and efficiency of unit equipment, and upgrading nuclear energy technology to achieve carbon peak and carbon neutrality in China.

- Developing nuclear power projects in a safe and orderly manner, accelerating the approval process of projects and expanding the pool of potential nuclear power plant sites to steadily increase the installed capacity of nuclear energy.
- Giving full play to the advantages of nuclear power as a clean and low-carbon energy and exploring more possibilities in its comprehensive utilization.
- Steadily upgrading the overall power generation capacity of nuclear power projects, improving refueling outage management to an industry leading level, and strengthening the management of major equipment to enhance reliability.
- Following the latest nuclear energy technology trend in the world, actively implementing the national strategic requirements, and accelerating the R&D and pilot application of nuclear energy technology.

Clean energy

By the end of 2022, the installed capacity of our

26 sets of nuclear

units in operation had reached

29,380 MW

Guided by the requirements of developing nuclear power in a proactive, safe, and orderly manner, we seize new opportunities for clean energy development, promote nuclear power projects, and maintain nuclear power safe operations. Tapping into our technical and operational expertise, we promote the high-quality development of nuclear power and reduce carbon emissions from the source to help tackle climate change.

In addition to power generation, we actively explore and promote the comprehensive utilization of nuclear energy. For example, at the Hongyanhe Nuclear Power Base, we have developed the know-how of nuclear heating for future applications. Moreover, we are seeking opportunities for pumped storage hydropower (PSH) projects where our NPPs are located. As of the end of the Reporting Period, we have secured a controlling interest in the development of two PSH projects in Guangdong Province and purchased shares of an approved PSH station project, the main structure of which began to be built on December 23, 2022. Meanwhile, we also join hands with other enterprises to build a large-scale "nuclear + electrochemical energy storage" demonstration project in Guangdong Province. Supporting pumped storage hydropower and electrochemical energy storage projects can improve the operational stability of nuclear power units, reduce nuclear safety risks, and stabilize nuclear power trading prices.

Low-carbon operations

On top of our efforts to develop industrial strength and clean energy, energy conservation and emission reduction are taken into account. We continue to strengthen energy management and energy efficiency while reducing energy consumption and carbon emissions in our operations through energy conservation upgrades and other measures.

Carry out energy management system certification. Our five nuclear power bases including Daya Bay, Yangjiang, Taishan, Fangchenggang, and Hongyanhe have obtained the certification for the energy management system of input, storage, conversion, distribution, use, and recycling processes involved in production activities. In addition, NPPs analyze current energy management and carry out electric power quality tests. They have built energy management systems in accordance with the ISO50001:2018 standards, formulated energy policies and objectives, organized training and promotion campaigns, and developed energy management manuals, procedure documents, energy review reports, compliance evaluation reports, internal audit reports, and management review reports. Five nuclear power bases have become the first nuclear power enterprises in China to put in place certified energy management systems. In 2022, we promoted the establishment and certification of energy management systems in four specialized subsidiaries, and defined in a detailed manner the responsibilities for energy conservation and carbon reduction of major energy-consuming units to improve their compliance management in this aspect. We plan to make all our subsidiaries pass the energy management system certification during the "14th Five-Year Plan" period.

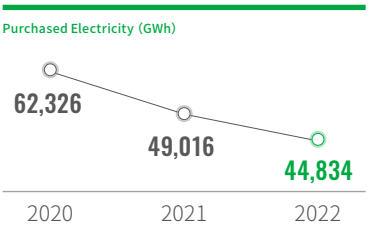
Promote energy conservation and carbon reduction. Each NPP has set up an energy-saving management team that coordinates energy conservation of various departments and continuously optimizes the operation mode. Multiple measures have been taken, including upgrading technologies, strengthening electricity management, promoting energy-saving concepts to reduce energy use and carbon emissions while improving device efficiency. In 2022, our efforts on energy conservation and carbon reduction focused on two aspects: the first is the renovation to improve the equipment efficiency of production, operation and maintenance in an orderly manner, and the second is the energy-saving renovation to promote the use of green and clean energy i in office and living areas of nuclear power bases. We planned to complete the feasibility study and demonstration of the technologies on energy conservation in the nuclear power plant, for example, the operation mode of the main pump of the reactor coolant system, during the "14th Five-Year Plan" period. Besides, we will follow the policy of "one policy for one plant " when formulating energy-saving renovation plans to further energy conservation and carbon reduction.

Electricity Consumption Management in the Operation and Engineering Construction of NPPs

- Optimizing operation mode and energy efficiency for safety and environmental concerns; improving or replacing high energy consumption equipment if possible
- Closely tracking units' output changes, timely tracking system anomalies and carrying out analysis and evaluation
- Optimizing operation mode of production equipment to reduce power consumption scientifically and reasonably
- Carrying out energy-saving renovation of production equipment

Electricity Consumption Management in Office and Living Areas

- Regulating the power consumption of employees in office and living areas and promoting their energy-saving awareness
- Carrying out energy saving publicity to raise employees' awareness of conserving electricity, and maintaining good living and office habits
- Setting electricity consumption quota and recording electricity consumption
- Controlling the use of air conditioners and water heaters
- Adjusting elevator operating schedule.
- Replace energy-saving equipment, such as energy-efficient air conditioners and LED lights
- Shutting off unnecessary lights and power; turning office equipment such as computers, printers, etc. into sleep mode when unused
- Advocating video conferences
- Advocating electric vehicles as the shuttle bus for employees



0.1419 tons of standard coal

Comprehensive energy consumption per 10,000 yuan of output value in 2022[16]

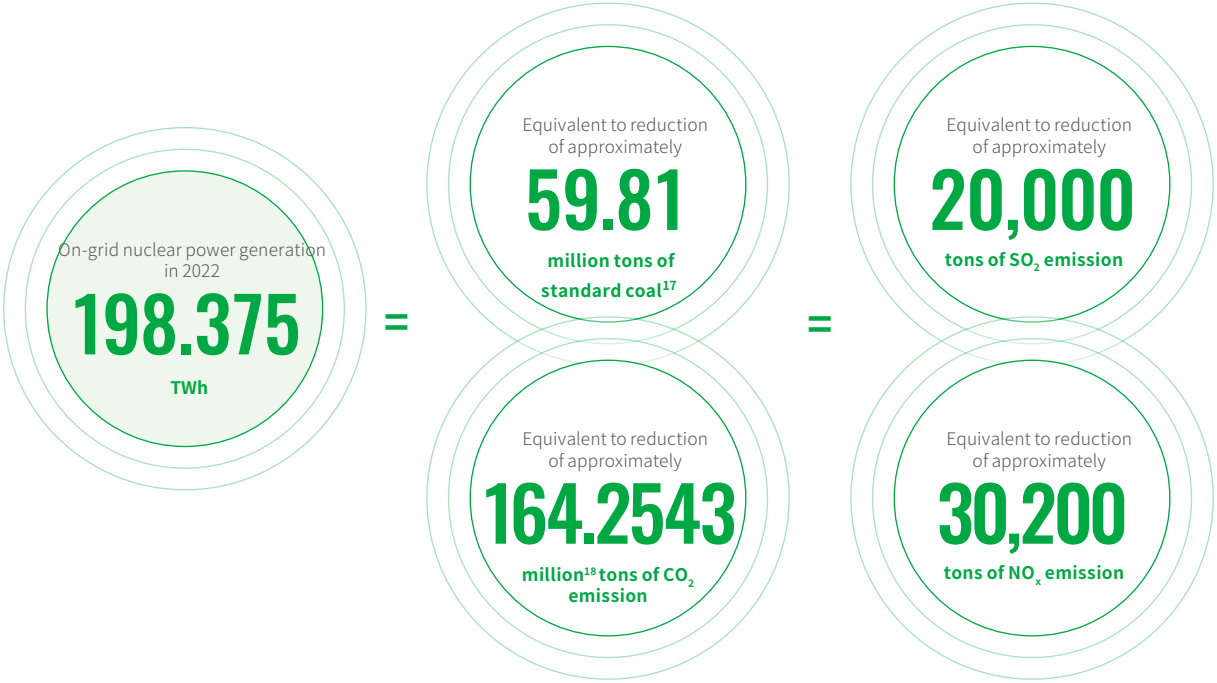
Certification

The five nuclear power subsidiaries under CGN Power have become the first batch of enterprises in this industry to establish and pass the energy management system certification.

[16] Annualcomprehensiveenergyconsumptionper10,000yuanofoutputvalue=Annual comprehensiveenergyconsumption/annualrevenue

Climate action results

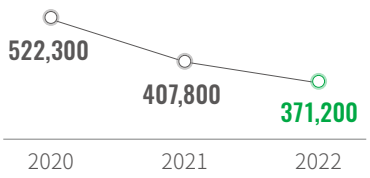
Carbon reduction across society



Carbon reduction

Since nuclear power is clean, its generation does not discharge greenhouse gases, so we do not count Scope 1 - direct greenhouse gas emissions. Scope 2 emissions, or indirect greenhouse gases, mainly come from purchased electricity for project construction, refueling outages, and offices, and living areas. Scope 3 emissions are not considered.

Scope 2 emissions (ton)[19]



[17] According to the *2022 National Electric Power Industry Statistics Express* released by released by the China Electricity Council in January 2023, China's coal consumption for power supply was 301.5 g of standard coal per kilowatt-hour.

[18] According to the *China Power Industry Annual Development Report 2022* released by the China Electricity Council on July 7, 2022, nuclear power is calculated according to net zero carbon emissions, so 100 GWh on-grid electricity generated by nuclear power is equivalent to reducing CO_2 emissions of coal power by about 82,800 tons, reducing SO_2 emissions by 10.1 tons, and reducing NO_x emissions by 15.2 tons.

[19] Scope 2- Indirect greenhouse gas emissions mainly come from the engineering construction, refueling outage, and electricity consumption in office and living areas of CGN Power's nuclear power plants.

Environmental Management

CGN Power strictly abides by Chinese environmental laws such as the *Environmental Protection Law*, the *Law on Prevention and Control of Radioactive Contamination*, the *Atmospheric Pollution Prevention and Control Law, the Nuclear Safety Law*, as well as local regulations, upholds the concept of green development, and continuously improves the internal environmental management system. We ensure that environmental management goes hand in hand with production management, strictly control environmental compliance risks, and stick to the ecological bottom line , continuously improve the capability of our environmental governance and protection. During the Reporting Period, the Company did not have any major environmental pollution and ecological damage incidents or get fined for environmental pollution.

Environmental protection concepts

In accordance with national laws and local regulations, CGN Power adopts environmental management policies of "protecting the environment with prevention prioritized, reducing energy use and emissions in a technology-driven manner, reducing emissions with all members engaged, achieving harmonious development that benefits mankind". Following the basic principle of "combining prevention and control with prevention prioritized", we address prevention from the source, deliver environmental protection throughout planning, construction, and production, and pursue environmental management goals of efficient resource utilization, less pollution and radioactive waste. By doing so, we aim to make ourselves an exemplary eco-friendly nuclear power company that is committed to the harmonious coexistence between human beings and nature and a better world for future generations.

Environmental management system

In strict accordance with ISO14001 standards and national laws and regulations, CGN Power improves the environmental management system with better policies, integrates environmental management into production management, and ensures that safety, business, and environmental goals can all be achieved.

Network of environmental management

NPPs and major associated companies under CGN Power have established a network with designated departments and full-time personnel for environmental management, improved environmental management systems with relevant manuals formulated, and coordinated environmental management among different units. NPPs regularly organize joint meetings to report the project progress, and analyze the environmental protection laws and regulations, important factors, and management measures are analyzed. Such meetings coordinate the efforts of NPPs in environmental management and elevate it to a higher level.

Identification and control of environmental factors

Given changes in national laws and regional regulations, CGN Power regularly identifies and controls environmental factors at each NPP every year. Based on its business and the scope of influence of activities, each power plant department determines its identification and evaluation unit of environmental factors, including four units such as personnel, equipment, and workplace and activities. For each unit, environmental factors from eight dimensions such as atmosphere, water, raw materials, natural resources, and land (see the table below) are identified and evaluated. Each power plant department then assesses the impact of identified environmental factors and determines their risk levels, screens out important link factors, and produces a list of environmental factors with targeted control measures.

Identification and Evaluation Process of Environmental Factors

Determine the identification and evaluation unit of environmental factors in departments	Identify environmental factors of each unit
Personnel (all personnel entering the workplace, including employees, contractors and visitors)	Discharge to the atmosphere
	Discharge to water
Equipment (including all construction equipment, facilities and related equipment)	Use of raw materials and natural resources
	Discharge to land
Work activities (including normal operation activities and temporary tasks)	Energy use
	Energy release
All workplaces and environment (including office space and project construction site)	Generation of waste or by-products
	Use of space

Environmental emergencies

Responding to environmental incidents is also a priority in environmental protection. Each NPP of CGN Power has set up systems and procedures for environmental management and compiled the Emergency Response Plan for Environmental Emergencies, filed them with local governments, and conducted regular drills to improve environmental emergency response. In 2022, we conducted environmental emergency drills in hazardous chemical transportation and leakage, irregular sewage discharge from stations, and oil spills at harbors.

Environmental inspection and supervision

Certification

All NPPs of CGN Power have obtained the ISO 14001 environmental management system certification.

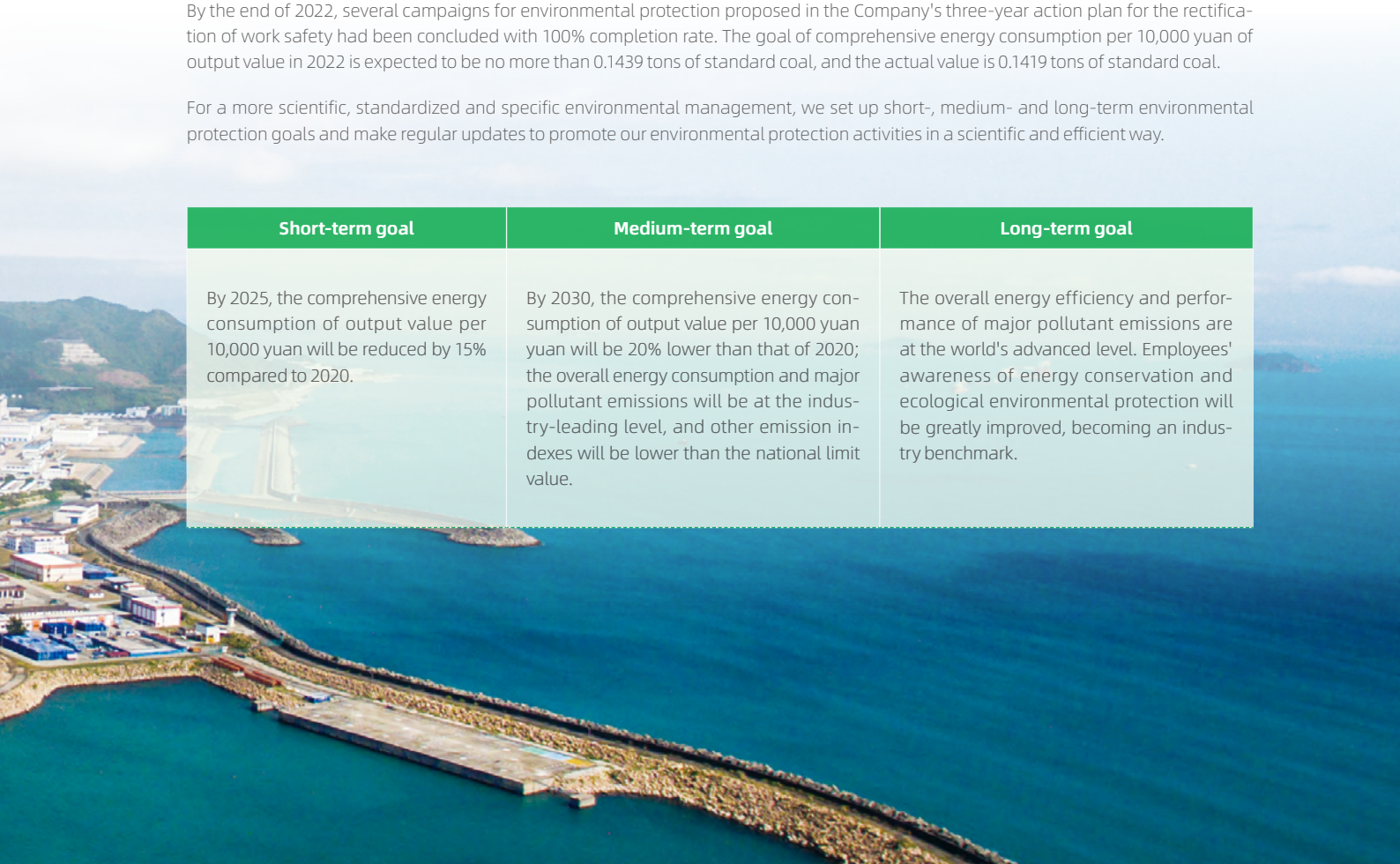
In 2022, CGN Power carried out environmental protection inspections of its subsidiaries on schedule and continuously strengthened its reporting of environment-related information as well as its supervision. For example, the chairman and senior management of the Company continued to take lead in safety inspections at NPPs. Their focus was on the following four aspects: the implementation of environmental management and laws and regulations related to environmental protection; the management and operation of major environmental facilities; the implementation of "three Simultaneities (Facilities for the prevention of pollution in a construction project shall be designed, constructed and put into operation at the same time with the main part of the project)" and risk and hidden danger detection; the progress and effectiveness of relevant rectification actions.

Environmental management goals

By the end of 2022, several campaigns for environmental protection proposed in the Company's three-year action plan for the rectification of work safety had been concluded with 100% completion rate. The goal of comprehensive energy consumption per 10,000 yuan of output value in 2022 is expected to be no more than 0.1439 tons of standard coal, and the actual value is 0.1419 tons of standard coal.

For a more scientific, standardized and specific environmental management, we set up short-, medium- and long-term environmental protection goals and make regular updates to promote our environmental protection activities in a scientific and efficient way.

Short-term goal	Medium-term goal	Long-term goal
By 2025, the comprehensive energy consumption of output value per 10,000 yuan will be reduced by 15% compared to 2020.	By 2030, the comprehensive energy consumption of output value per 10,000 yuan yuan will be 20% lower than that of 2020; the overall energy consumption and major pollutant emissions will be at the industry-leading level, and other emission indexes will be lower than the national limit value.	The overall energy efficiency and performance of major pollutant emissions are at the world's advanced level. Employees' awareness of energy conservation and ecological environmental protection will be greatly improved, becoming an industry benchmark.



Waste Discharge Reduction

In strict accordance with national laws and regulations, CGN Power has established a complete set of mechanism to ensure that the radioactive waste produced in operation is properly and safely handled. At the same time, the Company disposes of non-radioactive waste and sewage generated in operation as required by laws to minimize the impact of NPP operation on the surrounding environment.

Radioactive waste management

We strictly comply with the requirements of laws, regulations and industry standards such as the *Law of Prevention and Control of Radioactive Contamination, Nuclear Safety Law, Regulations for Safe Radioactive Waste Management, Regulations for Environmental Radiation Protection of Nuclear Power Plant* (GB 6249-2011), *and Technical Requirements for Discharge of Radioactive Liquid Effluent from Nuclear Power Plant* (GB 14587-2011) to control the discharge and disposal of radioactive wastes.

Radioactive waste management methods

The operation and production activities of NPPs will produce solid, liquid and gaseous wastes ("three wastes"). Following the basic principles of radioactive substances management - ALARA (As Low As Reasonably Achievable), we have established a waste management organization structure, and formed a complete set of radioactive waste control and treatment mechanisms throughout the plants' production and operation

We minimize the production of radioactive waste. While meeting national laws and regulations, we also actively benchmark ourselves against the annual output of radioactive solid waste in the world's major nuclear power countries. We have set clear long-term goals of waste reduction, formulate overall management strategy at NPPs, and reduce radioactive waste through source control and the application of volume reduction technology. In doing so, we continue improving our treatment capacity of "three wastes" and realize a far lower discharge than the national allowable emission limits.In 2022, the Company signed a contract with qualified enterprises to ensure the unblocked disposal channel of combustible waste from the plants for outward transportation, incineration, and reduced volume. 1,609 m^3 of combustible waste were completed throughout the year.

Each power plant is equipped with advanced facilities for treatment of radioactive waste. The chart above outlines the treatment of each radioactive waste. According to relevant national regulations, spent fuel (used fuel assembly taken from reactors) is a highly radioactive waste, which cannot be disposed of by the NPP itself, and must be sent to a designated special disposal plant for further treatment. After treatment, 97% of the spent fuel can be reused. The "three wastes" management system of each plant has been designed, constructed and put into operation simultaneously with the main body construction. The whole process of storage, transportation and disposal of radioactive waste strictly follows the relevant provisions of national laws and regulations.

Typical measures for source control by nuclear power bases

DNMC

- A clean metal decontrol process is created to deal with 18.5 tons of metal and 6,200 ventilation cartridges in the control area. It also entrusts external qualified enterprises for smelting to recycle the scrap metal and reduce radioactive waste by about 27.9 tons.

Ningde Nuclear

- Radioactive waste management provisions are incorporated into the NPP's service contracts to clarify service contractors' responsibility and requirements on waste minimization.
- It develops an entry-exit inspection system at the control area and a reward and punishment mechanism for waste generation and implements measures such as waste weighing management and the promotion of reusable rubber mats instead of white plastic sheeting at outage sites.

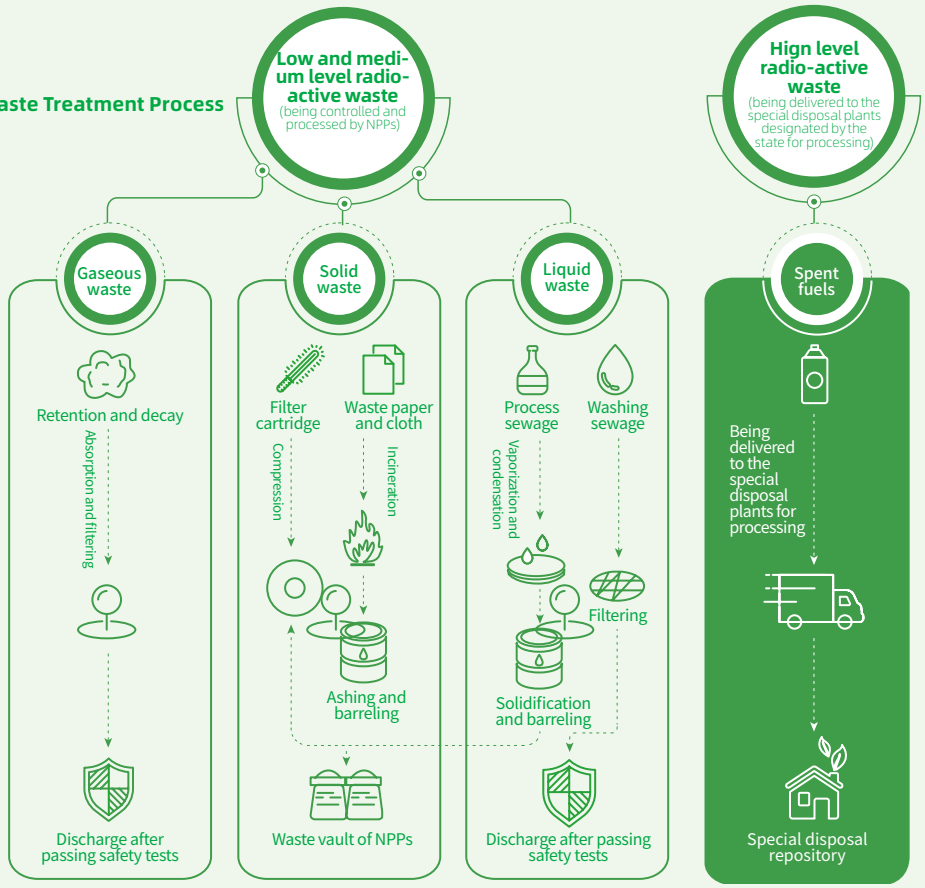
Yangjiang Nuclear

- It develops radioactive decontamination wipes, resin (activated carbon) loading equipment and automatic radioactive wet waste disposal devices for nuclear power plants to improve the decontamination efficiency of radioactive contaminants.

Fangchenggang Nuclear

- The advanced decontamination technology is used to decontaminate 330 pieces of stained utensils to achieve recycling and reduce solid waste production.

Radioactive Waste Treatment Process



Radioactive waste management results

During the Reporting Period, all NPPs strictly carried out discharge management of radioactive effluent in accordance with national laws, regulations and standards. The "three wastes" management system operated normally, and the total amount of radioactive effluent from NPPs was far below the applicable state annual limits.

	Year	Ratio of liquid effluent (nuclides but tritium and carbon-14) to state annual limit	Ratio of gaseous effluent (inert gases) to state annual limit	Generation of radioactive solid waste (m^3)	Environmental monitoring results
Daya Bay Nuclear Power Base (including Daya Bay NPP, Ling'ao NPP and Lingdong NPP)	2020	0.24%	0.42%	230.3	Normal
	2021	0.24%	0.46%	166.7	Normal
	2022	0.22%	0.46%	186.1	Normal
Yangjiang NPP	2020	0.41%	0.21%	102.4	Normal
	2021	0.39%	0.19%	88.6	Normal
	2022	0.40%	0.19%	97.8	Normal
Fangchenggang NPP	2020	0.30%	0.30%	74.0	Normal
	2021	0.20%	0.29%	72.2	Normal
	2022	0.32%	0.41%	64.5	Normal
Ningde NPP	2020	0.37%	0.30%	110.4	Normal
	2021	0.40%	0.27%	63.6	Normal
	2022	0.31%	0.29%	70.0	Normal
Hongyanhe NPP	2020	0.15%	0.14%	120.0	Normal
	2021	0.26%	1.87%	92.4	Normal
	2022	0.40%	2.89%	110.0	Normal
Taishan NPP [20]	2020	4.85%	2.19%	0	Normal
	2021	6.24%	8.67%	0	Normal
	2022	2.72%	2.50%	0	Normal

[20] Taishan NPP's annual emissions limit is different from other plants, and there is no comparison between NPPs.

Radioactive waste targets

To reduce the generation of radioactive solid waste, CGN Power not only follows domestic laws but also tries to measure up to the standard amount of radioactive solid waste generated in other major nuclear energy countries. We also set long-term waste reduction goals and clarify the pathway to achieve them.

The medium and long-term target during the14th Five-Year Plan period

To further decrease the radioactive solid waste from plants and make the average annual radioactive waste production per unit reach the world-class standard.

Approaches

We analyze the generation of radioactive solid waste in plants from the perspective of life cycle and clarify the capacity reduction process for different categories of radioactive solid waste. We also integrate the studies on the external incineration of radioactive solid waste, the digital transformation of management process, the upgrading of concentrate waste disposal process, and the compaction of waste cartridge with high dose rate into the annual work plan before their implementation.

Non-radioactive waste management

For compliant disposal of non-radioactive waste, including non-radioactive hazardous waste, we strictly comply with the *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution* by Solid Waste, *Pollution Control Standard for Storage and Landfill of General Industrial Solid Waste* (GB 18599-2020), *Pollution Control Standard for Hazardous Waste Storage (GB 18597-2001)* and *Regulations on Safety Management of Hazardous Chemicals*. Non-radioactive waste mainly comes from engineering construction and daily production, such as construction waste, office waste, domestic waste and greenery waste. Since the total amount of such waste has little impact on our business operations, we have not collected relevant data.

Industrial solid waste management

Our industrial solid waste mainly comes from construction materials, iron and steel, glass, plastics, wastepaper, wood, and consumables.

All NPPs formulate the Regulations on Industrial Solid Waste Management to reduce waste from the source, and supervise and manage the entire process of classification, collection, storage, handling, transportation, utilization, and disposal. Wastes are sent to qualified professional agencies for disposal after sorting and recycling to ensure proper treatment for each type of industrial solid waste.

Non-radioactive hazardous waste management

Our non-radioactive hazardous waste mainly comes from mineral oil, organic solvents, batteries, organic resins, developer, lamps, and hazardous chemicals.

We strictly conform to regulations and their amendments, including the Regulations on Safety Management of Hazardous Chemicals and Pollution Control Standard for Hazardous Waste Storage (GB 18597-2001), and adopt hazardous waste storage containers that are resistant to wind, rain, sunshine, leakage, explosion with temperature and humidity monitoring functions. Leakage-proof pallets are purchased to prevent leakage of liquid hazardous waste. We standardize the disposal process to ensure that hazardous waste is generated, stored, transferred, recycled, and handled legally to guard against environmental risks brought by hazardous waste. At the same time, we conduct regular exchanges with local regulatory agencies on the standardized management of hazardous waste and keep ourselves updated on new requirements and policies of hazardous waste management.

Non-radioactive waste management results

During the Reporting Period, each subsidiaries of CGN Power has collected hazardous wastes by classification and temporarily stored them in the hazardous waste vault of the plant. They have set up hazardous waste management ledgers, regularly handed them over to qualified delivery units for compliance management and implemented the requirements of hazardous waste transfer. The treatment of various types of non-radioactive wastes met the relevant regulatory standards and supervision requirements.

Non-radioactive waste management targets

In accordance with regulatory requirements, we will continue to implement standardized, intensive and IT-based management and carry out full-cycle, whole-process and comprehensive management of hazardous waste to achieve compliant storage and disposal.

In order to continuously reduce non-radioactive hazardous waste, CGN Power has launched the pilot program and will apply it to other plants later. The Company first took Ningde Nuclear as the pilot plant for hazardous waste reduction, and they jointly established a special group to carry out feasibility analysis of waste reduction from three aspects: source control, process control, and result feedback. They have formulated a hazardous waste reduction plan including recycling by manufacturers, use of eco-friendly material, packaging improvement, recycling and reusing, and hazardous waste identification. After the implementation of the plan, Ningde Nuclear reduced the annual hazardous waste by about 284.16 tons in 2022, accounting for 53% of the total hazardous waste production. The practice has reduced not only the on-site management risk, but also the cost of hazardous waste disposal, which will be applied to other plants under the Company.

Non-radioactive sewage discharge

We strictly manage and control the treatment and emission of sewage according to national laws and regulations and local standards including the Environmental Protection Law and the Marine Environmental Protection Law. We promote water conservation and water recycling , and reduce the generation and discharge of sewage as much as possible.

Non-radioactive sewage treatment methods

All our NPPs have formulated non-radioactive sewage management procedures to provide detailed requirements for sewage collection, construction, operation, maintenance management, water quality analysis and testing. In each plant, professional sewage treatment facilities are set up to treat radioactive and non-radioactive wastewater separately through independent systems under online real-time monitoring. At the same time, we entrust specialized organizations to test the quality of the discharged water to make sure it meets relevant standards. For the treatment of radioactive liquid, please refer to the "Radioactive Waste Management" section of this report.

According to the different requirements of the region or province, our NPPs adopt different control measures for non-radioactive sewage discharge.

Some NPPs are equipped with sewage outlets. Online monitoring equipment and flow meters are installed at the sewage outlets to monitor relevant data in real time, and measure the discharge flow of wastewater to ensure that the water quality meets the discharge standards.

Some NPPs upgrade the sewage treatment facilities. Part of the treated water is used for plant greening, dust prevention spray treatment etc., for water recycling.

Each NPP regularly monitors the sewage treatment station and uses monitoring files to ensure effective sewage treatment.

Non-radioactive sewage treatment results

During the Reporting Period, the non-radioactive wastewater treatment facilities of each NPP were operating normally, and the treatment met the regulatory standards and requirements. The discharge of wastewater with highest level of treatment at self-built wastewater treatment plants was 2.5038 million tons.

Non-radioactive sewage treatment goals

All non-radioactive wastewater generated by each NPP is discharged in accordance with regulatory standards, and each subsidiary is encouraged to adopt water reuse method or carry out near-zero wastewater discharge.

Efficient Resource Utilization

We abide by the Energy Conservation Law of the People's Republic of China and the Water Law of the People's Republic of China and attach great importance to the utilization of nuclear fuel and water resources. By adopting cutting-edge technologies at home and abroad and optimizing production management, we improve resource efficiency and consume less while making greater economic and social benefits, contributing to a resource-saving and environment-friendly society.

Nuclear fuel utilization

We abide by the *Energy Conservation Law of the People's Republic of China* and *the Water Law of the People's Republic of China* and key an eye on the use of nuclear fuel and water resources. By adopting cutting-edge technologies at home and abroad and optimizing production management, we improve resource efficiency and consume less while making greater economic and social benefits, contributing to a resource-saving and environment-friendly society.

Technological R&D

Continue to develop reliable and economical fuel cycling and refueling models, and cooperate with relevant institutions to carry out R&D and upgrading of nuclear fuel to improve the use efficiency of nuclear fuel.

Optimization of fuel management

New fuel assemblies with different enrichment levels were adopted in some NPPs to improve the use efficiency while increasing the economy of NPPs.

After a series of technological development and upgrading, the current nuclear fuel cycle in our NPPs is 18 months. Most of the units have been upgraded to 18-month refueling. This has greatly reduced the number of refueling outages, and effectively improved the unit availability and utility rate of nuclear fuel.

Water resources management

Water resource is one of the key risk factors in the nuclear power industry. Highlighting water resource management and utilization efficiency, we adhere to the principle of "giving priority to water conservation and strengthening water resources management". Accordingly, we apply advanced water-saving technology, launch water saving management and strengthen maintenance of water supply system to ensure the water use efficiency and sustainability water supply.

More sustainable water supply

The water we use is sourced from municipal water supply, power plant reservoirs and sea water, with no problems in sourcing suitable water. The reservoirs are equipped with an automatic integrated video and satellite monitoring system to track water level, dam seepage, leakage pressure, and rainfall, ensuring their stable operation. In order to strictly manage reservoir water, the power plant reservoir has been managed in accordance with the Regulations on Water Saving Management of Bases and as the first-level water source protection area. We implement systems on water extraction permit, water use plans, water use declaration, and water use tracking system with statistics.

To further improve the sustainability of water supply, we regularly assess the safety and stability of water supply and have formulated water-related management regulations and emergency plans, including the Emergency Plan for Water Shutdown in Water Supply Pipeline and the Emergency Plan for Reservoir Collapse to ensure timely and effective handling of water source anomalies with standardized measures. Meanwhile, we rationally allocate water resources and implement comprehensive environmental protection measures in exclusive freshwater reservoirs of the plants and adjacent water areas' ecological environment.

Case **Hongyanhe Nuclear responds effectively to imminent ice and ensures nuclear safety**

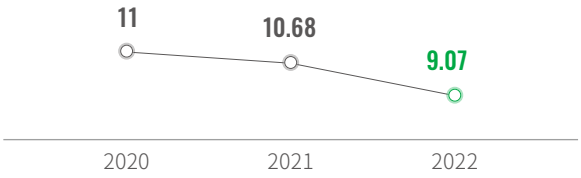
On January 20, 2022, continuous low temperatures brought a huge amount of sea ice around the Hongyanhe NPP, and ice floes scattered at the bay where the first-phase water-fetching site was located. Seeing that, the Hongyanhe Nuclear power coolant source team took immediate action by checking each drum filter and measuring the water temperature of the pumping station of each unit. The situation was reported promptly to ensure the safety of water withdrawal from the sea. Data collected throughout the day showed that the front pool water of the first- and second-phase pumping stations did not drop to the freezing point, which posed no safety threats. Staff paid close attention to the water temperature of the front pool so that early warnings of ice could be issued. They worked with other professionals to ensure the safety of coolant sources in winter and the safe and stable operation of units.

Water use efficiency

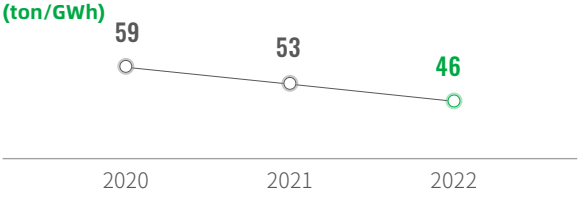
CGN Power continuously monitors water consumption, discharge, and recycling rates. When building and running projects, we encourage water recycling and efficient water management. For example, the reclaimed water is applied in irrigation and road cleaning. At the construction site, the positions of pipelines are confirmed in advance to avoid rupture caused by operational errors.

Water resources are mainly used for construction, production, operation, factory office, and living areas. During the Reporting Period, freshwater consumption decreased by 15.07% from last year, and freshwater consumption per unit of on-grid electricity was down by 13.21% from last year.

Freshwater Consumption(million tons)



Water Consumption Per Unit of On-grid Power Generation (ton/GWh)



	2020	2021	2022
Total water intake (million tons)	11	10.68	12.16
Total water discharge (million tons)	/	/	3.09
Total water consumption (million tons)[21]	11	10.68	9.07[22]

Water use goals

Although we have not set specific goals for water efficiency for the time being, we encourage all subsidiaries to actively take water-saving measures, carry out water-saving technological transformation and raise water-saving awareness by publicity to reduce water consumption.

[21] In 2022, we optimized the statistical caliber of total water consumption data, namely: total water consumption = total water withdrawal - total water discharge. It is because other companies directly discharged waste water into the municipal pipe network for treatment except power plants. In addition, some of the water of the plants is discharged in other ways, so the recorded water discharge data is somewhat different from the reality.

[22] The total water consumption in 2022 was inconsistent with the result of "total water withdrawals minus total water discharge", which mainly comes from the difference caused by rounding the above three data.

Green Nuclear Power Ecology

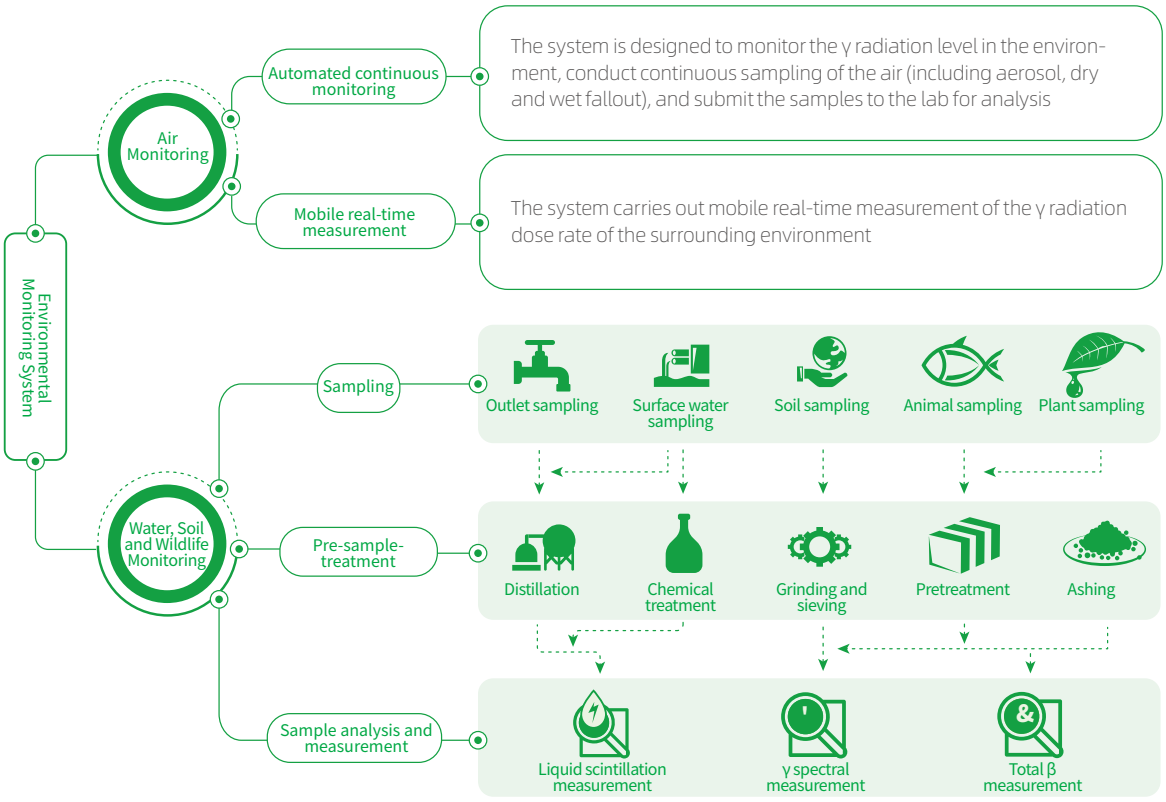
A sound ecology makes civilization thrive. Upholding the philosophy of harmonious coexistence of nuclear power operation and ecology, CGN Power has established a complete set of environmental monitoring systems and continuously monitored the environmental impact on project surrounding areas to avoid damage to the ecosystem. We integrate biodiversity conservation into our development strategies, striving to achieve harmonious coexistence between nuclear power and the environment for a community of all life on earth and a clean and beautiful world.

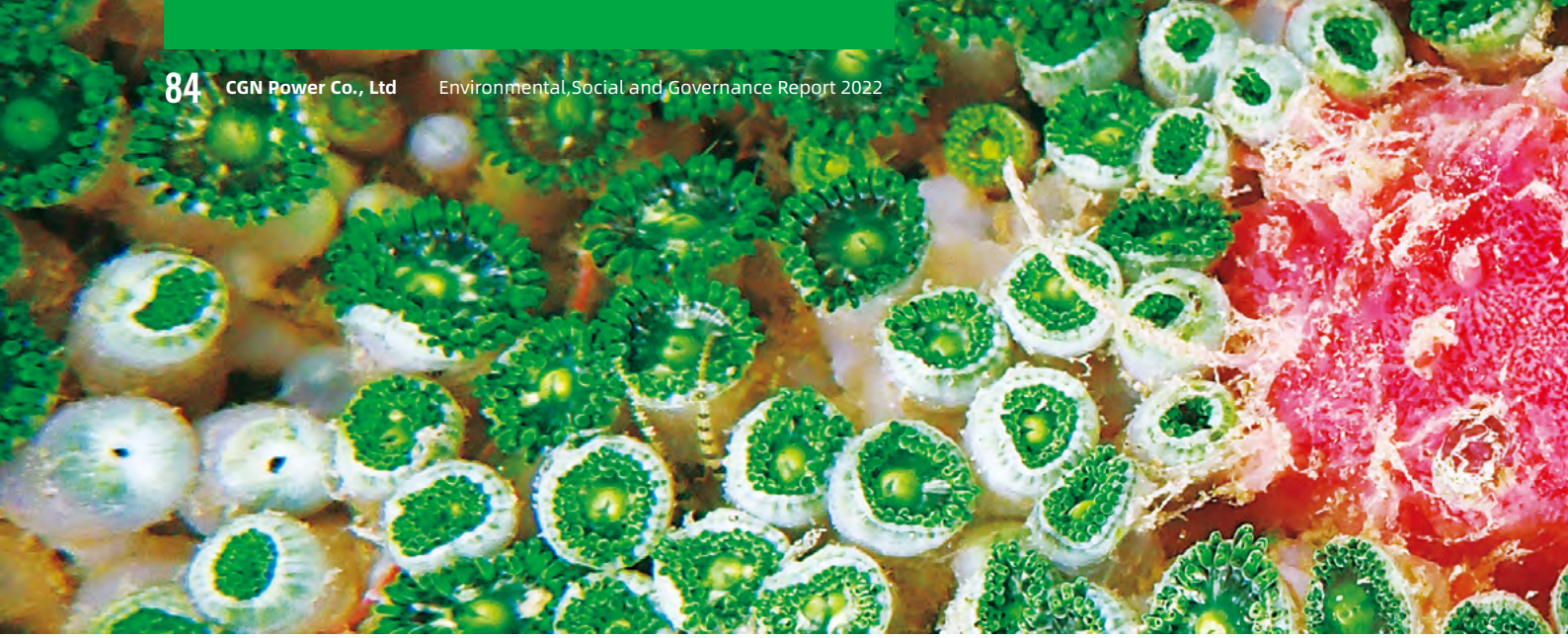
Environmental monitoring

In accordance with laws, regulations and other regulatory documents, including the *Regulations for Environmental Radiation Protection of Nuclear Power Plants and Regulations for Environmental Radiation Monitoring of Nuclear Power Plants*, we effectively monitor the surrounding environment of operating plants, track the environmental impact and take timely actions. We regularly submit the monthly and annual environmental monitoring reports, and disclose the monitoring data in time to accept the supervision of regulatory authorities at all levels and the public so as to ensure that the operation has no impact on the environment and the public.

Internal monitoring

Each nuclear power base has established stringent environmental monitoring systems and environmental survey recording systems according to the requirements of national regulators and the Outline for Environmental Supervision and Monitoring. We monitor surrounding noise, dust, soil erosion, domestic sewage, production sewage and other environmental factors by setting up a series of complete environmental monitoring equipment. Based on it, we analyze air, water quality, terrestrial biological and marine biological environment changes in the vicinity of nuclear power bases, mainly focus on monitoring the radioactive level in and around the nuclear power plant, and timely disclose relevant data to the public to accept the supervision of the public.





Sampling Monitoring

We regularly sample and test air, soil, underground water and biological samples, including twenty kinds of common food such as chicken, fish, litchi, vegetables, radishes, algae, and shellfish.

No artificial radionuclides were found.

Real-time Monitoring

Ten environmental monitoring points are set up within a ten- kilometer radius of the base for continuous monitoring with real-time monitoring data displayed in the exhibition hall of CGN Power Building in Shenzhen.

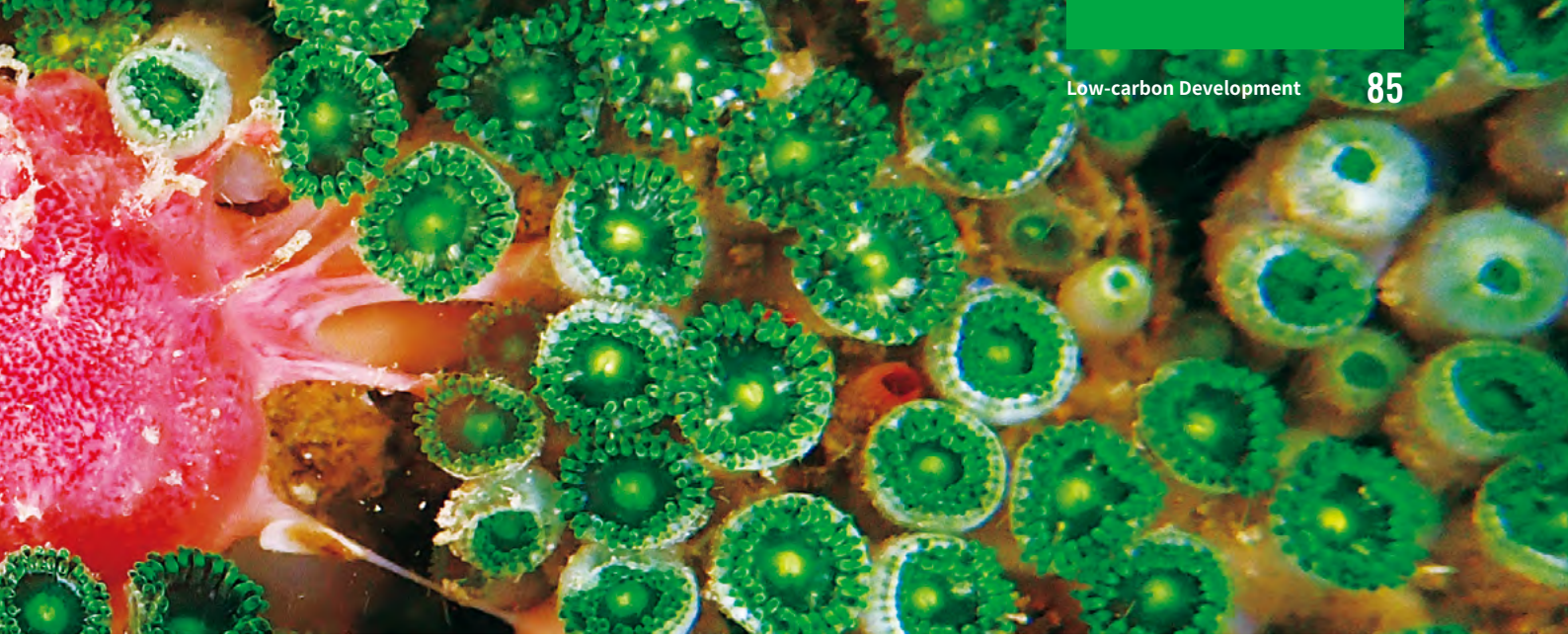
Long-term environmental monitoring found no change in environmental radioactivity levels around the base compared to background data before operation.

External supervision

We cooperate with external supervisory bodies to monitor environmental performance and disclose external supervision data to the public transparently. Regulatory agencies strictly monitor the radioactive emissions from nuclear power plants, focusing on the "dual-track system" monitoring of gaseous and liquid effluents and the surrounding environment of nuclear power plants. The operating units of power plants and the radioactive environment monitoring agencies in the province where the power plants are located, hold accountable for the monitoring and ensure the data range meets the standard.

According to the monitoring results in 2022, the air absorption rate around each NPP in operation is within the range of local natural fluctuations, and the radionuclide concentration in environmental media such as water, soil and organisms around NPPs has not changed compared with previous years, which has no negative impact on the environment and public health.

The Hong Kong Observatory and other monitoring departments have started their monitoring plans since the operation of Daya Bay NPP. A total of twelve radiation monitoring stations have been set up in Hong Kong to continuously monitor environmental γ radiation dose rates for 24 hours every day. Annual reports are issued to inform the public of the status of environmental radiation levels in Hong Kong. Years of monitoring results have indicated that no increase of artificial radionuclides is found during the operation of Daya Bay NPP.



Biodiversity conservation

CGN Power strictly abides by the *Marine Environmental Protection Law*, the *Environmental Protection Law*, and other biodiversity-related laws, adopts a step-by-step management approach of "avoidance-reduction-mitigation-compensation", and formulates systematic nature-based biodiversity conservation programs, blazing our trail of biodiversity protection with distinctive features. We actively respond to the challenges facing mankind today in an eco-friendly manner, effectively improving well-being and biodiversity and contributing to a beautiful world of harmonious coexistence.

Biodiversity management methods

Four-step Biodiversity Conservation Approach

Science-based site selection
Establishment of habitat protection

In order to achieve the goal of biodiversity conservation, priority should be given to the design and construction scheme that avoids negative disturbance, so as to avoid the impact on the key areas of biodiversity conservation.

Avoidance

Waste management
Species protection

When disturbance cannot be avoided, the impact of projects on biodiversity should be minimized by formulating and implementing strict environmental management systems, monitoring the surrounding environment and protecting species.

Reduction

Development of clean energy, such as nuclear power, to mitigate climate change

To tackle the global ecological, environmental and climate change crisis, mitigation measures should be taken to help mitigate regional/global environmental change as much as we can.

Mitigation

Ecological restoration and compensation

Biodiversity compensation measures should be taken when appropriate for better biodiversity conservation.

Compensation

Biodiversity protection measures

Site Selection and Design

Conduct field investigation to assess the impact of construction on local biodiversity, and avoid natural habitats and wetlands, forests, wildlife corridors, and agricultural land
Determine project scope to minimize the impact of construction on wildlife

Engineering Construction

Implement woodland transformation and green the plant area to maintain the original ecology
Carry out ecological environment background survey and basic water temperature monitoring survey for monitoring environmental changes in the surroundi

Nuclear Power Operation

Establish and implement rigorous discharge disposal processes and regulations to monitor surrounding environment in real-time to ensure no impact on the surrounding species by radioactive discharges and thermal discharges

Case **Chinese white dolphins visit Fangchenggang Nuclear**

In March 2022, in the sea near the open channel of the Fangchenggang Nuclear Power Base, Chinese white dolphins made frequent appearances, which were captured on film by our employee patrol. Chinese white dolphins, listed as a state first-class protected animal in 1988 and known as "mermaids" and "marine giant pandas", are extremely particular about water quality. As such, they are seen as a "living indicator" of seawater quality. Their visits to Fangchenggang Nuclear were a testimony to the harmonious coexistence between nuclear power and nature.

Case **Building a clean and beautiful Daya Bay together**

On June 1, 2022, Daya Bay Nuclear Power Operations and Management Co., Ltd. (DNMC), together with the Dapeng Administration of Shenzhen Municipal Bureau of Ecology and Environment, held the 2022 World Environment Day activity at the Daya Bay Nuclear Power Base. At the event, DNMC donated a leopard cat specimen, a wild leopard cat that died naturally in the Daya Bay Nuclear Power Base, to Shenzhen Ecological Monitoring Nature School. Classified as a state second-class protected animal, leopard cats are often found in mountain forest areas, country shrubs, and forest edges. The donation of that leopard cat specimen enriched the animal specimen collection of the School and had a positive impact on ecological and environmental education and people's biodiversity awareness.

Case **Planting mangroves to attract egrets**

Mangroves play an important role in purifying seawater, protecting against wind and waves, and maintaining biodiversity. On June 1, 2022, Fangchenggang Nuclear volunteers, together with the Fangchenggang Coast Guard Bureau and the South China Nuclear and Radiation Safety Supervision Station of the Ministry of Ecology and Environment, visited the Shaluoliao beach near the factory site where they planted mangroves. It was hoped that by planting mangroves to improve the coastal environment, more egrets would be attracted to settle down and people's environmental awareness would be raised to protect the marine ecology.

Employee Growth

Opportunities and Challenges

With the introduction of national "30·60 Decarbonization Goal", clean energy development has gained increasing attention. The development of the energy industry is inseparable from the cultivation of high-quality and comprehensive personnel in energy technology. However, due to the shortage of skilled and technical personnel in China's energy industry, there is a challenge in building a high-quality talent team in this field.

Our Strategies

CGN Power regards employees as a driver of sustainable development. In line with the concept of "talent-first in corporate development", we provide a safe and healthy working environment, build an unblocked career development path and cultivate an equal and diverse workplace for employees to help them realize their self value.

Our Performance

18,968
Total employees

139.5
Training hours per employee

100%
Percentage of employees trained


中广核 CGN
中广核研究院有限公司
China Nudear Power Technology
稳住
我们能赢
2023
兔无量
兔呈祥
大展宏兔
2023
稳住
我们能赢
2023
大展宏兔

Employee Rights

Committed to common development with employees, we strictly comply with relevant Chinese laws and regulations such as *the Company Law, Labor Law and Labor Contract Law, and have formulated internal rules and regulations, including the Labor Management System, Recruitment and Employment Staffing Management System, Professional and Technical Staff Recruitment Management System, Management Staff Selection and Appointment Management System, Salary Management System and Employee Performance Management System*, better protecting employee rights and promoting employees' development.

Talent attraction

1,114
New hires of fresh graduates

100%
Open recruitment rate

A continuous supply of high-quality talents is the source of strength for the stable operation and innovative development of nuclear power. Valuing the talent development, we organize special seminars and individual interviews on human resources planning in accordance with the national energy development plan and our business development plan and based on our surveys on human resources management. Accordingly, we systematically analyze and judge the implementation of key indicators, organizational operation, talent structure, talent training and human resources mechanism, put forward development ideas and management objectives, and form human resources planning objectives, key tasks and management measures. Our human resources planning follows the dynamic cycle mechanism of "planning-annual planning-implementation-evaluation-adjustment" to promote the planning and development of high-quality talents, strengthen the training of professional talents, and build a highland for nuclear power talents.

We recruit eminent talents through multiple channels such as campus recruitment, social recruitment and joint recruitment and build a multi-tier talent recruitment and training system. To ensure a standardized and systematic recruitment process, we strictly examine the applicants' identity information to prevent candidates under the age of 16 and eliminate child labor and all forms of forced labor,to ensure the legitimate rights of every employee and protect their human rights. During the Reporting Period, there was no human rights violation, child labor or forced labor.

Besides, we boost our efforts in the recruitment of excellent fresh graduates. By signing cooperation agreements of talent training with domestic universities, we provide practical opportunities for graduates and interns of nuclear power-related majors to improve their professionalism and employability and achieve the win-win outcome brought by talent training and employment promotion.

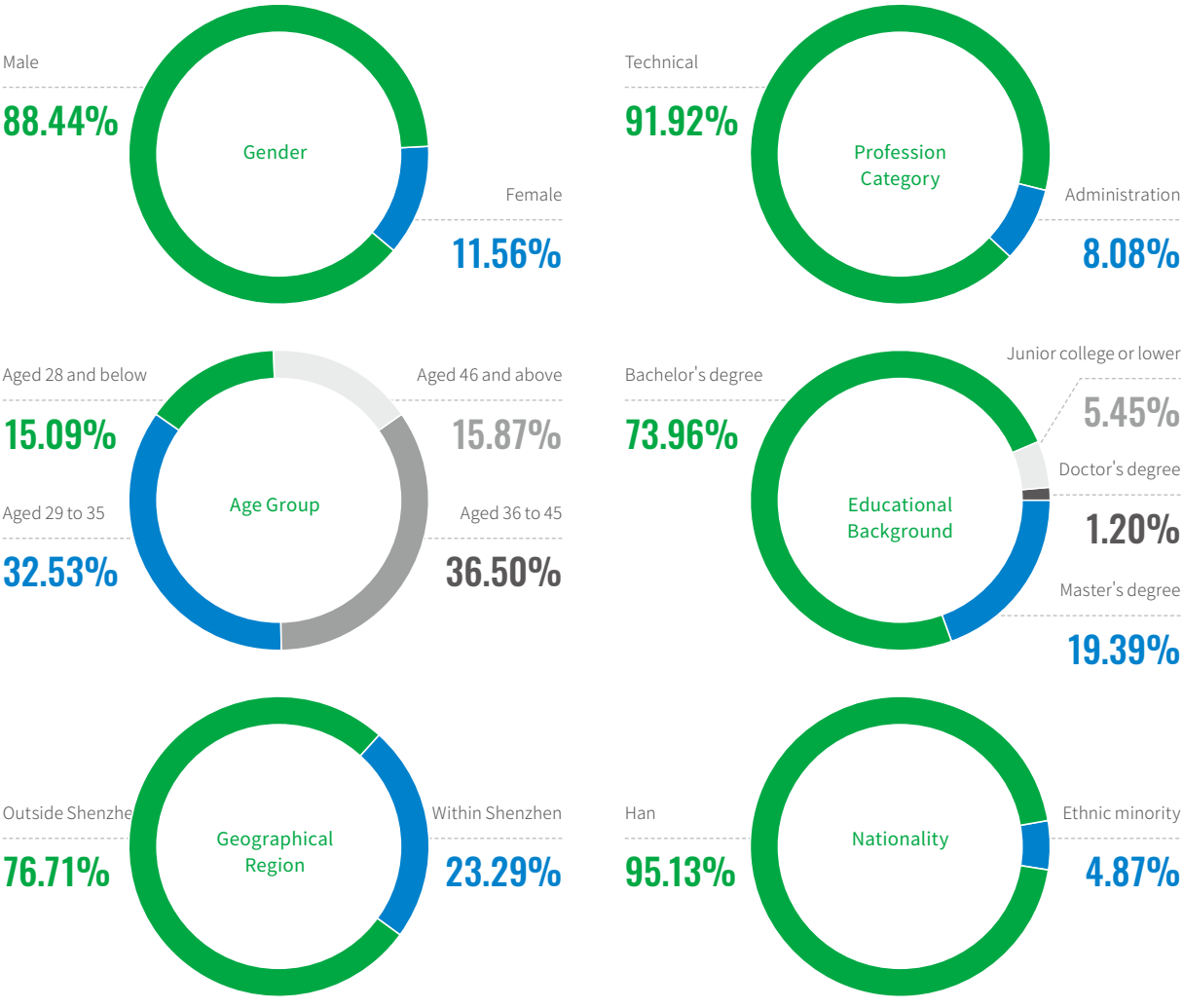
Diversity and equality

CGN Power upholds internationally acknowledged human rights norms and strictly complies with relevant national laws and regulations and international labor standards, adheres to non-discriminatory employment, strives to create an equal, diverse and inclusive working environment and puts an end to differential treatment regardless of staff's gender, age, education, ethnicity, belief and marital status. On the premise of respecting and protecting the lawful rights of all employees, we stimulate the vitality of talents. By the end of the Reporting Period, the total number of full-time employees of CGN Power (excluding associated companies) was 18,968.

Staff composition

Number of employees

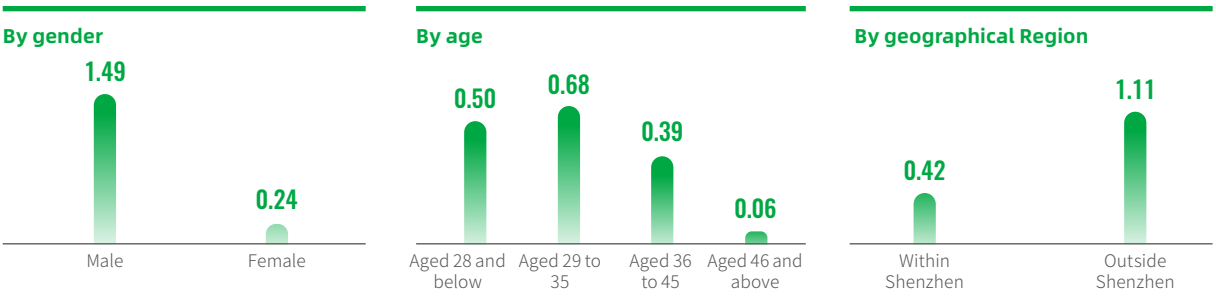
18,968



Employee turnover rate (%)

员工流失率

1.65 %



案例 Paying tribute to women for their contribution to scientific research

The world needs science and science needs women. CNPRI actively creates a cultural atmosphere where female scientific researchers can, to a further extent, dedicate themselves to scientific innovation and stand out. The female scientific researchers in CNPRI account for over 20%. They present their distinctive styles in different fields, contributing to the high-quality development of the enterprise.

We should take the commercial demand for independent fuels as the guide in fuel R&D. We need to muster our strength and rise to the challenge to realize the breakthrough of the core technologies with Chinese characteristics.

-- Wang Xu, Lead Engineer of Fuel Materials

As experimental researchers, we secure nuclear safety with our practical action and have completed two hundred reactor engineering experiments to support nuclear power R&D with reliable experimental data. Moving forward, we will devote ourselves to the key experimental technology of nuclear power safety and overcome key technical difficulties to secure nuclear power safety in China.

-- Zhou Shangjunxi, Experimental Operations and Maintenance Support Engineer

As advanced reactor R&D researchers, we have gotten into the uncharted territory in nuclear power research, which has undoubtedly set a higher standard for independent innovation. We endeavor to explore the way and turn to our good advantage the source of advanced nuclear energy technology and the engine of core technology innovation to achieve the leapfrog development of advanced reactor R&D.

--Wei Huanyi, General R&D Engineer

Improve and incentive system

Compensation, as the reward for their work responsibility and value creation, is the embodiment of employees' value. We constantly improve our incentive system, take responsibility, ability and performance as the top three criteria to evaluate employees and clarify the concept of value creation, seeking to make employees more engaged and motivated, bring out their potential and help them realize their value.

Compensation system

We have formulated the *Salary Management System, Employee Performance Management System, Management Staff Selection and Appointment Management System* and other internal rules and regulations to optimize the performance management system and build a strategy-oriented and competitive salary management system. The salary management system is implemented based on the post wage system in which wage scale varies from ability to contributions, and those with good skills and performance can have higher salary or bonuses. For example, for employees who failed in SQE assessment, their annual performance bonus is zero.

Equity incentive

To motivate key talents, the Company approved the H-share Appreciation Rights Plan at the 2014 Annual General Meeting of Shareholders. The Plan is expected to be granted in three phases with three tranches taking effect in each phase. For more details, please refer to the H-Share *Annual Report 2022*.

Benefits and care

CGN Power's benefits and care system permeates employees' lives, health and other aspects. We listen carefully to employees' demands and care about their lives. We reward their hard work with better benefits system, to improve their sense of belonging and thus to boost workplace cohesion.

100%
Employee social insurance coverage(covering medical, pension, unemployment, work injury and maternity)

12 workings days
Employee average annual leave

For female employees with full pay
Statutory maternity leave

15 workings days
Paid parental leave for male employees

2,799
Employees and their family members visited

678
Family members of employees with difficulties and on long-term business trips visited

Basic securities

We provide social insurances (including pension, medical, unemployment, work injury and paternity insurance) and housing fund for all employees. In addition, we also implement an enterprise annuity plan to ensure employees' retirement fund.

Work-life balance

According to the national regulations and our actual situation, we formulate the leave management policy, implement the leave policy, and encourage employees to arrange their leave reasonably. Diverse recreational activities are organized to help staff enrich their leisure time, alleviate their stress at work, and achieve work-life balance.

Caring for employees' families

To ease employees' mind and deliver warmth, we hold winter camps for their children, provide summer sports and cultural training courses for employees and organize warm-hearted activities to outage workers.

Caring for front-line employees

We adhere to all-round condolences and care for front-line employees. To make employees feel appreciated, the Company's executives and management pay visits to front-line workers during major holidays to care about their work and living conditions and send holiday gifts and greetings.

Caring for young employees

Committed to "doing practical things for the youth", we regularly conduct the investigation on the thoughts of young employees and build communication channel between the youth and the management to understand their needs. Besides, we play a role in uniting, guiding and serving young people by organizing a series of activities, such as experience sharing sessions for young workers, youth innovation training and youth dating activities, and helping them build rapport and learn from each other.

Caring for female employees

On the International Women's Day, we carry out assorted activities and the management would have a cordial conversation with female staff representatives to express care. We hold the symposium on the March 8 Red-banner Pacesetter to recognize outstanding female employees, organize free clinics on gynecological disease treatment and lectures on women's health, and create special activities for females, including legal knowledge competition, sports game, art training and tea party, to address their doubts in life and promote their career advancement.

Case **Fangchenggang Nuclear launches first winter camp for employees' children**

Employees who stayed in Fangchenggang NPP for the fourth outage of Fangchenggang Unit 2 found it hard to take care of their children during the winter holiday. To address that problem, Fangchenggang Nuclear's Labor Union took the lead to extensively solicit opinion from those employees to get a clear picture of their families. It formulated the winter camp plan for children, including setting up classrooms, purchasing toys, books and stationery, hiring childcare teachers, and designing reasonable course schedule. With diverse activities, children can have a fulfilling holiday and feel the homely warmth even without the company of their parents.

Case Ningde Nuclear creates a loving working environment for outage workers

"You take care of the outage, we take care of your loved ones." In 2022, the Party member service teams under the Ningde Nuclear implemented the action of "delivering good services to the people". The number of service teams increased from 6 during the third outage of Ningde Unit 4 to 18 now. Their services covered spare parts, tools, process, operation, maintenance, training, logistics and other fields to deliver warmth and reduce the burden of the onsite workers for the outage.

Case "Find Your Significant Other"

On November 11, 2022, Yangjiang Nuclear's Youth League Committee and Yangdong District Youth League Committee jointly held the 2022 Double 11 youth dating activity, "Find Your Significant Other", with a turnout of 50 singletons and the successful match of 10 couples. The organizer set up interesting ice-breaker games such as "bread and love", "a series of love" etc. for those young people to heighten their enthusiasm, creating an efficient dating platform for young employees.

Employee communication

CGN Power attaches importance to democratic management. In compliance with the *Regulations on Democratic Management of Enterprises* (ACFTU [2012] No. 12), *Regulations on Workers' Congress of Industrial Enterprises under the Ownership of the People, Notice on Regulations of the Grassroots Trade Union Member Conference issued by the All-China Federation of Trade Unions* (ACFTU [2019] No. 6) and *Guidelines on Further Strengthening the System of Workers' Congresses of Central State-Owned Enterprises* (State-owned Assets Party [2022] No. 24), etc. we have established a workers congress. Meanwhile, we constantly broaden the channels of democratic management, continuously improve the democratic management system, and implement the system of employee director and supervisor to encourage employees to make suggestions, thus fully guaranteeing employees' rights to know, participate, express and supervise, and promoting the healthy development of the Company.

Our subsidiaries sign the collective contracts to protect the rights of employees through democratic procedures such as workers congress. By implementing the proposal system and incentive-suggestion system, the Labor Union opens up channels for employees to raise demands and solve their problems. By establishing special committees such as the labor dispute mediation committee and making collective contract negotiations, they establish and improve the mechanism to handle labor disputes. The above processes and related information are known only to the parties and necessary personnel to protect the rights of employees to the greatest extent.

Besides the communication channels, such as forum, leaders' mailbox, the Party Branch, Labor Union, and League branch, we regularly hold organizational meetings, democratic meetings for management team, etc., so that employees can provide their opinions or suggestions to their superiors. For personal planning and development, employees can communicate with management about their personal plans and inquiries during the whole process of their performance target formulation, implementation and appraisal. The positive communication and feedbacks from both sides can help align the development goal of employees with that of the Company.

Case **SNPI holds the Fifth Meeting of the Sixth Workers' Congress and the Sixth Congress of Labor Union Members**

On November 30, 2022, SNPI held the Fifth Meeting of the Sixth Workers' Congress and the Sixth Congress of Labor Union Members. The meeting adopted the 2021 Labor Union Work Report. 77 official representatives from CGN Power attended the meeting and made a democratic evaluation of the leadership. The meeting also elected one member of the Sixth Labor Union Committee by secret ballot in a competitive by-election.

Occupational Safety and Health

Physical and mental health is the prerequisite for a happy work-life balance. We pay close attention to the health condition of every employee. We strictly comply with relevant Chinese laws and regulations such as the *Work Safety Law and the Law on Prevention and Control of Occupational Diseases*. In response to the "Advancing the Healthy China Initiative" put forward at the 20th CPC National Congress, we foster the concept of "Comprehensive Health and Hygiene" and strive to build a healthy enterprise in accordance with a series of documents such as *Healthy China Action (2019-2030)* and the *Notice on Promoting the Building of Healthy Enterprises*. Implementing the management policy of "Safety First, Prevention Foremost and Comprehensive Governance", and the principle of "Safety Management Must Be Included in the Production Management", we create a healthy working environment to secure employees' health and safety.

Employee occupational safety

Certification

All our NPPs have established a dedicated department to manage occupational health and safety. On the basis of obtaining the OHSAS 18000 occupational safety management system certification, all NPPs have gradually passed the certification of the ISO 45001 Occupational Safety Management System, newly issued by the International Standardization Organization.

The occupational health and safety of employees is crucial to the healthy and safe development of the Company. To standardize safety operations, we have formulated the *Occupational Safety Management System* and adopted a series of technological and management measures for personal physical protection. Besides, we have limited the working hours on site according to the evaluation of occupational hazards to reduce and control occupational health and safety risks.

The occupational health and safety management system is also applicable to contractors in construction, power generation, equipment maintenance and other activities of NPPs and any other personnel working at the operating sites.

Comprehensive occupational safety management measures

Occupational health management

We organize comprehensive research on occupational health management to further improve the occupational health management system, clarify the requirements for occupational health management institutions and staffing allocation, and standardize the control and management of occupational hazard. Besides, we launch the pilot scheme on the occupational health monitoring system to improve the management efficiency.

Occupational health protection

Based on its own condition, each subsidiary carries out different forms of occupational disease hazard management, eliminates occupational health hazards from the source through technological improvement, and optimizes protection facilities of occupational disease. They also innovate in occupational health monitoring methods and introduce monitoring system for high-risk workers to improve occupational health management level.

Employee health check-up

We provide annual routine health check-ups and have established personal health files for all employees with follow-up health management services. We have engaged with third-party professional organizations to conduct occupational health examinations (including audiometry, pure tone audiometry, lung function, visual, long bone X-rays, etc.) for front-line employees dealing with radioactivity, noise, high temperature, chemical poisons, electricians, operations at height, etc.). For retired employees, we also provide comprehensive health check with management and tracking services to protect their physical condition. In 2022, 782 retirees were served with health management and 891 retirees were provided with tracking services.

Occupational safety culture

We regularly organize occupational health training to raise employees' awareness of occupational health prevention, popularize the basic knowledge of occupational health protection, and enhance employees' basic skills of occupational health protection. To promote the culture of occupational health in all aspects of production and operation, we encourage communications about occupational health and safety, and implement safety promotion, training and warning of occupational health and safety.

There are international and domestic requirements on the maximum radiation dose for personnel (including employees, contractors and other personnel) in the control area of nuclear power bases. During the Reporting Period, we maintained good performance on occupational health and safety. There were no diagnosed or suspected cases of occupational diseases among our employees and outsourced personnel. No subsidiaries were punished by the regulatory authorities due to improper occupational disease and health management, and the maximum individual radiation dose[23] was far lower than the standard requirements.

Maximum Radiation Dose Received by Personnel in NPPs (in millisieverts)

NPP/Unit	2022	2021	2020
Daya Bay NPP	9.96	11.85[24]	5.02
Ling'ao NPP			6.77
Lingdong NPP			4.70
Yangjiang NPP	9.49	8.83	12.05
Hongyanhe NPP	8.00	5.98	6.43
Ningde NPP	8.27	7.33	11.22
Fangchenggang NPP Unit 1-2	3.69	3.61	6.36
Taishan NPP	3.88	8.50	7.10

[23] The annual refueling outage is a key factor affecting the maximum individual radiation dose of all NPPs.

[24] Starting from 2021, the Daya Bay NPP, Ling'ao NPP and Lingdong NPP in the same Daya Bay Nuclear Power Base will be aggregated.

Case **Multiple measures taken to beat the summer heat for outage workers**

Since the sixth outage of Yangjiang NPP Unit 1 was carried out at the height of the summer, Yangjiang Nuclear took multiple measures to beat the summer heat. A total of 53 booths for water and herbal tea/sour plum soup were served on site, and the large buckets of ice were purchased and distributed for the first time. There were axial fans, sun shelters, sun hats, ice towels and sun umbrellas, etc., on the operation site to ensure the safety of employees in the sweltering heat.

Employee physical health

In line with the principle of "full coverage, hierarchical management, full intervention, moving forward", we keep improving the health service system for all employees. We have formulated the *Procedure for Employee Health Management*, set up the health management committee and the part-time health management coordinator team to form a management mechanism of overall planning, hierarchical management and division of responsibilities to safeguard employees' health.

Health management

We continue to provide health management services for core talents, including health record management, physical examination management, serious disease screening, risk assessment, health intervention tracking, intervention effect assessment and other services.

Health knowledge

We regularly carry out health lectures and training and release health science articles to help employees improve their health management ability.

Health service

We improve health service facilities, build community health service stations and other health facilities, and set up a special team to provide employees with wholesome food, health facilities and other supporting materials to ensure good support in supporting health services.

Exercise awareness

We organize diverse sports activities outside of working hours, encourage employees to develop their hobbies, raise their exercise awareness and achieve a healthy lifestyle.

Daya Bay Nuclear Power Base launches the community health service station

On June 8, 2022, with the assistance of Dapeng Maternity Child Healthcare Hospital of Shenzhen Second People's Hospital, Daya Bay Nuclear Power Base launched the Nuclear Power Community Health Service Station. Since then, nearly ten thousand people in the Base have been able to obtain professional medical services and public health services nearby. The service station has a resident medical team of more than ten people, which can provide medical outpatient services and 24-hour pre-hospital emergency care. The health service station not only owns general consultation rooms, triage stations, treatment rooms, pharmacy services (including personalized drug procurement), but also equipped with medical equipment such as blood pressure meters, ECG machines and color ultrasound machines, which can provide employees with specialized, quality and timely medical care.

Case

Yangjiang Nuclear builds a health station at its entrance

The tight work schedule and intensity of outage put the workers' health to the test. In February 2022, Yangjiang Nuclear successfully built the first "Health Station" among all subsidiaries and associates of CGN Power. The station was officially put into operation during the second outage of Unit 6 and the fifth outage of Unit 2 of Yangjiang NPP, providing better health care for thousands of workers on site. The station was set up in accordance with the mobile hospital condition, which can meet the needs of emergency standby and medical outpatient treatment, enabling outage workers to seek medical treatment more conveniently.

Case

The maintenance department of Ningde Nuclear organizes "Health Cup" sports activity

The third "Health Cup" sports activity was carried out by the maintenance department of Ningde Nuclear. There were five sporting events, including basketball, tennis, badminton, table tennis and billiards, and from July to September, a sports theme will be set up every half a month to boost employees' enthusiasm towards exercise and to better serve the on-site work.

Employee mental health

Adhering to the principle of "physical and mental health both matters", we have continuously held the Employee Assistance Program (EAP) to provide employees with 7/24 counselling services. It helps to keep abreast of employees' mental health and therefore advocate a positive lifestyle.

Case **Hongyanhe Nuclear conducts EAP activity**

On November 16, 2022, Hongyanhe Nuclear employee health management committee organized an EAP activity with the theme of "decompression and emotion management". Senior trainers were invited to conduct group counseling with hundreds of participants. The activity contained several carefully designed parts, including "First Intimate Contact", "Open Your Heart and Make Friends", "Life Affects Life", "Stress Exploration" and "Gratitude Exercise", to help employees relieve mental stress and focus on their own mental state.

1,722
Times of psychological counseling provided for employees

5
Special EAP lectures by psychological experts organized

10
On-site consultations,

10
Theme group assistance and

1
Training courses for health management coordinators carried out

19,537
Employees took the psychological health screening in 2022,

88.2%
accounting for

Employee Development

CGN Power attaches great importance on the progress and development of every employee, builds a multi-level, all-round and full-cycle comprehensive talent training mode, keeps optimizing the training platform, innovates in training methods to provide employees with a high-quality environment for development, to help employees achieve skills upgrading and self-development and to build a high-quality nuclear power talent team.

Employee training

We have established an independent talent training system and a standardized and efficient training management system with a group of seasoned and qualified instructors, a mature curriculum and large-scale training facilities. By doing so, every employee can receive systematic and targeted training, thereby achieving the common growth between employees and the Company.

Talent training system

- We build an operator practice training system based on the quality requirements for operators of nuclear facility control systems. In 2022, the Company (including associated companies) had 56 licensed operators and 70 licensed senior operators. As of December 31, 2022, the number had accumulated to 499 and 961 respectively. The existing operators can meet the staffing requirements for the simultaneous operation of dozens of nuclear power units.
- A series of transformation training programs were designed and implemented based on the core competency model to address the problems faced by new employees, new reserve management members during the transition and reserve periods, aiming to comprehensively improve the professionalism of the talent team across the broad.
- We have established standardized training systems to continuously improve the professional skills of relevant employees. The Company has a sequence of nuclear power operation, engineering, technology and management, and has formed a staff training system with the basic process of "training - assessment - authorization - induction".

Honors

Yangjiang Nuclear's Planning Department was awarded the **One-star National Youth Civilization**. Its Reactor Control Office of Instrument Control Department was awarded the **National Worker Pioneer** by the All-China Federation of Trade Union.

The nuclear environmental and radiation protection innovation team of CGN Engineering won the **2022 Excellent Group of National Youth Work Safety Demonstration** Post in Guangdong.

Taishan Nuclear's Instrument & Control Department was awarded **the Pioneer of Workers** by Guangdong Federation of Trade Union.

An employee from DNMC won **the title of National Technical Expert.**

Two employees of CGN Operations won **the titles of National Youth Expert and Guangdong Technical Expert**, respectively.

An employee of Yangjiang Nuclear won the **title of Guangdong Technical Expert**

An employee of Fangchenggang Nuclear was awarded **the Guangxi May Day National Labor Medal** by Guangxi Zhuang Autonomous Region Federation of Trade Unions.

An employee of CGN Engineering and an employee of DNMC were awarded **the Guangdong May Day National Labor Medal** by Guangdong Federation of Trade Unions.

115
Online and offline training sessions conducted

139.5
Average training hours per employee

137.1
Training hours of male employees

50.7
Training hours of female employees

69.6
Training hours of middle management

19.9
Training hours of senior management

100%
Training rate of male employees

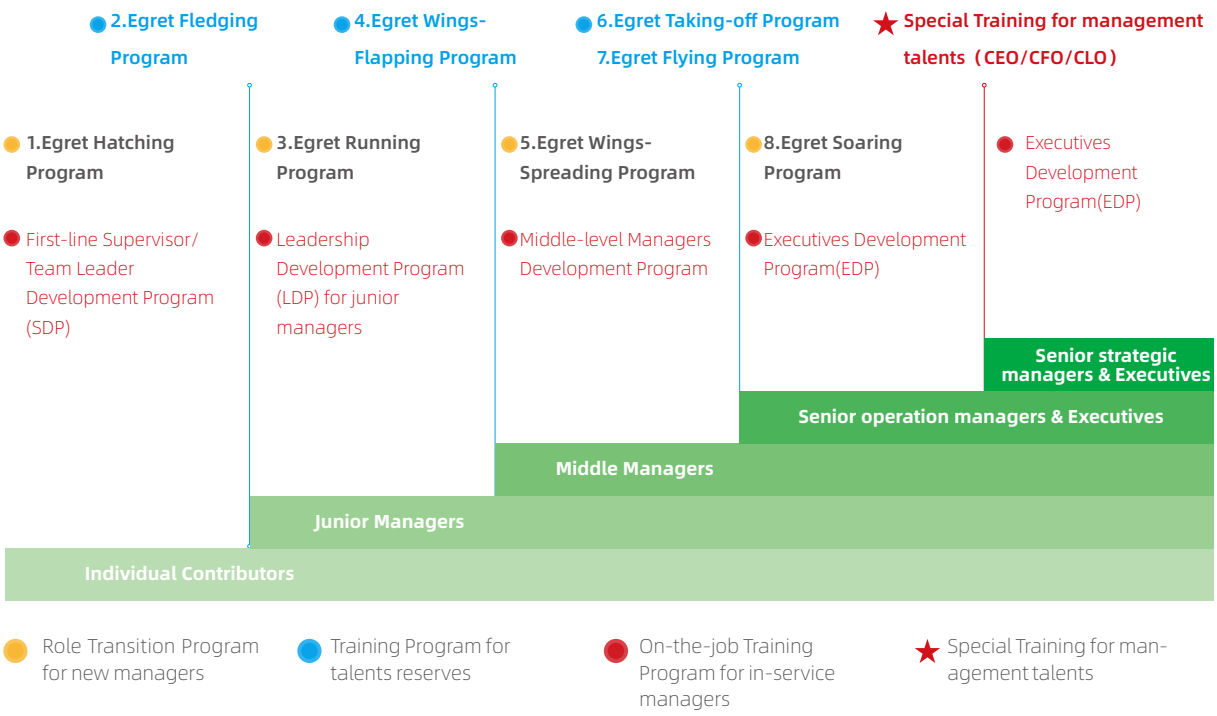
100%
Training rate of female employees

100%
Training rate of middle management

100%
Training rate of senior management

Egret Program - CGN Leadership Training

Aiming to help managers at all levels achieve career advancement, the Egret Program includes six subprograms, the Egret Hatching Program (induction training for new employees), the Egret Running Program (transition training for new junior managers), the Egret Wings-Spreading Program (transition training for new middle managers), the Egret Taking-off Program (medium and long-term training for reserved senior managers), the Egret Flying Program (training for reserved senior managers), the Egret Soaring Program (transition training for new senior managers).



2022 Egret Program Achievement

	Target	Progress
Egret Hatching Program	Accelerating the role transition of new employees with consecutive sessions throughout the whole year	1 session (13 people)
Egret Running Program	Improving the personnel management ability of new junior-level managers	1 session (13 people)
Egret Wings-Spreading Program	Improving the personnel management ability of new mid-level managers	6 sessions (271 people)
Egret Soaring Program	Improving the management skills of new operating executives and broaden their thinking and horizons	____

Case Ningde Nuclear's Nuclear Safety Leadership Program wins recognition in the industry

Since the introduction of its nuclear safety leadership practice, the Ningde Nuclear has realized the independent development of the training system, with a training coverage rate of over 70% for all employees and the training of over 3,000 people in nearly 50 companies. The training system has been evaluated by EDF experts as "one that deserves to be promoted" and by WANO peer review team leaders as "the nuclear power plant with the best leadership training".

In 2022, the Ningde Nuclear obtained the certification of 301 training modules for 76 seed instructors from 14 subsidiaries. In October, the Chairman of Ningde Nuclear delivered a widely acclaimed speech about the leadership practices at the China Nuclear Energy Association (CNEA). The Ningde Nuclear has agreed with the CNEA on a nuclear safety leadership training program to popularize nuclear safety leadership in the industry.

Case An employee of Yangjiang Nuclear receives Eddy Current Testing Level 3 Certificate

On August 31, 2022, Wang Yuanyuan, an employee of Yangjiang Nuclear's technical department, received an Eddy Current Testing Level 3 Certificate (the highest level), making the NPP the first Chinese nuclear power plant armed with the certificate. Eddy current testing is a detection method for nuclear-grade equipment defects, which requires long-term training for a wide range of knowledge and rich first-hand experience. Due to its difficulty, many senior test-takers fail to get the certificate. Therefore, the Yangjiang NPP has, thanks to the certificate, become the first in China that has the qualification and ability to analyze data, approve reports, and develop special testing technology in eddy current testing on its own.

Case Yangjiang Nuclear holds the Industrial Safety Skills Competition

The Yangjiang Nuclear's Industrial Safety Skills Competition, with an entry of 56 employees from 17 units of CGN Power, came to an end on November 21, 2022. The competition was to make a comprehensive evaluation about the participants' abilities in safety thinking and in handling complicated safety issues by testing their professional industrial safety knowledge in nuclear power industry, the risk control of high-risk operations, the ability of on-site hidden hazard investigation and operations. By holding the competition, the company can effectively improve safety personnel's skills and responsibility awareness through active learning and practice, thus creating an atmosphere where skills and safety can be both taken seriously.

Focus on new employee development

We attach great importance to the training of new employees and made special training plans for different positions and different sequences of employees to help them achieve rapid growth in the workplace. For example, for the cultivation of reactor operators, we have formed a training ladder of "new employee - operator trainee - operator - senior operator - deputy shift supervisor - unit director - shift supervisor". New employees are provided with training of technical theory, basic safety authorization and on-the-job training before written test, interview, practical work ability evaluation, and psychological quality assessment. After passing those tests and evaluations, they can take operator practice test.

Unblocked development path

Providing employees with clear development paths and broad career choices is one of major responsibilities of a company, which is also the key to a stable talent pool. To facilitate employees' career development, we have established the dual-path career development of "operation and management path" and "professional technology", which forms a comprehensive link of "Position Sequence - Development Path - Employee Aspiration - Employee Flow".

Continuously optimizing the policy of career development for skilled personnel

- We encourage skilled personnel to develop slowly but surely based on their posts. For the core posts of the operation sequence, we expand the vertical career development path of operators, and encourage experienced and willing personnel with the nuclear power license to work hard in the front line and keep improving their skills to ensure the safe and stable operation of nuclear power units. As a separate career sequence, skilled talents shall be provided with posts such as chief technician, so as to further expand the career development path for skilled talents and ensure the springing up of skilled talents by setting directions and introducing policies. In 2022, we continued to optimize the multi-channel youth talent selection mechanism in the direction of youth and multi-channel to provide more and faster channels for the unblocked development of young talents.

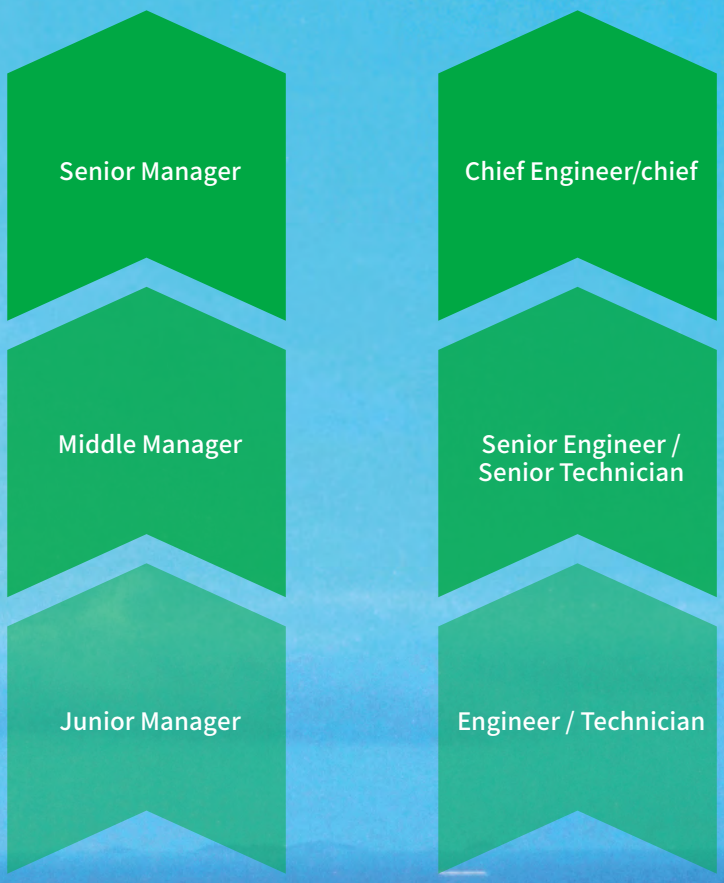
Improving regular training and selection mechanism for young managers

- We issued the implementation opinions on the building of outstanding young manager team during the 14th Five-Year Plan period and carried out open selection of managers for three consecutive years. The headquarters openly selected outstanding junior managers under the age of 45 for the first time. Besides, the outstanding young managers from all NPPs were also selected to participate in off-the-job youth training to deepen theoretical learning, acquire new knowledge and broaden career horizons.

Establishing a multi-channel mechanism for reserved management talents

- We have established a pool of high-potential reserved management talents at different levels and with different specialists. Focusing on junior talents, we arranged newly promoted young managers to the production line of nuclear power bases, regarding special work as an important platform for their development. Furthermore, we successively selected managers to participate in different tasks, such as inspection tour, rural vitalization, and aid work in Tibet and Xinjiang, to accumulate experience and better grow talents.

"Dual-ladder" Career Development Path



Win-win Cooperation

Opportunities and Challenges

The resilience of the supply chain affects the sustainable development of a company, and the quality of its products and services directly affects the safety and operation efficiency of nuclear power plants. A company cannot develop without the cooperation with its partners. Only closer cooperation with business partners and stakeholders can we better achieve the goal of sustainable development.

Our Strategies

In line with the concept of win-win cooperation, CGN Power establishes a sound supplier management system. We promote responsible procurement and empower suppliers to promote the sustainable development of the supply chain. Besides, together with partners including government, universities and enterprises, we carry out technical exchanges as well as strategic cooperation to gather development wisdom for mutual complementarity so that we can seek long-term development in open cooperation.

Our Performance

7,147
Qualified suppliers

100%
Coverage of environmental factors in the qualification reviews for suppliers

Growing with Suppliers

Sustainable supply chain is the key factor for enterprises to achieve sustainable development. CGN Power strictly complies with relevant laws and regulations such as the *Law on Tenders and Bids* and has formulated policies such as the *Supplier Management Measures* and the *Supplier Misconduct Management Process*. We continue to improve the supplier management mechanism, and enhance the sustainability of the supply chain, striving to create a mutually beneficial partnership for a prosperous nuclear power industry.

Supplier management improvement

Following the "four principles" (honesty and integrity, easy entry and strict management, overall planning and sharing, and win-win cooperation), CGN Power has created a supplier management policy of "five unifications" (unified organization, unified system, unified process, unified platform and unified classification), which clarifies the supplier management mechanism covering the whole life cycle from procurement, access, evaluation and withdrawal. Based on such a policy, we constantly improve the transparency and standardization of supplier management, safeguard the legitimate rights of suppliers, and enhance the resilience of the supply chain.

CGN Power has established the Supplier E-commerce Platform ("**ECP**"), supplier business work platform and data platform, supplier online certification platform, and supplier intelligent push platform to achieve unified supplier management and standardized procurement categories, centralized and unified expert management, electronic bidding and procurement, as well as automatic contract management. The IT-based management has effectively promoted the standard supplier management.

1,049	7,147	6,788	359
New suppliers introduced	Qualified suppliers, including	Domestic suppliers	Overseas suppliers

Case **CGN Engineering was selected as a National Supply Chain Innovation and Application Demonstration Enterprise in 2022**

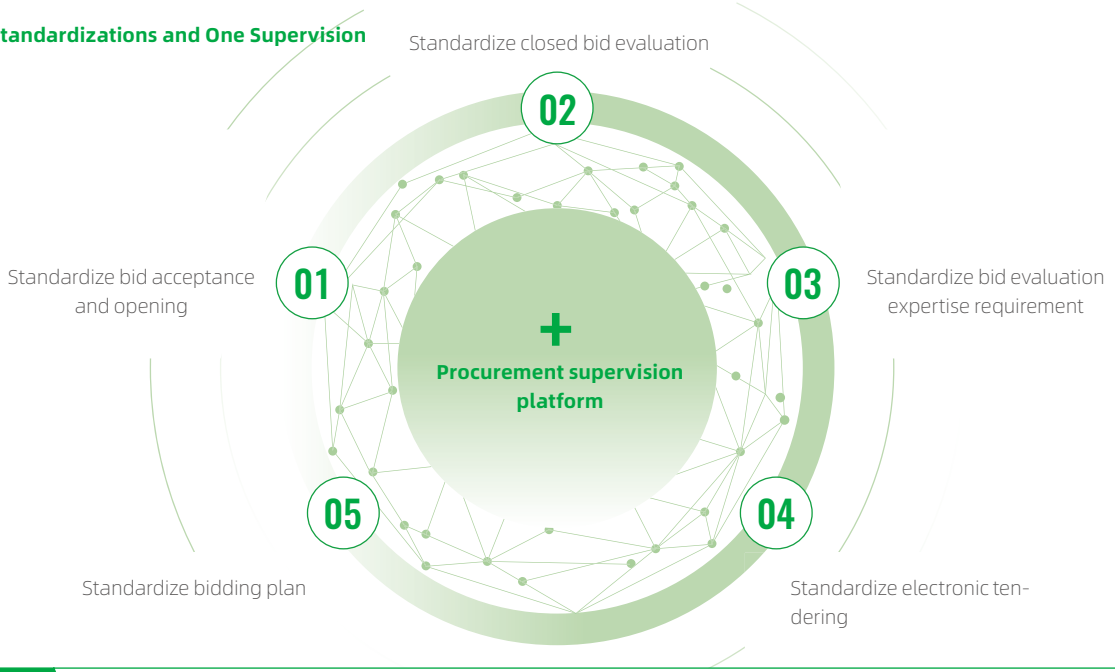
In November 2022, CGN Engineering was awarded the title of National Supply Chain Innovation and Application Demonstration Enterprise jointly issued by eight units including the Ministry of Commerce, the Ministry of Industry and Information Technology, the Ministry of Ecology and Environment. It is the first company who won this honor in the nuclear power sector.

As the main unit of equipment procurement for nuclear power projects, CGN Engineering aims to become the supply chain chief in the field of nuclear power engineering construction. The company actively plays a leading role to strengthen the synergy between industries and further enhance the overall domestic nuclear power equipment manufacturing. By the end of 2022, it has supplied more than 1.5 million sets of nuclear power equipment, and signed over 5,500 contracts with more than 2,000 downstream suppliers, covering more than 5,000 supply categories, which is one of the world 's most experienced, perfect and capable enterprises in nuclear power equipment integration.

Transparent procurement

Based on the principles of fairness, openness and justice , CGN Power adhered to conduct transparent procurement and has formed the "Five Standardizations and One Supervision" mechanism. We unify the acceptance and opening of bids through the electronic platform and conduct completely closed bidding evaluation to continuously improve standardization and transparency of the bidding work.

Five Standardizations and One Supervision



Case The 9th Bid Evaluation Expert Training

The 9th Bid Evaluation Expert Training was successfully held on November 17, 2022. More than 2,000 bid evaluation experts participated in the training offline or online. Discipline requirements of bid evaluation experts, warning cases, daily management of experts, conditions of bid evaluation sites, extraction rules as well as experts' rights and obligations were explained at the training. Through this training, we further consolidated bid evaluation experts' awareness to abide by laws and regulations, and strengthened their professional skills, urging them to jointly abide by the legal compliance bottom line in the bidding and tendering fields.

Strict access

CGNPC actively seeks qualified potential suppliers and establishes a strict supplier review mechanism. Through document review, source review and other reviews, the technical, safety and quality assurance, and commercial personnel conduct qualification review on potential suppliers according to the four-tier procurement category. The review results are mutually evaluated and recognized within the group. It achieved unified management and sharing of supplier resources, while ensuring that suppliers cooperating with the Company are in compliance with laws, regulations and various requirements.

Document Review

We send qualification documents to suppliers and determine whether they are qualified for bidding and performing the contract according to their returning documents. The main review factors include supplier's basic qualification, relevant performance, safety, quality, environment and technical level, financial condition, etc.

Source Review

For suppliers that require source review, after passing the document review, source review will be conducted at the supplier's location as needed, including factors such as safety, quality, environment, technology and business. According to the supplier's intended supply category, the corresponding review strategy is adopted and independent written opinions are issued.

Other reviews

Due to the nature of different businesses, subsidiaries and associated companies can freely choose to engage with external agencies to assess, simplify the process or use other special methods. Each subsidiary and associated company have clearly stipulated the corresponding provisions in the detailed implementation rules.

Supplier classification

To classify and manage qualified suppliers, CGN Power has built a supplier classification system that meets the business needs, adapts to a variety of management and statistical scenarios and is dynamically maintained. Besides, the Company has further clarified the subdivision control measures to ensure efficient supplier management.

Supplier classification system

By qualification and status

Registered suppliers

Qualified suppliers

Limited suppliers

By quality assurance level

Tier-1 suppliers

Tier-2 suppliers

Tier-3 suppliers

By subordination

Domestic suppliers within CGN

Foreign suppliers within CGN

Domestic suppliers outside CGN

Foreign suppliers outside CGN

Fulfillment evaluation

To improve suppliers' fulfillment capability, performance evaluations are conducted by CGN Power for all suppliers at least once a year, covering seven dimensions: technology, quality, cost, delivery, service, environmental protection and social responsibility. All evaluation results are recorded and archived on ECP. All subsidiaries and associated companies also conduct contract evaluations for suppliers on a regular basis to ensure a continuous record of evaluations throughout the contract execution cycle. For suppliers participating in operational maintenance and engineering construction of NPPs, a standardized performance evaluation system has been established, which is consistent with the Company's procurement strategy.

In 2022

109

Critical Tier-1 suppliers (quality assurance level: Tier-1) reviewed

238

Critical non-Tier-1 suppliers (quality assurance level: Tier-2) reviewed

5.93%

Percentage of critical Tier-1 suppliers in total suppliers reviewed

12.96%

Percentage of critical non-Tier-1 suppliers of total suppliers reviewed

By relationship

Strategic suppliers

Bottleneck suppliers

Key suppliers

By segment

Nuclear power operation segment

Engineering segment

Comprehensive segment

Overseas segment

By procurement category

See the classification of supplies

Withdrawal management

CGN Power has formulated the *Supplier Misconduct Management Process* to select and eliminate suppliers based on evaluation results, and has issued the lists of suppliers requiring special attention and blacklisted suppliers. Based on the supplier risk monitoring platform, the Company shares the misconduct of suppliers in real time within the Group, and jointly punishes dishonest suppliers with China Electricity Council and China Nuclear Energy Association, thus building a credit and punishment pattern of "one misconduct behavior leads to restrictions in every aspect". During the Reporting Period, 70 suppliers were blacklisted and banned by the Company.

Removing suppliers without cooperation needs

The supplier qualification is valid for 3 years. Evaluations on cooperation needs will be carried out regularly based on the procurement strategy of different categories and the supplier will not be reviewed without cooperation needs, and the supplier will eventually withdraw.

Eliminating suppliers with poorer performance

Eliminating suppliers with the poorest performance: Based on the procurement strategy of different categories, on the premise of meeting the competitive demand, suppliers with the poorest performance will be eliminated according to the supplier evaluation results.

Removing suppliers with serious misconduct

Suppliers with serious misconduct or major business risks will be blacklisted after being reviewed and publicized, and their qualification will be automatically cancelled.

Prohibiting suppliers under special situations

Suppliers that are punished or restricted by regulatory authorities, blacklisted by relevant government authorities or other departments, and included in the joint punishment list as well as those violating relevant political standards and with invalid or expired special qualification certificates will be prohibited.

Supply chain risks prevention

CGN Power values the identification and prevention of supply chain risks, and continuously tracks and evaluates supply chain risks in safety, quality, environment, labor and integrity. The Company is committed to enhancing supply chain resilience to ensure the safety of nuclear power operation.

Health and safety of suppliers

The engineering construction, power generation and equipment maintenance of NPPs all involve the direct participation of suppliers. To achieve excellent safety goals requires the joint efforts of suppliers. CGN Power's occupational health and safety management system (OHSMS) is also applicable to contractors. We require contractors to comply with the relevant requirements of the Company's OHSMS, strengthen OHS management as well as cultivate safety culture. In addition, we supervise suppliers to standardize occupational health management to ensure continuous safety.

Case **CGN Engineering holds an exchange meeting on SQE management improvement for main participating units of the nuclear power engineering headquarter platform**

To further improve the SQE management in the construction management industry chain, CGN Engineering held an exchange meeting on SQE management improvement for main participating units of the nuclear power engineering headquarter platform on August 25, 2022. Based on the overall performance of annual SQE of each project, CGN Engineering proposed 10 follow-up improvement requirements. Each unit is required to form an implementation checklist. The SQE work is broke down to jointly complete the annual SQE goals.

Green supply chains

Upholding the concept of green development, CGN Power conducts green procurement of raw materials. We spread the environmental protection concept through the supply value chain, in a bid to build green supply chain. Environmental protection factors are integrated into supplier management systems such as qualification review, bid evaluation, contract execution, supplier evaluation, spare parts management. By adopting responsible procurement, we promote suppliers to continuously improve the environmental protection performance.

Qualification Reviews Phase

CGN Power incorporates environmental factors in the qualification reviews for suppliers. In the tender document, we require bidders to include green nuclear power elements in the submitted technical proposals. The scoring criteria requires that design proposals, raw material selection, subcontractor selection, manufacturing processes, packaging, recycling and other aspects in green elements are newly included in the scoring criteria, which promotes suppliers to fulfill their environmental protection responsibilities at the source.

Contract Execution Phase

We have signed contracts with suppliers that require them to conduct green operation in compliance with relevant laws and regulations. To protect the ecology at all aspects, suppliers shall control materials, resources consumption, wastes generation, adopt environmentally friendly processes and improve recycling and utilization efficiency in accordance with relevant standards and requirements of ISO 14001, with an aim to reduce the impacts of operation on the environment.

Engineering Construction Phase

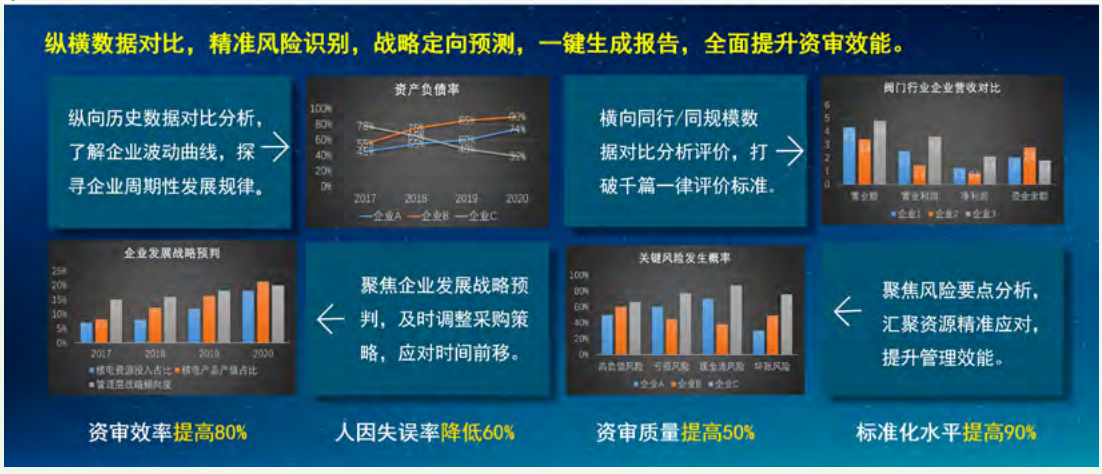
We strictly follow the principle of green construction and have implemented the CGN Engineering Green Industrial Chain Management Rules. It requires each business center and project implementation unit to designate departments responsible for the green industry chain, arrange special personnel to promote the effective implementation of management rules and incorporate the green industry chain management requirements into departmental procedures or systems. These efforts will contribute to the standardized and procedural green industry chain management and realize the green industrial chain management in engineering construction.

Anti-corruption of suppliers

CGN Power has set up secure whistle-blowing channels. Suppliers can report any violations to the disciplinary investigation department through calls, in-person visits, or emails with confidentiality. Our standard bidding documents also include the Letter of Responsibility for the Construction of a Clean Government, and the letter of responsibility signed by the supplier will be executed as an annex to the contract agreement. In addition, Yangjiang, Lufeng and other nuclear power bases have set up integrity committees to strengthen the supervision of suppliers' integrity risks and work with suppliers to create a clean business environment.

案例 Evaluating suppliers' business risks with one click

Due to COVID-19 impact and other factors, the business risks of suppliers are highlighted. To early identify, warn, respond and monitor business risks in the supply chain, CGN Engineering has successfully created a set of "quantitative analysis model of supplier's business risks". This model can realize quantitative analysis and evaluation on supplier's shareholding structure, business competitiveness, financial index, performance index, enterprise stability index and comprehensive operation index, as well as one-click generation of evaluation reports. It can improve evaluation efficiency by 80%, reduce human error rate by 60%, improve evaluation quality by 50% and improve standardization level by 90%. It greatly improves the efficiency and quality of suppliers' business risk evaluation, providing a guarantee for further maintaining supply chain stability and security.



Suppliers' capability improvement

Improving the capability of suppliers not only improves the production and operation safety of the Company, but also the capability of the whole industrial chain. A long-term and effective cooperation and two-way communication mechanism with suppliers enables us to actively promote experience exchange and resource sharing. By providing targeted resources and assistance to suppliers, we continue to empower and help them improve management and product quality, so as to jointly promote the sustainable development of the supply chain.

- We regularly provide training for suppliers, including corporate culture, supplier management, ECP implementation, CA application, procurement and bidding management, etc., with an aim to help suppliers understand the Company's requirements and culture, improve the quality of supply services, equipment and construction, and improve cooperation efficiency.

- We actively promote the "quality coordination mechanism" of the equipment supply chain in bidding and procurement management, and strengthen the process control of equipment manufacturing quality, in a bid to build a win-win industrial chain ecological cycle.
- In the field of nuclear power engineering construction, through experience feedback platform, we timely feedback equipment problems during nuclear power engineering construction to similar equipment suppliers, and promote the effective implementation of experience feedback on nuclear power equipment quality along the supply chain
- In the field of nuclear operation, each subsidiary has established a supplier management committee to promptly report safety and quality issues such as on-site operation and maintenance to suppliers, and track their implementation.

- We strengthen cooperation with first-time localized equipment suppliers and contractors by assigning full-time personnel, quality monitoring and business exchanges and other means. Besides, we provide training for suppliers to raise their quality awareness, and guide suppliers to improve their quality management capabilities for subcontractors.
- CGN Power has taken the lead to set up the CGN Joint R & D Center for the localization of nuclear power equipment in CGN, and establish supply chain cooperation with more than 70 domestic nuclear power equipment manufacturing and R & D organizations through ECP bidding and procurement. The center holds regular exchange meetings on the improvement of localization capacity, builds an industrial chain of nuclear power equipment, and promotes the localization of nuclear power equipment, so as to realize the common progress of the industrial chain and improve the overall equipment manufacturing of China's nuclear power industry.

In May 2022, in accordance with COVID-19 prevention and control requirements, CGN Engineering arranged personnel to stay in the plant to carry out the ring crane commissioning of Huizhou Unit 2 in the plant.

Case **Improving project quality through quality certification training**

CGN Engineering actively carries out a series of quality certification training and works with suppliers to improve project quality. Since 2018, 708 key personnel from 276 equipment industry chain units have passed the quality manager certification training organized by CGN Engineering with qualification certificate of "CGN · Nuclear Power Project Quality Manager". In 2022, CGN Engineering organized and conducted the quality manager certification training in Deyang, Hangzhou and Shenzhen. The training introduces points system and ranking system to guide certified personnel to participate in project quality improvement as a leading role. In 2022, the quality manager participated in more than 120 times of relevant quality assurance inspections, quality diagnosis, risk analysis and improvement.

Case **CGN Engineering exchanged virtually with major equipment suppliers in Shanghai**

On April 30, 2022, CGN Engineering exchanged virtually with 17 major equipment suppliers in Shanghai. The meeting reviewed the difficult process of cooperation between the two sides, including scientific research promotion, localization of key components production. Both sides also exchanged specific measures to coordinate pandemic prevention and equipment manufacturing. CGN Engineering has actively studied and formulated relevant measures to help partners affected by the COVID-19 as much as possible.

Promoting Industry Development

As a leader in the nuclear industry chain, CGN Power is an important member of multiple industry organizations. We always boost industry development with an inclusive and open mind. By participating in industry standards formulation, organizing consortium, innovating and promoting industry technologies, we have worked together with partners to move towards a sustainable future, promoting the sustainable development in the nuclear power industry. Meantime, we have compiled the International Benchmarking Evaluation Standard for Quality Management of Equipment Industrial Chain and have jointly established the Major Equipment Quality Risk Prevention Group with suppliers to strengthen the nuclear equipment industrial chain management and comprehensively improve the quality management level of nuclear equipment industrial chain.

Case *Design of Auxiliary Systems and Supporting Systems for Nuclear Power Plants* was officially released

The nuclear safety guideline *Design of Auxiliary Systems and Supporting Systems for Nuclear Power Plants* (HAD102/22-2022) edited by CGN Engineering, was officially released on November 7, 2022. It is the first new design guideline for nuclear power plant auxiliary system and supporting system issued by the state to better guide the design of nuclear power plant in China, meeting the related requirements in HAF102-2016.

Case *The Technical Specification for the Daya Bay NPP and the Ling'ao NPP* was approved

In September 2022, the *Technical Specification for the Daya Bay NPP and the Ling'ao NPP*, developed by DNMC, was approved by the National Nuclear Safety Administration. Drawing on the advantages of foreign determinism and probability theory, and fully combining with the practical experience of domestic nuclear power, DNMC has established a set of more scientific and sound nuclear safety management standards, and took the lead in the industry to carry out demonstration applications, providing the Daya Bay solution for the high-quality development of China's nuclear power industry.

Case Hosting the First Nuclear Power Industry-chain Forum during the First China Nuclear Energy High-quality Development Conference

CGN Engineering hosted the Nuclear Power Industry-chain Forum during the First China Nuclear Energy High-quality Development Conference from November 15 to 17, 2022. The Company worked with government, enterprises, academia, research institutions and application parties to discuss the high-quality development of nuclear energy around carbon peak and carbon neutrality strategies. Two academicians, over 60 domestic manufacturers and more than 200 audiences were invited to attend the forum.

In response to the country's major plan of high-quality development and the construction of modern industrial system, the nuclear power industrial chain forum focused on innovation in nuclear power equipment design and self-manufacturing, and strengthened the industrial chain synergy to gather high-end wisdom and industry consensus. Through comprehensive and open thinking, it showed the vigor of the scientific and technological innovation-driven development of China's nuclear energy industry. It will contribute wisdom and strength to promoting the manufacturing of nuclear power equipment in a comprehensive and self-controlled way, helping China become a strong nuclear power country and achieving the 30·60 Decarbonization Goal.

Deepening Diverse Cooperation

Taking full advantage of our own resources, we continue to deepen technical exchanges and strategic cooperation with governments, enterprises, and universities. We actively promote the deep and high-level cooperative partnership to achieve mutual complementarity, mutual benefit and win-win cooperation.

Case Participating in the 2022 Shenzhen Nuclear Expo

From November 15 to 17, 2022, the 2022 China Nuclear Energy High-quality Development Conference and Shenzhen International Nuclear Energy Industry Innovation Expo (Shenzhen Nuclear Expo) with the theme of "Nuclear Gathering in the Bay Area, Powering the World" was successfully held. Gao Ligang, the president of CGN Power, delivered a speech, and CGN Engineering shared experiences on topics of Innovation and Application of Advanced Construction Technology and Intelligent Construction Platform for High-quality Development of Nuclear Energy in the New Era, Current Situation and Improvement of Quality Management System for Nuclear Power Equipment Manufacturing. Besides, CGN Power and enterprise representatives jointly signed the Declaration on the High-quality Development of China's Nuclear Energy, promising to promote the high-quality development of China's nuclear energy in terms of nuclear energy safety, innovation, green development and international cooperation.

Gao Ligang, President of CGN Power, delivers a speech

Case CGN Operations and Shenzhen University jointly build Laboratory for Nuclear Power Operations

On November 22, 2022, CGN Operations and Shenzhen University held the signing ceremony of the framework agreement on cooperation between National Engineering Laboratory for Big Data System Computing Technology and CGN Operations Big Data Joint Laboratory for Nuclear Power Operations, aiming to take advantage of industry-university-research resources, focusing on digital technical problems in NPP outage, spare parts, equipment management and other business areas to promote the construction of digital core competency.

Case Fangchenggang Nuclear launches the first external training program

In 2022, Fangchenggang Nuclear's first external training program, namely personnel training project commissioned by Hainan Changjiang nuclear power Co.,ltd of Huaneng Group (Changjiang Company) was officially launched. 67 trainees of Changjiang Company were trained for about 15 months. On January 4, 2022, the basic safety authorization courses were officially implemented, and the trainees accepted more than 20 days of training in the training center of Fangchenggang Nuclear. After completing the basic safety authorization, they joined the operation department for on-the-job training, in which they will complete the relevant technical position authorization courses. They are expected to finally obtain the intermediate on-site operator position authorization (level 1) in April 2023.

Harmonious Communities

Opportunities and Challenges

In the "14th Five-Year Plan", China sets "people will lead a better life, and more notable and substantial progress will be achieved in promoting well-rounded human development and achieving common prosperity for everyone" as one of the long-range objectives to basically achieve socialist modernization by 2035. Common prosperity is an important feature of Chinese path to modernization, and an important responsibility entrusted to enterprises in the new era, which also brings us new opportunities.

Our Strategies

CGN Power has kept advancing social progress while pursuing our own development. With the 3N Harmonious Community concept of "safe, friendly and warm neighbor", we actively promote the development of the community where our projects are located, and share development achievements with the community. We also actively respond to national strategies of common prosperity and rural vitalization, and give full play to our own advantages in constructing modern rural areas.

Our Performance

About 40.3758 million yuan

Invested in rural vitalization, disaster relief and other donation

100,000 +

Public visitors to the exhibition hall for nuclear power science popularization

11,600 +

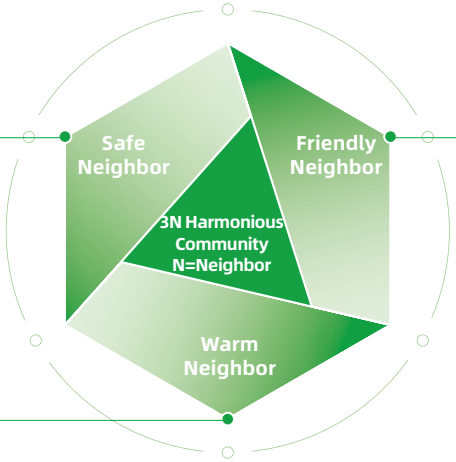
Employee participants in charitable activities

Giving Back to the Community

CGN Power aims to develop a harmonious community where people live and work in peace and contentment and get along with each other, the children grow up healthily, and the elderly are well cared for with sound community infrastructure, beautiful environment and convenient life. Insisting on the 3N Harmonious Community concept of "safe, friendly and warm neighbor", we strive to be a good neighbor that makes the community residents feel comfortable, satisfied and warm by actively communicating with the community and participating in the community development to lead the comprehensive progress of the community.

- Safety information disclosure
- Safety communication activities

- Lead community progress
- Support residents' health



- Protect ecological environment
- Promote human development

Actions as a safe neighbor

Nuclear power is somehow mysterious for community residents. Adhering to the principle of openness and transparency, CGN Power constantly broadens communication channels, regularly carries out nuclear science popularization activities, and answers the questions of community residents with plain words, so as to improve the public's understanding and trust of nuclear power operation and reassure community neighbors.

Disclosing operation information actively

A nuclear power safety reporting and disclosure system has been established in all nuclear power stations to timely disclose safety information and monitoring indicators. The operating data and nuclear safety information managed by the Company will be published online every month. Any occurrence after fueling of a nuclear power unit must be published within two calendar days (exclusive of the date of occurrence) from the date on which such occurrence is defined, ensuring the public's right to know the safe operation of nuclear power and enabling public to supervise our operation.

Establishing multiple communication channels

We use channels like press conferences, Weibo, WeChat and short video platforms and public open days as communication platforms with the public, and constantly innovate communication channels and ways to listen to and respond to people's major concerns about nuclear power development in a timely manner, so that we can strive to eliminate public doubts and build a relationship of mutual trust.

Conducting nuclear power science popularization

CGN Power has set up an exhibition hall for nuclear power science popularization to enable the public to understand the development history of nuclear power and raise their nuclear power safety, low-carbon and eco-friendly awareness in a variety of interesting forms. Various activities such as experience days and nuclear power summer camps are held to continuously increase public's knowledge on nuclear power. At the same time, we continuously promote the "popularization of nuclear science in schools" campaign for primary and secondary school students. Through our efforts over the years, this campaign has been promoted in schools nearby the NPPs, including Guangdong Province, Liaoning Province, Fujian Province and Guangxi Zhuang Autonomous Region with continuous expansion.

Case Nearly 40 primary school students and their parents from Shenzhen visit the state key laboratory of CGN Engineering

On May 28, 2022, CGN Engineering held a public open activity of "Discovery Journey of Little Scientists" themed on "Blue Sky and Clear Water & Self-reliance", in which nearly 40 primary school students and their parents from Shenzhen participated. The students viewed the model of HPR 1000, visited the State Key Laboratory of Nuclear Power Safety Monitoring Technology and Equipment, and attended the nuclear power science popularization lecture, for which, they had a further understanding of nuclear power clean energy and nuclear power safety culture. This activity sparked students' enthusiasm in advocating for science, loving science and exploring new knowledge, which was acclaimed by students and parents.

Case Natural course in the nuclear power plant

On June 1, 2022, as the June 5 World Environment Day was approaching, 35 primary school students walked into the Daya Bay Nuclear Power Base and had a special nature course. They did ecological "physical examination" for the nuclear power plant, experienced "cross-country in the jungle ", and attended environmental protection manual classes etc. DNMC innovated public communication and intertwined the amusement with the education by integrating nuclear power science popularization, visiting experience, environmental monitoring, natural observation, and interactive games, which made children experience the beauty of nuclear power ecology, and influenced a family through one child, thus further improving the public's awareness and recognition of nuclear power.

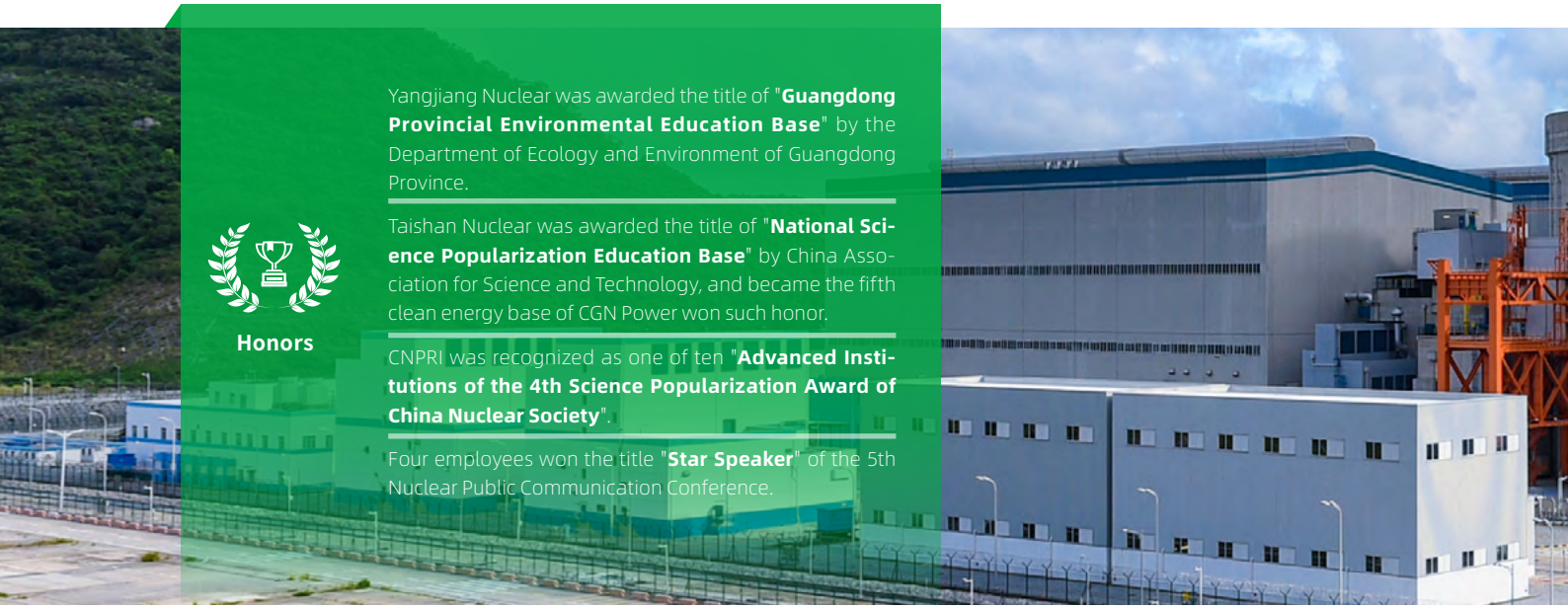
16
Permanent exhibition halls

100,000+
Public visitors

115 million
Views of live stream of online experience day on August 7

115
Schools participated in the "popularization of nuclear science in schools" campaign

30,000
Students from



Honors

Yangjiang Nuclear was awarded the title of "**Guangdong Provincial Environmental Education Base**" by the Department of Ecology and Environment of Guangdong Province.

Taishan Nuclear was awarded the title of "**National Science Popularization Education Base**" by China Association for Science and Technology, and became the fifth clean energy base of CGN Power won such honor.

CNPRI was recognized as one of ten "**Advanced Institutions of the 4th Science Popularization Award of China Nuclear Society**".

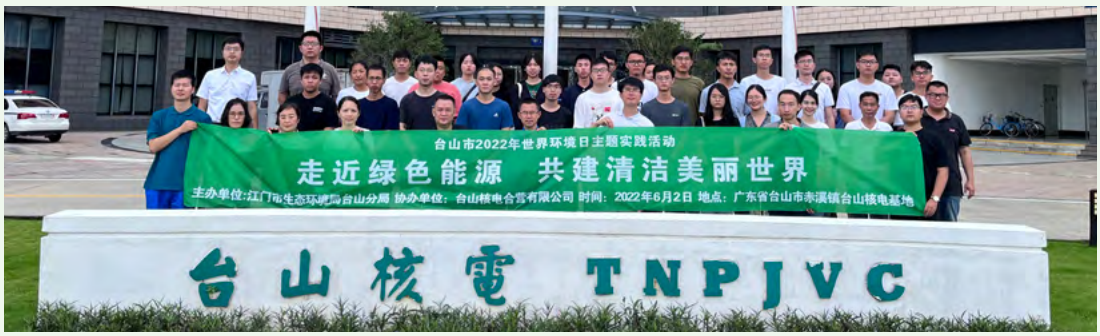
Four employees won the title "**Star Speaker**" of the 5th Nuclear Public Communication Conference.

Actions as a friendly neighbor

Committed to becoming a friendly neighbor, CGN Power always protect community environment by cleaning environment, planting tree and organizing other activities every year with a friendly attitude, continuously adding green to the community. We value and promote the development of local customs, art, history and other community cultures, and actively carry out various cultural activities to promote the development of community humanities.

Case **Activities on June 5 to celebrate the World Environment Day**

In June 2022, Taishan Nuclear and the Ecology and Environment Bureau of Jiangmen jointly carried out the activity themed "Approaching Green Energy - Jointly Building a Clean and Beautiful World" on the June 5th World Environment Day in the Taishan Nuclear Power Base. 40 environmental protection workers from the Taishan Branch of the Ecology and Environment Bureau of Jiangmen and the towns (streets) of Taishan City participated. This activity publicized the concept of energy conservation, emission reduction and green environmental protection, and established the brand image of nuclear power as a clean energy, thus strengthening the public's confidence in developing nuclear power.



Case Voluntary beach cleaning

The voluntary service teams of the CNPRI carried out volunteer activities of cleaning beaches at the Daya Bay Nuclear Power Base and the surrounding beaches from time to time. Volunteers collected garbage, and then put them into designated garbage cans according to the classification of garbage. Our practical actions have called on more people to protect the environment while enjoying nature and encouraged them to take away their garbage to make beautiful beaches.

Case Yangjiang Nuclear takes golden wedding photos for 18 couples

In December 2022, Yangjiang Nuclear carried out a golden wedding photography activity themed "Happy Old Age with Memory of the Times" in the Yunbo Village, Dongping Town, recording the love of 18 golden couples in Yunbo Village for half a century. This was praised by the villagers.

Actions as a warm neighbor

The development of the Company is inseparable from community support. In combination with project operation, CGN Power behaves ourselves as a warm neighbor, and gives back to the community with practical actions, including facilitating the infrastructure building and carrying out various volunteer activities to benefit and bring convenience to the people.

Facility improvement

Case Carrying out "Water Cellar for Mothers" charitable activity for 15 years

On December 9, 2022, the Party Branch of the DNMC's Engineering Transformation Department and the Lanjin Primary School in Sicheng Town, Lingyun County, Guangxi Province carried out the online public welfare donation and exchange campaign themed "Water Cellar for Mothers" to help solve the difficulties of Lanjin Primary School. This campaign aims to solve the water problem in the western region through voluntary fundraising, donation and other forms. It has been carried out for nearly 15 years since 2008, benefiting more than 2,200 people in 550 households.

Case "We don't have to worry about walking in the darkness anymore"

In July 2022, the street lamp donation and lighting ceremony of Dapo Community, Guangpo Town, Fangchenggang City, Guangxi Province, was held in the Government Service Center of Guangpo Town. At that time, the sections like Guangpo Middle School were not equipped with street lights, incommoding students' way to the school, residents' need for disease treatment and night driving. After learning about their needs, Fangchenggang Nuclear completed the procurement and installation of solar street lamps within half a month after actively coordinating with the cooperative institutions and conducting field survey and demonstration. Moreover, it signed a quality assurance agreement for maintenance work such as battery replacement and fault repair. Community residents were positive about this.

Case "Conducting circuit maintenance in rural areas to eliminate hidden dangers and ensure safety"

The Electrical Department of Taishan Nuclear, leveraged its work characteristics to inspect and maintain household circuits for villagers in surrounding communities. According to circuit inspection results, the Department not only discussed and formulated transformation plans, installed wiring ducts and new cables and replaced the faulty electrical switches, but also explained the precautions for safe use of electricity. This activity has been carried out for two consecutive years since 2021, effectively meeting the actual living needs of the surrounding villagers.

Student aid

Case Helping students to pursue school learning

For many years, Fangchenggang Nuclear has continuously carried out assistance activities for Shaluoliao Primary School. On the one hand, using its professionals in electrical maintenance, Fangchenggang Nuclear repairs the lamps and check the electrical circuit before every term begins, so as to ensure the safe use of school electricity. On the other hand, it actively presents school with learning and sports supplies, leads students to participate in extracurricular activities, and imparts nuclear power science knowledge, enlightening students that knowledge changes life. In the past three years, several activities such as the "Spark" Program, and the "Eye Protection" Program were carried out, and employees also voluntarily donated money to buy sports supplies and pandemic prevention supplies.

Warm visits

Case Yangjiang Nuclear carries out "Warm Neighbors in the Spring Festival" visits

On the eve of the Spring Festival in the Year of the Tiger, Yangjiang Nuclear carried out "Warm Neighbors in the Spring Festival" visits, visiting 228 impoverished people in Yunbo, Shazui and Naqin villages around the Yangjiang Nuclear Power Base, and presenting gift packages and Spring Festival greetings. The company also organized famous calligraphers in Yangjiang City to write Spring Festival couplets for the villagers of Yunbo Village and Kongtong Village, and nearly a thousand beautiful and festive Spring Festival couplets were presented, adding new year's flavor and giving holiday blessings to the villagers. Yangjiang Nuclear was awarded the honor of Supporting Yangjiang - 2022 Charity Institution with "Red Cross Charity for Thousands of Families" by the Red Cross Society of Yangjiang.

Voluntary blood donation

Case "Every drop of blood makes life extend"

In July 2022, the Red Cross Society of Yangjiang, Yangjiang Central Blood Station, Yangjiang Nuclear and other institutions of Yangjiang Nuclear Power Base jointly organized the 6th voluntary blood donation activity themed "Every drop of blood makes life extend". More than 60 employees and family members of the base participated in the blood donation, in which more than 20,000ml blood was donated., which made positive contributions to ensuring clinical blood supply in Yangjiang City and safeguarding the health of the masses. Six employees of Yangjiang Nuclear won the 2020-2021 national recognition of voluntary blood donation from the Medical Emergency Department of the National Health Commission of the People's Republic of China.

Case SNPI has carried out voluntary blood donation activities for 9 consecutive years

On August 2, 2022, the hall of the main building of the Suzhou Nuclear Power Research Institute witnessed an upsurge of love, for an endless stream of staff came to participate in blood donation. Blood donation activities in SNPI have been carried out for 9 years. A total of 47 people signed up to participate in the blood donation, with a total of 12,700ml blood collected. The SNPI has donated more than 100,000 ml.

Joint COVID-19 fight

Case Win the battle of COVID-19 prevention and control at the beginning of school in spring

Affected by the COVID-19 pandemic, high schools in Lingyun County were facing much pressure on pandemic prevention and control. A joint working group, established by Fangchenggang Nuclear, urgently prepared and donated 20,000 medical masks, 780 bottles of disposable hand wash and 80 boxes of alcohol cotton tablets to schools, which were then distributed to nearly 4,000 teachers and students of high schools in Lingyun County. These material supplies guaranteed the high schools to win the battle against the pandemic response in spring.

40,700 hours	**11,600**	**40.3758** million yuan
Volunteering and charitable activities in 2022	Employee participants in volunteering activities in 2022	Invested in public welfare charity

Boosting Rural Vitalization

As an enterprise with a sense of social responsibility, CGN Power not only focuses on its own economic development, but also uses its advantages in capital, technology, talent and management to facilitate the national strategy of common prosperity. In 2022, we continued to boost rural vitalization in Guangxi Zhuang Autonomous Region, Guangdong Province, Fujian Province and other places. For example, we continued to improve the lives of local residents by assisting local development of characteristic industries and consolidating the achievements in poverty alleviation to comprehensively promote rural vitalization.

Lingyun County and Leye County, Baise City, Guangxi Zhuang Autonomous Region

- We promote industrial assistance projects. We invested funds to support the mulberry wine processing project in Lingyun County. The project was officially put into operation in July 2022, with a total production and sales of more than 20,000 pieces of mulberry wine, helping to upgrade the mulberry industry in Lingyun County.
- We introduce social forces to jointly assist rural areas. The Public Welfare Fund was mobilized to carry out a donation activity of "Rural Digital Library" in Lingyun County, donating 60 tablet computers and several sets of teaching aids to 8 rural primary schools, benefiting more than 1,600 teachers and students. Shenzhen Qixin Stationery was mobilized to donate 3,000 sets of stationery gift packs to schools in the two counties, equivalent to about 160,000 yuan.
- We continue to promote the education assistance of "CGN - Egret Class", and roll out new CGN - Egret Classes in Lingyun County and Leye County every year.

Dongping Town, Yangjiang City, Guangdong Province

- We carry out diversified assistance activities. Yangjiang Nuclear visited and expressed their concerns to 125 impoverished people and 365 elderly people in Dongping Town. We helped Yunbo Village, Dongping Town set up a talent station for rural vitalization and held a training on "Guangdong Skilled Workers". We also awarded teaching and learning achievements. A total of 140 teachers and students in the primary and secondary schools in Dongping Town won the "Yangjiang Nuclear Teaching Scholarship", and 42 people in Yunbo Village who were admitted to colleges and universities and key high schools won the "Yangjiang Nuclear Eagle Scholarship".
- We vigorously develop local industry to enrich the residents. We promote the collective enterprises in Yunbo village to undertake road cleaning and greening maintenance outside the Yangjiang Nuclear Power Base, increasing the operating income of the village collective by 1.1 million yuan every year. The resources of China Foundation for Rural Development is introduced to propel the implementation of the "Bona Villa" comprehensive demonstration project in Yunbo Village, Yun'an Natural Village, Dongping Town, and promote the integrated development of rural agriculture, culture and tourism industry through developing characteristic homestays.
- We enthusiastically carry out volunteer activities. Yangjiang Nuclear visited 44 poverty-stricken households in Yunbo Village to offer condolences. The volunteer teams organized more than 30 activities including house repair, environmental protection, circuit maintenance, medical free clinic, and caring education.

30.8 million yuan

Invested in rural vitalization and assistance funds

12

Rural vitalization assistance projects implemented

Honors

Yangjiang Nuclear won the title of "**Guangdong Top 100 Caring Assistant Enterprises**".

Yangjiang Nuclear won the "**Star of Fund-raising**" of the "**Guangdong Poverty Alleviation Day**" for the fifth consecutive year.

Yu Jing Village, Xiamen She Township, Fuding City, Fujian Province

- We facilitate the implementation of a number of projects such as Yujing Village homestay, night-scene project, colorful music and seafood plaza, tourism infrastructure, and ecological parking lot.
- We support to develop homestay and tourism in Yujing Village. Yujing accommodation is recommended for official reception, which directly increase the income of villagers' homestay by more than 80,000 yuan. By holding food festivals and other activities, we have frequently helped the surrounding villagers sell tea, fruit and other characteristic agricultural products, and assisted the rural vitalization with consumption assistance actions.

2023 work plan

In 2023, CGN Power will continue to combine high-quality corporate development with comprehensive promotion of rural vitalization, shoulder social responsibilities, innovate assistance methods, and deepen the cooperation with assisted areas to achieve mutual benefit and win-win results. We will capitalize on our sci-tech advantages to promote the in-depth integration of CGN Power's industry development and rural vitalization, and push forward the implementation and effectiveness of assistance projects. At the same time, social professional forces will be also introduced to attract more resources to jointly promote rural vitalization.

Outlook 2023

Corporate Governance	○ Fulfill the requirements of national legal systems and exchanges and refer to the best practices to optimize our internal governance and improve our standardized governance level ○ Improve risk management, compliance management, and anti-corruption to ensure stable operation
Safe Operation	○ Fully implement the nuclear power safety management system, strengthen safe actions and primary responsibility, carry out the outage of NPPs in an orderly manner, and continuously promote the "Specialization, Centralization, Standardization" ("SCS") Management strategy to ensure safe operation of NPPs ○ Promote the high-quality construction of NPPs as planned on the premise of safety and quality ○ Drive business growth with independent innovation, keep carrying out independent research on nuclear power and accelerate the pace of the pioneering role in original technologies to promote sustainable development
Green Development	○ Actively promote the safe and efficient use of nuclear energy, develop the benefits of comprehensive utilization of nuclear energy, use the nuclear fuel efficiently, and continuously control and reduce waste discharge to reduce the impact on the environment and help achieve the national goals of "carbon peaking" and "carbon neutrality" ○ Protect the ecosystem in the surrounding area of nuclear power bases and maintain a good ecological environment by implementing continuous environmental monitoring with advanced technologies and management approaches
Employee Development	○ Emphasize occupational health and safety of employees, and implement safety guidelines to protect their rights and welfare ○ Continue to improve our personnel training programs, enrich our staff training format and resources, optimize our performance appraisal and promotion system to motivate our employees and promote staff growth
Win-win Cooperation	○ Strengthen fair competition and continue to promote supply chain quality management and anti-corruption mechanism ○ Promote safe and eco-friendly nuclear power supply chain, and strengthen cooperation with the nuclear power industry alliances to enhance competitiveness
Harmonious Communities	○ Keep transparent communication, actively accept public supervision, and consistently improve public recognition and acceptance on nuclear power to build a harmonious relationship ○ Deepen community engagement, jointly improve the environment of surrounding communities, and drive local employment to promote local economy and build harmonious community relations ○ Continue helping rural vitalization and support disaster relief to contribute to social welfare undertakings

Independent Assurance Report

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China General Nuclear Power Co., Ltd.

2022 Environmental, Social and Governance Report

Independent Assurance Report

安永华明(2023)专字第 60806422_H01 号

To the Board of China General Nuclear Power Corporation：

I. Scope of Our Engagement

The 2022 Environmental, Social and Governance Report (the "ESG Report") of China General Nuclear Power Co., Ltd. (the "Company') has been prepared the Company, Management of the Company (the "Management") is responsible for the collection and presentation of information within the Appendix 27 *Environmental, Social and Governance Reporting Guide* of the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited and Shenzhen Stock Exchange's *Guidelines No. 1 for Self-Regulation of Listed Companies-Standardized Operation of Companies Listed on the Main Board*, and for maintaining adequate records and internal controls that are designed to support the ESG reporting process.

Our responsibility is to carry out limited assurance procedures in accordance with *International Standard on Assurance Engagements 3000 ("ISAE3000"): "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information"* issued by the International Federation of Accountants and issue the assurance statement for the key performance information in the ESG Report for the year ended 31 December 2022 in accordance with the Management's instructions and the terms of the Engagement Letter signed in February 2023.

According to the terms of the Engagement Letter, the Assurance Report is only prepared by the Board of the Company. Our work was limited to these stated above and our report is made solely to the Board, as a body, and for no other purpose. We do not therefore accept or assume any responsibility for any other purpose or any other person or organization. Any reliance any such third party may place on the ESG Report is entirely as its own risk.

II. Work Performed

Our review has been planned and performed in accordance with ISAE3000. In order to form our conclusions, we carried out the following procedures:

According to the Management's instructions, we performed limited assurance procedures in:

- China General Nuclear Power Co., Ltd. Headquarters
- Fujian Ningde Nuclear Power Co., Ltd.

We did not perform limited assurance procedures on other sites.

The limited assurance procedures were performed over the following key performance indicators in the ESG Report for the year ended 31 December 2022:

Safety

- Level 2 or above Nuclear events

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- Percentage of WANO indicators entering the world's top 1/10 (excellent level)
- Percentage of WANO indicators entering the world's top 1/4 (advanced level)

Environment

- The installed capacity of nuclear power in operation (MW)
- On-grid nuclear power generation (GWh)
- On-gird nuclear power generation equivalent to reduction of standard coal consumption (million tons)
- On-grid nuclear power generation equivalent to carbon dioxide reduction (million tons)
- Purchased electricity (MWh)
- Purchased electricity equivalent to carbon dioxide emissions (ten thousand tons)
- Freshwater consumption (ten thousand tons)
- Water consumption per unit of on-grid power generation（ton/GWh）

Social

- Number of employees
- Number of ethnic minority employees
- Number of fresh graduate employees
- Percentage of employees by gender

  Male

  Female
- Percentage of employees by job type

  Executives /Administrative staff

  Technicians
- Percentage of employees by age

  Aged 28 and below

  Aged 29 to 35

  Aged 36 to 45

  Aged 46 and above
- Percentage of employees by education

  Undergraduate and below

  Undergraduate

  Postgraduate

  Doctorate
- Percentage of employees by region

  Within Shenzhen

  Outside Shenzhen

In response to the above key performance indicators, the Company has applied the Environmental, Social and Governance reporting guidelines in the Appendix 27 *Environmental, Social and Governance Reporting Guide* of the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited and Shenzhen Stock Exchange's *Guidelines No. 1 for Self-Regulation of Listed Companies-Standardized Operation of Companies Listed on the Main Board* to prepare.

The limited assurance work includes interviews with persons in charge of selected key performance indicators, execution of analytical procedures and other limited assurance procedures, etc.

The limited assurance procedures we carried out are following:

- Interviewing the Company's Management and staffs responsible for the selected key performance information;
- Performing analytical review procedures;
- Performing sample inspection on the selected key performance information;
- Performing recalculation procedures on the selected key performance information;
- Other procedures we considered necessary.

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We believe that the evidence obtained is sufficient and appropriate as the basis for issuing limited assurance conclusions.

III. Limitations of Our Scope

Our scope of work did not include:

- Assessing the accuracy or fairness of information (including financial information) other than the selected key performance information;
- Reviewing the forward-looking statements made by the Management;
- Reviewing and consequently providing assurance on historical data.

IV. Level of Assurance

Our evidence gathering procedures have been designed to obtain a limited level of assurance (as set out in ISAE 3000) on which to base our conclusion. The procedures conducted do not provide all the evidence that would be required in a reasonable assurance engagement and, accordingly, we do not express a reasonable assurance opinion or an audit opinion. While we considered the effectiveness of the Management's internal controls when determining the nature and extent of our procedures, our review was not designed to provide assurance on internal controls.

V. Our Conclusions

Subject to the limitations of scope and based on the procedures specified above for this limited assurance engagement, we provided the following conclusions:
Nothing has come to our attention that causes us to believe that the key performance indicators selected in the Company's 2022 ESG Report are unfairly expressed in any material respect according to the Reporting Criteria above.

VI. Our Independence

We are in compliance with the Ernst & Young Global Independence Policy which was designed to comply with the requirements of the IFAC Codes of Ethics for Professional Accountants (the IFAC Code). We believe that there were no events or prohibited services provided which could impair our independence.

VII. Our Assurance Team

Our assurance team has been drawn from our ESG Report assurance service network, which undertakes similar engagements to this with a number of domestic or international businesses. Our assurance team has met the requirements of competence and work experience of this engagement.

Ernst & Young Hua Ming LLP

Ernst & Young Hua Ming LLP

Beijing, China

15 March 2023

Contribution to the UN SDGs

SDGs	CGN Power's Actions	Chapters
	Actively care about the socially disadvantaged groups to boost rural vitalization and create a harmonious and warm society	Harmonious Communities
	Adhere to the management policy of "safety first, prevention foremost, comprehensive governance", and actively take measures to ensure employees' health and safety	Employee Growth
	Implement education alleviation to improve education resources and quality in underdeveloped areas	Harmonious Communities
	Adhere to the principle of open, fair and equal competition, and implement gender equality	Employee Growth
	Promote nuclear power development and access to clean energy and ensure the safe operation of nuclear power	Operational Safety
	Respect and protect employees' rights interests, and build a diversified workforce with adequate development support	Operational Safety Employee Growth Harmonious Communities
	Construct power infrastructure, enhance innovation capabilities and optimize energy development technologies	Operational Safety
	Improve overall nuclear power efficiency, reduce resources consumption and waste discharge, ensure radioactive waste emissions meet national standards	Operational Safety
	Adhere to nuclear power development and promote low-carbon energy structure to reduce carbon emissions	Low-carbon Development
	Attach importance to the impacts of power plant construction and operation on surrounding life below water, and take measures to protect the life below water around the community	Low-carbon Development
	Attach importance to the impacts of power plant construction and operation on surrounding flora and fauna on land, and take measures to protect the life on land around the community	Low-carbon Development
	Enhance competitiveness and synergy in the nuclear power industry chain, establish a mutually beneficial strategic partnership with upstream and downstream companies	Win-win Cooperation

ESG Policies

ESG 指标	2022 年遵守主要法律及规则名称
A1 Emissions	*Environmental Protection Law of the People's Republic of China* *Law of the People's Republic of China on Prevention and Control of Radioactive Contamination* *Atmospheric Pollution Prevention and Control Law of the People's Republic of China* *Law of the People's Republic of China on the Prevention and Control of Environment Pollution Caused by Solid Wastes* *Regulations for Environmental Radiation Protection of Nuclear Power Plant* *Technical Requirements for Discharge of Radioactive Liquid Effluent from Nuclear Power Plant* *Pollution Control Standard for Storage and Landfill of General Industrial Solid Waste* *Pollution Control Standard for Hazardous Waste Storage* *Safety Management of Hazardous Chemicals* *Pollution Control Standard for Hazardous Waste Storage* *Opinions of the CPC Central Committee and the State Council on the Complete, Accurate and Comprehensive Implementation of the New Development Concept to Achieve Carbon Peaking and Carbon Neutrality*
A2 Use of Resources	*Environmental Protection Law of the People's Republic of China* *Law of the People's Republic of China on Environmental Impact Assessment* *Water Law of the People's Republic of China* *Energy Conservation Law of the People's Republic of China*
A3 Environmental and Natural Resources	*Environmental Protection Law of the People's Republic of China* *Water Law of the People's Republic of China* *Marine Environment Protection Law of the People's Republic of China*
A4 Climate Change	*Environmental Protection Law of the People's Republic of China* *Atmospheric Pollution Prevention and Control Law of the People's Republic of China* *Opinions of the CPC Central Committee and the State Council on the Complete, Accurate and Comprehensive Implementation of the New Development Concept to Achieve Carbon Peaking and Carbon Neutrality*
B1 Employment	*Company Law of the People's Republic of China* *Labor Law of the People's Republic of China* *Labor Contract Law of the People's Republic of China*
B2 Health and Safety	*Production Safety Law of the People's Republic of China* *Fire Prevention Law of the People's Republic of China* *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases* *Interim Provisions on the Supervision and Management of Work Safety at Central State-Owned Enterprises* *Healthy China Action (2019-2030)* *Notice on Promoting the Building of Healthy Enterprises* *Norms for Building Healthy Enterprises (Trial)*

ESG 指标	2022 年遵守主要法律及规则名称
B3 发展及培训	/
B4 Labor Standards	*Regulations on Democratic Management of Enterprises* *Regulations on Workers' Congress of Industrial Enterprises under the Ownership of the People* *All-China Federation of Trade Unions on Strengthening the Democratic Management of Corporate Enterprises Opinions* *Guiding Opinions of the State-owned Assets Supervision and Administration Commission Party Committee and the State-owned Assets Supervision and Administration Commission on Establishing and Improving the Staff and Workers Congress System of Central Enterprises* *Notice on Regulations of the Grassroots Trade Union Member Conference issued by the All-China Federation of Trade Unions*
B5 Supply Chain Management	*Tendering and Bidding Law of the People's Republic of China*
B6 Product Responsibility	*Nuclear Safety Law of the People's Republic of China* *Law of the People's Republic of China on Prevention and Control of Radioactive Contamination* *Regulations of the People's Republic of China on Civil Nuclear Facility Safety Supervision and Administration* *Regulations on the Supervision and Administration of Civil Nuclear Safety Equipment* *Regulations on the Safety of Site Selection for Nuclear Power Plants* *Safety Requirements for Nuclear Power Plant Operation* *Regulations on Safety of Management Systems of Nuclear Power Plants* *Electric Power Law of the People's Republic of China* *Cyber Security Law of the People's Republic of China* *Data Security Law of the People's Republic of China* *Personal Information Protection Law of the People's Republic of China* *National Cyberspace Security Strategy* *Measures for Network Security Review*
B7 Anti-corruption	*Criminal Law of the People's Republic of China* *Anti-Unfair Competition Law of the People's Republic of China* *Anti-money Laundering Law of the People's Republic of China* *Interim Provisions on Banning Commercial Bribery issued by State Administration for Industry and Commerce* *Several Suggestions Concerning Applicable Law in Handling Criminal Commercial Bribery Cases issued by the Supreme People's Court and the Supreme People's Procuratorate* *Interpretation for Several Suggestions Concerning the Applicable Law in Handling Criminal Corruption and Bribery Cases issued by the Supreme People's Court and the Supreme People's Procuratorate*
B8 Community Investment	*Opinions of the CPC Central Committee and the State Council on Comprehensively Pushing forward Rural Vitalization and Accelerating the Modernization of Agriculture and Rural Areas* *Implementation Opinions on Accelerating Transformation and Development of Rural Energy*

Key Performance Indicators

Safety

Item	Indicator	2020	2021	2022
Nuclear Safety	Number of nuclear power units in operation	24	25	**26**
	Ratio of WANO indicators achieving the world's advanced level (the top quarter)	72.57%	83.00%	**79.17%**
	Unplanned shutdowns (times)	5	1	**2**
	Number of nuclear events of level-2 or above[25]	0	0	**0**
Personal Safety (including employees and contractors)	Fatalities	0	0	**0**
	Fatality rate per 100,000 persons in engineering construction	0	0	**0**
	Number of serious injuries	0	0	**0**
Fire Safety	Number of fire accidents	0	0	**0**
Radiation Protection	Accidental overexposures (times)	0	0	**0**
	Loss of radiation sources (times)	0	0	**0**
	Number of internal contamination accidents (cases)	0	0	**0**

Environmental

Indicator	2020	2021	2022
Equivalent to CO_2 emissions reduction from clean energy (10,000 tons)	15,627.64	16,735.75	**16,425.43**
Equivalent to SO_2 emissions reduction from clean energy (10,000 tons)	3.49	3.22	**2.00**
Equivalent to NO_x emissions reduction from clean energy (10,000 tons)	3.64	3.60	**3.02**

Water Resources Management

Indicator	2020	2021	2022
Fresh water consumption (million tons)	11	10.68	**9.07**

[25] According to the International Nuclear Event Scale (INES), there is a 7-level event classification system. Events of greater safety significance (Levels 4-7) are termed "accidents" and events of lesser safety significance (Levels 1-3) are termed "incidents." Events without safety significance are termed "deviations" and are classified below Level 0.

Social

Indicator		2021	2022	2022
Number of total employees		18,264	18,248	**18,968**
Number of ethnic minority employees		763	842	**925**
Proportion of employees by different types				
Gender	Female	11.68%	11.57%	**11.56%**
	Male	88.32%	88.43%	**88.44%**
Profession category	Administration	7.80%	8.06%	**8.08%**
	Technical	92.20%	91.94%	**91.92%**
Employment category	Full-time	100%	100%	**100%**
	Part-time	0%	0%	**0%**
Age	Aged 28 and below	16.20%	14.63%	**15.09%**
	Aged 29 to 35	40.60%	38.08%	**32.53%**
	Aged 36 to 45	29.19%	32.35%	**36.50%**
	Aged 46 and above	14.01%	14.94%	**15.87%**
Educational back-ground	Junior college or lower	6.00%	5.79%	**5.45%**
	Bachelor's degree	73.58%	73.69%	**73.96%**
	Master's degree	19.44%	19.43%	**19.39%**
	Doctor's degree	0.98%	1.09%	**1.20%**
Geographical region	Within Shenzhen	23.36%	23.76%	**23.29%**
	Outside Shenzhen	76.64%	76.24%	**76.71%**

指标名称		2020	2021	2022
Employee turnover rate				
Gender	Female	0.16%	0.22%	0.24%
	Male	1.52%	1.37%	1.49%
Age	Aged 28 and below	0.59%	0.58%	0.50%
	Aged 29 to 35	0.73%	0.65%	0.68%
	Aged 36 to 45	0.30%	0.30%	0.39%
	Aged 46 and above	0.05%	0.07%	0.06%
Geographical region	Within Shenzhen	0.44%	0.43%	0.42%
	Outside Shenzhen	1.24%	1.16%	1.11%
Employee training				
Average training hours per employee		93	109	139.5
Training rate of senior managers		100%	100%	100%
Training rate of middle managers		100%	100%	100%
Training rate for male		100%	100%	100%
Training rate for female		100%	100%	100%
Public welfare and social communication				
Total rural vitalization and other donations (million yuan)		70.9158	30.4412	40.3758
Volunteering hours		43,413	48,000	More than 40,700
Sessions of press conference		4	9	5

ESG Index

The Company has complied with the "Comply or Explain" provision set out in Appendix 27 Environmental, Social and Governance Reporting Guide of the Listing Rules of SEHK. The table below provides a summary of the report compliance.

Aspect	Indicator	Indicator description	Chapters/ Remarks
环境			
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	Response to Climate Change Waste Discharge Reduction Efficient Resource Utilization
	A1.1	The types of emissions and respective emissions data	Response to Climate Change
	A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Response to Climate Change
	A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	Waste Discharge Reduction
	A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	Waste Discharge Reduction
	A1.5	Description of emission target(s) set and steps taken to achieve them	Response to Climate Change Waste Discharge Reduction
	A1.6	Description of how hazardous and nonhazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them	Waste Discharge Reduction
A2 Use of Resources	General Disclosure	Policies on the efficient use of resources including energy, water and other raw materials	Response to Climate Change Efficient Resource Utilization
	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)	Response to Climate Change
	A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility)	Efficient Resource Utilization
	A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them	Response to Climate Change

Aspect	Indicator	Indicator description	Chapters/ Remarks
A2 Use of Resources	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	Efficient Resource Utilization
	A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced	The product is electric power, so it is not applicable.
A3 Environmental and Natural Resources	General Disclosure	Policies on minimizing the issuer's significant impact on the environment and natural resources	Green Nuclear Power Ecology
	A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them	Green Nuclear Power Ecology
A4 Climate Change	General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issue	Response to Climate Change
	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	Response to Climate Change
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, antidiscrimination, and other benefits and welfare	Employee Rights
	B1.1	Total workforce by gender, employment type (for example, full or part-time), age group and geographical region	Employee Rights
	B1.2	Employee turnover rate by gender, age group and geographical region	Employee Rights
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	Occupational Safety and Health
	B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year	Key Performance Indicators
	B2.2	Lost days due to work injury	Outstanding Safety Performance Key Performance Indicators
	B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored	Occupational Safety and Health

Aspect	Indicator	Indicator description	Chapters/ Remarks
B3 Development and Training	General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities	Employee Development
	B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management)	Employee Development
	B3.2	The average training hours completed per employee by gender and employee category	Employee Development
B4 Labor 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	Employee Rights
	B4.1	Description of measures to review employment practices to avoid child and forced labor	Employee Rights
	B4.2	Description of steps taken to eliminate such practices when discovered	Employee Rights
B5 Supply Chain Management	General Disclosure	Policies on managing environmental and social risks of the supply chain	Growing with Suppliers
	B5.1	Number of suppliers by geographical region	Growing with Suppliers
	B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored	Growing with Suppliers
	B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored	Growing with Suppliers
	B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Growing with Suppliers
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.	Stable Operation Occupational Safety and Health Information Security The product is electric power, so advertising and labelling is not applicable.
	B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons	The product is electric power, it is not applicable.

Aspect	Indicator	Indicator description	Chapters/ Remarks
B6 Product Responsibility	B6.2	Number of products and service-related complaints received and how they are dealt with	Outstanding Safety Performance
	B6.3	Description of practices relating to observing and protecting intellectual property rights	Nuclear Power Innovation
	B6.4	Description of quality assurance process and recall procedures	The product is electric power, recall procedures is not applicable.
	B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored	Information Security
B7 Anti-corruption	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	Anti-corruption
	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	Anti-corruption
	B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored	Anti-corruption
	B7.3	Describe of the anti-corruption training provided to directors and employees.	Anti-corruption
B8 Community Investment	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	Giving Back to the Key Performance IndicatorsCommunity
	B8.1	Focus areas of contribution (e.g. education, environmental concerns, labor needs, health, culture, sport)	Giving Back to the Community Boosting Rural Vitalization
	B8.2	Resources contributed (e.g. money or time) to the focus area	Key Performance Indicators

Feedback Form

Dear readers,

Thank you for reading the 2022 Environmental, Social and Governance Report published by CGN Power. In order to provide you with more valuable information, and keep improving our ESG performance and CSR capacity, we sincerely invite you to provide us with feedbacks as below via email, fax, mail or online. We eagerly look forward to your precious opinions.

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Scan to fill in the online questionnaire

Read through the questions/statements and chose the response which from your point of view fits best to tell your impression on this report.

1. The report highlights our efforts and impact on economic, environmental and social aspects highlighted

☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor

2. The information and indicators disclosed in this report is clear, accurate and complete

☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor

3. The content layout and design of this report is readable

☐ Very good ☐ Good ☐ Fair ☐ Poor ☐ Very poor

4. Which part(s) of this report are you most interested in?

5. What additional information would you expect to be disclosed in this Report?

6. Do you have any suggestions for our future ESG reports?

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