



2020

China National Nuclear Power Co., Ltd.
Social Responsibility Report

About This Report

Reporting period

The report covers our business activities from January 1, 2020 to December 31, 2020, and also includes additional information beyond the stated reporting period.

Reporting cycle

Since the first report of China National Nuclear Power Co., Ltd released in 2012, we have continuously disclosed social responsibility information to the public. This is the ninth CSR report from our company.

References to China National Nuclear Power Co., Ltd.

In the report, "China National Nuclear Power Co., Ltd." is also referred to as "CNNP", "the Company", or "we".

Reporting scope

The report covers all relevant information of CNNP and its holding subsidiaries, joint ventures, and companies with direct investment from CNNP.

Data source

All data in the report are from official documents and statistics reports of CNNP.

Compilation conformance

This Report is prepared in accordance with the *Guidelines to the State-owned Enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities* issued by State-owned Assets Supervision and Administration Commission of the State Council (SASAC), *Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises* (CASS-CSR 4.0) issued by the Chinese Academy of Social Sciences, the *GRI Sustainability Reporting Standards* (GRI Standards) , and the *Guideline on Environmental Information Disclosure by Listed Companies of Shanghai Stock Exchange* (SSE).

Reliability assurance

The Company assures that no fictitious record, misleading statement, or material omission are included in this report, and will joint and several liability for the report's authenticity, accuracy, and completeness.

Report Access

This Report is available in both Chinese and English, including paper and electronic versions. You can download the electronic version of the Report from CNNP official website (<http://www.cnnp.com.cn>). For a hard copy of the Report, please contact us at cnnp@cnnp.com.cn or 010-8192 0188.

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Message from the Chairman



The year 2020 is of special importance for China's modernization process. It is the last year of China's 13th Five-Year Plan period and a crucial year for China to win the battle against poverty and complete building a moderately prosperous society in all aspects. Over the past year, CNNP, led by the goal of "being the most attractive world-class nuclear energy company," has actively practiced the corporate mission in the new era of "developing the nuclear industry to strengthen the country and serve the society." We have continued to supply safe and efficient energy for a clean and low-carbon life style, and strive to create value and benefit for the society!

We stick to safe development. Centering on the core goal of ensuring nuclear safety, the Company has carried out the three-year action plan to enhance work safety with "comprehensive improvement of safety and operation reliability management" as the main task. We also keep optimizing the safety management system and strengthening assessments and incentives as well as the fulfillment of work safety responsibilities. A lot of fruitful results have been achieved in safety and quality, operation and production, overhaul optimization, equipment reliability, project construction, and experience feedback, ensuring the safe and stable operation of the Company. By the end of 2020, we had achieved 200 reactor-years of safe operation in total and 15 power units got full marks in the WANO composite index, ranking first among all rated reactors.

We adhere to clean and low-carbon development. Guided by the conviction that lucid waters and lush mountains are invaluable assets, CNNP promotes the development and utilization of various clean energy sources, including nuclear power and wind power etc., and keeps improving the environmental protection management system. We have also strengthened daily environmental management and risk identification and control, so as to promote carbon emission management, improve resource utilization, reduce radioactive waste, and facilitate ecological progress. In 2020, we produced 153.9 TWh of electricity, which, as compared with coal-fired power generation, reduced 46.838 million tons of standard coal consumption, and cutting CO₂, SO₂ and NO_x emissions by 122.816 million tons, 399,000 tons and 347,000 tons respectively. Also, it was equivalent to planting 490,000 hectares of trees, contributing to the goals of peaking CO₂ emissions and achieving carbon neutrality.

We keep innovation-driven development. Working to strengthen the development of an advanced nuclear technology innovation system, we promote comprehensive innovation with scientific and technological innovation as the core. We aim to build a collaborative innovation platform featuring "Small Core, Extensive Collaboration," systematically plan for strategic scientific research and breakthroughs in key technologies, thus promoting the intelligent upgrade of the industry, and striving to make innovation the primary driving force for nuclear safety improvement. In 2020, the Company's R&D input accounted for 2.58% of the total income.

We insist on sincere cooperation. While building harmonious partnerships, we strive to create an industrial pattern of "nuclear energy + non-nuclear clean energy + agile new industry" and extend the industrial value chain. To this end, we continuously improve domestic production rate of equipment, and drive the transformation and upgrade of enterprises that manufacture nuclear power supporting equipment and components, working together with partners at home and abroad to build a community of shared future.

We put people first. Giving top priority to talents development, the Company establishes a standard leadership system, improves the five career development paths and the development path for top talents, and builds a scientific and systematic talent training system. We aim to create a platform to enable employees to stand out, and cultivate a high-quality talent team in project construction and management, production and operation, and operation management. In 2020, the Company had 14,506 employees in total.

We work towards the goal of harmony and sharing. To facilitate more people learn about and support nuclear power, the Company continues to innovate in the mode of public communication, and strengthen the connection between stakeholders and the nuclear power sector.. Based on our resources and strengths, we promote local employment, improve infrastructure construction, support local epidemic prevention and control, and contribute to public welfare to give back to society and benefit the local community. In 2020, we invested more than 34 million in poverty alleviation and paid 6.548 billion yuan of taxes.

At the end of the 13th Five-Year Plan and the start of the 14th Five-Year Plan, we are fully confident in the development of our nuclear power undertakings and the development of China's nuclear power industry. The goal of realizing "carbon neutrality" before 2060 is calling for the clean energy sector represented by nuclear power to create new achievements. We will carry forward the spirit of the nuclear industry in the new era of "developing the nuclear industry to strengthen the country and serve the society" and practice the core values of "responsibility, safety, innovation and collaboration," so as to lay an important cornerstone for national security and build a beautiful China. We will join hands with all stakeholders to start a new journey of nuclear power during the 14th Five-Year Plan period!

A stylized black ink signature of Liu Jing.

Liu Jing
Chairman and Party Secretary, CNNP

About Us

Company Profile

China National Nuclear Power Co., Ltd. (SSE: 601985) is jointly invested by its controlling shareholder China National Nuclear Corporation (CNNC), China Three Gorges Corporation (CTG), China Ocean Shipping (Group) Company (COSCO), and China Aerospace Investment Holdings Ltd. Its main business scope covers development, investment, construction, operation and management of nuclear power projects and supporting facilities. The Company is also engaged in investment and development of clean energy projects, investment and investment management of power transmission and distribution projects, research of safe technologies for nuclear power operation, related technical and consulting services, and electric power sales.

As of March 31, 2021, CNNP has 38 holding subsidiaries and 1 joint venture. Its total assets reached over 389.7 billion yuan and its net assets attributable to shareholders of listed companies exceeded 71.9 billion yuan. The company's total installed capacity of nuclear power units in operation reached 21.391 GW and that of new energy reached 5.71694 GW.

1	Qinshan Nuclear Power Plant No.1	Type of reactor: PWR CNP 300 Rated power: 1X330MWe	First nuclear power plant ever built in the Chinese mainland, hailed as "national glory"
2	Qinshan Nuclear Power Plant No. 2	Type of reactor: PWR CNP 600 Rated power: 2X650MWe 2X660MWe	First large commercial nuclear power plant independently designed, built, operated and managed by a Chinese company
3	Qinshan Nuclear Power Plant No. 3	Type of reactor: HWR CANDU700 Rated power: 2X728MWe	China's only commercial HWR nuclear power plant
4	Fangjiashan Nuclear Power Plant	Type of reactor: PWR CNP1000 Rated power: 2X1089MWe	One of the first group of 1 GW reactors independently designed, manufactured, constructed, and operated by a Chinese company
5	Jiangsu Nuclear Power Plant	Type of reactor: PWR VVER1000 Rated power: 2X1060MWe 2X1126MWe	A model project of China -Russia nuclear energy cooperation
		Type of reactor: Improved PWR M310 Rated power: 1X1118MWe	Final nuclear power project in China that started construction during the 12 th Five year (2011-2015)
6	Fuqing Nuclear Power Plant	Type of reactor: PWR CNP1000 Rated power: 4X1089MWe	One of the first group of 1 GW reactors independently designed, manufactured, constructed and operated by a Chinese company
		Type of reactor: HPR 1000 Rated power: 1X1161MWe	The world's first Hualong One nuclear reactor (Huanglong One is a third-generation reactor model independently development by a Chinese company), hailed as "national power"
7	Hainan Nuclear Power Plant	Type of reactor: PWR CNP 600 Rated power: 2X650MWe	Southernmost nuclear power plant as well as the first nuclear power plant to be built in the minority-inhabited areas in China
8	Sanmen Nuclear Power Plant	Type of reactor: PWR AP1000 Rated power: 2X1250MWe	The world's first AP1000 which is the third generation nuclear power unit
9	Jiangsu Nuclear Power Plant Unit 6	Type of reactor: Improved PWR M310 Rated power: 1X1118MWe	Final nuclear power project in China that started construction during the 12 th Five year (2011-2015)
10	Fuqing Nuclear Power Plant Unit 6	Type of reactor: HPR1000 Rated power: 1X1161MWe	The world's first Hualong One nuclear reactor (Hualong One is a third-generation reactor model independently developed by a Chinese company)
11	Zhangzhou Nuclear Power Plant Unit 1 and Units 2	Type of reactor: HPR1000 Rated power: 2X1212MWe	The bulk production of the "national business card" Hualong One reactor goes well and strives to create a "Clean Energy Park"

Statistics up to March 31, 2021

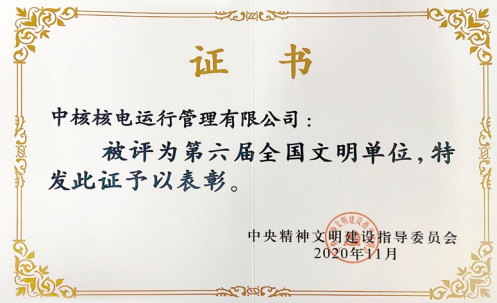
● Units in operation ● Units under construction

Corporate Culture

Mission	Develop the nuclear industry to strengthen the country and serve society
Vision	A global leader in nuclear technology
Corporate Values	Responsibility, safety, innovation, and collaboration
Enterprise Spirit	The spirit embodied by the "Two Bombs, One Satellite" project
	The cause-oriented, responsibility-oriented, strictness/carefulness-integrated, and striving-based spirit of the nuclear industry
	The spirit of nuclear industry in the new era –" developing the nuclear industry to strengthen the country and serve the society."
Goals	Provide safe and efficient energy Create a clean and low-carbon life style
	To be a globally recognized, influential nuclear power company
	Pursue excellence and keep selftranscendence
	Large scale Standardized Internationalized
	Create business values, generate profits for shareholders, increase employee happiness, and create social wealth

Case Qinshan Nuclear Power Plant wins the title of National Civilized Unit due to its efforts to advance spiritual civilization of China's nuclear power in the new era

In November 2020, Qinshan Nuclear Power Plant was awarded the sixth National Civilized Unit at the National Spiritual Civilization Construction Commendation Conference, and was kindly received by general secretary Xi Jinping. Huang Qian, Secretary of the Party committee and chairman of Qinshan Nuclear Power Plant, delivered a speech at the conference as a representative of the national civilized units, highlighting Qinshan Nuclear Power Plant's efforts in the following aspects: building a demonstration for the independent development of nuclear power and the high-quality development of green energy; creating a demonstration for ideological and moral education to showcase the spirit of nuclear industry in the new era; building a demonstration to fulfill its social responsibility, and creating a five-in-one practice base to perform its responsibility as a SOE.



Qinshan Nuclear Power Plant awarded the sixth National Civilized Unit

Strategy and Governance

Development Strategy

Upholding the mission of developing the nuclear industry, strengthening the country and bringing welfare to humanity, CNNP promotes large-scale, standardized and internationalized development, and aims to become a world-class competitive clean energy provider.

Strategic Positioning

With the focus on investment, construction and operation of nuclear power projects, CNNP strives to promote the efficient utilization of cutting-edge nuclear technologies and the production of clean and low-carbon energy. It bears the tasks to build a country with strong nuclear power and provide high quality energy supply.

Strategic Positioning

To become a world-class competitive clean energy provider

Goals in the 14th Five-Year Plan

- Ensure nuclear safety
- The installed capacity is to reach 56 GW by 2025
- The nuclear energy can be utilized for multiple purposes and the output value of nuclear power technology services will be doubled; the value of the non-nuclear clean energy industry will reach 10 billion yuan, and new breakthroughs will be made in the agile clean technology industry
- Become a global leader in nuclear power operation performance

Long-range goals for 2035

- Achieve the goal of becoming a world-class clean energy service provider
- The installed capacity of electric power will exceed 100 GW, becoming one of the top 500 companies in the world
- The operation indicators of nuclear power will remain top-class in the world, and the operation performance of non-nuclear clean energy will also lead the industry
- Nuclear energy will be commercialized and industrialized in fields like power, heating, seawater desalination, and hydrogen production etc
- The nuclear power industry standards made by CNNP will be widely adopted and it will be able to provide a package of solutions to the world
- The new agile industry will be effectively expanded, with its business income accounting for more than 10%

Strategic Guidelines

Large scale

Coordinate efforts on business development, asset management, marketing, talent development, and value creation, and enhance the capability of energy security to build a bigger, better, stronger company

Standardized

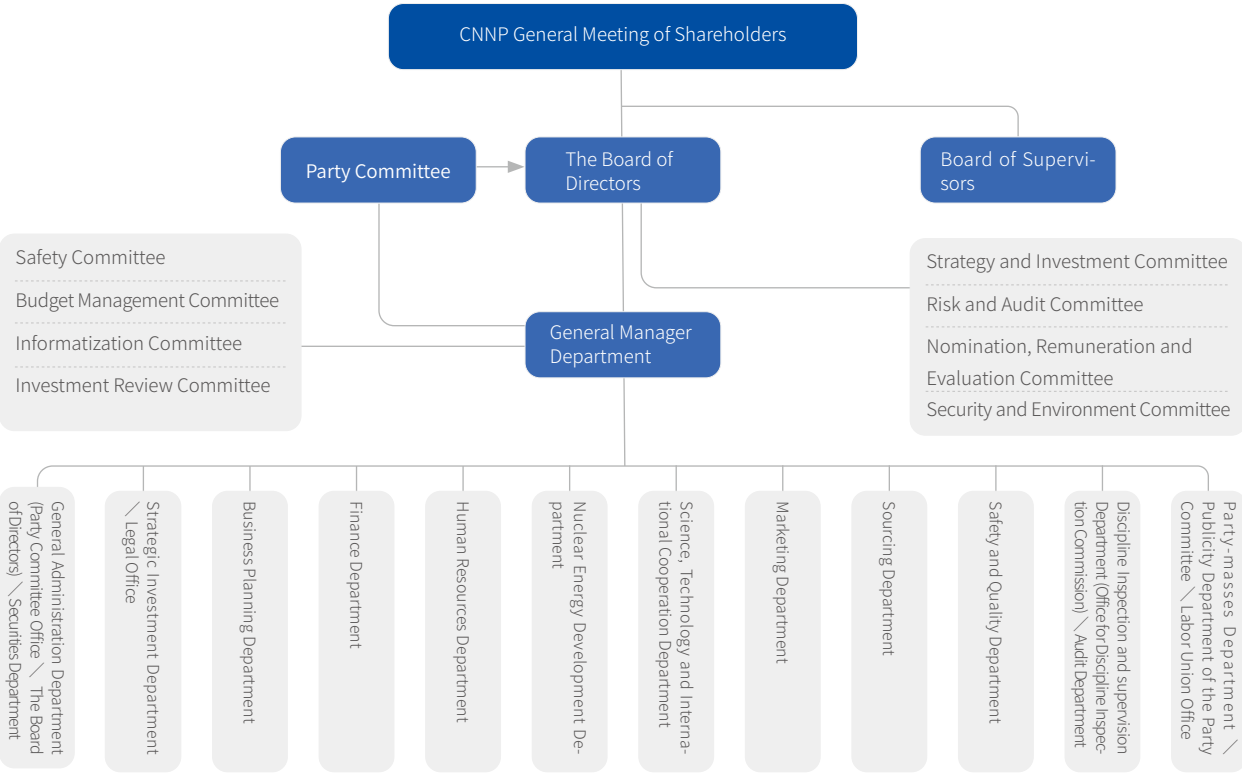
Advance standardization of technical and managerial positions and processes in all business and functional areas, and build an efficient, flexible, and standardized management system to increase profitability

Internationalized

Expand global presence, foster global business operations, improve international management capability and have a greater say to build a globally recognized, influential nuclear energy brand

Organizational Structure

In strict accordance with Chinese laws and regulations, such as the *Company Law* and the relevant provisions of the *Articles of Association*, CNNP establishes a governance structure composed of the General Meeting of Shareholders, the Board of Directors and specialized committees, the Board of Supervisors and senior management. All of the organizations orderly promote the related work and steadily improve the Company's governance capacity to ensure the sound operation of the Company.



28 holding subsidiaries	Qinshan Nuclear Power Co., Ltd.	72%	CNNP Guodian Zhangzhou Energy Co., Ltd.	51%	CNNP Ocean Nuclear Power Development Co., Ltd.	51%
	Nuclear Power Qinshan Joint Venture Co., Ltd.	50%	CNNP Xiapu Nuclear Power Co., Ltd.	55%	CNNP Kunhua Nuclear Energy Development Co., Ltd.	100%
	Third Qinshan Nuclear Power Co., Ltd.	51%	CNNP Huadian Hebei Nuclear Power Co., Ltd.	51%	CNNP Hainan Nuclear Power Co., Ltd.	100%
	CNNP Nuclear Power Operation Management Co., Ltd.	100%	Fujian Sanming Nuclear Power Co., Ltd.	51%	CNNP Taihai Clean Energy (Shandong) Co., Ltd.	50%
	Jiangsu Nuclear Power Co., Ltd.	50%	CNNP Henan Nuclear Power Co., Ltd.	51%	CNNP (Tibet) Industrial Development Co., Ltd.	100%
	Sanmen Nuclear Power Co., Ltd.	56%	CNNP Shandong Energy Power Co., Ltd.	100%	CNNP (Shanghai) Nuclear Power HWR Technology R&D Co., Ltd.	100%
	Fujian Fuqing Nuclear Power Co., Ltd.	51%	CNNP UK Ltd.	100%	CNNP Nuclear Power Fengtai Energy Co., Ltd.	50.98%
	Hainan Nuclear Power Co., Ltd.	51%	CNNP Technology Investment Co., Ltd.	100%	Nuclear Power Operations Research (Shanghai) Co., Ltd.	12.5%
	Hunan Taohuajiang Nuclear Power Co., Ltd.	51.16%	CNNP Suneng Nuclear Power Co., Ltd.	51%		
	CNNP Liaoning Nuclear Power Co., Ltd.	54%	China Rich Energy Corporation Limited.	100%		
10 companies with direct investment	Shandong Nuclear Power Co., Ltd.	5%	CNNP Financial Leasing Co., Ltd.	6.46%	Huaneng Xiapu Nuclear Power Co., Ltd.	10%
	Huaneng Hainan Changjiang Nuclear Power Co., Ltd.	49%	CNNP (Shanghai) Enterprise Development Co., Ltd.	28%	CNNP Ningxia Tongxin Protective Technology Co., Ltd.	10%
	Xiongan Xingrong Nuclear Power Innovation Center Co., Ltd.	20%	CZEC Operation and Maintenance Engineering Co., Ltd.	19%	Blue Sky Taihai Clean Nuclear Engineering Management (Shandong) Co., Ltd.	19%
	Beijing Electric Power Trading Center Co., Ltd.	3%				
1 joint venture:	CNNP Zheneng Energy Co., Ltd.	50%				

Governance Mechanism

CNNP improves its corporate governance mechanism so as to build a modern corporate governance system, improve corporate governance capacity, and provide support for the sound development of the Company. In 2020, the Company won the "Golden Quality" Corporate Governance Award of listed companies and the award of Golden Round Table Award – Best Board of Directors Category.

The Decision-making System Composed of "the Articles of Association, Three Regulations and Four Rules"

Based on the world's advanced corporate governance model, the Company keeps optimizing the modern SOE governance system and the internal control system. It improves the corporate governance system composed of "the Articles of Association, three regulations and four rules" and the "3 + 1 + N" list model for the decision-making process of the Party committee. The Company promotes its headquarter and members to improve the *Management for the Authorization of the Board of Directors and "Three Majors and One Large" Decision-making Management System* (Major decisions, personnel appointment and removal, and project arrangement and large amount of funds), thus integrating Party building into corporate governance. We release the *List of Standardization of the Organization of the Board of Directors* to facilitate the standardization of the board of directors. We also establish and improve the modern SOE system with Chinese characteristics to constantly enhance the endogenous force for the Company's reform and development.

Macro-supervision System

With the goal of "integrating the Party's leadership and discipline inspection and supervision into corporate governance", the Company promotes and practices the macro-supervision system, forming a collaborative working mechanism of "Party leadership, discipline inspection and supervision as well as business". We further promote the development of the macro-supervision system by improving four macro-supervision regulations, establishing a two-level macro-supervision talent pool with 394 backbone forces, and carrying out regular coordination meetings, information release and problem feedback mechanism for macro-supervision. We will launch in-depth supervision in key areas such as epidemic prevention and control, scientific and technological innovation, inspection and rectification, and inventory management etc., so as to ensure the Company's operation is in line with laws and regulations.

Comprehensive Risk Management

The Company strengthens comprehensive risk management and risk assessment to prevent and defuse major risks. The Company has formed a comprehensive risk management system composed of both the decision-making level and the executive level to unblock system barriers, promote efficient collaboration and the integration of risk control; we have also established and improved a series of risk management systems, such as the *Comprehensive Risk Management Reporting Mechanism*, the *Major Risk / TOP10 Risk Tracking Mechanism*, and the *Risk Supervision and Assessment Mechanism*; by focusing on key tasks, we dig deep into the data to explore the quantitative risk assessment model, ensuring stable operation of the Company while the risks are under control.



Compliance Operation

The Company ensures that its management and operation are in accordance with the law by setting up a compliance management system with complete structure, specific rights and responsibilities, and clear levels. It promotes the deep integration of compliance management and business while cultivating compliance culture to ensure its operation is in line with the law. In 2020, the Company has organized 25 internal audits in five areas.

Optimizing compliance management system

- We invited compliance specialists in the standardization field to establish the CNNP compliance library in key areas and optimized relevant systems to ensure compliance operation.
- Based on our businesses, we sorted out and analyzed the compliance requirements related to the intellectual property rights of nuclear power import and nuclear power operation enterprises, deconstructed the internal and external supervision and legal points, and issued two special compliance guidelines to provide support for business compliance.

Integrating the system deep into businesses

- We systematically sorted out legal and compliance risks in key areas such as intellectual property rights, engineering construction, production and operations, safety and environmental protection, etc., making a list of over 100 legal risk identification standards.
- Based on the list, we took legal measures, upgraded relevant systems, and optimized related processes and forms, which internalized the external compliance requirements into the company's management system and the actual business process.

Cultivating compliance culture

- We carried out compliance trainings for new employees and held legal compliance business training courses to enhance employees' compliance awareness.
- We formulated the compliance commitment and organized all staff to sign through the APP on mobile phone so as to establish a both horizontal and vertical compliance responsibility network.
- We set up a compliance management zone on the office platform to regularly release compliance guidelines from superior departments, CNNP compliance case base, and relevant special work results.

Investor Relations

CNNP attaches great importance to safeguarding the legitimate rights and interests of shareholders, and pays close attention to the opinions and feedback of shareholders and investors. The Company effectively protects the interests of investors with excellent performance, standardized information disclosure and diversified communication channels, making outstanding contributions to keep and increase asset value, and promote the sound development of the capital market. In 2020, CNNP's information disclosure has been rated A by the Shanghai Stock Exchange for five consecutive years.



Transparent operation

Based on relevant regulations of information disclosure, we disclosed 90 authentic, accurate, complete, and timely announcements, both periodic and temporary, throughout the year. The Company's information disclosure has been highly praised by the regulatory authority, and it is a model enterprise of information disclosure recognized by the Shanghai Stock Exchange.



Diversified communication channels

We explored and developed diversified value communication channels such as roadshows, collective reception days, field visits, and Q&A with interactive and trading website investors, building a bridge between the market, the public and investors. We use public media to actively deliver CNNP information to the market, interpret our value, and deepen the capital market's positive perception of CNNP.

CSR Management

Opportunities and Challenges

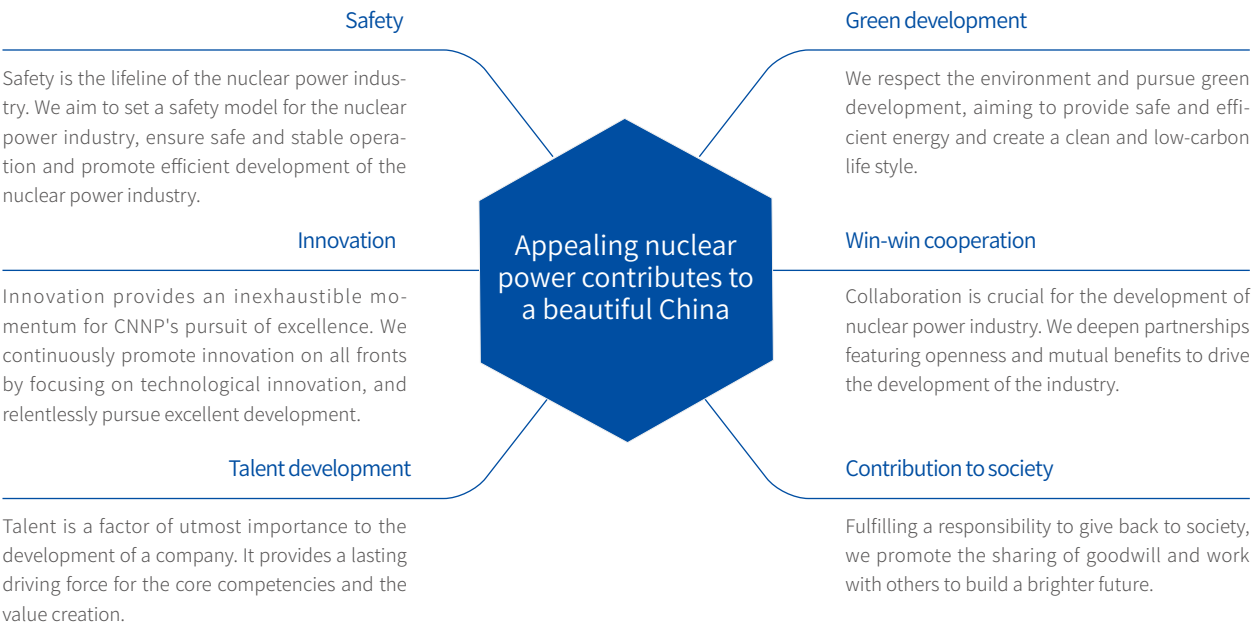
Paying close attention to external environment, CNNP seizes development opportunities and actively responds to challenges to contribute to the sustainable development of the nuclear power industry.

External Environment	Opportunities and Challenges	Actions of CNNP
COVID-19 prevention and control as a "new normal"	<ul style="list-style-type: none">COVID-19 prevention and control put higher requirements for the safe and stable operation of nuclear power units.	<ul style="list-style-type: none">We established the epidemic prevention and control leading group and special working group to put epidemic prevention and control and work safety in the first place.We released <i>CNNP COVID-19 Prevention and Control Work Program</i> and a series of plans to focus on both epidemic prevention and control as well as resuming work and production.
Deepening electricity reforms	<ul style="list-style-type: none">The accessible electricity terminal market provides opportunities for the Company to provide power distribution and supply servicesWith the deepening of electricity reforms and measures like spot electricity, and supporting services, power enterprises must deal with more server idle capacity.	<ul style="list-style-type: none">We focus on the upgrading of industrial structure, promote the development of new market and new business form to actively respond to the challenges of the electricity market.We build the industrial pattern of "nuclear energy + non-nuclear clean energy + agile new industry", and expand nuclear power operation technical services.
According to the Fifth Plenary Session of the 19th CPC Central Committee, China will foster a new development paradigm with domestic circulation as the mainstay and domestic and international circulations reinforcing each other.	<ul style="list-style-type: none">The fostering of the new development paradigm indicates a new situation of "demand drives supply, and supply creates demand" for the nuclear energy industry, which puts forward higher requirements for innovating in nuclear energy products.The domestic circulation attracts global resource elements, which puts higher requirements for enhancing international cooperation and competitive advantages of the nuclear energy industry and coordinating international and domestic market resources.	<ul style="list-style-type: none">We improve the ability of scientific and technological innovation, and combine reform and innovation with talent training.We promote the digital transformation of our company by embracing the new trend of national infrastructure construction, and stimulating the vitality of reform and innovation.We advance the international development. With advanced project management and technological advantages, CNNP is actively expanding its overseas market to go global.
General secretary Xi Jinping made a serious commitment to the world, setting the goal of "peaking CO ₂ emissions before 2030 and achieving carbon neutrality before 2060".	<ul style="list-style-type: none">Clean and low carbon energy will increase a lot. The pattern of complementary development is forming between the stable base load energy represented by nuclear power and the intermittent and scattered renewable energy. Nuclear power will embrace new development opportunitiesThe development of nuclear power will be further impacted by hydropower, wind power, photovoltaic and other new energy.	<ul style="list-style-type: none">We closely follow the national development policy, seize the opportunities in new energy market, and accelerate the implementation of the industrial development strategy of "nuclear power + new energy"We integrate the philosophy of green and low carbon into the whole process of nuclear power project, and advocate green office and low-carbon life for employees.

External Environment	Opportunities and Challenges	Actions of CNNP
The public's confidence in the development of nuclear power is restoring, and the development of nuclear power is reviving.	<ul style="list-style-type: none">Since the middle and later period of the 13th Five-Year Plan, the public has shown a high degree of acceptance of nuclear power and nuclear heating projects, which lays a good foundation for the sustainable development of nuclear energy.	<ul style="list-style-type: none">We compiled the <i>Stakeholder Communication and Management Manual</i> to win us public understanding and support for nuclear power.We have held the "Appealing Light" Cup nuclear power knowledge contest for eight consecutive years with total participants of 2.4 million middle school students.
The Fifth Plenary Session of the 18th CPC Central Committee clearly put forward the goal that by the year 2020, all rural residents living below the current poverty line have been lifted out of poverty, and poverty is eliminated in all poor counties and regions.	<ul style="list-style-type: none">The economic stagnation caused by COVID-19 increases the risk of people slipping back into impoverishment, and brings challenges to the Company's targeted poverty alleviation.	<ul style="list-style-type: none">We promote poverty alleviation through industry development, increasing consumption, infrastructure construction, and cultural development as well as education. In 2020, all pairing regions have been lifted out of poverty with the assistance of the Company.

CSR Philosophy

Adhering to the CSR philosophy of "Appealing nuclear power contributes to a beautiful China," CNNP is exploring an effective way to integrate it into daily operation, management and business while paying attention to the coordinated development of enterprise operation, economy, environment and society, and working with all stakeholders to create a sustainable future.

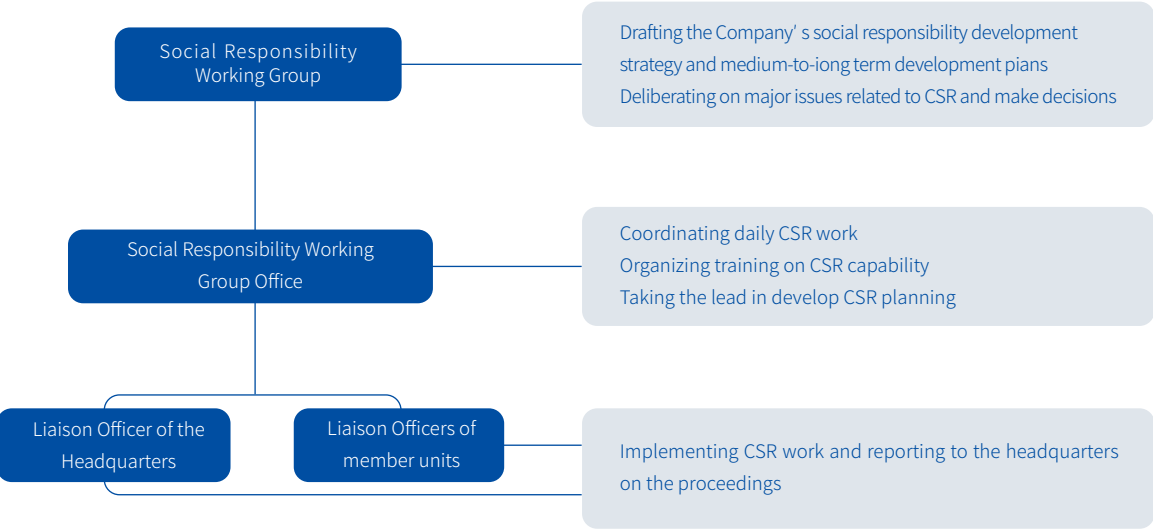


CSR Management

Following the objective law of enterprise development, CNNP pursues the harmonious coexistence of economic, environmental and social benefits, promotes sustainable development in its daily operation and business development, and works with stakeholders towards a sustainable future.

CSR Management System

CNNP has continuously optimized the CSR organizational structure with clarified social responsibilities and a CSR working mechanism featuring overall planning of headquarters, joint efforts of the headquarters and subsidiaries as well as professional support. With social responsibility as the core, corporate culture as the driving force, and branding as the target, we form the three-in-one approach to promote social responsibility, so as to help the Company build a good public image for fulfilling social responsibility and advocating sustainable development.



CNNP Social Responsibility Management System

CSR Management Strategies

By integrating the United Nations Sustainable Development Goals (SDGs) into the social responsibility management, CNNP clarifies key responsibilities and formulates action strategies to help achieve SDGs.



- 1** We strengthen the overall planning based on the idea of poverty alleviation through Party building, industry development, investment and targeted measures. We build a coordinated poverty alleviation pattern involving departments at all levels to realize the goal of helping the pairing regions get out of poverty.

3 We further cultivate nuclear safety culture and strengthen employees' bottom line thinking and red line awareness. We also improve the employee health management system and take measures to reduce health and safety risks to ensure the physical and mental health of employees.

4 With the principle of "adhering to the strategy of giving priority to talents and deepening the reform of human resources", we make the overall talent plan for the 14th Five-Year Plan to help employees grow rapidly.

In accordance with the idea of "supporting both confidence and knowledge", we build an education poverty alleviation platform to spread nuclear power related knowledge to the public and students in poverty-stricken areas as a way to improve their appreciation of science and culture.

5 Abiding by laws and regulations, we ensure equal employment and equal pay to men and women for equal work, thus providing employees with equal opportunities for development.
- 7** We actively promote the development of nuclear power, wind power and other clean energy, strengthen the standardization, specialization and intensive management of nuclear power, and improve the operation and management of clean energy to popularize clean energy.

8 We respect and protect the basic rights and interests of employees and build a rapid growth platform for employees to realize the maximum value of employees.

Adhering to the development philosophy of combining the interests of both the enterprise and local economy, we promote local economic growth through our own industry development so as to realize the common development of both the enterprise and local economy.

9 We continuously improve the ability of independent innovation, carry out forward-looking scientific and technological R&D, and promote the high-quality development of nuclear energy industry through the application and transformation of scientific and technological achievements.

10 We create an equal, diversified and inclusive workplace without treating employees differently due to gender, age, education background, and nationality etc.

11 We combine our industry development with local development, promote community employment, and strengthen infrastructure construction to promote local economic development.
- 12** We improve the efficiency of energy resources, optimize the waste management system, and effectively control and reduce the radioactive waste discharge as far as possible.

13 We actively promote the development of new energy industry and accelerate the implementation of "nuclear power + new energy" industrial development strategy while practicing low-carbon operation and advocating a low-carbon lifestyle.

14 We organize special activities for ecological environmental protection. We take relevant measures to reduce the impact of nuclear power plant construction and operation on the surrounding ecological environment.

15

16 We enforce full, rigorous self-discipline of the Party, work to improve Party conduct and build a clean government, and take coordinated action to make employees not dare, not able, and not want to commit corruption. Also, we strive to be more standardized and rule-based.

17 We deepen strategic cooperation, strengthen communication and exchange, integrate advantageous resources, and join hands with partners to promote the sustainable development of the industry.

CSR Communication

CNNP attaches great importance to listening to the voice of stakeholders, and actively responding to the expectations and demands of stakeholders through diversified communication channels and measures.

Material topics

The Company continues to improve the identification, review and analysis process of material topics. Based on the macro trend of sustainable development and the Company's strategic planning, CNNP, by considering the expectations and demands of stakeholders, identified the 2020 sustainability material topics from the dimensions of "importance to CNNP's sustainable development" and "importance to stakeholders".



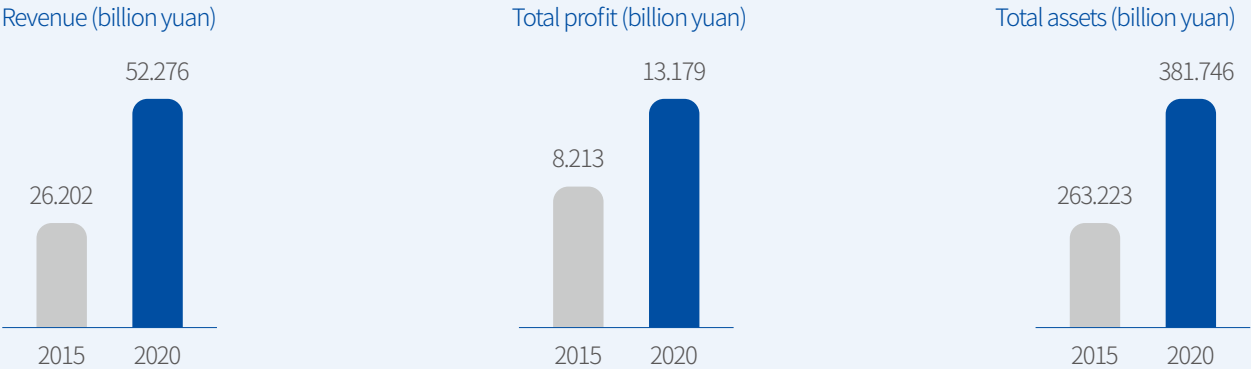
Feature

Shouldering Missions to Make New Advances— A Fresh Start After 13th Five-Year Plan

As the final year of the 13th Five-Year Plan, 2020 was also a year for CNNP to meet new challenges, continue its "national glory", make new breakthroughs and achieve new advances. The time has recorded what we did and also marked how far we went. Looking back on the past five years, CNNP has embraced dreams with sweat and strived forward with good results.

Value Creation

CNNP holding subsidiaries (including joint ventures) increased from 19 to 39



Safe Operation

- 15 of our operating units achieved full marks in WANO index, ranking first among all rated reactors.
- No incidents rated INES level 1 or above, no major or above radiation incidents, industrial safety incidents and quality incidents, general or above environmental incidents, acute occupational diseases, fire and major or above equipment damage incidents.

Technological Innovation

- 1,456 new intellectual property rights authorized
- 12 energy industry standards, 25 special national-level projects, 28 CNNC R & D projects
- 9 scientific research platforms have been formed, among which the Material Aging R & D Center has been approved as CNNC's company level R & D center
- Four member units including CNPO, Jiangsu Nuclear Power Co., Ltd., Fuqing Nuclear Power Plant and Hainan Nuclear Power Plant have been awarded "National High-tech Enterprise"

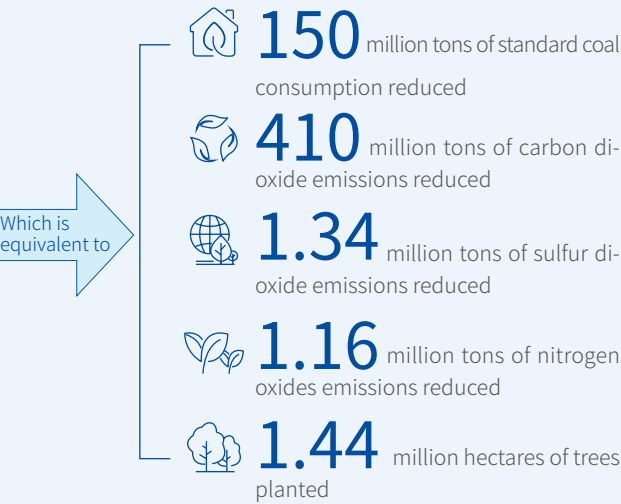
Coordinated Development

- 2 international standards, 2 national standards and 5 industrial standards led by CNNP

Clean and Low Carbon

Give Back to Society

500 TWh of electricity has been generated by nuclear power units in total



- 17 cadres were sent to seven provinces (regions) including Liaoning, Jiangsu, Zhejiang, Fujian, Hainan, Ningxia, Tibet for poverty alleviation through industry development.
- A total of 670 million yuan has been invested in poverty alleviation
- The "Appealing Nuclear Power" science popularization summer camp and the education poverty alleviation summer camp are held regularly to help hundreds of primary and secondary school students in poor areas realize their dream of going out of the mountains to see the nuclear power station.

Feature

Fulfilling Responsibilities to Achieve Prosperity— A Boost to Poverty Alleviation with "Nuclear" Power

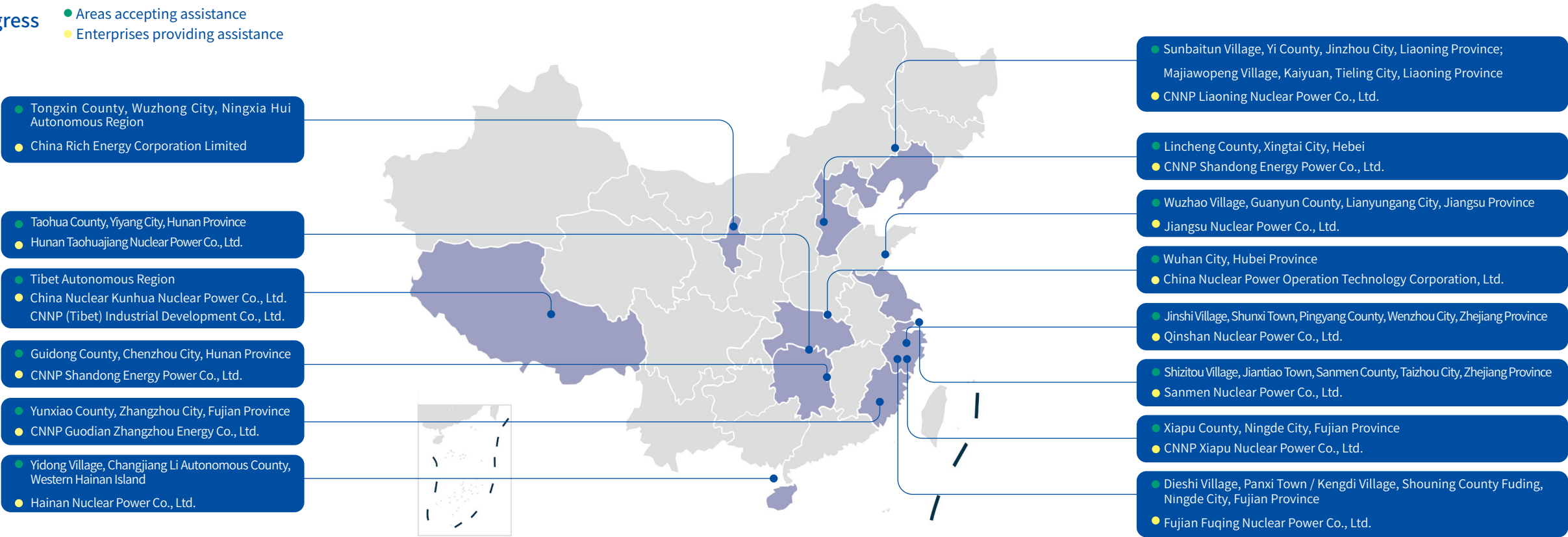
2020 is the final year to achieve the goal of building a moderately prosperous society in all aspects, and also the decisive year to win the battle against poverty. To thoroughly implement President Xi Jinping's instructions on poverty alleviation as well as the decisions and policies of the Party Central Committee and the State Council, CNNP actively promotes targeted poverty alleviation while ensuring achievements both in poverty alleviation and industry development.

“ Getting rid of poverty is not the end, but the starting point of a new life and struggle instead. ”
——Xi Jinping, Chinese President

Footprint Witnesses Progress

- Areas accepting assistance
- Enterprises providing assistance

Keeping in mind the political responsibility of poverty alleviation, CNNP fulfills the responsibility as a central SOE in poverty alleviation, and continues to make greater efforts to achieve new breakthroughs in poverty alleviation.



Mechanism Ensures Effectiveness of Poverty Alleviation

CNNP has built a poverty alleviation network, which, led by the Party committee and the full-time deputy secretary, is in the charge of the Party-masses Department with the participation of all member enterprises. We promote member enterprises to set up leading groups and targeted poverty alleviation offices to ensure the effective implementation of poverty alleviation. We continue to improve the poverty alleviation mechanism, create an assessment mode of "joint efforts of the headquarters and subsidiaries". We also clarify the poverty alleviation work plan on a quarterly basis, and incorporate it into the annual performance assessment of the member enterprises.

Talents Gather Power for Poverty Alleviation

CNNP has selected outstanding poverty alleviation cadres and sent them to the pairing regions so that they could know the actual situation and effectively drive the people in poverty-stricken areas out of poverty. Responding resolutely to the arrangements of the central government for poverty alleviation, these cadres offer practical solutions and carry out work in a planned way. During the 13th Five-Year Plan, the Company selected 17 poverty alleviation cadres seven provinces (regions) including Liaoning, Jiangsu, Zhejiang, Fujian, Hainan, Ningxia, Tibet for poverty alleviation through industry development.

Awards



- CNNP Liaoning Nuclear Power: Gong Xin, a cadre staying at villages, was awarded the Excellent Cadre and Moral Model of Yixian Youth League Committee in 2020; Dong Encheng, also a cadre staying at villages, was awarded as the Excellent Selected Cadre of Tieling City and the Excellent First Secretary of Kaiyuan City in 2020.
- Fuqing Nuclear Power: Peng Shilin, a cadre staying at villages, won the 2020 Fuding City Advanced Individual Award for Poverty Alleviation
- China Rich Energy Corporation Limited: Ma Jianguo, a poverty alleviation cadre, won the award of "2020 Outstanding Individual of Corporate Poverty Alleviation" from the Poverty Alleviation Office of the State Council
- Jiangsu Nuclear Power: Fu Xueli won the 2018-2019 Provincial Excellent Team Member for Assisting Poverty Alleviation

Practice Turns Countryside into A New Look

Based on local conditions, CNNP has provided assistance in all aspects for poor counties (villages) by strengthening poverty alleviation through education, industry development and infrastructure construction. In 2020, the company has completed the task of poverty alleviation, lifting the pairing areas out of poverty.

Poverty Alleviation Through Education and Training Stimulates Internal Driving Force for Economic Development

Liaoning Nuclear Power

Since 2012, the enterprise has been organizing pairing aid activities for poor students in schools around the Xudabao plant. By the end of 2020, 240 impoverished students living near the project have accepted the assistance with over 400,000 yuan donated to help them complete their studies.

Sanmen Nuclear Power Plant

In cooperation with Sanmen Science and Technology Association, the enterprise brings to pairing villages popular science books, children's picture books etc. improve the villagers' appreciation of science and culture.

Fuqing Nuclear Power

The enterprise pays attention to the poor people in rural areas, especially the left behind women, children and other vulnerable groups. In the past three years, it has given 40,000 yuan to each university freshman and 20,000 yuan to each disabled student in need.

Hebei Nuclear Power

The enterprise pays close attention to the growth of poor students and solve their difficulties. On the occasion of the Chinese New Year Festival, it sends goods and money to the poor students who are supported in pairs to help them study without any worry and boost their confidence in learning.

Poverty Alleviation Through Industry Development Drives Positive Cycle of Economic Development

Jiangsu Nuclear Power

The enterprise helps Wuzhao village to develop vegetable greenhouses and supports Houyao village's air conditioning filter factory, providing poverty alleviation through developing environment friendly industries.

Based on the resources of pairing villages, the enterprise makes overall arrangements of assistance funds to boost the income of villages. It invests in Fuding Rural Commercial Bank, the urban construction investment company, Sushan hydropower station, Dingzhiya tea company, etc., with an annual income of more than 100,000 yuan.

China Rich Energy Corporation Limited

By considering the local features, the enterprise constructed a number of new energy poverty alleviation projects, such as Houyao Agricultural Photovoltaic Power Station in Ziyun County. In Guizhou Province, nearly 0.4 GW of new energy projects are in operation and under construction, with a total investment of about 1.7 billion yuan.



Sanmen Nuclear Power Plant delivers packages with popular science books to a poor village.

Case Making Village's Collective Economy Stronger

Based on its modern enterprise governance, Qinshan Nuclear Power Plant helped Jinshi Village, Shunxi Town, Pingyang County to build a special platform of nuclear import company to lift them out of poverty through increasing consumption and developing special products. By building the tea garden and purchasing festival gifts of labor unions, Qinshan Nuclear Power Plant has helped the collective economy of village become stronger. In 2020, Qinshan Nuclear Power Plant purchased 1.8535 million yuan products for the Spring Festival and the New Year's Day through the nuclear import company. "During the 13th Five-Year Plan, Qinshan Nuclear Power Plant provided 2.99 million yuan for the pairing Jinshi village.

Poverty Alleviation Through Infrastructure Construction Lays A Solid Foundation for Economic Development

The enterprise invested in Yidong village's water irrigation project, which effectively solves the water problem of Yidong village, and brings great harvest.

The enterprise helps build a beautiful village and improve the environment of the village by donating 300,000 yuan to facilitate the construction of main roads and lightings in Guangping village.

"Hainan Nuclear Power Co., Ltd. has drilled a well so that we can farm. I don't have any requirements, but I have to work more instead of lagging behind."

—A resident of Yidong Village

Fruits Pave Road to Success and Rejuvenation

In 2020, CNNP did a good job in poverty alleviation, fully promoted the economic and social development of the pairing regions, and helped the poor counties embark on the new journey of rural rejuvenation.

Awards

- "Gathering nuclear power to light a better life", a special report on targeted poverty alleviation of was released as the key part of CNNC's "1 + 2" poverty alleviation report matrix on the 8th China Charity Fair.
- The poverty alleviation through industry development project "Exploration of State Owned New Energy Enterprises on Consolidating Poverty Alleviation Achievements -- Taking China Rich Energy Corporation Limited's Poverty Alleviation Through Developing New Energy Industry As Example" won the first prize of 2020 project research achievements of China Nuclear Industrial Research Association of Labour's Ideological and Political Work.
- The "100MW Wind Power Poverty Alleviation Project in Xinglong Village, Tongxin County" and the "20MW photovoltaic poverty alleviation project in Tuzhai Village, Lincheng County" won the award of "100 Special Cases of Poverty Alleviation Achievements" by Energy Industry Annual Conference.
- Jiangsu Nuclear Power Co., Ltd. won the 2018-2019 Provincial Advanced Unit for Assisting Poverty Alleviation.
- Fuqing Nuclear Power Plant was awarded the honor of "Poverty Alleviation Contribution".

In 2020

Over 34 million yuan invested in poverty alleviation

12 poverty alleviation projects through industry development

6,867 persons with archives lifted out of poverty

Over 6.5 million yuan poverty alleviation products purchased

3.4 million yuan sales volume of Tibet farm and pasture products in CNNP

Solid Safety Foundation Underpins High Quality Development

In 2020

22 nuclear power units in operation with a total
installed capacity of 20,230 MW

15 operating units achieved full marks in WANO
composite index



Strengthening Safety Management

CNNP promotes the development of safety culture, improves the safety management mechanism, strengthens employees' bottom line thinking and red line awareness so as to build the line of defense for safety.

Nuclear Safety Culture

CNNP has continuously improved the nuclear safety culture system, deepened the publicity and education of nuclear safety culture and promoted the evaluation and supervision of nuclear safety culture, creating a working atmosphere in which everyone reveres nuclear safety and safeguards nuclear safety. In 2020, the Company won the Excellent Organization Award in the second National Excellent Paper on Safety Culture, and the paper Building the Promotion Model of Nuclear Safety Culture Development won the first prize.



Sanmen Nuclear Power strengthens Supervision and Inspection of Nuclear Safety Culture

Improving the nuclear safety culture system

- The Company establishes the Promotion Committee for the Development of Nuclear Safety Culture to effectively implement and follow up the key tasks of nuclear safety culture
- The Company summarizes and analyzes the latest practice of the development of industry nuclear safety culture and prepares special construction reports.
- The Company developed the *Nuclear Safety Culture Indicator of CNNP Power Plant* (trial version) based on the practice of nuclear safety culture indicators.
- The Company compiled and printed the *CNNP's Implementation of General Secretary Xi Jinping's Instructions on the Practice of Nuclear Safety Culture Development*.

Launching safety trainings and warning education

- The Company carries out the special promotion activity of "Leaders as Model of Safety" and the First Lesson of the Year from Leaders, inviting the safety director of the power plant to give lectures on safety so as to give feedback on employees' cognitive and behavioral bias on nuclear safety culture.
- The Company makes everyone keep in mind safety information and revere nuclear safety through various ways, such as sending a message on safety every day, organizing the safety director of the power plant to go to Fukushima to receive education and releasing the nuclear safety educational documentary on Fukushima No.1 nuclear power plant etc.

Promoting nuclear safety culture

- The Company spreads positive cases of nuclear safety culture and guide all employees to learn from these good behaviors.
- The Company creates the atmosphere of "everyone bears safety responsibility" through activities like the study of core safety values, discussion and solicitation on core values of safety among all members as well as the Work safety Month, etc.
- The *Nuclear Safety Culture Assessment Guideline* is officially issued as CNNC standard, and the energy standard *Nuclear Safety Culture Development Guideline* is approved for review, thus the practice of nuclear safety culture development is being promoted to the industry.

Evaluating and supervising on nuclear safety culture

- The Company holds training courses for nuclear safety culture evaluators and organizes nuclear safety culture evaluations for nuclear power plants.
- The Company improves the questionnaire of nuclear safety culture, carries out regular questionnaire survey of nuclear safety culture among all staff, and continuously monitors CNNP's overall nuclear safety culture development.

Safety Management Mechanism

CNNP attaches great importance to strengthening the awareness of all employees to abide by regulations and perform their duties. The Company improves the independent supervision system of nuclear safety and strengthens the safety risk control and hidden dangers management so as to implement the special plan to enhance and improve work safety, comprehensively control the safety risk and improve intrinsic safety.

99.98%

Potential safety risks rectification rate



Improving the independent supervision system of nuclear safety

- The Company establishes the biweekly independent evaluation system by safety director every two weeks, issues bi-weekly report, and supervises the work safety and high-risk operation of member enterprises.
- The Company adds "power grid safety group" to its organizational structure.
- The Company sends safety directors to conduct inspection on five power plants, and invites safety directors to give lectures on safety in these power plants as a way to strengthen safety exchange.
- The Company utilizes the notice and supervision mechanism for major common work safety problems to gather the high-quality power of member enterprises and promote the solution of common and difficult problems of group plants.

Controlling and Managing safety risks and hidden dangers

- The Company releases the *Classification Standards for Hazard Sources in Nuclear Power Plant*, clarifies safety responsibilities, strengthens hazard identification and management, and promotes the classification and control of hidden dangers as well as SSCs.
- The Company strengthens the risk control of high-risk operation of employees in key positions and uses the high-risk operation situation awareness system to urge member enterprises to strengthen management and control.
- The Company establishes a complete technical protection system, and builds the "CNNP situation awareness platform" to improve the monitoring and early warning of network security risk.
- The Company standardizes the management of the top ten hidden dangers in nuclear power plants and focuses on the key equipment and key links affecting nuclear safety to find out problems in deep. And the Company decides rectification plans, objectives and responsible persons, and dynamically updates the list of hidden dangers so as to effectively improve the management of hidden dangers.

launching the special campaign to enhance work safety and improve management

- The Company implements the *Three-Year Action Plan to Enhance Work Safety*, and studies and practices the 2 topics of General Secretary Xi Jinping's important instructions on work safety and enterprises' primary responsibility of work safety. The Company also launches campaigns to ensure safety in 8 fields, such as construction projects and hazardous chemicals, setting up a leading group and a special working group to follow up the supervision.
- The Company organizes relevant member enterprises and business partners to focus on refueling machine operation, object strike prevention and contractor management. Also, it takes action to improve safety and the overall work safety performance.

Emergency Management

The Company implements the *Emergency Regulations of Workplace Accident*, improves the emergency management system and emergency plan, continuously promotes the development of emergency facilities, strengthens emergency training and drills and improves the emergency response ability.

in 2020

586 single emergency drills and 6 comprehensive emergency drills were carries out by member nuclear power enterprises



Improving the emergency organization system

The Company sets up a special nuclear emergency team with a 7*24 emergency duty system to ensure timely and rapid response and proper disposal of emergencies; The Company also updates the members of the support team on nuclear accident sites in nuclear power plants, ensuring the availability of nuclear emergency support team.

Optimizing the emergency document system

The Company revises and issues documents such as *CNNP Emergency Management System*, *CNNP Emergency Plan for Nuclear Accidents*, *CNNP Headquarters Emergency Duty Management*, and a series of nuclear emergency management procedures for nuclear power plants. The Company also completes the self-assessment of CNNP and its member enterprises in the 13th Five Year Plan period to make nuclear emergency documents more scientific and operable.

Build emergency facilities and equipment

The Company continuously improves the management of emergency facilities and equipment, builds the CNNP work safety emergency platform, and the emergency support material information management platform for nuclear accident sites in nuclear power plants to and ensure the demand of nuclear emergency material scheduling and management.

Enhancing emergency trainings and drills

The Company improves the organization process and record of emergency trainings and drills, and enhances the effectiveness based on the past experience of emergency trainings and drills. The headquarters sent employees to participate in the 9th National Training Course for Nuclear Emergency Management Cadres held by the State Nuclear Emergency Office to strengthen the emergency awareness and the development of the emergency team, thus continuously improving the ability of nuclear emergency preparedness and response.



Comprehensive emergency firefighting drill in Tianwan Nuclear Power Plant



Joint drill of anti-terrorist attacks in Zhangzhou Nuclear Power Plant

Case "Storm-2020" nuclear security drill

In order to implement General Secretary Xi Jinping's instruction on strengthening nuclear safety, China Atomic Energy Authority successfully held the "Storm-2020" nuclear security drill at the Changjiang nuclear power plant in Hainan on August 13, 2020. The drill aimed to further exam the actual capability of China's nuclear facilities in dealing with emergencies such as new challenges and threats of nuclear security so as to lay a solid foundation for the sound and sustainable development of China's nuclear energy industry.

Aiming to enhance fighting capacity through drills, "Storm-2020" carried out real military confrontation. Compared with previous "storm" serial drills, this drill expanded the scope from fixed places to transport activities and from traditional threats to new threats, such as "low, slow and small" aircraft, for the first time. It coordinated with the military, police and civilian to respond to threats beyond design basis, and integrated the application of high and new technologies such as communication satellite, Beidou navigation satellite system and high-resolution remote sensing to the nuclear security drill for the first time. The drill achieved the expected goal and result, which is of great significance to effectively improve the actual capability of China's nuclear security.

Developing Demonstration Projects

CNNP strengthens project quality management and enhances all employees' quality awareness to ensure the safe and high-quality construction of nuclear power and new energy units under construction, which provides solid guarantee for the safe and high-quality development of the Company. In 2020, all our special operations personnel worked with certificates, and we also achieved zero occurrence of major equipment accident, man-caused major quality accident, theft or loss of hazardous materials, and fire accident.

Improving the quality management system

- The Company puts forward 29 measures to improve its management in 7 aspects, including process control, supervision and inspection, assessment, bonus and punishment etc. so as to promote procedural and standardized management of materials at all stages during construction.
- The Company organizes independent sampling inspection for qualification of bulk materials, special operations personnel and projects, and timely rectify the existing problems.
- The Company continuously improves the development of credit system, revises and issues the red line and yellow line standards and blacklist system for quality, and discloses the information regularly.

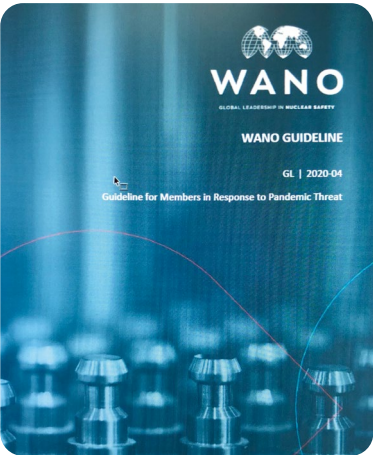
Optimizing the management of nuclear project construction

- The Company issues the *Guidance on the Bill of Quantities and Application of Various Types of Nuclear Power Projects*, implements the standardized management of nuclear power project progress and clarifies the supervision of project construction management and control. It also establishes the top 10 risk management mechanism of project construction to facilitate the rapid resolution of major problems.
- The Company breaks the boundary between operation and project construction, as well as the boundary between the owner company and the general contractor in the experience feedback system so that it can promote the real-time feedback to the project construction from the operating units on experience feedback, technical improvement, and hidden danger identification.
- The Company uses new technologies such as informatization, intelligence and big data to promote the development of pilot smart construction site, and realize all-round real-time dynamic supervision of personnel, machinery, materials and environment from passive supervision to active supervision, promoting the digital transformation of nuclear power project construction.

Promoting the quality management and improving safety

- The Company launched the "Quality Month" activity with the theme of "systematically improving quality to help strengthen nuclear power and the Company". The Company also organized employees to carry out quality management group activities to solve the front-line work problems. Qinshan Nuclear Power Plant, Sanmen Nuclear Power Plant, Fuqing Nuclear Power Plant and Hainan Nuclear Power Plant won the Platinum Award of ICQCC.
- The Company launches safety improvement around foreign body prevention, lifting operation management and electrical operation management, inviting general contractor, supervision and construction units are invited for the first time. Relevant safety management manual and compilation of typical work safety problems and proper practices are released.

Case Jiangsu Nuclear Power Co., Ltd. compiles and releases the *Response Guide for Nuclear Power Plants under the Threat of Pandemic* to strengthen the management of pandemic emergency



Guideline for Members in Response to Pandemic Threat issued by Jiangsu Nuclear Power Co., Ltd.

Considering pandemic's endemicity and outbreak, Jiangsu Nuclear Power Co., Ltd., in order to help WANO member power plants quickly take emergency management measures to deal with the pandemic and avoid threats to the safe operation of units, led the preparation of *Guideline for Members in Response to Pandemic Threat*, a WANO guideline GL 2020-04, which was officially published on WANO's official website on June 24, 2020 and was highly praised by WANO. This was the first time for WANO to issue guidelines for dealing with pandemic, and it was also the first time for Chinese nuclear power plants to independently completed WANO guideline, which provided an important reference for nuclear power plants at home and abroad to form an emergency management mechanism for dealing with pandemic.



Response to public concerns

Q: With the continuous development of technology, the application of information technology, mobile technology, intelligent wearable and tools in the construction stage is constantly improving. In the process of project construction, how does CNNP use advanced technologies to support project construction?

A: CNNP actively explores the use of intelligent and information-based means to strengthen safety management and deeply applies advanced technologies such as AI, big data, IoT, mobile internet and cloud computing to all links of the whole nuclear power project construction industry chain. The Company establishes the work safety monitoring system and promotes the development of "smart construction site" so as to create the "smart brain" for nuclear power project management, and strengthens the control of the whole process of on-site operation in terms of management and technology, providing supports for quality project construction.

By the end of 2020

5 nuclear power units under construction with smooth progress

The first Hualong One nuclear reactor – Fuqing Units 5 connected to grid

Tianwan Unit 5 put into commercial operation **3.7** months ahead of schedule



Case The development of smart Hualong drives the integrated development of digital economy and nuclear power projects

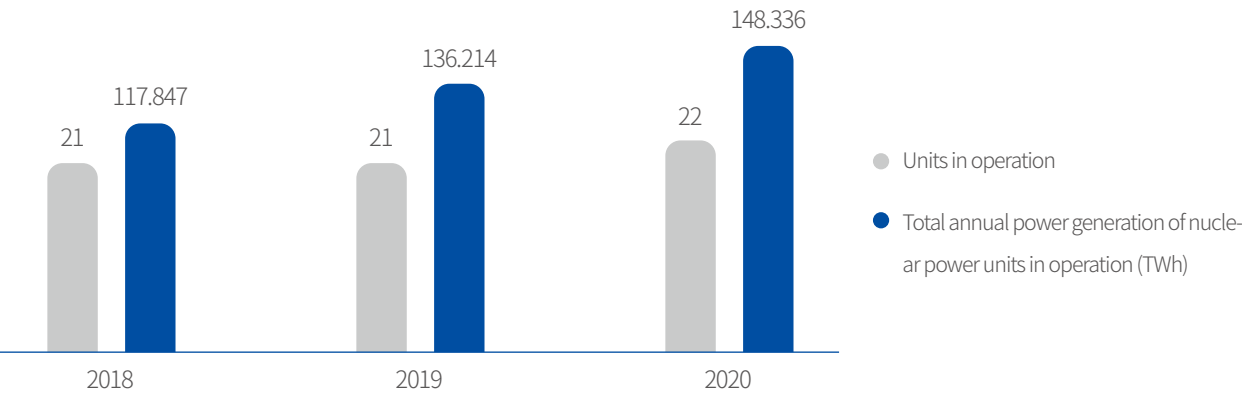
CNNP deeply applies advanced technologies such as AI, big data, IoT, mobile internet and cloud computing into all links of the whole nuclear power project construction industry chain. Panoramic fusion and AI identification are applied for the first time to clear the obstacles among all links and start the development of "smart Hualong". The Company builds a "smart construction site" monitoring platform for the whole process of nuclear power project construction with comprehensive situation awareness, efficient information processing, convenient and flexible application, and open and shared data, so as to realize intelligent management and control of nuclear power projects and create a "smart brain" for nuclear power project management. The first pilot smart construction site has been put into operation, and has been listed as the "pilot demonstration project of the big data industry development" by the Ministry of Industry and Information Technology and CNNC. The development of Smart Hualong explores an innovative development path for the nuclear industry and CNNC with the collaboration of the data industry.



"smart construction site" monitoring platform

Ensuring Stable Operation

Based on "safe operation", CNNP takes "ensuring nuclear safety" as the core goal by carrying out in-depth improvement of safety and operation reliability from the aspects of equipment reliability, human errors prevention, overhaul optimization, operation and production, which helps to improve the management of nuclear power plants and stick to the lifeline of nuclear safety.



Equipment Reliability Management

The Company pays close attention to the improvement of equipment reliability by improving equipment detection, supervision and assessment mechanism and deepening the research on unit safety to prevent and resolve any equipment operation risk while ensuring the safe operation of units.

1

The Company launches domestic production of spare parts, materials and software, and actively carries out technical research to realize the independent and controllable operation and maintenance of nuclear power.

2

The Company optimizes and promotes the Equipment Reliability-based Design System (ERDB) and carry out online supervision and health assessment of major equipment to provide guidance for the optimization of equipment maintenance plan.

3

The Company strengthens the incentive and assessment of reducing unplanned outage by giving annual performance praise to the units / enterprises without unplanned outage for a long period time, and conducting strict assessments to the units / enterprises with unplanned outage.

4

Based on the platform of Nuclear Power Operation Research Institute, the Company delves into the issues that affect the safety of units so as to improve the intrinsic safety of units.

No incidents rated INES level 1 or above in CNNP's nuclear power units, with a good record of nuclear safety



Prevention of Human Errors

The Company strengthens human errors control and improves human errors management mechanism. The Company also improves operators' capability, standardizes and strengthens the tools for human error prevention so as to avoid or reduce human error events and ensures operation safety. In 2020, there was no unplanned outage incident caused by human errors.



Improving the management mechanism

The Company promotes the application of human errors management indicator system and establishes the human errors management sharing platform and the typical human errors event analysis and evaluation mechanism. The Company also organizes good practice identifications as a way to strengthen human errors control.



Strengthening operators' capability

The Company investigates and analyzes operator's weakness in operation, and then develops targeted teaching materials; The systematic training method recommended by IAEA is adopted in the training with the mode of "training-assessment-authorization-qualification"; The CPO evaluation of Tianwan Unit 6, the training on human error prevention for main employees and contractors and the skill competition on human error prevention of power plant contractors, were carried out to improve the operation capability.



Avoiding operational risks

The Company issues six codes of conduct for personnel in various fields of power plants, including the *Nuclear Safety Supervision* and it also promotes the CNNP Guidelines for the Standardized use of 11 human factors prevention tools, launches the search of human errors trap and starts a large number of basic work related to human errors management, such as the compilation of good practices of human errors management, so as to avoid operational risks.

Case

The fifth human errors prevention skill competition for employees

In August 2020, CNNP held the fifth human errors prevention skill competition for employees in Sanmen Nuclear Power Plant. Focusing on corporate culture, relevant laws and regulations, and application of human errors prevention tools, 12 enterprises and 17 teams joined in the competition, which built a platform for skilled personnel to show their skills and learn from each other. Aiming to select and train a group of personnel with superb skills and innovation ability in the field of nuclear power technology, the competition also played a role in enhancing CNNP employees' nuclear safety culture awareness and nuclear safety culture skills as well as exchanging nuclear safety culture experience.



The fifth human errors prevention skill competition for employees

Overhaul Management

The Company has formulated the *Outage Performance Improvement Plan*. By optimizing the overhaul management mechanism, the plan aims to promote the standardization of overhaul management, strengthen overhaul supervision and support and continuously improve the overhaul performance while ensuring the safe operation of equipment.

Standardization of overhaul management

The Company strengthens the publicity and application of overhaul standards and guidelines, and actively promotes the application of the overhaul management information system.

Overhaul supervision and support

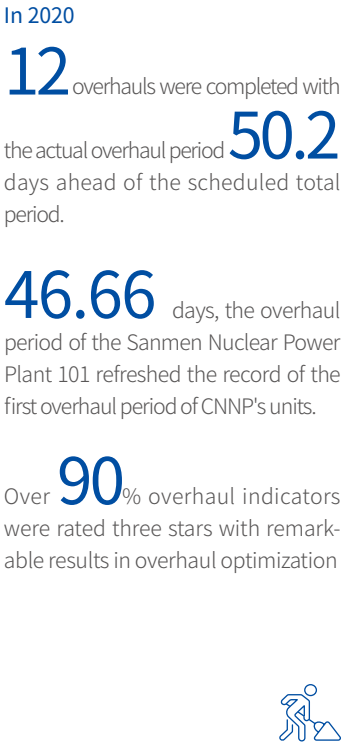
The Company launches special supervision, inspection and assessment of overhaul while coordinating overhaul preparation and expert support.

Development of overhaul management team

The Company strengthens the overhaul management team and promotes the professionalization of overhaul manager so as to improve overhaul management.

Optimization of overhaul management mechanism

The Company optimizes overhaul indicators and incentive measures to guide member enterprise to pursue outstanding performance.



Case

Jiangsu Nuclear Power successfully implements the first independent VVER overhaul in China

Tianwan tw-ot302 overhaul was the first overhaul of the Tianwan Nuclear Power Plant during the period of epidemic prevention and control. Since foreign experts could not come for support, Jiangsu Nuclear Power, by comprehensively analyzing the "risks" and "opportunities" caused by the epidemic prevention and control on the overhaul work, forced itself to master "core technologies and innovate management. Jiangsu Nuclear Power independently completed over 400 overhaul projects that needed the support of foreign experts before, involving reactors, main pumps, steam generators and other key equipment, which was the first time ever for independent VVER overhaul.



The first independent VVER overhaul in China

Peer exchanges

The Company continues to carry out internal and external peer assessments so as to improve the experience feedback system, timely find and quickly solve risks and strengthen safety.

Peer reviews

The Company launched the external review organized by WANO and China Nuclear Energy Association (CNEA) and the self-review of CNNP CPR (headquarter peer assessment) and the special review for CNNP's member enterprises, thus gradually building peer review into an effective method and tool to strengthen supervision and improve safety management. In 2020, the Company conducted 7 external reviews and 13 internal reviews in total.

Experience sharing

CNNP makes efficient use of and keeps improving the experience sharing system. Also, the Company effectively adopts the class A/B incident experience sharing mechanism, pays close attention to the external experience sharing, and promotes the good practices of experience sharing so as to solve the problems of work safety and management while building the experience sharing system into an important tool to improve the safety of nuclear power. In 2020, the development of the Company's multiple-plant experience sharing system won the national Special Prize for Equipment Management and Innovation of the Power Industry and the Third Prize for Scientific and Technological Progress of China Nuclear Energy Association.

In 2020

15 of our operating units achieved full marks in WANO composite index and the overall operation index was leading both in China and the world.



Adopting the fleet experience sharing system

- Based on the class A/B incident sharing, the Company uses the multiple-plant experience sharing system to track class A/B incident and urge power plants to quickly investigate and analyze the causes.
- Focusing on typical cases and recurring incidents in recent years, the Company studies and launches measures for prevention and improvement as well as special investigations to promote internal experience sharing and avoid recurrence of these problems.

Strengthening informatization of experience sharing

- The Company keeps improving the functions of the "CNNP experience sharing information platform" and the "CNNP experience sharing APP", so as to strengthen the functions of data sharing, closed-loop control of A/B incidents, utilization of good practices and achievements as well as monitoring and reminder of any abnormal incident etc.

Paying attention to the application of experience sharing

- The *Special Issue on Experience Sharing of Field Operators' Basic Skills and Code of Conduct* was compiled to promote the application of CNNP's experience sharing.

Enhancing external experience sharing and exchange

- Two training sessions on the analysis of root causes were held for all CNNC member enterprises.
- Experience sharing and exchange activities with CNEIC and CZEC were held to promote the good practices of multiple-plant experience sharing to other sectors.



Green and Low-carbon Development Facilitates Ecological Progress

In 2020

CNNP produced **153.976** TWh of electricity which, **as compared with coalfired power generation**, was equivalent to reducing **46.838** million tons of standard coal consumption, and cutting CO₂, SO₂ and NO_x emissions by **122.816** million tons, **399,000** tons and **347,000** tons respectively.



Improving Environmental Management

Responding to the arrangements and requirements of the CPC Central Committee and the State Council on ecological environmental protection, CNNP strictly abides by the red line of ecological protection and the bottom line of environmental quality and continuously improves the environmental management system so as to strengthen environmental impact monitoring, and improves the capacity of environmental protection.

Enhancing Environmental Management

The Company attaches importance to the construction of a modern environmental governance system by formulating management systems such as the *Environmental Protection Management Outline* to promote the integration of environmental management system and daily environmental impact activities. The Company also compiled the *Guidelines for Classified Management of Environmental Sensitive SSCs* and *Plan for Environmental Emergencies* so as to enhance the classified management and control of environmental risks and strengthen environmental emergency preparedness and response.



CNNP won the 15th "Green Development Award" of People's Corporate Social Responsibility

Monitoring Environmental Impact

Strictly abiding by laws and regulations including the *Environmental Radiation Protection Regulations of Nuclear Power Plants* and *Regulations for Environmental Radiation Monitoring of Nuclear Power Plant*, CNNP implements the environmental monitoring plan to effectively monitor the environment around the nuclear power plants in operation, and ensures that the radioactive effluent discharge meets the requirements of the regulations. The Company submitted monthly and annual environment monitoring reports, timely disclosed monitoring data, and accepted supervision from regulators at all levels and the public. In 2020, the three shields of nuclear power plants were kept intact, the capability of the radioactive exhaust and the discharge of radioactive effluents was effectively controlled with no impact on the surrounding environment.



Main environmental monitoring data of CNNP's power plants in operation in 2020

Nuclear Power Plant / Region	Monitoring Project		Monitoring Results	
			Maximum	Medium
Qinshan	Environmental dose rate around the plant by continuous monitoring (μGy/h)	Γ radiation	0.158	0.100±0.007
	Radioactivity of aerosols around the plant (mBq/m³)	Total α radia- tion	0.188	0.08±0.04
		Total β radia- tion	3.72	1.4±0.7
Tianwan Nuclear Power Plant	Environmental dose rate around the plant by continuous monitoring (μGy/h)	Γ radiation	0.180	0.105
	Radioactivity of aerosols around the plant (mBq/m³)	Total α radia- tion	0.485	0.071
		Total β radia- tion	3.033	1.137
Fuqing Nuclear Power Plant	Environmental dose rate around the plant by continuous monitoring (μGy/h)	Γ radiation	0.2450	0.0795±0.0019
	Radioactivity of aerosols around the plant (mBq/m³)	Total α radia- tion	0.073±0.016	0.030±0.002
		Total β radia- tion	1.540±0.060	0.571±0.037
Changjiang Nuclear Power Plant	Environmental dose rate around the plant by continuous monitoring (μGy/h)	Γ radiation	0.264	0.155±0.004
	Radioactivity of aerosols around the plant (mBq/m³)	Total α radia- tion	2.608	0.236±0.01
		Total β radia- tion	5.899	1.189±0.02
Sanmen Nuclear Power Plant	Environmental dose rate around the plant by continuous monitoring (μGy/h)	Γ radiation	0.101	0.099±0.001
	Radioactivity of aerosols around the plant (mBq/m³)	Total α radia- tion	0.11	0.07±0.02
		Total β radia- tion	2.44	1.38±0.55

Contributing to Carbon Neutrality

To peak CO₂ emissions and achieve carbon neutrality shows China's firm determination to deal with climate change and the responsibility to abide by its commitments, which indicates the direction for China's clean and low-carbon energy transformation. CNNP implements the concept of low carbon development, and seizes the opportunities of new energy industry to speed up the implementation of the development strategy of "nuclear power + new energy", thus making our contributions to the realization of the vision and goal of peaking CO₂ emissions and achieving carbon neutrality.



Response to public concerns

Q: President Xi Jinping made a serious commitment, setting the goal of "peaking CO₂ emissions before 2030 and achieving carbon neutrality before 2060". It showed to the world the determination and confidence of China to take the road of green development. How can CNNP contribute to "carbon neutrality"?

A: Adhering to the concept of "lucid waters and lush mountains are invaluable assets", CNNP takes the "30/60" goals as the guide to speeds up the construction of "clean, low-carbon, safe and efficient" modern energy system, strengthen the standardization, specialization and intensive management of nuclear power and improve the operation and management of wind and solar energy as a way to optimize the layout of new energy industry. The Company also integrates the idea of environmental protection into the whole process of nuclear power projects, strengthen the daily environmental management and environmental risk control of nuclear power plants and reduce greenhouse gas emissions to contribute to the realization of the goal of peaking CO₂ emissions and achieving carbon neutrality !

Developing Clean Energy

The Company closely follows the national development policy to seize new energy market opportunities and actively promotes the development of new energy industry based on the principle of "large scale, maximum benefit, advanced, reasonable industrial structure and excellent asset quality". By the end of 2020, the Company's installed capacity of new energy in operation is 5.2499 GW, and the installed capacity under construction is 1.7024 GW, which was a leapfrog ahead.



China Rich Energy Corporation Limiteds fishery-solar hybrid project in Nandagang, Cangzhou

By the end of 2020

The installed capacity of new energy in operation is

5.2499 GW

of wind power

1.7569 GW

of photovoltaic power

3.493 GW



of new energy power generated

5.64 TWh



Case China's first new energy power generation project in non-core area of nuclear power plant

Xudabao nuclear power new energy (photovoltaic and wind power) project is China's first new energy power generation project in the non-core area of nuclear power plant, which is an important project in response to the national development strategy. By the end of 2020, the wind power plant of Xudabao nuclear power new energy project has been in safe operation for 968 days, and the photovoltaic power plant for 1,976 days. The power generated in total is more than 118.1 GWh, producing huge economic and environmental benefits.

Case Nuclear technology used in Nanyang's livelihood project

The renewable water heat pump heating and cooling project of China Nuclear Kunhua Energy Development Co., Ltd. (China Nuclear Kunhua) is the first self-built geothermal power heating project of CNNC. The project recycles the thermal energy of renewable water processed in Nanyang Sewage Purification Center to supply heating and cooling energy to public and private buildings with an area of 3,200,000 m². After the final completion of the project, 27,700 tons of standard coal and 72,500 tons of carbon dioxide can be reduced annually, making positive contributions for Nanyang to fight against air pollution.

Practicing Low-carbon Operation

The Company integrates the green and low-carbon concept into the construction and operation of nuclear power projects, and reduces carbon emissions through technical transformation and equipment optimization.



Project construction

- Organizing environmental impact assessment, conducting environmentally friendly research, and embedding the environmental protection concept into construction design and technical scheme to promote "zero emission" of carbon dioxide.
- Reducing carbon dioxide emission in project construction through the optimization of the concrete casting by industrial means.
- Improving the material transportation efficiency and reducing the carbon emission of transportation vehicles in the construction stage



Project Operation

- Optimizing the operation and energy consumption of production equipment through technical transformation, eliminating high energy consumption equipment to reduce the power consumption of nuclear power plant.
- Tracking closely the change of unit output and conducting analysis and review for any system abnormal situation.
- Advocating green office by setting up a reasonable time limit for computer power supply and checking whether the power was off after work every day.
- Advocating low-carbon travel and adding urea liquid for vehicles to reduce carbon emission of commuter vehicles.



Case "National model" of zero carbon emission for integrated development of enterprise and local economy

In order to fully integrate itself into the national strategy of the integrated development of the Yangtze River Delta and promote green and low-carbon development, Qinshan Nuclear Power Plant, a national civilized unit, signed a strategic cooperation agreement with Haiyan County, Zhejiang Province, a national civilized city. Based on the principle of "complementary advantages, win-win cooperation, resource sharing and coordinated development", the two sides jointly build "four bases" with the goal of creating a "national model". They promote the development of "zero carbon future city", build the national demonstration zone for quality development with "zero carbon energy and green development", become a model of integrated development of enterprise and local economy. By the end of 2020, Qinshan Nuclear Power Plant has generated more than 640 TWh of electricity and the reduced carbon dioxide emissions were equivalent to planting trees with an area of about 400 West Lake scenic spots.



Signing ceremony of strategic cooperation agreement between Qinshan Nuclear Power Plant and Haiyan County

Advocating Low-carbon Lifestyle

The Company advocates the concept of environmental protection, encourages low-carbon production and lifestyle, and calls on employees to work and live in a green and low-carbon way by putting up energy-saving and water-saving labels and slogans, organizing a series of activities such as Energy-saving Publicity Week and National Low-carbon Day.

Case Fuqing Nuclear Power Plant launches the science popularization activities of World Environment Day on June 5

June 5 is the World Environment Day. Fuqing Nuclear Power Plant, combining the 8th "Appealing Light" Cup nuclear power knowledge contest (Fuqing zone) and the World Environment Day, went to the downtown business district and brought a "down-to-earth" science popularization activity to the public.

Parents and their kids can go around four areas and experience different forms of science popularization at the activity site: in the interactive doll catching area, citizens can get free game coins and catch Hualong doll by answering questions on their mobile phone; in the "green nuclear energy " themed science exhibition area, citizens can enjoy the beautiful scenery around Fuqing Nuclear Power Plant, and vote for the works of small painters; in the hourly interactive area, the popular science videos are played circularly, and the citizens can answer the questions raised by the hosts according to the video; in the flag photo area, the message area became the "Wishing Wall" for the public to leave the best wishes on the interactive wall.

On the day of the activity, Fuqing Nuclear Power Plant also launched a series of publicity activities, such as the World Environment Day environmental protection knowledge contest, the proposal for all on the World Environment Day, and the popularization of Environmental Protection Law and environmental protection knowledge. The activity popularized the knowledge of energy conservation and emission reduction to the general public, and vigorously promoted a green, low-carbon and environmental-friendly life.



The "6.5 World Environment Day" themed science popularization activity by Fuqing Nuclear Power Plant in the downtown business district

Improving Energy Efficiency

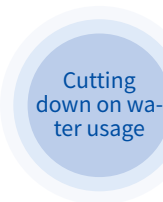
CNNP continues to optimize its energy management system and procedures, gradually improves the efficiency of nuclear fuel and the detailed rules for energy consumption management so as to reduce energy and resource consumption.

Improving Fuel Utilization Efficiency

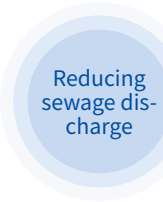
The Company has formulated management systems such as the *Guidelines for Nuclear Fuel Management* to effectively standardize nuclear fuel management measures related to spent fuel and fuel in plant, so as to ensure the efficient utilization of fuel. The Company establishes nuclear fuel management standards and requirements, carries out fuel management research and engineering review to improve the standardization of nuclear fuel management. Also, the Company continuously improves the efficiency of units by studying and developing fuel recycling and refueling mode with reliable technology and high economic benefit and extending the fuel operation period to ensure full use of the fuel. Through technology R&D, transformation and upgrading, the number of overhauls can be reduced so as to improve the efficiency of nuclear fuel.

Cutting down on water usage

Based on strict management of water usage, the Company fully applies water-saving technology and process to avoid any waste of water resources. Sewage discharge is monitored online to ensure that the discharge is in line with relevant regulations and requirements. The domestic sewage is treated and recycled to improve water usage efficiency.



- Improving the *Regulations on Use of Freshwater* to reduce the consumption of fresh water resources.
- Promoting the installation of intelligent water meters and including the measurement data into the online energy consumption system.
- Applying new energy-saving technology, process and equipment to build an online real-time measurement and statistical analysis system for water consumption so as to make reasonable plan of water consumption.
- Setting up water saving signs to enhance employees' water saving awareness.



- Online monitoring devices are installed at the outfall for comprehensive treatment.
- Upgrading domestic sewage treatment stations to improve domestic sewage discharge criteria.
- Carrying out technical transformation of oily sewage system to ensure that it meets the discharge standard



- Domestic sewage is treated and reused through technical transformation, for road cleaning, plant greening and flushing in temporary buildings and the administration area of power plants.
- The supernatant of the wastewater from electrolyzed seawater is recycled after sedimentation.

Reducing Radioactive Waste

Continuously improving its solid waste and hazardous waste management system, CNNP implements the radioactive effluent discharge management system, strictly examines and approves discharge applications, and strengthens discharge monitoring and supervision, actively promoting the minimization of radioactive waste. In 2020, the treatment system for solid waste, wastewater and waste gas ("Three Wastes") of nuclear power plants in operation ran well with no excessive emissions of radioactive substance. And the amount of radioactive solid waste was within the set target.

Case Framework agreement signed on radioactive waste transportation and treatment with CNNC Environmental Protection Co., Ltd (CEPC)

In order to effectively relieve the storage pressure of radioactive solid waste in nuclear power plants, CNNP and CEPC signed a framework agreement on the transportation and treatment of radioactive waste to promote the outward transportation of radioactive solid waste and reduce the risk of waste storage. In 2020, Jiangsu Nuclear Power Co., Ltd. completed the first batch of outward transportation of radioactive waste, and Qinshan Nuclear Power Plant completed the outward transportation and treatment of 700 m³ radioactive solid waste and 30 tons of metal waste.

Protecting Biodiversity

The development of ecological civilization requires persistence and long-term contribution. CNNP launches special activities on ecological environment protection and carries out risk investigation and self-inspection on ecological environment protection. The Company also compiles the *Summary of CNNP Risk Investigation on Ecological and Environmental Protection and Action Plan for Special Improvement of Ecological and Environmental Protection* so as to follow up and promote the implementation of the action plan, improving ecological environment protection.



Egrets foraging in Qinshan Nuclear Power Plant

Scan the QR code for the sample of Qinshan Nuclear Power Plant practicing the concept of "lucid waters and lush mountains are invaluable assets"

Case Building a picturesque new Hainan with nuclear power

Hainan Nuclear Power Plant takes practical actions to help make ecological progress and create a beautiful Hainan. As a "national industrial tourist innovation unit", Hainan Nuclear Power Plant integrated the design and construction of the plant greening project by planting coconut trees, palms and other plants with strong tropical feature to build it into a garden factory, so that the employees of Hainan Nuclear Power Plant can work with happiness in the scenic spot. Nuclear power has provided a strong support for the green development of Hainan and brought significant environmental benefits. Suppose the annual electricity generated by a single 650 MW nuclear power unit is 5 TWh, the standard coal saved and the carbon dioxide and sulfur dioxide reduced are equivalent to rebuilding a Wuzhishan forest park every three years.

Scan the QR code to get to know Hainan Nuclear Power Plant



Cranes flying over Sanmen Nuclear Power Plant



Blooming flowers in Tianwan Nuclear Power Plant

Innovation Gathers Power for Development

In 2020

CNNP's R&D expenditure accounted for **2.58 %**
of the revenue

with **3** EPRI technological advance application
award



Improving Innovation Management

Guided by scientific and technological innovation, CNNP continues to optimize the innovation management system and build a collaborative innovation platform to promote the continuous improvement of its independent innovation ability and core competitiveness.

Optimizing Management System

The Company carries out the development of scientific and technological innovation system mechanism in a systematic way, plans to build the scientific and technological innovation system and improves scientific research project management mechanism, thus promoting innovation on all fronts with scientific and technological innovation as the core by a comprehensive and optimizing innovation management system mechanism.

Strengthening top-level design

- Making plans for scientific and technological innovation in a systematic way and formulating CNNP special plan for scientific and technological innovation during the "14th Five Year" period.

Optimizing project management

- Subdividing the types of scientific research projects, and realizing classified management of scientific research projects.

Building Innovation Platform

The Company builds a collaborative innovation platform "Small Core, Extensive Collaboration", actively deepens the cooperation with universities, scientific research institutions and peer companies so as to fully promote the integration and utilization of scientific research resources and fully supports the development of scientific research and innovation with a optimizing innovation cooperation platform.

In 2020, Hainan Nuclear Power Plant was recognized as a national high-tech enterprise. By the end of 2020, the Company has four high-tech enterprises, namely CNPO, Jiangsu Nuclear Power Co., Ltd., Fuqing Nuclear Power Plant and Hainan Nuclear Power Plant.

Case Nuclear Power Operation Research Institute, a scientific research model, put into official operation

In order to implement the national innovation-driven development strategy, promote the development of advanced nuclear science and technology industry system and build a power with strength in nuclear, CNNP unveiled and established the Nuclear Power Operation Research Institute on July 3, 2020, striving to build a system wide scientific research model. CNNP provided support to promote the development of its core scientific research capacity so as to support the high-quality development of nuclear power.

Focusing on the common management and technological issues of nuclear power plants, the Nuclear Power Operation Research Institute conducts scientific and technological R&D, innovation on management and performance improvement. It is an important platform for scientific and technological innovation, personnel training, exchange and cooperation. On September 1, 2020, the Nuclear Power Operation Research Institute was put into official operation, providing support and guarantee for the long-term safe, stable and reliable operation of power plants, and laying a solid foundation for China's nuclear industry to go global.

Case CNPO selected as the "model enterprise for sci-tech reform "

The Demonstration Action of the Reform of Sci-tech Enterprises is another special project of SOE reform after the "Two Hundred Action"(100 central SOE and 100 local SOE) and "Regional Comprehensive Reform Experiment", aiming to create a number of reform models and independent innovation pioneers of state-owned sci-tech enterprises. On April 27, 2020, CNPO was selected into the list of "special action for 100 enterprises to deepen market-oriented reform and enhance independent innovation ability".

CNPO's " demonstration action of sci-tech reform" mainly involves 16 key tasks and measures in five major fields. It aims to establish a market-oriented corporate governance mechanism and industrial operation mode, form a market-oriented mechanism of employment as well as incentive and restraint, and fully stimulate the enthusiasm of scientific research and technology backbones for innovation so as to enhance the scientific research and innovation ability. CNPO's selecting into the demonstration action of sci-tech reform will help to further improve and give play to the role of CNPO's Science and technology innovation platform, highlight the value and influence of science and technology innovation in leading the enterprise's economic and capacity development, and boost its high-quality development.



Kick off meeting of CNPO's demonstration action of sci-tech reform

Accelerating scientific and technological innovation

Independent innovation is the cornerstone of sustainable development. Based on nuclear power, CNNP pursues innovation-driven development so as to constantly improve its independent innovation capability, promote the transformation and application of innovative achievements, and drive high-quality development through scientific and technological innovation. In 2020, the Company's R&D input reached 1.346 billion yuan, accounting for 2.58% of the revenue.



Response to public concerns

Q: General Secretary Xi Jinping's important instructions on the 60th anniversary of the establishment of the nuclear industry pointed out that we must adhere to safe and innovation-driven development, stick to the peaceful use of nuclear energy, comprehensively enhance the core competitiveness of the nuclear industry, and make more contributions to China's nuclear industry. What are the key tasks of CNNP in scientific and technological innovation during the "14th Five-Year Plan" period?

A: CNNP's key tasks during the 14th Five-Year Plan period mainly include digital and intelligent construction of nuclear power, research and application of new nuclear technologies, research and application of non-nuclear new energy technologies, research and incubation of agile end supporting technologies, construction of scientific and technological innovation system and mechanism, etc. The Company aims to support the safe operation of nuclear power with scientific and technological innovation and boost the sustained and high-quality development of CNNP.

Researching and Developing Forward-looking Technology

The Company actively carries out systematic planning and strategic scientific research, strengthens forward-looking scientific and technological R&D, promotes the continuous improvement of nuclear energy technology, and provides inexhaustible power to drive China's to become a nuclear power.



Promoting the Transformation of Achievements

The Company attaches great importance to the transformation and application of scientific and technological achievements, strives to tap the value of scientific and technological achievements for application, and continues to contribute to the progress and development of the industry. In 2020, more than 100 technological achievements with high transformation and application value were directly applied or transformed in power plants.

Case

CNNP wins three record-breaking EPRI technological advance application awards

In 2020, the Electric Power Research Institute (EPRI) selected 12 technological advance application awards out of 57 nominations worldwide, among which CNNP had record-breaking 3 awards. CNNP joined EPRI in 2013 and officially became a full nuclear power member of EPRI in 2020. For a long time, CNNP has been absorbing and transforming the existing technical achievements of EPRI in an all-round and effective way and actively carrying out EPRI research projects. While using EPRI resources to solve its own technical problems, CNNP also contributes its efforts in scientific research to the international nuclear power industry, which lays a solid foundation for CNNP's international strategy.

Pursuing Digital Development

CNNP actively promotes the integration of science and technology with innovation, facilitate the upgrading of smart industry, and helps the nuclear power industry move forward to be digitalized, smart and network-based.

Information Management

The Company continues to promote the development and application of management information system, comprehensively strengthen the ability to control cost, ensure quality and safety, as well as support the efficient operation of business.

Case

Human resource and wisdom gathered to lead the future development

Since 2013, CNNP has been exploring the development of human resource information system. Through introducing information technology and intelligent management technology, CNNP keeps improving the function of its human resource system, which has changed human resources from traditional administrative affairs to be more beneficial and efficient, and from "managing people" to both "managing people" and "managing affairs". It significantly enhances the comprehensive efficiency of human resource management, realizes information sharing, effectively improves the ability to support decisions and unblocks information communication and exchange among all levels, thus promoting the real transformation and upgrading of human resource business.

Case

The sharing team established to open the era of intensified and smart accounting

In order to promote the standardization, informatization and intelligence of CNNP's financial business, promote the integration of industry, business and finance, and deepen the financial transformation, CNNP has set up an accounting sharing team (hereinafter referred to as "sharing team") with 23 members. Since the establishment of the sharing team, it has been responsible for the whole process of planning, blueprint design, systematic implementation, online support and promotion. Up to now, CNNP's 22 enterprises with N1 ERP have all realized accounting sharing, which serves more than 10,000 employees, accounting for 3/4 of the total number of employees in the sector and covering 320 billion yuan assets. The first stage goal of the accounting sharing center has been completed, making accounting sharing more intensified, standardized and larger in scale.

In the future, the sharing team will continue to upgrade and optimize CNNP's accounting sharing platform during the 14th Five-Year Plan period, and build it into an accounting sharing center involving accounting processing center, payment center, data management center, talent training center, risk warning center and policy research center, thus driving CNNP to become a leading nuclear energy company in the new era.

Smart Nuclear Power Development

The Company continues to strengthen the collaboration between informatization and business, and constantly gives play to the role of new technology to enable business. The Company pursue innovation-driven development with the construction of new capabilities as the guide and data as the driving force. In 2020, the Company's two informatization achievements won the excellent solution for national industrial Internet app.



Achieving Win-Win Outcomes with Partners

In 2020

211 strategic suppliers



Deepening Strategic Cooperation

CNNP seeks open, mutually beneficial, win-win cooperation opportunities. Committed to building and maintaining harmonious partnerships, we fulfill responsibilities and create values together with the government, enterprises, universities, financial institutions, suppliers and other stakeholders and work with them to promote the sustainable development of the nuclear power industry.



Case CNNP holds a supplier quality control experience sharing meeting as part of its effort to work with partners to ensure safe nuclear power generation

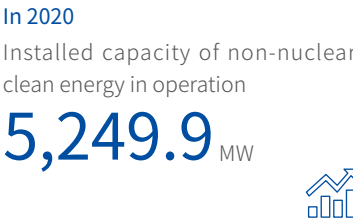
On October 28, 2020, in order to strengthen nuclear safety awareness and management of partners in operation, design, construction of nuclear power plants and equipment manufacturing, CNNP organized a supplier quality control experience sharing meeting. The purposes of the meeting were to promote a rational, coordinated and progressive approach to nuclear safety among affiliates and partners, drive the modernization of the nuclear safety governance system and capabilities, and build a quality assurance alliance with suppliers. At the meeting, CNNP called on its upstream and downstream partners in the nuclear power supply chain to "strictly control quality, prevent safety risks from the source and jointly build a strong nuclear power supply ecosystem" and received strong support from its partners. This event effectively strengthened the cooperative relationship between CNNP and its suppliers and partners. They are working together to create a strong nuclear power supply ecosystem and build a quality assurance alliance to ensure safe nuclear power generation.

Extending the Value Chain of the Industry

CNNP strives to build the industrial pattern of "nuclear energy + non-nuclear clean energy + agile new industry". We focus on our nuclear energy core business, promote the development of non-nuclear clean energy and agile new industry, and provide technical services to nuclear power plants, effectively extending the value chain.

Non-nuclear Clean Energy

CNNP is committed to promoting the development of clean, low-carbon energy. On the basis of continuing to focus on nuclear energy core business, we have worked actively to promote the development of non-nuclear clean energy and drive the transition to clean and low-carbon energy. In 2020, our first geothermal project and first central heating and cooling project powered by clean energy were put into trial operation. Non-nuclear clean energy has become another major engine of growth for the Company.



Agile New Industry

In 2020, CNNP decided to develop agile new industry and actively carried out surveys, technology tracking, feasibility study and other activities to help incubate high-tech projects, especially projects based on disruptive technologies, asset light projects, and projects based on independently developed technologies. Combining the "30/60" targets and the technological development direction in the energy field, we have launched three key projects, including a solar cell project, a hydrogen fuel cell project, and an energy storage technology project.

Technical Services

CNNP continues to drive the development of the nuclear power technical service industry. We have increased our effort to explore the potential of internal and external technical service markets, improve technical services, extend the value chain, expand the scope of its technical service business, and accelerate the global expansion of China's nuclear power industry.

- Providing nuclear power operation and maintenance services to aerospace, ship-building, and other industries.
- Exporting technical services such as non-destructive testing and training to other countries.

Case CNNP works with Tsinghua University to build a digital nuclear power research center, setting a model for school-enterprise cooperation

On September 26, 2020, CNNP and the School of Software of Tsinghua University jointly created the Digital Nuclear Power Research Center. The establishment of the research center represents an upgrading of the good cooperative relationship between CNNP and Tsinghua University. It is the result of the continuous expansion and deepening of the strategic partnership between the two parties. In the future, CNNP and Tsinghua University will further expand the depth and breadth of cooperation, combine complementary advantages, strive for win-win outcomes, and create a model of enterprise-university-research institution cooperation.



The founding ceremony of the Digital Nuclear Power Research Center and the first meeting of the management committee of the research center

Promoting the Development of the Industry

CNNP pays close attention to the development trend of the industry. We advance the research and development of key technologies, actively participate in industry exchanges, and help the industry achieve higher quality and more sustainable development.



Response to public concerns

Q: At 0:41 a.m. on November 27, 2020, Fuqing Nuclear Power Unit 5, the world's first nuclear power unit that uses the third-generation nuclear reactor Hualong One, was successfully connected to the grid for the first time. What is the significance of this event to the development of nuclear power in China?

A: Hualong One is built based on the third-generation nuclear power technology independently developed by China. After years of continuous exploration, Hualong One has created a successful localized nuclear power development model. It has a complete and independent standard system and all core components are domestically produced. The model is suitable for mass production. The connection of the world's first nuclear power unit that uses the third-generation nuclear reactor Hualong One to the grid will greatly enhance the competitiveness of China's nuclear power industry, and at the same time will be of great significance for optimizing the energy structure and promoting green and low-carbon development.

Research and Development of Key Technologies

CNNP are committed to promoting the innovation-driven development of the industry. We have stepped up research and development of key technologies, continuously increased the domestic production of equipment, and helped drive the transformation and upgrading of nuclear power equipment and component manufacturers in China. In 2020, *Technical Guidelines for Ice Plug Isolation of Piping in Nuclear Power Plant* formulated by CNNP was approved as an international standard.



Top-level design for independent development of nuclear power in China

Prepared and issued the *General Plan for Independent Development of Nuclear Power Units in China*, setting out the guidelines, goals, and methods for independent development of nuclear power in China; formulated a list of 1,306 independent development projects and work plans for these projects.



Conducting independent research

Applied for the independent projects sponsored by ministries and commissions; won the bid with *China Nuclear Power Engineering Company Limited and the Nuclear Power Institute for Research and Development of Hualong One and Key Technology and Equipment of In-service Nuclear Power Units* of the National Development and Reform Commission; won the bid for the main steam valve group independent research project of the SASAC, and received the CNNP Yingshi Award; applied for nuclear power localization projects, including three major projects (i.e., equipment, technology and heavy water reactor development projects) and 48 sub-projects



Promoting the standardization of equipment management

Formulated *SPV Equipment Quality Management* and *SPV Contract Template* for quality control of localization projects; formulated guidelines for the procurement management of localization research projects; formulated and implemented the key project spare parts inventory evaluation exemption policy, and put into place an integrated research and procurement contract mechanism



Strengthening communication and collaboration

Strengthened exchanges and cooperation with research institutes and equipment manufacturers; integrated advantageous resources to promote the research and development of localized products; and conducted research on alternative topics of commodity-level items.

Exchanges within the Industry

CNNP attaches great importance to strengthening exchanges and cooperation with other companies in the industry and strives to contribute to the high-quality and sustainable development of the industry.

Case CNNP attends a corporate culture and branding practice sharing event

On October 22-23, 2020, CNNP attended the 2020 Power Industry Corporate Culture Exchange Conference, the most influential corporate culture exchange event in the power industry hosted by the China Electricity Council. We shared our branding practices, including "Appealing Nuclear Power " and "Excellent Culture Evaluation" programs, and won the Power Industry Corporate Culture Award of the conference.

During the story sharing session, the Exodus performed by three front-line employees of Qinshan Nuclear Power told the stories of nuclear power companies during the COVID-19 pandemic and received enthusiastic response from the audience; *Protecting You on the Front Line* won the second prize in the "Isolation and Love - Telling True Stories During the Pandemic" session.



China Nuclear Power attends the 2020 Power Industry Corporate Culture Exchange Conference.

Case Unit 3 of the Tianwan Nuclear Power Plant, an outcome of China-Russian nuclear energy cooperation, passes the final inspection

On January 20, 2020, Jiangsu Nuclear Power Company Limited and Atomstroyexport JSC, a leading Russian nuclear power facility constructor, signed the final acceptance protocol for the nuclear island of Unit 3 of the Tianwan Nuclear Power Plant, marking the smooth completion of all tasks stipulated in the General Contract for Unit 3. Built on the shore of the Yellow Sea, the Tianwan Nuclear Power Plant is a fruit of more than 20 years of cooperation between China and Russia. It has become an exemplary model for China-Russian cooperation. The two parties will continue to work together to build Unit 7 and Unit 8 of the Tianwan Nuclear Power Plant, and expand cooperation in cutting-edge technology research, nuclear supply chain, and global expansion. The two parties wish to make nuclear energy one of the most important areas of China-Russian cooperation and new content in the comprehensive strategic partnership of cooperation between China and Russia in the new era.



Ceremony for the signing of the final acceptance protocol for the nuclear island of Unit 3 of the Tianwan Nuclear Power Plant

Case Fuqing Nuclear Power Plant provides experts to support the mass construction of Hualong One

With the construction of the first reactor project of Hualong One, Fuqing Nuclear Power Plant has strengthened personnel training and provided 30 experts in fields related to the construction of Hualong One projects to provide services to Zhangzhou Energy in an organized and systematic manner. CNNP and CNPE has made remarkable contribution to the mass construction of Hualong One.



Fuqing Nuclear Power Plant Hualong One Project Special Talent Export Symposium

Advancing the International Development

CNNP seeks win-win cooperation. To expand global footprint, we have strengthened cooperation on a global scale, combined complementary advantages with our global partners for win-win outcome, and worked together with them to build a community with a shared future for mankind.

Developing the International Market

With rich project experience and advanced technology, CNNP is accelerating global expansion, actively deploying assets in overseas markets, and seeking to win the trust of global partners with high-quality projects and responsible practices.

Case The thermal properties test of the first overseas Hualong One reactor successfully carried out

On September 4, 2020, the thermal properties test of Unit K-2 of the Karachi Nuclear Power Complex in Pakistan, the first overseas Hualong One reactor, was successfully completed, laying a solid foundation for subsequent tasks such as fuel loading and connection to the grid. The thermal properties test is a major link in the construction of a nuclear power project. It is a comprehensive inspection of the reactor coolant system, including equipment, pipeline sealing and welding, system design, manufacturing, and installation, when the nuclear reactor has not been loaded with the fuel. The successful the thermal properties test of Unit K-2 of the Karachi Nuclear Power Complex has further strengthened the confidence of the countries along the routes of the Belt and Road Initiative in Hualong One.



The thermal properties test of the first overseas Hualong One reactor was successfully carried out

Intensifying Exchange and Collaboration

CNNP attaches great important to exchanging experience with other companies in the industry. We actively participate in the construction of international exchange and cooperation platforms, industry-level exchange and experience sharing activities, and expand the depth and breadth of cooperation.

Case CNNP helps the K2K3 Project in Pakistan to advance steadily during COVID-19

In 2020, Pakistan was severely affected by the COVID-19 outbreak. In order to ensure the smooth advancement of the Hualong One project in Pakistan, Qinshan Nuclear Power Company Limited sent 89 employees in 12 batches to Pakistan to ensure steady advancement of the K2K3 commissioning project. The K2K3 project department overcame many challenges during the pandemic. In addition to adopting strict COVID-19 control measures, it reached 13 milestones, including completing the K2 thermal properties test and the K2 first loading. It also completed major tests and tasks, including loading and unloading of the fuel and positioning of the control rod, demonstrating Qinshan Nuclear Power's top-rated technical capabilities and efficient execution.

CERTIFICATE



World Association of Nuclear Operators

In annual categorization meeting for determining the level of interaction and support for NPPs held on 26-28 May 2020
Tianwan NPP was assessed as level "A".
This certificate is presented to
Tianwan NPP
For outstanding fulfilment of WANO Membership obligations and continuous high operational performance in 2019.

WANO Moscow Centre

Vasily Aksentov
Director, WANO Moscow Centre
04 June 2020

Tianwan Nuclear Power Plant received A rating for interaction from the WANO Moscow Center in 2019, which is the WANO Moscow Center's highest rating for member units in annual evaluation



People First Propels Employee Growth

In 2020

the total number of employees
reached **14,506**



Nuclear Power Talent Cultivation

Following the guideline of "staying true to talent priority strategy and deepening human resources reform", CNNP coordinates talent plan for the 14th Five-Year Plan period to build a platform for employees to reach their potential and use their talent and to encourage employees and the enterprise to work and grow together.

Systematic Growth Mechanism

The personal growth of employees and the healthy development of enterprises are not separable. By establishing a standard system of leading body allocation and improving five career development paths and the development path for top talents, CNNP has provided a scientific and reasonable development channel for employees at different levels, thus enabling them to find their own growth path and achieve rapid development.



Response to public concerns

Q: Times call for talent, and talent can make a difference. It's a glorious and arduous mission entrusted by times and the country for CNNP to further expand the team of high-quality nuclear power talent and promote the development of nuclear power industry. What are CNNP's consideration and plan to attract and retain excellent personnel?

A: CNNP regards talent as the most valuable resource. Following the guideline of "staying true to talent priority strategy and deepening human resources reform", we provide competitive compensation and welfare guarantees and have built five career development paths to provide scientific and efficient development path for employees. We have established the development path for top talents, implemented a "corporate ranking" mechanism to encourage technical and skilled personnel to conduct scientific and technological research on difficulties encountered in work safety, and provided a rapid career development channel for top talent. We have implemented *CNNP Elite Program* to attract and cultivate a group of young talent with high comprehensive quality, strong learning ability and ready to work and start businesses.



Standardized leading body allocation

We have conducted standardized research on CNNP leading body allocation and put forward a standard system of leading body allocation covering position standard, selection standard, allocation structure standard, etc., for reference of the development of leading body members.



Five career development paths

We have established scientific and unified position system and standards, classified career development channels into management, business, technical development, engineering and operations, and specified qualifications for different positions on each career path, thus building a scientific and efficient development channel.



Development path for top talents

We have built the development path for top talents and implemented a "corporate ranking" mechanism to establish a platform for technical and skilled personnel to obtain growth and promotion and to help top talent, especially young staff at middle and grassroots level, stand out and get rapid promotion.



CNNP Elite Program

We have implemented *CNNP Elite Program*. We evaluate and select a group of excellent employees and include them into the elite program every year and provide systematic training for young talents with high comprehensive quality, strong learning ability and ready to work and start businesses.

Diversified Empowerment platform

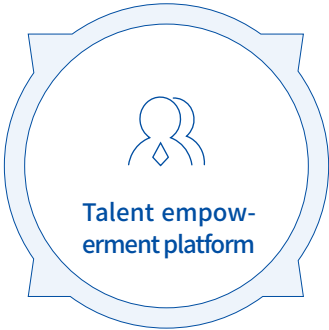
CNNP spares no efforts to build an empowerment platform for employees to fully reach their potential and improves employees' vocational skills and professionalism in a systematic and professional way, so as to provide employees a wider development platform and more opportunities.

Nuclear Power College

Taking advantage of its high-quality external training resources, Nuclear Power College compiles standardized training materials and unified courses, launches high-quality courses, establishes and improves hierarchical management system for internal trainers, carries out training evaluation system construction, thus empowering employees.

Hualong International Training Center

Hualong International Training Center, a training base of China's Hualong One talent, continues to improve corporate training systems.



Studios for technical and skilled personnel

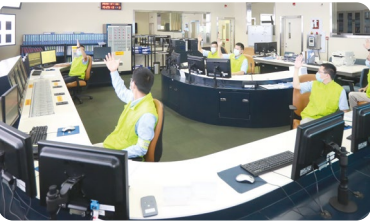
We provide national and provincial Master Studio and Technical and Skilled Studio such as "Electrical Studio" to cultivate highly-skilled personnel through forms of apprenticeship, skills improvement, and so on. By the end of 2020, we have had 6 Master Studios.

Skill appraisal station

We have set up special skill appraisal stations to carry out skill appraisal of senior technicians, technicians, senior engineers and intermediate engineers for 5 special nuclear occupations such as nuclear reactor operation watchman.

Multifaceted Training Systems

CNNP provides a scientific and systematic talent training system to help technical personnel, management personnel and young backbones grow. We are committed to promoting all training and lifelong re-education of CNNP employees, so as to realize common sustainable development. In 2020, a total of 13,466 employees received training, with an average training time of about 150 hours per employee and a training coverage rate of 98%.



Sanmen nuclear power operators in skill competition



In October 26, CNNP launched its first "Nuclear Professional Leadership Seminar" in Haining, Zhejiang province.

Professional and technical personnel cultivation

- We have formulated a general duty ability training program for operation personnel to improve general duty ability and technical level of operation and maintenance personnel comprehensively.
- We carry out professional skill competitions regularly, and encourage employees to participate in various domestic and foreign skill competitions to find weaknesses, learn experience and improve skills.

Management personnel cultivation

- "Nuclear Professional Leadership Seminar" program, which integrates classroom theories with nuclear power work scenarios, has become a platform for trainees to broaden their horizon and seek consensus, a window for business and technical communication, and a bond connecting nuclear power plants, trainees and internal trainers.
- In 2020, we held the first "Nuclear Professional Leadership Seminar", which involved 30 grassroots management personnel.

Young backbone cultivation

- We have improved the selection, cultivation, management and use mechanism of young cadres, implemented CNNP young cadre "Double Youth Project", and realized whole-chain, closed-loop management of young cadres.
- We have formed "CNNP Professional Technical Field Setting" (covering 30 sub-fields), sorted out 280 high-level talents, and realized special channel cultivation.

Basic Rights and Interests Protection

Strictly abiding by national laws and regulations, CNNP respects and protects the legitimate rights and interests of employees and builds a positive, inclusive, humane workplace atmosphere and a healthy and comfortable working environment for employees.

Equal Employment

CNNP strictly follows the *Company Law*, *Labor Law* and other laws and regulations as well as international labor norms. We treat all employees equally regardless of their gender, age, educational background and ethnicity during recruitment and employment, and prohibit the use of child labor and forced labor, so as to build an equal, diversified and inclusive workplace for employees. In 2020, the total number of employees was 14,506; women employees accounted for 7% among middle-level and above managers; labor contract signing rate reached 100%.

Type of personnel	Managers	14.33%
	Business personnel	15.49%
	Specialized personnel	36.76%
	Operational personnel	22.89%
	Skilled personnel	8.40%
	Others	2.13%
Educational background	Master's degree or higher	8.94%
	Bachelor's degree	81.92%
	Junior college	7.87%
	Secondary vocational school or lower	1.27%
Age structure	Below 35 years of age	63%
	36-40 years of age	15%
	41-50 years of age	15%
	51 years of age and above	7%
Gender structure	Male employees	85%
	Female employees	15%

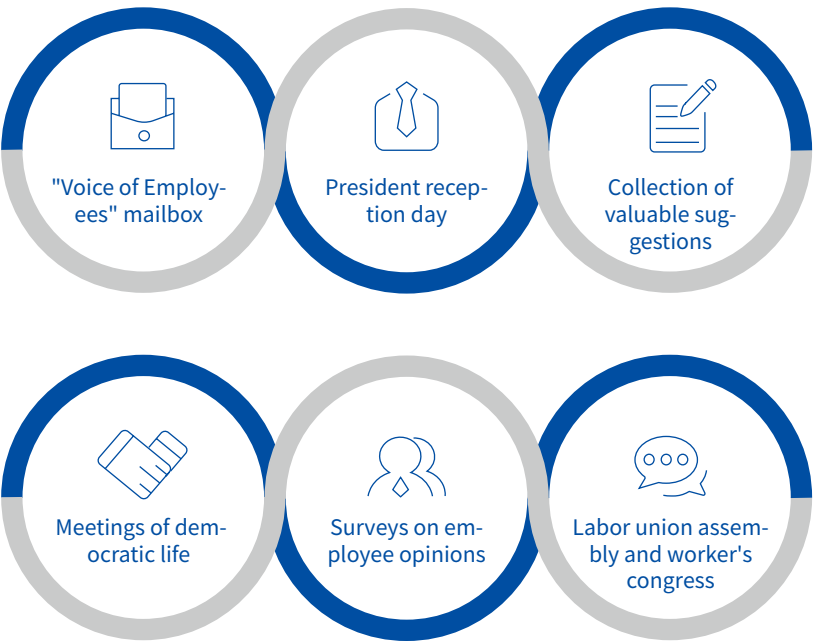
Compensation and Incentives

CNNP adheres to the principle of equal pay for equal work, optimizes the salary rise mechanism based on market and provides mandatory insurance schemes (pension fund, medical insurance, work injury insurance, unemployment insurance, and maternity insurance), the housing fund, enterprise annuity as well as supplementary insurance, etc., and provides employees with competitive and incentive compensation and benefits so as to stimulate employees' passion and vitality. In 2020, coverage of social insurance schemes was 100%.

We take a series of measures to attract and retain outstanding talent, including carrying out *CNNP Elite Program*, clearly proposing to increase the first-year annualized salary of new employees, providing a five-year housing subsidy to fresh graduates of target majors in double first-class universities, assessing and selecting outstanding employees to be included in Elite Program, and awarding elite talents.

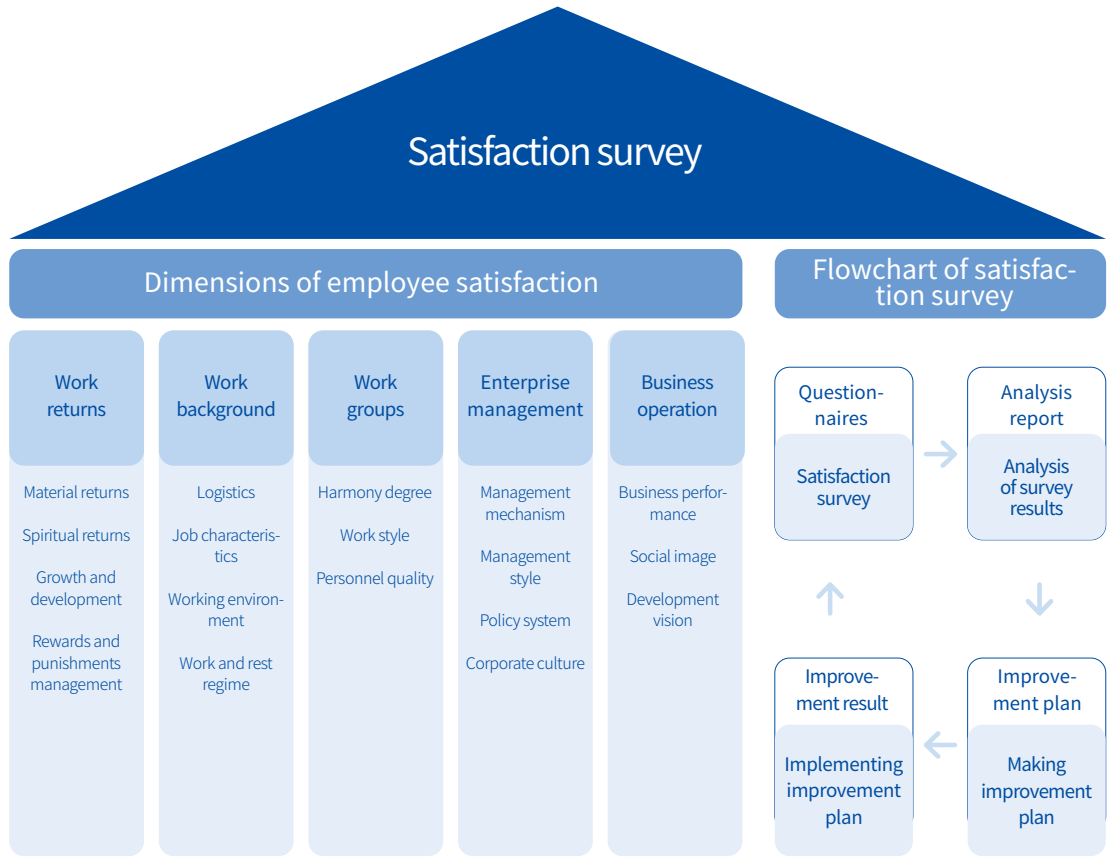
Democratic Management

CNNP establishes multiple communication channels like "Voice of Employees" mailbox and collection of valuable suggestions, elects employee representatives as directors and supervisors and builds a bridge of communication between upper managers and employees at the grass-roots level, to provide an effective channel to fully understand the working and living conditions of employees and listen to their voice, and to establish diversified channels for employees to participate in enterprise management, thus fully protecting employees' rights to know, to participate, to express and to supervise. In 2020, CNNP carried out a questionnaire survey on corporate culture and employees' opinions to investigate employees' evaluation of sense of happiness, sense of achievement and sense of belongingness, and collect employees' opinions and suggestions. A total of 8,831 effective suggestions have been collected, including 2,731 suggestions about management, 2,570 about personnel, 789 about compensation and welfare, and 18 others.



Case Fuqing Nuclear Power Plant carries out employee satisfaction survey innovatively

Fuqing Nuclear Power Plant attaches great importance to democratic management and constantly improves process management of employee satisfaction survey. The plant collects all factors that employees care about through various forms such as staff meetings, questionnaires and staff symposiums, and determines the most concerned issues about work returns and work background through classification. It makes classification based on five career paths and four post levels to identify positive and negative factors affecting satisfaction of different types of employees, and formulates improvement plan to continuously improve employee satisfaction.



Physical and Mental Health

Taking workplace health and safety as top priority of business management, CNNP strictly abides by national laws and regulations, perfects enterprise occupational health and safety management related rules and regulations, and makes daily supervision and inspection to create a safe and healthy cultural atmosphere and improve employees' awareness of safety and health, thus being committed to building a staff team characterized by "physical and mental health, happiness, optimism".

Standardization of occupational health examination and surveillance

- Conducting daily monitoring and informing employees of occupational disease hazards
- Entrusting professional institutions to carry out detection and evaluation of occupational disease hazards
- Carrying out post adaptability assessment for employees exposed to occupational disease hazards
- Carrying out occupational health surveillance according to the classification of occupational disease hazards and establishing occupational health surveillance archives for employees

Inclusive physical and mental health services

- Carrying out health training and lectures, medical emergency drills and other activities to spread knowledge about occupational diseases and improve employees' protection ability
- Implementing Employee Assistance Program (EAP) to help employees relieve their pressure through intelligent psychological platform and self-help psychological file station, 24-hour psychological counseling hotline, regular on-site psychological counseling and other ways

Regular epidemic prevention, control and management

- Promoting and implementing epidemic prevention and control related management systems, implementing key population control, nucleic acid testing and other measures, strictly conducting personnel information check for people entering the workplace, isolation of personnel at risk, site disinfection and other prevention and control work, so as to achieve the goal of "against inbound cases and domestic resurgences", and to ensure the health of employees

Improvement of occupational disease prevention facilities

- Improving warning signs and caution signs for hazards in the workplace
- Completing the design and construction of facilities against occupational disease for nuclear power units

In 2020

health examination coverage was

100 %



Case CNNP introduces internationally advanced EAP concept and service to promote physical and mental health of employees

In 2020, CNNP fully implemented Employee Assistance Program (EAP) to provide systematic and long-term psychological management assistance to all employees. Making use of existing personnel and media and with the help of external professional institutions and platforms, we have built a professional team of EAP specialists, established an online intelligent psychological counseling platform, and integrated EAP into daily life, to enhance employee care and constantly improve the sense of gain, happiness and security of employees.



Staying with your and making a new start, CNNP EAP program launch ceremony

Enjoying Happy Life Together

CNNP highly values humanistic care and holds a plethora of cultural and sports activities to balance employees' work and life. We care for female employees and retirees wholeheartedly, striving to make the Company a warm and comfortable home for employees.

Enriching Employee Life

CNNP organizes cultural and sports activities such as fun sports meeting and reading party to create a positive, warm and energetic corporate atmosphere and enhance the sense of belongingness of employees.

Fitness sports

Setting up a fitness activity room equipped with professional fitness equipment such as treadmills, billiard tables and table tennis tables, organizing long-distance running, fun sports meetings and fitness-for-all sports to help employees develop a healthy lifestyle



Zhangzhou Energy Co. Ltd. organizes fun sports activity themed "Nuclear power in southern Fujian, Hualong taking off".

Cultural activities

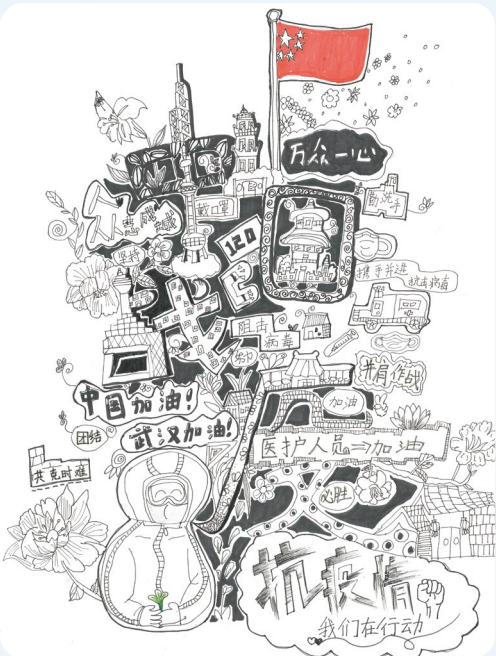
Organizing staff reading parties regularly and holding cultural activities such as online singing king to relax employees' body and mind, thus realizing the value of "sharing, happiness and knowledge"



CNNP headquarters holds book sharing activity under the theme of "Integrity through Literacy and Ethics through Reading".

Family activities

Organizing painting collection activity on Children's Day to enhance parent-child relationship and promote family harmony; carrying out parent-child themed education and training activities to provide guidance for employees to balance work and family



On Children's Day, the kid Tian Wan paints an epidemic themed work.

Employee Care

Thinking what the employees think and caring what the employees need urgently, CNNP provides sincere care to female employees, retirees and needy employees to let employees work at ease and live a happy life.

Supplementary medical care reform



We reform supplementary medical care innovatively. While maintaining the existing guarantee level, we focus on commercial supplementary medical care covering the whole life cycle and on serious diseases to improve the provision of supplementary medical care for employees.

Caring for retirees



We organize physical examination, Spring Festival soliciting and symposiums for retirees every year. We completed the social transfer of social insurance of 1,463 retirees to ensure that "their benefits are not reduced, services are improved, and emotional bonds are maintained".

Helping employees in need



We actively provide internal help and relieve the difficulties of employees through establishing archives for poor employees, building management platform and organizing employees to participate in medical assistance activities. In 2020, we established internal archives for 42 needy employees and raised more than 160,000 yuan for 18 employees.

Caring for female employees



We care for female employees by carrying out female health lecture, organizing Women's Day activities, formulating humane breast-feeding leave system for female employees, setting up a well-equipped "female employee lounge" in the workplace and taking care of female employees in menstrual period or in lactation period.

Case Qinshan Nuclear Power Plant establishes a "Yinyao Qinshan Happiness +" platform to provide retirees a stage to contribute their wisdom and energy.

To fully mobilize the enthusiasm of retirees, Qinshan Nuclear Power Plant has built a "Yinyao Qinshan Happiness +" platform based on retirees' physical conditions, personal willing and other factors to guide and encourage them to maintain a positive attitude and contribute their wisdom and energy to the "Four Bases" of Qinshan Nuclear Power Plant and "A New Qinshan" project. Qinshan Nuclear Power Plant establishes a service team composed of veteran cadres to publicize Party history and carry forward the spirit of nuclear industry; sets up a service team of old experts of machinery, electrical and instrument control to contribute technical strength to the safe operation of power stations; and sets up an elderly caring service team, charity volunteer service team, happiness studio, etc. spontaneously, to provide services and care for retirees, community elderly and young employees.



Charity volunteers of Qinshan Nuclear Power Plant give a performance under the theme of "literature and art care, warmhearted sympathy".

Harmony and Sharing Contributes to a Better Life

In 2020

investment in targeted poverty alleviation
reached over 34 million yuan

tax payment was 6.548 billion yuan



Enhancing Transparent Communication

Adhering to the "3C" communication concepts of Confidence, Connection and Coordination, CNNP innovates in communication with the public in a transparent and open way. We build a bridge connecting the public and strengthen connection between stakeholders and nuclear power to get more people to know, understand and support nuclear power.

Unblocking Communication Channels

CNNP continues to expand information disclosure channels and discloses the latest development and major updates of the enterprise via Shanghai Stock Exchange, official website, WeChat official account, press conferences and other ways, to win public recognition with transparency and sincerity.



Releasing Environment, Social and Governance (ESG) Report regularly, winning the "Golden Bee 2020 Excellent CSR Report Evergreen Award" for three consecutive years



Releasing CNNP's first special report on targeted poverty alleviation to disclose CNNP's targeted poverty alleviation practice results to the public

Standardizing Communication Management

CNNP insists to gather strength through communication and trust. We formulate different communication plans to respond to different stakeholders such as the government and the public to achieve targeted communication and to build an interactive, trustworthy and harmonious relationship with all sectors of society.

Management norms for communication with government

Establishing a normal communication mechanism with relevant government departments, communicating questions related to nuclear power projects planning and site selection and solving problems related to nuclear power projects construction through submitting reporting materials, organizing multi-party symposiums and conducting surveys, etc., and consciously accepting government supervision to win government support

Management norms for communication with customers

Obtaining customer evaluation of electricity consumption through telephone calls, symposiums, E-mails, interviews and other channels, and formulating targeted experience improvement plans to improve service quality and enhance customer satisfaction

Management norms for communication with partners

Soliciting the needs and expectations of partners through forms of project cooperation, supply chain management, and establishing industrial alliances, etc., carrying out honest and friendly cooperation to jointly promote sustainable development

Management norms for communication with communities

Carrying out activities such as visiting, questionnaire survey and popularization of nuclear power science during the planning, construction and operation of nuclear power projects to ensure communities' right to know, actively seeking the opinions and suggestions of community residents, and taking practical measures to protect environment to eliminate residents' doubts about the impact of nuclear power projects on environment

CNNP is awarded the **A** rating for information disclosure by Shanghai Stock Exchange for five consecutive years.

The number of CNNP's WeChat followers exceeds **60,000**, with a year-on-year increase of **11.5%**.

5 works including *CNNP Precise Communication Manual* win China Nuclear Science Popularization Award.

2 people win the honor of Advanced Individual of China Nuclear Science Popularization.



The Nuclear Power Station, a science popularization film, made by Xiapu Nuclear Power Plant wins the Best National Short Video Award.

Enhancing Science Popularization

CNNP insists to carry out science popularization activities such as "CNNP Science Popularization Week" and "Appealing Nuclear Power" and makes full use of science popularization display platforms such as nuclear power science and technology museum, science exhibition hall to let the public get close to and learn about nuclear power and enhance public reliance on CNNP. In 2020, we have organized "CNNP Science Popularization Week" activity in 7 double first-class universities and key power colleges, attracting 187,000 students to participate.



Response to public concerns

Q: What efforts has CNNP made to build an interactive, trustworthy and harmonious relationship with the public?

A: Giving top priority to public concerns, CNNP explores new communication modes constantly and creates the 3C (Confidence, Connection and Coordination) model of transparent communication. Under the guidance of this model, CNNP holds "CNNP Science Popularization Week", "Appealing Nuclear Power" and other nuclear science popularization activities annually to let the public know and understand nuclear power. CNNP invites the public to get close to nuclear power through nuclear power science and technology museum, science exhibition hall and other platforms, so as to guide the public to understand nuclear power radiation and the safe operation mode of nuclear power correctly and to win the public's recognition and support.



Science popularization publicists of Liaoning Nuclear Power Plant carry out science popularization activities in communities, introduce Xudapu nuclear power project for community residents and staff, and popularize nuclear power science



Fuqing Nuclear Power Plant invites middle school students to make field trips to experience the glamour of Hualong One



Zhangzhou Energy Co. Ltd. organizes teacher representatives from Yunxiao No.1 Middle School to visit Nuclear Power Institute of China and Southwestern Institute of Physics, the cradle of nuclear power, to learn about the pillars of a great power

Case CNNP holds "Appealing Nuclear Power" science popularization activity for 8 consecutive years

In response to the development of nuclear power and public needs, CNNP has given full play to the advantages of nuclear power enterprises' science popularization resources and held "Appealing Nuclear Power" science popularization activity for 8 consecutive years to popularize nuclear power science and display the charm of nuclear power to the public. More than 2.4 million middle school students have participated in the activities in total.

In 2020, to overcome the impact of COVID-19, CNNP holds "Appealing Nuclear Power" science popularization activity in an innovative way. We invite 4 celebrities from different fields, including Luo Qi, an academician of Chinese Academy of Engineering, and Hu Xia, a singer, to provide four lively and interesting nuclear science classes for netizens across the country via live webcast and short videos, which effectively breaks the circle barrier of nuclear science popularization and attracts people of different age and fields, thus making extensive social influence and delivering positive effects.



CNNP plans and holds a number of live webcast activities to popularize nuclear power science.

Promoting Local Development

Upholding the concept of combining corporate business development with local development, CNNP has leveraged its expertise and resource advantages to promote local employment, improve infrastructure construction, support local epidemic prevention and control, and promote co-existing, win-win and common prosperity of CNNP and the local areas. In 2020, CNNP paid 6.548 billion yuan in taxes.

Promoting local employment

We provide opportunities for local residents to work and start businesses and help the local people get rid of poverty and become rich by signing comprehensive service contracts and labor dispatching service contracts with brother units, and actively coordinating with the contracting units to give priority to the employment of labor workers from villages and towns around the factory site.

Protecting traditional culture

We take measures such as building cultural squares, restoring cultural facilities, etc., to protect and promote local traditional culture. Hainan Nuclear Power Plant has supported Sanlian Village's cultural publicity activities for many years to carry forward Hainan's traditional culture such as the intangible culture of Li ethnicity.

Improving infrastructure

We improve local infrastructure by widening rural road, building football fields and upgrading sewage pipes, so as to make local residents' lives more convenient and the villages more beautiful.

Supporting local fight against Covid-19

We contribute to local epidemic prevention with practical actions such as raising money, donating masks, liquid soap and other epidemic prevention materials.

Case

Hainan Nuclear Power Plant improves the living environment of rivers to contribute to the construction of a happy Changjiang

Hainan Nuclear Power Plant adheres to combining its business development with local development. To further improve the management level of rivers and lakes, Hainan Nuclear Power Plant fully implements the decisions and arrangements on water ecological conservation and river chief and lake chief system made by the Central Committee of the Communist Party of China and the provincial government, turns the flood discharge channel outside its gate into a joint river, and shoulders its responsibility as river chief actively to improve living environment along the river, implement the concept of green development, and promote ecological conservation.



Opening ceremony of "green water action" campaign to improve river and lake environment held by Changjiang Li Autonomous County in 2020



Guanyinpu bridge in Fuqing city co-built by Fuqing Nuclear Power Plant and the local area

Engaging in Charity

CNNP continues to enhance its efforts in the field of public welfare, through carrying out activities such as environmental protection, science popularization, caring for the elderly and children, to return society with practical actions. In 2020, the number of people participating in corporate volunteer activities reached 13,118, with a total of 39,738.4 hours of volunteer service.

Environmental protection volunteer activities

Organizing volunteers to carry out garbage classification publicity, garbage collection, etc., to popularize the benefits and necessity of garbage classification for local citizens and protect the local ecological environment



Young volunteers of Liaoning Nuclear Power Plant carry out a publicity campaign on garbage classification in Longbeishan, Huludao, and pick up white garbage in Longbeishan Scenic Spot.

Caring for left-behind children

Building a long-term mechanism to care for left-behind children, carrying out nuclear science popularization activities for left-behind children, organizing cultural and sports activities, providing psychological counseling, etc., to enrich children's after-school life and help them grow healthily



Volunteers from Zhangzhou Energy Co. Ltd. carry out caring for left-behind children activity on Children's Day in Baishi primary school.

Caring for the elderly

Visiting the elderly and raising money for the elderly in the nursing home to make them feel warm, measuring temperature and blood pressure for the elderly, caring for the health of the elderly, and giving performance to bring laughter and warmth for them



Young volunteers of Sanmen Nuclear Power Plant hold a youth league volunteer activity in the nursing home on Chung Yeung Festival.

Carrying out science popularization activities

Holding nuclear science popularization activities on campus and in communities, and carrying out "May 12" National Day of Disaster Prevention and Mitigation publicity activity, to popularize science about nuclear power and disaster prevention and reduction to the public and to enrich the public's knowledge system



Tianwan Nuclear Power science and technology museum carries out science popularization activity.

Outlook for 2021

Aspect of CSR	CSR Performance in 2020	CSR Commitment for 2021
Intrinsic Safety	<ul style="list-style-type: none">15 power units got full marks in WANO composite index, reaching a record highAll 22 units in operation had no Level 1 or above incidents defined according to the International Nuclear and Radiological Event Scale (INES), and continued to maintain a good nuclear safety recordBroke ground on the Smart Hualong project and drove the integration of digital economy and nuclear engineering	<ul style="list-style-type: none">Annual power generation target: 170 TWhEnsure nuclear safety and achieve zero casualtyCarry out a three-year work safety improvement project
	<ul style="list-style-type: none">Generated 153.976 TWh of electricity. Compared with coal-fired power generation, it was equivalent to reducing the combustion of standard coal by 46.838 million tons, reducing carbon dioxide emissions by 122.816 million tons, reducing sulfur dioxide emissions by 399,000 tons, and reducing nitrogen oxide emissions by 347,000 tonsAccelerated the implementation of the "nuclear power + new energy" two-wheel drive strategy, and promote the leapfrog development of the new energy industry. As of the end of 2020, the Company's installed capacity of new energy facilities in operation was 5,249.900 MW, and the installed capacity under construction was 1,702.4 MWOrganized environmental protection activities, carried out environmental risk investigation and environmental self-monitoring, and ensured the smooth advancement of the special improvement plan	<ul style="list-style-type: none">Promote the application of new nuclear energy technology and the development of renewable energy, and contribute to the goal of carbon neutralityContinue to increase environmental protection efforts, and step up the control of gas and effluent releases from nuclear power facilitiesStrengthen the management of environmental protection responsibilities at all levels, improve the environmental protection and governance system, and comprehensively enhance the basic environmental protection capabilities
Green and Low-carbon Development	<ul style="list-style-type: none">Established a scientific and technological innovation management system to stimulate innovationPut the Nuclear Power Operation Research Institute into operation, and continued to improve the "Small Core, Extensive Collaboration" collaborative innovation platformEngaged in forward-looking scientific and technological research and development, and continued to promote the advancement of nuclear energy technology	<ul style="list-style-type: none">Introduce and train high-level scientific and technological innovation talentsThrough scientific research and new technology incubation, promote the transformation and application of research results, and drive high-quality development of the CompanyPromote the integration of technology and innovation, and promote the application of digital technology, networking technology and artificial intelligence in the nuclear power industry
	<ul style="list-style-type: none">Worked with Tsinghua University to establish a digital nuclear power research center and created a model of school-enterprise cooperationPromoted the development of the agile new industry and extended the value chain of the industryFuqing Unit 5, the world's first reactor unitizing cutting-edge nuclear power technology Hualong One, was connected to the grid for the first timeTianwan Nuclear Power Plant received A-rating for interaction from the WANO Moscow Center in 2019, promoting the development of international exchanges	<ul style="list-style-type: none">Build harmonious partnerships and continue to deepen strategic cooperationAccelerate building the industrial pattern of "nuclear energy + non-nuclear clean energy + agile new industry"Continue to improve the domestic production of equipment, reduce construction costs, improve the domestic production rate and the independent design levelActively expand overseas markets, deepen cooperation with foreign nuclear power and new energy companies, and integrate superior resources
Coordinated Development	<ul style="list-style-type: none">Build the development path for top talents, implemented the "corporate ranking" mechanism, and built a capacity display platform for the growth of technological talentBuild a talent empowerment platform for the nuclear energy industry - Nuclear Power College	<ul style="list-style-type: none">Increase the differentiation of incentives and increase the strength of positive incentivesImplement the talent priority principle and enhance the building of three teams (technical talents, skilled workers, and management personnel), and improve the development path for top talentsSelect and train top talent, and build a talent pool for China's nuclear power industry
	<ul style="list-style-type: none">Held the "Appealing Nuclear Power" Cup National Nuclear Power Knowledge Contest for the eighth consecutive yearPaid 6.548 billion yuan to the government in taxInvested more than 34 million yuan in poverty alleviation projects and helped 6,867 registered people below the poverty line get out of poverty	<ul style="list-style-type: none">Continue to Held the "Appealing Nuclear Power" Cup National Nuclear Power Knowledge Contest and other nuclear power knowledge promotion activitiesContinue to share prosperity with local communities, and promote the overall sustainable development of localities by creating jobs and improve infrastructureHelp the elderly, children and other groups in need, continue to carry out environmental protection activities, and give back to the society by taking real action

CSR Honors and Awards

Recipient	Honor/Award	Award Issuer
CNNP	2020 People's Enterprise Green Development Award	People's Daily, and people.cn
	GoldenBee Excellent CSR Report 2020 Ever-green Award	<i>China Sustainability Tribune</i> directly supervised by Ministry of Commerce
	2019 China Top 500 Credible Companies and China Top 500 Listed Companies	China Enterprise Reform and Development Society and China Cooperative Trade Enterprises Association
	Golden Round Table Award – Best Board of Directors Category	<i>Board of Directors</i> magazine
	Excellent Issuer of Corporate Bonds	Shanghai Stock Exchange
	Golden Quality – Corporate Governance Award	Shanghai Securities News
Sanmen Nuclear Power Plant	2019 Best Employers of China - Best Employers of Beijing	Zhaopin.com, Institute of Social Science Survey of Peking University
	Central SOE Grassroots Demonstration Party Branch of the State-owned Assets Supervision and Administration Commission	State-owned Assets Supervision and Administration Commission of the State Council
	Qinshan Nuclear Power Plant and Jiangsu Nuclear Power Plant	National Civilized Unit Central Commission for Guiding Cultural and Ethical Progress
China Nuclear Power Operation Technology Corporation Ltd., Wuhan	Second prize of Hubei Provincial Technology Invention	The People 's Government of Hubei Province
CNNP, Jiangsu Nuclear Power Plant, Fuqing Nuclear Power Plant, Liaoning Nuclear Power Plant , etc.	Chinese Enterprises with Advanced Corporate Culture in the 13 th Five-year Plan Period	China Corporate Culture Institute

Appendices

Terminology

Nuclear energy	Nuclear energy (or atomic energy) is the energy released from the atomic nucleus through mass conversion, in line with Albert Einstein's equation E=mc2, wherein, e = energy, m = mass, and c = constant of light velocity.
Nuclear power	Nuclear power is a way of electricity generation by using the thermal energy released by nuclear fission in nuclear reactors.
Pressurized water reactor	A nuclear reactor in which water is not boiling, with pressurized light water (ordinary water) as coolant and moderator without boiling.
Heavy water reactor	A nuclear reactor that uses tritium as moderator and can be directly fueled by natural uranium. It may use water or tritium water as the coolant, and includes two types: the pressure vessel type and the pressure pipe type.
Reactor year	One reactor year equals to one year of operation for one reactor in nuclear power plant.
WANO	The World Association of Nuclear Operators, which was founded in 1989 in Moscow.
WANO performance indicators	Indicators WANO develops and uses to evaluate member power nuclear power plants. The ranking results can be used to compare surveyed power plants.
Capacity factor	It is the ratio between the power capacity actually generated by a unit within a certain period and the power capacity calculated by nameplate capacity, and it reflects the safety operation and management level of a unit.
INPO	The Institute of Nuclear Power Operations which was founded in 1979 after the Three Mile Island accident to promote the information exchange and experience sharing between nuclear power plants, periodically assess nuclear power plants, establish performance goals and help train personnel for nuclear power plants.
IAEA	The International Atomic Energy Agency. It was founded in 1957 and is headquartered in Vienna, Austria. IAEA keeps a close relationship with the United Nations, and serves as a platform for research and technological cooperation of all countries in the field of atomic energy.

Equivalent dose

A product of multiplying radiation weighting factor by the average dose absorbed by tissues or organs, with the unit of sievert (Sv).

Millisievert

An international unit used to measure the effective dose of radiation and reflecting the degree of personal injury due to exposure to ionizing radiation.

Absorbed dose

Volume of radiation energy absorbed by unit mass of tissue or organ.◦

Gy

International unit of absorbed dose, 1Gy=1J/Kg, meaning the energy generated by radiation to tissues or organs of a kilogram is one joule.

Effective dose

Effective dose equivalent is the sum of product of the appropriate tissue weight factor and the average dose equivalent acceptable to all organs and tissues of the human body under the condition of stochastic effect as the radiation effect of human tissue or organ, and of inhomogeneous exposure of the whole body.

Environmental background

Environmental factors in unpolluted natural environment, which includes original basic chemical composition and energy distribution of environmental factors such as atmosphere, water, soil and biology during their natural formation and development before the disturbance from human activities.

Bq

Standing for "Becquerel" in French. It is an SI derived unit of radioactivity, used to measure radioactive materials or radioactive sources. GBq is equivalent to 109 Bq; TBq is equivalent to 1012 Bq.

Peaking carbon dioxide emissions

The annual carbon dioxide emissions of a certain region or industry will steadily drop after reaching the highest-ever level

Carbon neutrality

Net-zero carbon emissions, which refers to the realization of zero emission of carbon dioxide by offsetting carbon dioxide emissions by means of afforestation, energy conservation and emission reduction.

Carbon sink

The process, activity or mechanism of using photosynthesis to absorb carbon dioxide in the atmosphere and fix it in vegetation and soil through measures such as afforestation, forest management, and vegetation restoration, thereby reducing the concentration of greenhouse gases in the atmosphere.

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Expert Opinion

China's newly proposed goal of peaking CO₂ emissions before 2030 and achieving carbon neutrality before 2060 is a major strategic decision related to the sustainable development of the country and the construction of a community with a shared future for humanity. It also marks the entry of China into the fast lane of low-carbon energy transition. In the new era, power companies will face major opportunities and challenges. China National Nuclear Power Co., Ltd. (CNNP) will definitely play an important role in contributing to peaking CO₂ emissions and achieving carbon neutrality in China. The *CNNP Social Responsibility Report 2020* (hereinafter referred to as the "Report") introduces the low-carbon development concept and the "nuclear power + new energy" two-wheel drive development strategy of CNNP, which clearly contribute to the sustainable development of the industry.

The Report introduces public concerns regarding nuclear power, demonstrate the Company's commitment to green development. In the section of "Response to public concerns", it explains CNNP's principles and actions in relation to the goal of carbon neutrality and China's national development strategy and policies.

The Report focuses on social concerns and conveys CNNP's determination to promote green development. It focuses on hot topics that stakeholders are concerned about, including contributing to peaking carbon dioxide emissions and carbon neutrality and the deployment of assets in the new energy industry. It systematically discloses that CNNP is a scalable, profitable company with cutting-edge technology and a reasonable industrial structure, seeking to improve asset quality and promote the development of the new energy industry. CNNP adopts a green and low-carbon development model and actively integrates the green development concept into construction and operation of nuclear power projects.

The Report highlights the performance of CNNP in core areas and reflects the confidence of the Company in green development. It introduces CSR performance of CNNP and its subsidiaries during 2016-2020, especially in 2020, highlighting the contributions made by CNNP to the high-quality economic and social development and environment improvement in China.

In the future, we hope CNNP will further leverage its professional advantages and strengths to promote the development of nuclear power in a safe and eco-friendly manner and play a greater role in the construction of a clean, low-carbon, safe and efficient modern energy system and a new power system with new energy at the core, and continuous improvement of various measures to reduce pollution and achieve the goals of peaking CO₂ emissions and achieving carbon neutrality.

——Wang Zhixuan, Vice Chairman of China Electricity Council

The 2020 CNNP Social Responsibility Report comprehensively introduces, with pictures and texts, the CSR principles and practices of CNNP in areas related to safety, environment, innovation, collaboration, employees, and communities in accordance with regulatory requirements for structure and data of CSR reporting. It is a social responsibility report with substantial content and value. In 2020, CNNP had performed remarkably in fulfilling the above-mentioned aspects of social responsibility. Here, I will only comment on its performance on three fronts: safety, green development and public communication.

Safety is in the DNA of every nuclear energy plant. The Report provides a detailed description of the measures and progress made by CNNP in continuously improving its safety management mechanism, building a nuclear safety culture, and ensuring safe and stable operation. In 2020, its 15 power units got full marks in the WANO composite index, ranking first in the world. This is the best proof of China's excellent practices nuclear safety management.

Secondly, I highly appreciate CNNP's efforts in sticking to the clean and low-carbon development path. In September 2020, President Xi made the solemn promise of achieving carbon neutrality by 2060. On the basis of focusing on the main business of nuclear energy, CNNP has actively promoted the development and application of clean energy such as wind power and solar energy. It has built the first new energy power generation project in non-core nuclear energy areas in China. As of the end of 2020, the cumulative power generation of the project had exceeded 118.1 GWh, bringing huge economic and environmental benefits. In addition, CNNP has also actively cooperated with local governments. It has signed a strategic cooperation agreement with Haiyan County, Zhejiang Province, to jointly create an exemplary model of enterprise-local government collaboration in reducing carbon emissions, thereby contributing to peaking CO₂ emissions and achieving carbon neutrality.

In the whole report, my favorite part is "Transparency and Communication". As a nuclear power company, CNNP is well aware of its responsibilities and challenges in terms of information transparency and public communication. On the basis of improving multiple channels to strengthen information disclosure, CNNP has formulated different communication plans for different targets. It has held "Appealing Nuclear Power" Cup National Nuclear Power Knowledge Contest for many years. This event has become a nuclear power public communication brand, affecting more than 2.4 million students. It has helped hundreds of primary and middle school students in poverty-stricken areas realize their dream of visiting a nuclear power plant.

Last but not least, I hope that CNNP will continue to promote sharing, explore ways to efficiently use advanced nuclear energy technologies, supply clean, high-quality and low-carbon energy, and ensure nuclear safety, drive the development of upstream and downstream partners, and work with partners to jointly promote the development of the industry. CNNP should continue to take the initiative to assume social responsibilities and strive to become a CSR and sustainability role model.

——Qian Xiaojun, Associate Dean and Professor at Schwarzman College and Director at research Center for Green Economy and Sustainable Development, Tsinghua University

Related Reports and Publications



CNNP System of Culture Excellence



CNNP Employee Code of Conduct



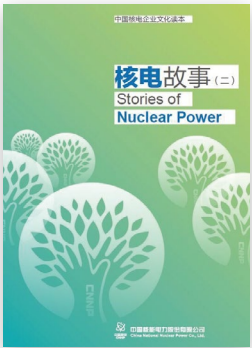
CNNP Training Material on Culture Excellence



Redefining Safety



CNNP's 10 Principles of Excellent



Stories of Nuclear Power



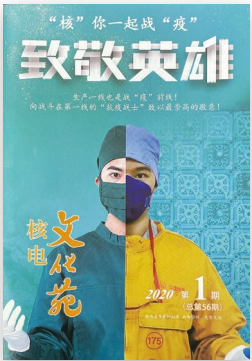
Stories of Nuclear Power



CNNP Visual Identification Standard Handbook



Nuclear Power Tide



Ideals and Culture



Tianwan Nuclear Power Plant



Youth of Hainan Nuclear Power Co., Ltd.

Feedback from Readers

Dear readers,

Thank you for reading our report!

This is the eighth issue of our social responsibility report. We look forward to your opinions and recommendations to help us improve in the future.

Please answer the following questions and fax the form to 010-6855 5928 or mail it to us.

Please tick ✓ the appropriate the answer.

Do you think the report highlights our economic, social and environmental work and our significant impacts?

☐ Yes ☐ Partially ☐ No

Do you think the information and indicators provided in the report is clear, accurate and complete?

☐ Yes ☐ Partially ☐ No

Do you think the arrangement of the content and style of the report is clear and helpful with your reading and understanding of the report?

☐ Yes ☐ Partially ☐ No

Open questions:

Which part of the report are you most interested in?

What information needs to be provided about CNNP that is not provided herein?

What suggestions do you have for our future issues?

Please provide your contact information if that's ok with you:

Name:	Company:
Tel:	E-mail:
A ddress:	



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