

環境、社會及管治報告
Environmental, Social and
Governance Report

2024





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CHAIRMAN'S STATEMENT



In 2024, guided by the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, the Company adhered to the core pursuit of seeking progress while maintaining stability, placed greater emphasis on operational excellence, value creation, and brand building, and made every effort to enhance our safety assurance capabilities, lean management capability, green development achievements, and corporate governance capabilities, taking a significant step forward on our journey towards becoming a world-class listed power generation company.

Robust and effective energy security supply. In 2024, the Company strictly implemented General Secretary Xi Jinping's important instructions on production safety, firmly shouldered the political responsibility of electricity and heat supplies, effectively carried out the Three-Year Action Plan for Tackling Root Causes in Production Safety (安全生產治本攻堅三年行動), successfully provided services and supports during key periods and major events, and firmly safeguarding the bottom line of ensuring people's livelihood, power generation, and heating supply.

Steady and accelerated green and low-carbon transition. In 2024, the Company strengthened strategic leadership, significantly accelerating the pace of transformation and achieving remarkable results in green and low-carbon development. The commissioning scale of new energy projects reached a new high in recent years. The proportion of clean energy installed capacity increased significantly. Breakthroughs were made in the development of offshore wind power, onshore wind power, photovoltaic, and energy storage projects also thrived.

Significant achievements in technological innovation. In 2024, the Company further enhanced the leading effect of scientific and technological innovation, refined the research and development investment mechanism, and proactively mapped out strategic emerging industries. The world's first project applying Cold Oxidation Adsorption Process (COAP) technology was put into operation. China's first Molten Salt Energy Storage Technology Demonstration Project was constructed and commissioned. In addition, China's first safe and reliable Distributed Control System (DCS) was renovated. The impetus for the Company's scientific and technological innovation has been continuously strengthened.

Steady and progressive performance in corporate operations. In 2024, the Company's operation performance improved year-on-year. The coal-fired power, gas-fired power, wind-power, and photovoltaic business segments all achieved profit growth. The "one benefits and five rates" key performance indicators continued to be optimized. The financing function of the Company as a listed company was further enhanced. Multiple REITs-like products won the Best REITs-like Award of the year. The issuance costs of multiple notes and carbon-neutral bonds reached the best level in the market during the same period.

Optimization and enhancement of corporate governance effectiveness. In 2024, the Company adhered to the main thread of corporate governance work, deepened and improved the modern enterprise system with Chinese characteristics modern enterprise system, and optimized the institutional system of the Board of Directors. The Company achieved remarkable results in compliance, internal control, and legal affairs management, managing to pass the external audit for internal control for the 19th consecutive year. The quality of information disclosure was further enhanced. The Company deepened ESG management efforts, and our ESG practices won major honors among state-owned and central enterprises, as well as listed companies. The Company's brand value has achieved a significant enhancement.

Encouraging achievements in overseas projects. In 2024, the Company adhered to the international development strategy, the overseas segment has achieved significant profits overall. Tuas Power's market share remained at the leading level in Singapore, and the reinvestment in domestic new energy projects yielded new results. The Jurong Island Desalination Plant (JIDP) was awarded the Global Water Awards-Distinction Desalination Plant of the Year. The Sahiwal coal-fired power project reached the best operating level since commercial operation.

Great truths could be realized only through actions. The year of 2025 marks the concluding year of the 14th Five-Year Plan and the beginning of the 15th Five-Year Plan. Huaneng International will adhere to the core pursuit of seeking progress while maintaining stability, fully implement the new development philosophy, and solidly advance high-quality development, making new and greater contributions to the comprehensive advancement of China's modernization and the great rejuvenation of the Chinese nation.

Wang Kui

Chairman

Huaneng Power International, Inc.





ABOUT US

ABOUT US

16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS



2.1 Company Profile

Huaneng Power International, Inc. (“Huaneng International”, “Huaneng” “the Company” or “We”) was incorporated on June 30, 1994. The core business of the Company is, by making use of modern technology and equipment and also financial resources available domestically and internationally, to develop, construct, operate and manage power plants throughout China. The Company is one of the China’s largest listed power generation companies and is the first power generation company in China to list in New York, Hong Kong and Shanghai simultaneously.

The Company is committed to being a world first-class listed power company, always adheres to providing adequate, reliable and eco-friendly power and high quality energy services for the community, been insisting on innovations in structure, technologies, and management since its incorporation. On aspects regarding the advancement in power technologies and construction and management of power plants, the Company has been the pioneer and has created various milestones within the domestic power industry, which facilitated the great leap development of the power business and technological advancement of the power station equipment manufacturing industry in China, and also significantly contributed to the improvement of technical and management standards of the domestic power generation enterprises.

Throughout the years, with dedicated efforts, the Company has expanded successively with steady growth in competitive strengths. The success of the Company is attributable to its various advantages, including advantages in scale and equipment, advantages in positive transformation to low carbon, clean energy, advantages in scientific and technological innovation and environmental protection, advantages in geographic layout of power plants, sound corporate governance structure, advantages in market reputation, extensive experience in the capital markets, advantages in overseas development, staff with high caliber and professional management as well as strong support from major shareholders.

145,125 MW

As at 31 December 2024,

Controlled Installed Capacity



35.82%

Installed Capacity of Low-carbon
Clean Energy Installation Reached

As of December 31, 2024, the Company had a controlled installed capacity of 145,125 MW, and low carbon clean energy installed capacity accounted for 35.82%. The Company's domestic power plants are located in 26 provinces, autonomous regions and municipalities. The Company wholly owns a power company in Singapore and invests in a power company in Pakistan.

In 2024, the Company was awarded "Excellent Listed Company with High Quality Development" (卓越高質量發展上市公司) of the 14th China Securities Golden Bauhinia Award. The Board of Directors was awarded the "Best Practice Case of the Board of Listed Companies in 2024" (2024年上市公司董事會最佳實踐案例) by the China Association for Public Companies and the "Outstanding Board of Directors" of the 19th 'Golden Prize of Round Table' of Chinese Boards of Listed Companies" (第十九屆中國上市公司董事會「金圓桌」之「優秀董事會獎」). The Company's Tuas Power won the "Annual Overseas Case" awarded in the "2024 Phoenix Star Listed Company Awards" (「2024上市公司鳳凰之星」之「年度出海案例」獎). For the second consecutive year, the Company's ESG practice was selected by the State-owned Assets Supervision and Administration Commission (SASAC) as "ESG-Pioneer 100 Index of Listed Companies of Central Enterprises (2024)" (中央企業上市公司ESG • 先鋒100指數(2024)榜單) and has been included in the "Blue Book on Environmental, Social and Governance (ESG) of Listed Companies of Central Enterprises" (《中央企業上市公司環境、社會及治理(ESG)藍皮書》). For the third consecutive year, the Company has been awarded the "2024 Best Sustainability Practice Case of Listed Companies" (2024上市公司可持續發展最佳實踐案例) by the China Association for Public Companies (CAPCO), recognized with the "ESG Excellent Practice in 2024" (2024年度ESG卓越實踐) by China Media Group (CMG) and China Enterprise Reform and Development Society (CERDS) and featured in the 2024 ESG Excellence Practices Report (《2024年度ESG卓越實踐報告》), honored as an "Outstanding ESG Sustainable Development Case" (中國企業ESG可持續發展優秀案例) jointly by CERDS and China Comment, and certified as an "Exemplary Social Responsibility Initiative in Power Industry" (電力企業社會責任優秀案例) by China Electricity Council (CEC). The Company's ESG performance has been widely publicized and reported by CCTV and Xinhua News Agency. The various honors received represent the compliment from the capital market for the Company's continuous high-quality development, the continuous improvement of enterprise value and the prospect of low-carbon transformation since the 14th Five-Year Plan, indicating the Company's positive brand image. The external auditor has issued standard audit reports on the Company's internal control without reservation for nineteen consecutive years.

2.2 Corporate Governance

As a public company listed both domestically and internationally, the Company conscientiously implements the regulatory requirements of its listing place and proactively accepts the supervision of investors. Since its establishment, the Company has been continuously completing and improving its modern governance system and capacity. The Company has established and improved a corporate governance structure consisting of the shareholders' general meeting, the Board, the Supervisory Committee, and management team and built an operating mechanism with clear separation of powers and responsibilities, mutual checks and balances and coordinated operations between proprietorship, decision-making power, supervisory power, and management power, ensuring the effective enforcement of the decision-making power of the shareholders' general meeting and the Board, and the supervisory power of the Supervisory Committee, ensuring the efficient and compliant management of the management team. After years of exploration and practice, the Company has built up a normal, sound and effective corporate governance system that caters for the development of the Company.



The Company has built up a comprehensive and efficient corporate governance system, and formulated more than 20 management systems including the “Rules of Procedures for the General Meetings” (《股東大會議事規則》), the “Rules of Procedures for the Board of Directors” (《董事會議事規則》), “Rules of Procedures for the Supervisory Committee” (《監事會議事規則》), “Working Rules for the General Manager” (《總經理工作細則》) and “Working Rules for Special Committees” (《專門委員會工作細則》), which clearly defined the job description responsibilities including the term of reference, organization structuring, procedures, working regulations of general meetings, Board of Directors and Supervisory Committee, etc. In 2024, the Company continuously improve the institutional system with the Articles of Association (《公司章程》) as the core, and the special systems as the supporting. On the basis of the original “Working System for Independent Directors”, a more complete and comprehensive set of “Working Rules for Independent Directors” (《獨立董事工作規則》), was formulated and implemented in accordance with the requirements of the new regulations for independent directors, and the “Management Measures for Authorization by the Board of Directors” (《董事會授權管理辦法》) and other systems were revised and improved, which provided important safeguards for further improving the construction of the institutional system and continuously strengthening the standardised operation of the Company.

In 2024, the Company held 2 general meetings, 8 meetings of the Board of Directors, 4 meetings of the Supervisory Committee, 12 meetings of special committees, and 4 special meetings of independent directors, and reviewed more than one hundred important proposals such as regular reports, profit distribution plan, the continuing connected transactions and engagement of auditors. All the Directors, Supervisors and senior management consciously comply with the relevant national laws and regulations and the regulatory requirements of the jurisdictions in which the Company's shares are listed, performed their duties diligently and conscientiously, attended the relevant meetings on time, carefully considered and approved relevant matters, made decisions in a scientific and cautious manner, and effectively promoted the implementation of various work.

2.3 Company Development Strategy

The Company will fully implement the new development philosophy of “innovation, coordination, green development, openness, and sharing”, adhering to a quality- and efficiency-centered approach while balancing energy security with green development to comprehensively promote high-quality development. By the end of the “14th Five-Year Plan” period, the Company aims to achieve approximately 45% of its installed capacity from low-carbon and clean energy sources, striving to become a world-class publicly listed power generation company with sound governance, operational excellence, energy efficiency, environmental protection, and outstanding market value.

The Company will follow the national energy security strategy of “Four Revolutions and One Cooperation” as its guiding principle and is committed to achieving carbon peaking and carbon neutrality, prioritizing quality and efficiency to drive the green and low-carbon transformation of energy. The Company will accelerate the leapfrog development of new energy and establish large-scale clean energy bases that are complementary, intensive, digitalized, and standardized (“Three Types, Three Modernizations”) in the “Three North” regions (Northeast, North, and Northwest China), as well as in coastal provinces such as Liaoning, Shandong, Jiangsu, Zhejiang, and Guangdong, and other central regions with abundant renewable energy resources. The Company will also expedite the optimization and upgrading of the coal-fired power structure by controlling new capacity, optimizing existing capacity, and promoting reductions, striving for a transition toward a dual focus on foundational security and system regulation power sources while selectively developing gas power and other clean energy generation. With technological innovation as a key driver of high-quality development, the Company is committed to serving national strategies, addressing major corporate development needs, and advancing digital and intelligent transformation to enhance independent innovation capabilities, while also implementing technology demonstration projects. The Company will strengthen and optimize integrated energy services, adapting to the transformation of the national energy supply structure, leveraging digitalization to develop strategic emerging industries, and focusing on diversified energy supply and services around its core business. It will actively integrate into the dual domestic and international economic circulation, strengthening international cooperation, enhancing the efficient operation of overseas assets, and improving their risk resistance and profitability. Adhering to the principle of enhancing efficiency and creating value, the Company will solidify its operational management foundation, improve management effectiveness, comprehensively enhance its modernized operational and control capabilities, strengthen corporate governance, increase brand value, and diligently fulfill its corporate social responsibilities.

2.4 Company Philosophy

Corporate Mission	■ Building a “Three-color” ¹ Company and serving for a strong energy nation
Corporate Core Values	<ul style="list-style-type: none"> ■ Upholding integrity, focusing on cooperation ■ Innovating continuously, progressing actively ■ Creating achievements, serving the Country
Corporate Target	■ Developing itself to become an international leading listed power generation Company
Corporate Responsibilities	<ul style="list-style-type: none"> ■ Provision of sufficient, reliable and environment-friendly electricity to the society ■ Strive for delivery of long-term, stable and increasing returns to shareholders ■ Support the comprehensive development of employees to establish self-achievements
Corporate Spirits	■ Reform and innovation, striving to be pioneers
Corporate Manner	■ Be brave in pioneering, courageous in shouldering responsibilities, adept at taking action, and willing to contribute
Four Concepts	■ Preeminence, Integrity, Compliance, Incorruptibility
Five Abilities	■ Product Excellence, Outstanding Branding, Innovation Leadership, Modern Governance, Value Creation



¹ Building a red company is to transform Huaneng into a company that always “remembers its party affiliation and serves the people, ensures energy security, and serves Chinese-style modernization as a ‘red’ company”.
 Building a green company is to transform Huaneng into a company that always “prioritizes ecology, practices the energy revolution, and empowers a better life for the people as a ‘green’ company”.
 Building a blue company is to transform Huaneng into a company that always “focuses on technological innovation, promotes energy cooperation, and contributes to building a community with a shared future for mankind as a ‘blue’ company”.

2.5 Situations Faced with the Company's ESG

The year 2025 marks the final year of the “14th Five-Year Plan” and the culmination of efforts to deepen reforms comprehensively. The Central Economic Work Conference has emphasized the need to maintain steady progress while seeking advancements, promoting stability through growth, and ensuring stable economic expansion. It calls for the implementation of a more proactive fiscal policy and a moderately accommodative monetary policy. The conference also outlined key priorities, including significantly boosting consumption, enhancing investment efficiency, and expanding domestic demand in all aspects. Additionally, it stresses leveraging technological innovation to drive the development of new productive forces, building a modern industrial system, strengthening fundamental research, and tackling key core technologies. Moreover, efforts will be coordinated to reduce carbon emissions, cut pollution, expand green growth, and accelerate the comprehensive green transition of economic and social development, alongside further deepening the reform of the ecological civilization system.

In terms of power supply and demand, according to the annual power supply and demand analysis and forecast by the China Electricity Council, considering China's current economic growth potential, the “14th Five-Year Plan” and the Vision 2035 Outline, as well as national macroeconomic policies and regulatory measures, total electricity consumption nationwide is expected to increase by approximately 6% year-on-year in 2025. The newly commissioned power generation capacity is expected to exceed 450 million kilowatts, and by the end of 2025, the proportion of coal-fired power in total installed capacity is projected to decline to one-third.

In terms of the electricity market, in 2024, the central government issued the Notice on Establishing and Improving the Electricity Ancillary Services Market Pricing Mechanism (《關於建立健全電力輔助服務市場價格機制的通知》) and solicited public opinions on the Basic Rules of the Electricity Ancillary Services Market (《電力輔助服務市場基本規則》). It is expected that various regions will continue to introduce and update policies in the ancillary services sector in line with the latest national policies, further improving market-based mechanisms. The construction of the electricity spot market is advancing rapidly, with settlement trial operations underway in 23 provincial-level spot markets and the inter-provincial spot market transitioning to formal operations. The southern regional market has achieved its first full-month trial settlement under a “cross-province + intra-province joint clearing” mechanism, highlighting the increasing role of the electricity market in optimizing resource allocation flexibly. Additionally, policies for the integration of new energy into the market have been issued, requiring full electricity market participation for new energy sources. Electricity prices will be determined through market-based mechanisms, and the market-oriented reform of grid electricity pricing for new energy is expected to reshape the operational model of new energy development while exerting a profound and comprehensive impact on all types of power sources participating in market transactions and the next phase of market development.

In terms of the carbon market, as the work towards carbon peaking and carbon neutrality progresses, the fourth compliance period of the national carbon market will lower the carbon emissions benchmark, and the allocation of allowances will continue to tighten. As a result, the compliance cost for carbon emissions per unit of electricity is expected to keep rising.

In terms of the coal market, coal production policies have shifted from ensuring supply to stabilizing production, with continued emphasis on safety production supervision. Coal enterprises are focusing their investments on improving coal mine safety and adopting intelligent upgrades. The potential for increasing coal production is limited, and the market is expected to maintain a “overall balance with periodic fluctuations” pattern. With the ongoing industrial restructuring and green low-carbon transformation in China, the substitution effect of new energy for coal-fired power continues to grow. It is expected that coal consumption for power generation will remain largely unchanged from the previous year, with further slowing growth. Demand from non-electricity industries has partially recovered, with coal consumption in sectors such as steel and building materials increasing, while demand for coal in the coal chemical industry remains strong. It is expected that coal prices will stabilize in 2025, with a slight downward adjustment in the price center.

In terms of the financial market, according to the spirit of the Central Economic Work Conference and the quarterly meetings of the central bank's monetary policy committee, the goal for 2025 is to promote continuous economic recovery and improvement, adhering to the principles of seeking progress while maintaining stability, advancing stability through progress, maintaining integrity while innovating, establishing foundations before making breakthroughs, integrating systems, and coordinating efforts. This involves fully improving the policy toolkit and enhancing the foresight, specificity, and effectiveness of macroeconomic control. More proactive fiscal policies and moderately accommodative monetary policies will be implemented, along with the innovation of financial tools, to maintain stability in the financial markets.

2.6 Company's ESG Responsibility Management

Huaneng International integrates the new development concept of “innovation, coordination, green, openness, and sharing” with ESG management, which is conducive to promoting the Company's high-quality and sustainable development. To better implement strategic ESG management, the Company has established an ESG governance structure that involves the Board of Directors in decision-making, leadership from management, and full participation from all departments and units in horizontal coordination and vertical linkage. This ensures the comprehensiveness, effectiveness, and sustainability of the Company's ESG management.

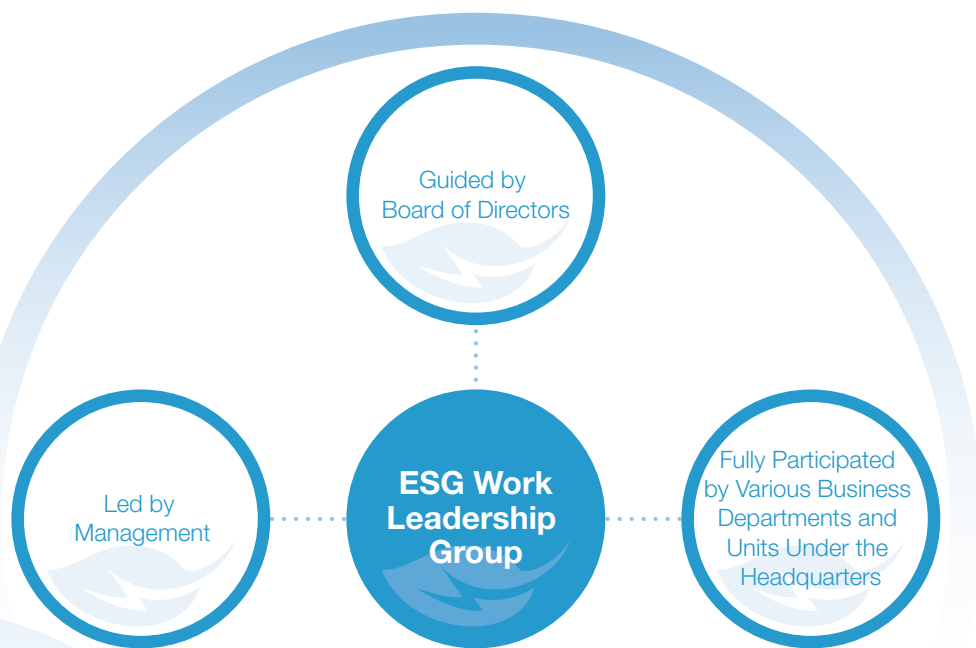
The Board of Directors assumes full responsibility for the Company's ESG management and disclosure, assesses and identifies significant ESG risks, and ensures the establishment of appropriate and effective ESG risk management and internal control systems. The Board of Directors holds regular meetings every year to receive reports from the management on significant ESG matters and provides supervision and guidance.

There are four committees under the Board, namely the Strategy Committee, the Audit Committee, the Nomination Committee, and the Remuneration and Evaluation Committee. According to the division of responsibilities, the Strategy Committee under the Board of Directors is responsible for the decision-making of the Company's overall risk management and regularly listens to the relevant reports. The Strategy Committee's responsibilities include but are not limited to reviewing the annual comprehensive risk management report and assessing the risk management process and its effectiveness. The Audit Committee under the Board is responsible for identifying and evaluating the risk of fraud of the senior management and the Board of Directors and forming an independent fraud risk assessment report. It also regularly reviews reports on the Company's internal controls, evaluates the effectiveness of the internal control system, and communicates with the Human Resources Department on issues concerning recruitment and code of conduct. The Strategy Committee is composed of seven directors, including two independent directors. The Audit Committee is composed of five directors, all of whom are independent directors. The independent directors inspect the Company's subsidiaries every year to monitor and provide suggestions on production safety, operation and management, internal controls, and corporate culture. Both the Board of Directors and various specialized committees have incorporated aspects of ESG such as production safety, employee health, energy conservation, environmental protection, and corporate culture into daily work. They closely monitor trending issues such as climate change and ESG information disclosure, aiming to promote balanced development in terms of economic benefits, social benefits, and ecological benefits.

The Company's directors possess extensive theoretical knowledge, solid professional skills, rich management experience, and good professional ethics in fields such as energy and power, production and environmental protection, legal compliance, and financial management. They have a comprehensive understanding of ESG practices, environmental protection, energy transition, and energy conservation and carbon reduction, and have achieved substantial research outputs. Since taking office, the directors have fulfilled their duties with dedication and self-discipline, contributing to enhancing corporate governance and driving the Company's high-quality development. During the reporting period, the Company's independent directors conducted 2 on-site research activities both domestically and overseas, gaining in-depth insights into the Company's frontline production and overseas operations. They provided constructive suggestions on ESG-related matters, assisting the Company's subsidiaries in achieving transformation and development, quality improvement, efficiency enhancement, and comprehensive service capability upgrading, and actively contributing to the Company's high-quality development.

The directors, supervisors and senior management of the Company attached great importance to strengthening their awareness of compliance and enhancing their ability to perform duties, actively participated in various special trainings held by regulatory bodies and industry associations and kept abreast of the updates on laws and regulations and relevant policies in the listing jurisdictions. In 2024, the Company's Directors, Supervisors, and senior management participated in training sessions 37 times. These trainings covered topics including corporate governance, listing regulation practices, the Amendment to the Company Law of the People's Republic of China 《中華人民共和國公司法》), market value management, ESG practices, and new sustainable development regulations. The Board's Secretary attended 4 sessions of enhancement training and seminars for continuing professional development organized by the Hong Kong Chartered Governance Institute. The training sessions focused on the latest regulatory developments of the listing jurisdictions, new standard requirements, compliant operations of listed companies, illegal and non-compliant cases, as well as anti-corruption and anti-fraud cases. All directors, supervisors and senior management personnel of the Company consciously abide by the laws, regulations and provisions of the Articles of Association 《公司章程》), develop a strong work ethic, and take the lead in "knowing the fear and keeping the bottom line". In doing so, they have laid a solid foundation for the Board of Directors to play the role of "formulating strategies, making decisions, and preventing risks", which can take the Company's governance to a new level.

The Company has established an ESG Work leadership group chaired by the Chairman of the Board to make decisions on significant ESG matters. Various business departments and units under the Company's headquarters are responsible for implementing specific ESG management tasks according to their respective responsibilities and management authority. In the future, the Company will closely monitor domestic and international ESG-related policies and development trends, and continue to improve ESG information disclosure.



2.7 Table of Key Performance Indicators in 2024

In accordance with the requirements of the Hong Kong Exchanges and Clearing Limited's (HKEX) Environmental, Social and Governance Reporting Code (《環境、社會及管治報告守則》), the Shanghai Stock Exchange's (SSE) Guidelines No.14 of Shanghai Stock Exchange for Self-Regulation of Listed Companies-Sustainability Report (Trial) (《上市公司自律監管指引第14號—可持續發展報告(試行)》), and the Global Reporting Initiative's (GRI) Sustainability Reporting Standards (《可持續發展報告標準》), Huaneng International has prepared and analyzed the Company's 2024 ESG key performance indicators, benchmarking against regulatory requirements and its peer companies, as set out below.

Performance Categories	Performance Indicators	2024	2023
Economy	Operating revenue (RMB100 million) ²	2,455.51	2,543.97
	Sales of power and heat (RMB100 million) ²	2,375.54	2,461.56
	Sales of coal ash, coal and raw materials (RMB100 million) ²	13.95	14.10
	Port service (RMB100 million) ²	2.17	2.43
	Transportation service (RMB100 million) ²	0.72	0.64
	Others (RMB100 million) ²	63.13	65.24
	Total operating expenses (RMB100 million) ²	2,195.45	2,342.01
	Net Profit (RMB100 million) ²	140.06	87.69
	Controlled installed capacity (MW) ²	145,125	135,655
	Domestic power generation (100 million kWh)	4,798.64	4,746.77
Environment	Average annual unplanned outage (times/unit · annum)	0.23	0.23
	Coal consumption rate for thermal power unit (g/kWh)	293.90	291.88
	Year-on-year change of coal consumption rate for thermal power unit (%)	0.69	1.46
	Consumption of standard coal (ten thousand tons of standard coal) ³	13,245.62	13,370.57
	Oil consumption in production (metric ton)	42,920.19	42,482.78

² The scope of statistics of Operating revenue (including Sales of power and heat, Sales of coal and raw materials, Port service, Transportation service and Others), Total operating expenses, Net profit and Total number of full-time contractual employees, covers Singapore Tuas Power Ltd., the wholly owned subsidiary of Huaneng International, and Huaneng Shandong Ruyi (Pakistan) Energy (Private) Limited. The Operating revenue (including Sales of power and heat, Sales of coal and raw materials, Port service, Transportation service and Others), Total operating expenses, and Net profit are disclosed in accordance with the International Financial Reporting Standards. Others include Lease income. The statistical range of controlled installed capacity includes Singapore Tuas Power Ltd., the wholly owned subsidiary of Huaneng International.

³ The Consumption of standard coal is the sum of various types of energy consumption, calculated according to the General Principles for the Calculation of Comprehensive Energy Consumption (《綜合能耗計算通則》) (GB/T 2589-2020).

Performance Categories	Performance Indicators	2024	2023
Environment	Natural gas consumption (ten thousand of standard cubic meters)	596,625.26	602,733.58
	House consumption of thermal power unit (MWh) ⁴	18,775,782.80	–
	House consumption rate of thermal power unit (%)	4.44	4.33
	Overall water consumption (million tons) ⁵	21,490.41	23,891.96
	Fresh water consumption in power generation (million tons) ⁵	428.95	406.60
	Water consumption in open cooling circulation (million tons) ⁵	21,061.46	23,485.36
	Performance value of consumption of fresh water in power generation (kg/kWh) ⁵	0.89	0.86
	Performance value of emission of sulphur dioxide (g/kWh) ⁶	0.06	0.06
	Performance value of emission of nitrogen oxide (g/kWh) ⁶	0.13	0.13
	Performance value of soot emissions (g/kWh) ⁶	0.01	0.01
	Sulphur dioxide emissions (tons) ⁶	27,203.63	27,249.01
	Nitrogen oxides emissions (tons) ⁶	56,412.55	57,485.68
	Soot emissions (tons) ⁶	3,780.93	3,618.14
	Certified sulfur dioxide emissions (tons) ⁴	102,382.73	–
	Certified nitrogen oxides emissions (tons) ⁴	136,664.41	–
	Certified soot emissions (tons) ⁴	24,124.47	–
	Total amount of energy-related direct greenhouse gas emissions (ten thousand tons of carbon dioxide equivalent) ⁷	–	37,707.30
	Greenhouse gas emissions generated by coal consumption (ten thousand tons of carbon dioxide equivalent) ⁷	–	36,547.20
	Greenhouse gas emissions generated by natural gas consumption (ten thousand tons of carbon dioxide equivalent) ⁷	–	1,146.70
	Greenhouse gas emissions generated by fuel consumption (ten thousand tons of carbon dioxide equivalent) ⁷	–	13.41
	Energy-related direct greenhouse gas emission intensity (grams of carbon dioxide equivalent/kWh) ⁷	–	719.08

⁴ Indicates new indicators added this year.

⁵ The Company has further strengthened its water resource statistics work and has restated the relevant data for 2023.

⁶ The Company's exhaust gas emissions are counted and calculated according to the actual concentration of pollutants.

⁷ On October 15, 2024, the Ministry of Ecology and Environment of the People's Republic of China issued the Notice of Implementation of Relevant Work on Distribution and Settlement of National Carbon Emission Rights Trading Quota for 2023 and 2024 for the Power Generation Industry (Guo Huan Gui Qi Hou [2024] No. 1) 《關於做好2023、2024年度發電行業全國碳排放權交易配額分配及清繳相關工作的通知》(國環規氣候〔2024〕1號)). According to the Plan, the performance unit shall settle its quota payment for 2024 by 31 December, 2025. Therefore, the carbon emission data for 2024 is considered trade secret and is not disclosed in this report. The Company adopts the operating control approach to determine the scope of consolidation for greenhouse gas emissions and will disclose this information after contract completion.

Performance Categories	Performance Indicators	2024	2023
Environment	Total amount of energy-related indirect greenhouse gas emissions (ten thousand tons of carbon dioxide equivalent) ⁷	–	11.77
	Energy-related indirect greenhouse gas emission intensity (grams of carbon dioxide equivalent/kWh) ⁷	–	0.22
	Scope 1 greenhouse gas emission reductions (tons of carbon dioxide equivalent) ⁴	118,980	–
	Scope 2 greenhouse gas emission reductions (tons of carbon dioxide equivalent) ⁴	3,886.59	–
	Total water discharge (million tons) ⁵	20,509.94	20,770.29
	Total discharge of sewage (million tons)	27.09	24.94
	Total discharge of open cooling circulation water (million tons) ⁵	20,482.85	20,745.35
	Certified Chemical Oxygen Demand (COD) emissions (tons) ⁴	219.18	–
	Certified ammonia-nitrogen emissions (tons) ⁴	42.36	–
	Hazardous liquid waste production (tons)	968.55	1,272.03
	Production of denitration catalysts (tons)	12,851.03	8,083.56
	Production of other hazardous solid waste (tons)	514.32	708.10
	Intensity of hazardous waste (g/kWh)	0.03	0.02
	Production of general solid waste (ten thousand tons)	4,940.26	4,740.54
	Production of fly ash and cinder (ten thousand tons)	3,933.71	3,788.79
	Production of desulphurized gypsum (ten thousand tons)	1,006.55	951.75
	Intensity of general solid waste (kg/kWh)	0.10	0.10
	Comprehensive utilization rate of fly ash and cinder (%)	83.09	83.16
	Desulphurization gypsum disposal utilization rate (%)	73.05	77.01
	Amount of grievous (and above) environmental accidents (times)	0	0

Performance Categories	Performance Indicators	2024	2023
Social	Total number of full-time contractual employees (persons) ²	56,263	57,038
	Total number of male employees (persons)	44,568	45,082
	Total number of female employees (persons)	11,695	11,956
	Total number of employees aged 30 and below (persons)	11,071	11,214
	Total number of employees aged between 31 and 50 (persons)	28,152	29,513
	Total number of employees aged above 50 (persons)	17,040	16,311
	Total number of employees in the China (persons)	55,729	56,453
	Total number of employees in overseas regions (including Hong Kong, Macao and Taiwan) (persons)	534	585
	Total number of full-time employees (persons)	56,263	57,038
	Total number of part-time employees (persons)	0	0
	Employee turnover rate (%)	0.30	0.41
	Turnover rate of male employees (%)	0.33	0.40
	Turnover rate of female employees (%)	0.19	0.45
	Turnover rate of employees aged 30 and below (%)	0.70	0.77
	Turnover rate of employees aged between 31 and 50 (%)	0.23	0.44
	Turnover rate of employees aged above 50 (%)	0.09	0.10
	Turnover rate of employees in the China (%)	0.25	0.34
	Turnover rate of employees in overseas regions (including Hong Kong, Macao and Taiwan) (%)	5.24	7.18
	Number of employees received trainings (persons)	51,205	54,050
	Proportion of employees received trainings (%)	91.01	94.76
	Proportion of male employees received trainings (%)	92.01	95.78
	Proportion of female employees received trainings (%)	87.22	90.92
	Proportion of management personnel received trainings (%)	85.71	93.57
	Proportion of non-management personnel received trainings (%)	91.56	94.89
	Training hours per employee (hours)	124	155

Performance Categories	Performance Indicators	2024	2023
Social	Training hours per male employee (hours)	123	153
	Training hours per female employee (hours)	127	163
	Training hours per management personnel (hours)	134	120
	Training hours per non-management personnel (hours)	135	159
	Number of employee deaths due to duty (persons) ⁸	0	0
	Number of contractor and subcontractor employee deaths due to duty (persons) ⁹	1	2
	Grievous employee injury and death accidents (employees) (times)	0	0
	Personal injury and deaths accidents during power generation (times)	1	2
	Amount invested in employees' work-related injury insurance (RMB ten thousand) ⁴	7,389.36	–
	Amount invested in employees' work safety liability insurance (RMB ten thousand) ⁴	1,380.41	–
	Accidents that endangered safe operation of power grid (times)	0	0
	Days lost due to work injury (days)	0	0
	Rate of work-related deaths (%)	0	0
	Total suppliers (number)	109,558	97,358
	Domestic suppliers from Mainland China (number)	108,187	95,999
	Overseas suppliers including Hong Kong, Macao and Taiwan (number)	1,371	1,359
	Customer complaints (number)	0	0
	Concluded lawsuits on corruption against the Company or its employees (number)	0	0
	Average equivalent availability of thermal power units (%)	93.67	93.76
	Number of invention patent applications filed (items) ⁴	4,586	–
	Number of invention patents granted (items) ⁴	1,021	–
	Number of valid patents (items) ⁴	2,083	–
	Amount of charitable donations (RMB ten thousand) ⁴	418.60	–
	Amount invested in rural vitalization (RMB ten thousand) ⁴	1,775.60	–

⁸ Refer to the number of employees' decease as a result of production safety incidents. In 2022, the number of employee decease due to duty and rate of work-related deaths were 0.

⁹ Refer to the number of decreases of contractors and subcontractors during production for which the Company is responsible.

2.8 Communication with Stakeholders and Identification of Material Issues

Communication with stakeholders and assessment of material issues serve as the foundation for the Company's ESG management and disclosure. Huaneng International has always been adhering to the corporate responsibilities of "providing sufficient, reliable and environment-friendly electricity to the society, creating a long-term, stable and increasing return to our shareholders, and providing our staff with an environment which encourages contribution and facilitates career development and integrated development". The Company has integrated ESG philosophy into its daily operations and decision-making processes.

The Company fully considers and effectively responds to stakeholders' demands, and works together with all stakeholders to promote economic and social development and share corporate development achievements. The Company's work procedures are as follows:

Step 1	Step 2	Step 3	Step 4
Understand the Company's Operations and Business Relationships Background	Establish a List of Issues	Assess and Validate Material Issues	Disclose Information of Material Issues
<ul style="list-style-type: none"> Understand the Company's operations and business relationships Understand the internal and external context Understand key affected stakeholders 	<ul style="list-style-type: none"> Conduct policy analysis Benchmark against regulations and standards Conduct peer analysis 	<ul style="list-style-type: none"> Assess impact materiality Assess financial materiality 	<ul style="list-style-type: none"> Develop targeted disclosure and practice improvements based on analysis results

Step 1: Understand the Company's Operations and Business Relationships Background

During the materiality assessment process, the Company first conducts in-depth analysis of its operations and business relationships by interviewing directors, management, and personnel from all business units and subsidiaries to understand key information, such as types of business activities, geographical locations, employee conditions, products and services, market conditions, and perspectives and suggestions on ESG strategies. In addition, the Company analyses internal and external policies, risk assessment reports, and ESG standards to map current ESG management practices and challenges. Communication with stakeholders is facilitated through multiple channels, including but not limited to shareholders' meetings, information disclosure, the Company's website and regular meetings, to listen to their concerns and suggestions, and to ensure their participation in the Company's ESG development process.

Stakeholders	Expectations of Stakeholders	Main Mechanisms of Communication and Participation	Responses from the Company
Investors	Increase of the Company's market value and profitability; continuing improvement of the Company's environmental and social responsibility performance	Shareholders' meeting; information disclosure; Company's website	Truthful and thorough disclosure of information; investment of efforts in improving business performance and generating profits; absorption of market opinions for rectification of operating behaviors; investment of efforts in the improvement of environmental and social responsibility management
Clients	Assurance of high-quality products; guarantee of good service	Signing contracts and agreements	Supply of sufficient, reliable and eco-friendly energy and services; guarantee of safe and stable delivery of power and heating

Stakeholders	Expectations of Stakeholders	Main Mechanisms of Communication and Participation	Responses from the Company
Employees	Guarantee of welfare, health and security; improvement of communication mechanisms; equal chances of promotion and development	Employment contracts; employees' assembly	Strict observance of provisions within employment contracts; improvement of the institution of the employee's assembly; improvement of administration of salary and welfare; provision of a healthy and safe work environment; provision of avenues for vocational advancement and training
Suppliers	Honest, fair and just cooperation; mutual benefits and win-win scenarios	Signing contracts and agreements; regular communication through mutual visits; correspondence through files, letters and telegraphs	Adherence to open and transparent business principles and processes; active fulfillment of contracts and agreements; promotion of mutual visits
Communities	Joint cultivation of communal civility; support for public welfare; focus on social development	Promotion and organization of public welfare activities; participation in volunteer activities; guarantee of employment	Organization of and participation in public welfare undertakings; building harmonious and civilized communities; attempts at growth of local employments
Regulatory Authority	Compliant operation under disciplines and laws; green energy; energy conservation and emission reduction	Participation in relevant energy meetings, work reports, policy consultations and information submissions	Strict observance of relevant laws and stipulations; vigorous advocacy and promotion of energy conservation and emission reduction
Peers	Fair competition; honest cooperation; joint efforts in production safety	Participation in industry associations ¹⁰ , policy studies, daily meetings and business exchanges	Competition and cooperation with peers; joint creation of a healthy and orderly competitive environment; mutual benefits and joint progress

Step 2: Establish a List of Issues

Based on relevant laws, regulations, and standards, the Company has integrated the HKEX's Environmental, Social and Governance Reporting Code (《環境、社會及管治報告守則》), the SSE's Guidelines No. 14 of Shanghai Stock Exchange for Self-Regulation of Listed Companies—Sustainability Report (Trial) (《上海證券交易所上市公司自律監管指引第14號—可持續發展報告(試行)》), and the GRI's Sustainability Reporting Standards (《可持續發展報告標準》) (GRI Standards) to establish a list of material issues in conjunction with industry best practices, ensuring that the identified issues are aligned with domestic and international best practices while complying with regulatory requirements.

¹⁰ China Electricity Council, Chinese Society for Electrical Engineering, Global Energy Interconnection Development and Cooperation Organisation, etc.

Step 3: Assess and Validate Material Issues

The materiality assessment covers both the impact materiality and financial materiality of the issues. Impact materiality refers to whether the Company's performance on a specific issue will have a material impact on the economy, society, and environment. Financial materiality refers to whether each issue is expected to have a major effect on the Company's business model, operations, development strategy, financial positions, operating results, cash flows, financing methods and costs over the short, medium, and long term¹¹. Based on regulatory requirements and industry conditions, and the results of questionnaires and expert interviews, the Company identifies the impacts, risks and opportunities associated with each issue. The Company also sets thresholds, and assesses the impact and likelihood to derive the materiality assessment results, supporting the Company's strategic decision-making and resource allocation.

	Thresholds for Impact Materiality	Thresholds for Financial Materiality
Highly Material	Significant impact with a broad scope that cannot be remedied	Financial losses or gains that have a significant impact on the Company's business operations
Moderately Material	Moderate impact with a moderate scope that can be remedied but at a high cost	Financial losses or gains that have a moderate impact on the Company's business operations
Not Material	Minor impact with a limited scope that can be easily remedied	Financial losses or gains that have a minor impact on the Company's business operations

The Company has established and improved a comprehensive risk management system, incorporating ESG issues such as safety, environmental protection, and climate change into the comprehensive risk management process. We continue to carry out risk investigation and dynamic assessment, review major risks and their changes in key areas, evaluate the effectiveness of risk control measures, and refine specific risk response plans, regularly compiles risk assessment reports, thereby achieving closed-loop risk management. The Company adjust risk monitoring indicators in line with actual conditions, set reasonable early warning thresholds, and monitor risks in key businesses and areas in real time. By doing so, we have managed to conduct routine risk investigation, precise risk early warning, and long-term risk control. In 2024, we identified major ESG risks as follows:

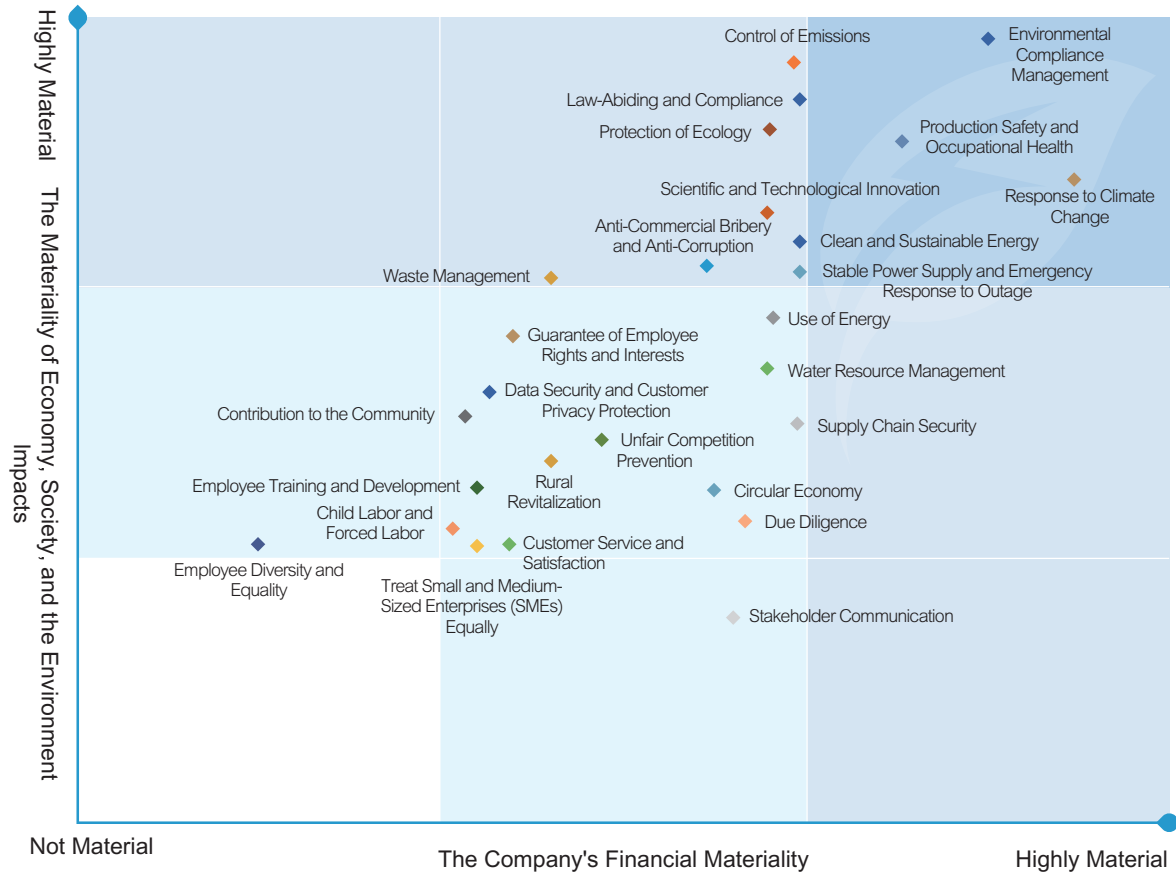
Major ESG Risks	Responses and Main Financial Impacts
Production Safety Risks	<p>Responses: Strengthen the intrinsic safety system, enhance safety risk control and emergency response capabilities, deepen safety supervision, and reinforce the safety management of outsourced personnel.</p> <p>Financial impact: At the end of 2024, the Company's balance of safety production funds was RMB1.358 billion¹².</p>
Ecological and Environmental Protection Risks	<p>Responses: Promote energy conservation and emission reduction for coal-fired power units, carry out energy conservation and environmental protection retrofits, refine systems for energy conservation and consumption reduction, and conduct timely publicity, training, and supervision and inspection.</p> <p>Financial impact: In 2024, the Company invested RMB1.087 billion in environmental protection.</p>
Climate-related Risks	<p>Responses: Vigorously develop clean energy, enhance meteorological monitoring, explore advanced technologies, and refine carbon trading strategies.</p> <p>Financial impact: Please refer to 5.3.6 Response to Climate Change for details.</p>

¹¹ The time horizons are defined as follows: within one year for short-term, one to five years for medium-term, and over five years for long-term, which are in line with the Company's development strategy and resource allocation plans.

¹² Attributable to the shareholders of the parent company.

Step 4: Disclose Information of Material Issues

The Company employs a two-dimensional matrix of “financial materiality - impact materiality” to present the assessment results of material issues.



DISTRIBUTION OF POWER PLANTS OF THE COMPANY

CHINA NETWORK

Heilongjiang

4,654



Jilin

4,548



The controlled installed capacity of the Company as at 31 December 2023 was

145,125_{MW},

distributed in areas as depicted in the chart (Unit: MW)

LEGENDS



Wind-power



PV Power



Coal-fired



Combined Cycle



Hydro-power



Biomass power

Liaoning
7,164



Inner Mongolia
288



Hebei
5,580



Gansu
3,897



Ningxia
20



Beijing
2,766



Tianjin
1,747



Shanxi
4,955



Shandong
23,342



Henan
9,090



Jiangsu
13,897



Shanghai
5,696



Chongqing
3,935



Zhejiang
7,690



Hubei
5,678



Hunan
3,639



Jiangxi
8,420



Anhui
3,567



Fujian
4,438



Guangdong
7,221



Guangxi
754



Yunnan
4,730



Guizhou
1,416



Hainan
3,987



OVERSEAS NETWORK

Singapore
2,009



Total **145,125**



03

SUPPORT FOR THE POWER SYSTEM REFORM



The power system reform has been under way for 9 years since 2015. This market-oriented reform focuses on the logic of “controlling the transmission and distribution links, and opening up the power generation and consumption side”, which means establishing markets in competitive sectors and strengthening regulation in naturally monopolized sectors. Currently, the construction of the national power market is progressing steadily and orderly, with the proportion of electricity traded on the market increasing significantly. The reform of the power market has been gradually advanced.

SUPPORT FOR THE POWER SYSTEM REFORM

7 AFFORDABLE AND
CLEAN ENERGY



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



As one of the most influential enterprises in the national electric power industry, Huaneng International will lend its full support to national power system reform policies and work conscientiously for arrangements concluded at the Central Economic Work Conference and in various government work reports by participating in the establishment of electricity markets and transactions. By playing the role of market mechanisms, the Company enhances security of power supply and supply capacity of clean electricity. The new power system reform policies have a profound impact on the Company's profitability and sustainable development. In response, the Company has conducted in-depth policy analysis and evaluation based on the actual situation. We have comprehensively considered the impact of related policies on mid- to long-term trading, spot trading, green power and green certificate trading, Chinese Certified Emission Reduction (CCER), and carbon trading markets. By doing so, we aim to enhance market awareness, accelerate the innovation of the management system and mechanism, and strengthen the business synergy of marketing, fuel business and production. Ultimately, we can make wiser business decision-making, and maximize the overall economic benefits.

At Huaneng International, developing the retail market is high on the agenda. We are leveraging our competitive advantage of integrating generation and sales to strive for a greater share of the electricity volume. Energy sales companies from all regions maintain close communication with terminal electricity customers, meticulously analyze electricity consumer behavior, and offer professional and customized services. With technological advantages such as virtual power plants, we provide users with value-added services such as demand-side response. We encourage users to shift their electricity consumption to off-peak hours. Such load shifting management can help users reduce costs and gain benefits, creating a win-win situation. By utilizing platforms such as the official account, video account, mini-program, official website, and Douyin, we have expanded the visibility of our electricity sales business while providing customized pricing packages for small and medium-sized online subscribers. This has enhanced the reputation of Huaneng International's brand for customer service and increased market recognition. Together with electricity users, we are jointly advancing the revolution in energy production and consumption, building a clean, low-carbon, safe and efficient energy system.

Our Targets

As the power system reform advances, Huaneng International has established a marketing philosophy that "focuses on profitability and aims to lead the market". The Company emphasizes the unification of quantity and price, stabilizes the market transaction prices, and competes for market share in electricity consumption. Efforts are also being made to optimize the trading strategies of generating units, to enhance digital capabilities, and to improve the overall operational efficiency of the Company. All these efforts are aimed at generating higher revenues with greater efficiency, and helping the Company stay competitive as a global leader among the listed power generation companies.

The wholesale market trading serves as a "ballast stone" in maintaining stable quantity and price. Pursuant to the national requirements for the signing of mid- to long-term electricity contracts, and taking into account the situation of the local power market, the Company has formulated appropriate trading strategies and ensured the signing of mid- to long-term contracts.

The retail market trading aims to rationally increase the scale of electricity sales with consideration of the wholesale purchase prices, expanding the market share of electricity sales, and striving to cover the direct transaction electricity demand from the generation side. As many regions have strengthened load management, the Company provides value-added services such as ancillary services and demand-side response. By doing so, we can create new profit growth points, enhance user engagement through win-win cooperation, and elevate our brand image in electricity sales.

Management Mechanism

In 2024, confronted by the challenges such as the establishment of a new power system and a unified national power market, and the “carbon peaking and carbon neutrality” goals, Huaneng International worked hard to promote relevant institutional mechanisms and market-oriented talent training, responded to the challenges arising from the spot market, and coordinated the work of regional companies, thus combining forces to address market changes and maximizing operating benefits.

Major Actions

1

Achieving the annual targets with improved quality and efficiency. The Company studied the situation in the power and coal markets. We focused on the signing of mid- to long-term contracts for coal-fired power generation with improved volume and price structure, and implemented the national requirements for mid- to long-term electricity contracts. By optimizing the time-differentiated contract arrangement, ensuring that high-energy consumption transactions are not restricted, and adopting retail service fee, we maintained the average electricity price at a high level for the entire year and laid a solid foundation for maintaining a stable price and a guaranteed quantity throughout the year. We reasonably arranged the operation mode of power units, seize the opportunity of the continuous high-temperature weather, and strive to increase the generation of benefit-oriented electricity. We coordinated the seasonal and periodical operation schedule of coal-fired power generation units for electricity spot trading as well as the allocation between regional and provincial markets, reserved generation capacity for peak summer/winter and other high-demand periods to ensure that units can maximize the benefits of increased power generation during peak times. In addition to strategically allocating coal-fired power and new energy power, we facilitated tasks such as bundled power transmission, wind-fire displacement, benefit-oriented power dispatch, and composite retailing based on local conditions, which achieved a cost-effective and stable output synergy between coal-fired power and new energy sources. We improved power forecasting for clean energy projects to reduce the rate of wasted electricity. Additionally, we coordinated the allocation of resources for green power and green certificate trading to maximize the environmental premium gains in both markets.

2

Improving spot trading capacity in a well-planned and organized way. We took proactive measures to cope with the new challenges of the spot market, analyzed the rules of the spot market, coordinated internal departments and formed synergy to cope with market changes. In this way, we improved the efficiency of market decision-making and enhanced the ability to respond to the electricity spot trading market. The Company's subsidiaries, which operate in a spot market that supports continuous trading, adjusted the spot trading strategies in a timely manner in response to changes in market supply and demand, seizing market opportunities, and achieving increased revenue and improved efficiency. The pilot units participating in the spot market, taking into account the new energy involvement in the market, electricity consumption load and power supply structure, have developed an appropriate mid- to long-term holding ratio and promptly adjusted their trading strategies. In regions where spot markets are taking shape, we have strengthened research and analysis, actively participated in policy formulation, accelerated the construction of operational centers, intensified efforts invested in training, and enhanced trading capabilities.

3

Enhancing talent management and team building. We have launched online marketing courses to enhance the skills of our business personnel. We have also urged each unit to accelerate the selection, cultivation, and reservation of trading talents, and organized competitions on electricity trading skills to help trading talents become more technically competent.



Adhering to accelerating the construction of a world-class listed power generation company, Huaneng International pursues new development philosophy, coordinates production safety and green development, actively fulfill the responsibilities of a China's state-owned enterprise, devotes every effort to serving national development and secures a stable energy supply. The Company optimizes the power supply system, adjusts corporate governance structure and deepens corporate management reform, steadily reinforces the compliance management capabilities and drives the Company towards high-quality and sustainable development.



*FOCUS ON PEOPLE'S
LIVELIHOODS AND
MISSION FULFILLMENT*

FOCUS ON PEOPLE'S LIVELIHOODS AND MISSION FULFILLMENT

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS



4.1 Consolidating the Foundation of Energy Security

Huaneng International is committed to developing itself into an international leading listed power generation company and providing sufficient, reliable and environmental-friendly power, as well as high-quality energy services for the customers. Each of the Company's power plants has put in place contingency plans and response measures to ensure a safe and stable power supply. During the reporting period, the Company was not involved in any major liability incidents related to safety and quality of products and services.

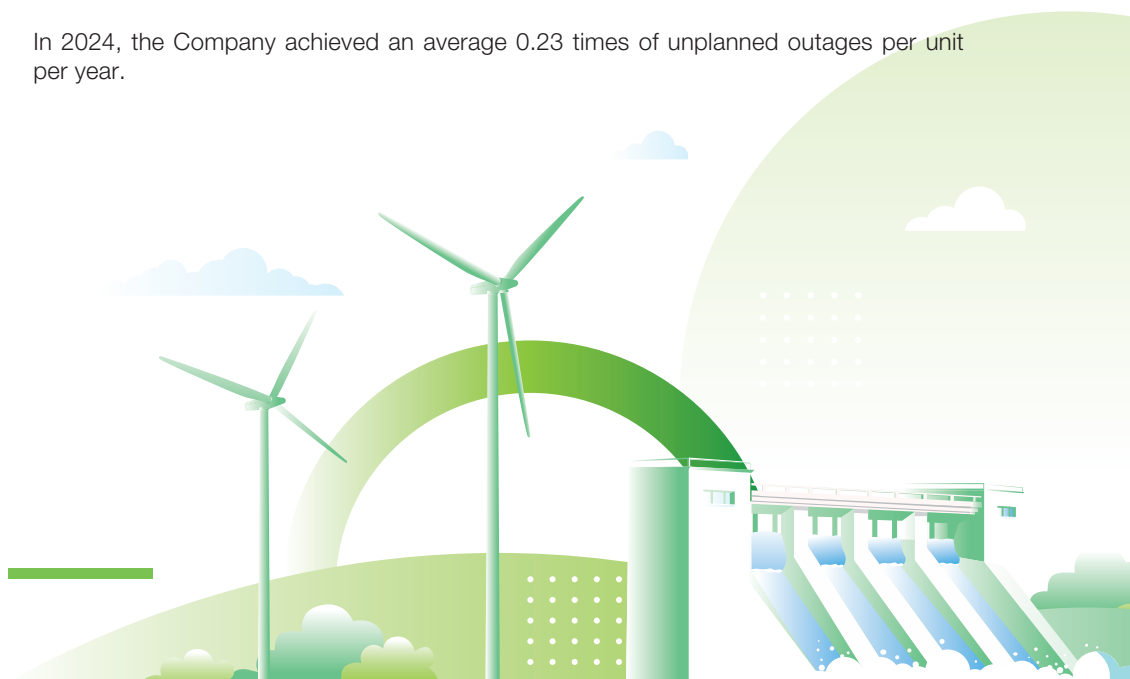
Establishing a Policy Guarantee Mechanism

In accordance with the emergency management measures for major incidents and accidents and the contingency plans for major production accidents and large-scale blackouts, in case of accidents such as power units tripping, alternating current and direct current power outages, busbar outages, system break-down or other accident that may cause large-scale power grid outages, all units of the Company have formulated the Emergency Plan for Plant-wide Power Loss (《全廠失電應急預案》), the Emergency Plan for Black Start (《黑啟動應急預案》), the Plan for Island Operation (《孤島運行方案》) and other preparatory measures. They have also established corresponding emergency handling organizations in order to minimize negative impacts on society with the unified leadership, clear division of labor, quick response and smooth communication. Besides, in case of an emergency, the Company and subsidiaries will also manage accident report to power dispatch department and relevant offices of local governments, handle examination and approval of information disclosed to the public, start emergency plans and be attentive to public concern to reduce the negative impact on society. We implement inspection and start-up preparation after the units' outage, to ensure that the units can be started in time to restore supply after troubleshooting.

Strengthening Daily Equipment Management

In 2024, the Company focused on its equipment and technology transformation management to ensure the safety, reliability and advancement of equipment. As a result, 53 thermal power plants achieved zero unplanned power outages. The Company has been pushing ahead with the work of "reducing deficiencies and controlling unplanned power outages", strengthened generator units' unplanned power outage control and issue unplanned power outage analysis report. The power plants carried out special investigation of equipment management and hidden dangers, strengthened technical supervision and management and took measures in technology transformation projects to constantly improve equipment health and ensure the safety of equipment and our staff.

In 2024, the Company achieved an average 0.23 times of unplanned outages per unit per year.



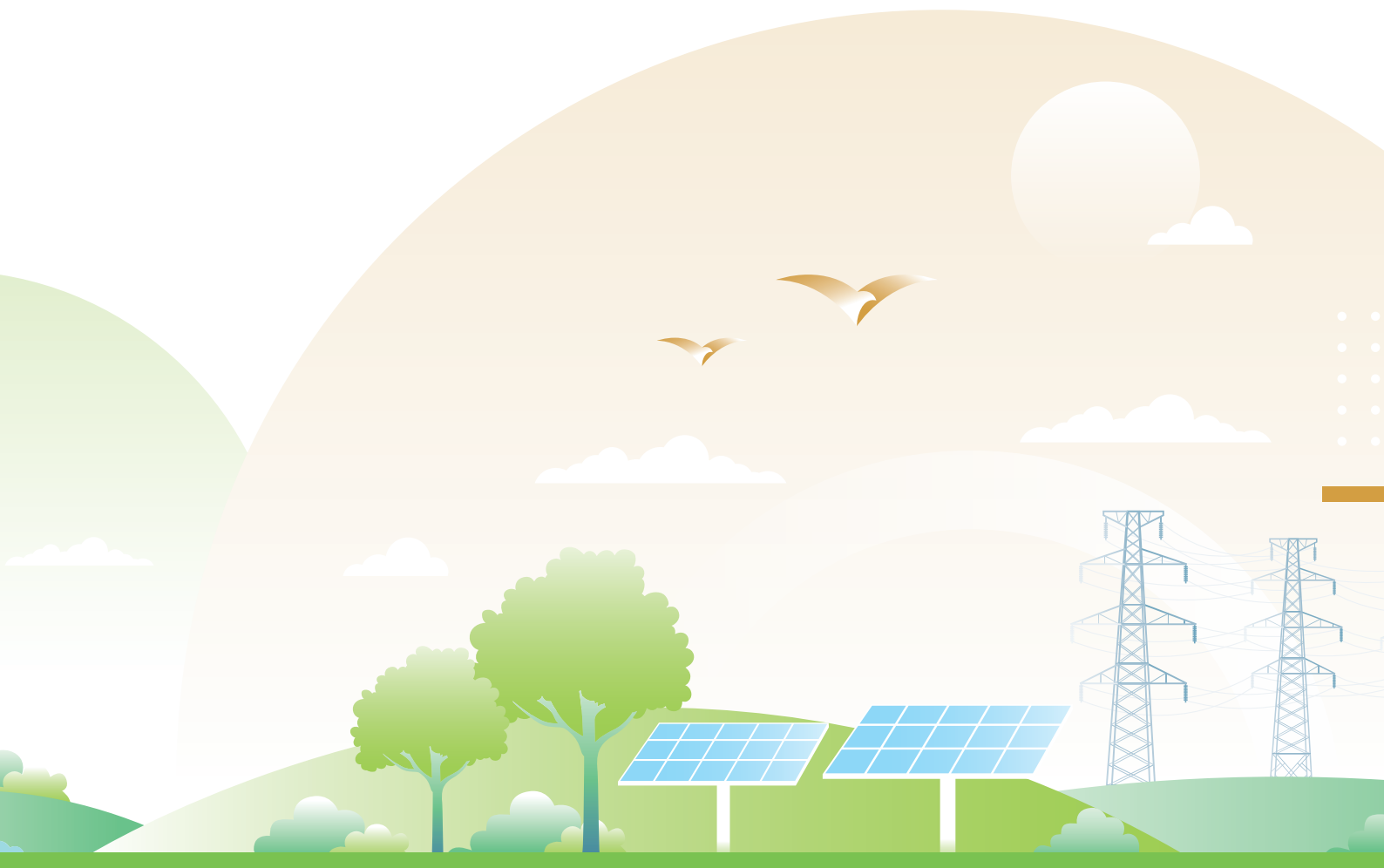


Huaneng Nanjing Thermal Power Plant Successfully Completes Annual Supply Guarantee Task

Huaneng Nanjing Thermal Power Plant, as a principal heat-supplying unit in Jiangsu Province, has always regarded energy supply guarantee as its primary responsibility. The plant has continuously implemented the three-year special rectification campaign for production safety, and regularly conducted equipment hazard investigation and rectification work, tightening and consolidating the primary responsibility for production safety at all levels of personnel. In 2024, Units 1 and 2 of the power plant achieved long-term continuous operation, realising four years without unplanned power outages, and successfully completed the supply guarantee tasks during important periods and the annual steam supply targets. Through unit maintenance and equipment technological transformation, the efficiency of the steam turbines and the heat-supplying capacity have been significantly enhanced, with the coal consumption rate for power generation reaching the optimal level in the industry.



Huaneng Nanjing Thermal Power Plant



Strengthening the Guarantee of Heating Safety

With earnest implementation of the requirements of China and industry authorities on heat supply, the Company has arranged a supply guarantee plan, made assiduous efforts in ensuring the security of supply-guarantee funds, and promoted the implementation of various measures. All the subsidiaries resolutely shoulder their political and social responsibilities, secure coal source through various channels, strengthen equipment maintenance, and strictly implement instructions of power grid dispatching, make sure that all coal-fired power generating units indeed are opened and used, and heating units are in full force to ensure heat supply. By doing so, the Company has fully performed its responsibilities and duties. In addition, the Company has also taken the following measures to strengthen the guarantee of heating safety.

1

Strengthening the maintenance of heating equipment. We implement cold and frost protection measures, and ensure safe and stable operation during the peak winter period.

2

Fulfilling the production safety responsibilities. We develop specific measures in accordance with the work plan and work guidelines to achieve a stable supply of electricity and heat.

3

Enhancing the management of boiler fuel. We formulated specific plans for fuel procurement, storage and transportation, optimized plans for mixed burning and improved the measures for low-load and stable burning, so as to ensure steady operation of power units.

4

Attaching great importance to management of direct heating network. We maintain the normal operation of the heating network by conducting routine management of heating network equipment, ensure sufficient reserve of materials and human resources, timely eliminate the defects of heating network equipment and pipes, and focus on the operation of water replenishing for heating network.

5

Being well prepared for heating emergency. We improve our capabilities of dealing with disastrous events by preparing emergency heating measures in advance, formulating emergency plans in case of outage of heating equipment, quickly identifying, treating and recovering failure equipment, establishing emergency plans for personal injury and death accidents, and enhancing the communication between local government and heating companies.

6

Strengthening the on-duty work of heating. We strictly implement the duty policy on holidays and the policy of major operations with the attendance of leaders. We report the operation of heating units on a regular basis and report the heating emergencies in a timely manner.

Successfully Coping with Natural Disasters and Extreme Weather

Natural disasters and extreme weather are the main climate risks to which the Company is exposed. In 2024, the subsidiaries of the Company worked together and successfully accomplished the task of ensuring power supply in this crucial period. The production safety of the Company's system overall maintains stable. The Company always considers stable supply of electricity and heat as political tasks, and assumes duty to guarantee energy consumption for people's livelihood. We resolutely shoulder the political responsibility of guaranteeing the security of electricity and heat supply, ensure that we win the tough battle of electricity and heating supplying.



Huaneng Zhejiang Company and Huaneng Jiangsu Company Defend Against Typhoon "Bebinca"

Huaneng Zhejiang Company and Huaneng Jiangsu Company activated the Level III emergency response for flood and typhoon prevention, implementing corresponding measures. Zhejiang Clean Energy Branch Company deepened the hazard detection, increased the inspection frequency, and comprehensively inspected the photovoltaic components, implementing the precautionary measures in advance. In response to the typhoon, the Yuhuan Power Plant and Changxing Power Plant enhanced their on-duty arrangements, reinforced affected buildings and equipment, and pre-emptively coordinated the dispatch of coal ships. Huaneng Tongxiang Gas Thermal Power Station focused on investigating hazards of equipment and buildings that have not experienced the typhoon. Jiangsu Clean Energy Branch used drones to inspect power facilities, enhanced the emergency response mechanism, and maintained close contact with the meteorological department to ensure the stable operation of power facilities during the typhoon.



Actively Respond to Typhoon Weather

Successfully Guaranteeing Energy Supply for Important Periods

In 2024, facing new circumstances, changes and challenges, the Company focused on coordinating the supply of coal for electricity in key and difficult areas, ensuring a stable and orderly overall fuel supply. In addition, the Company took various production safety measures to ensure safe and stable power production and reliable heat and steam supply.

1

Enhancing the implementation of measures to guarantee the electricity and heat supply in key areas and during critical periods. We strictly adhere to the national requirements for production safety and supply guarantee. During the periods of "Heating and Energy Supply Guarantee" and "Two Sessions", tide over the peak-load during summer/winter and flood control, we urged business units at all levels to strengthen the production duty arrangements, and improved the on-site organization and management of equipment maintenance, unit overhaul and technical upgrades. By leveraging the planned shutdown and holidays, we decentralized the implementation of overhaul projects at all levels. This approach has enabled the Company to improve the unit's availability, ensure that the backup units are in optimal condition for immediate dispatch, maximize power generation volume, and fulfill electricity and heat guarantee tasks.

2

Fully implementing the production safety responsibility. Facilitated the exchange of production management information, promptly reporting the main production indicators, unplanned outages and equipment failures, and provided guidance to the business units at all levels on the relevant precautionary measures.

3

Enhancing the supervision of unplanned outages and output restriction. We promptly monitored the repair progress of units affected by unplanned outages and the recovery of restricted power output, and provided guidance to the relevant business units in the Yangtze River Delta and Pearl River Delta regions on implementing precautionary measures and post-disaster treatments against typhoons such as "Yagi" and "Bebinca". This ensures that units remain operational and generate power to the maximum extent possible, enhancing operating rate with all-out efforts.

4

Ensuring heat supply in key areas. We supervised the overall planning of key heat supply areas such as Heilongjiang, Jilin and Liaoning, and arranged in advance for the renovation of ageing pipeline network, public heating projects and other technical renovation projects; organized on-site inspections of key projects such as the Shang'an Long-Distance Heat Supply, to complete heat supply upgrades before the heating season.

4.2 Party Building Leadership in Compliance and Lawfulness

Huaneng International always adhered to the leadership of the Party, pursues legal and compliant operations, and accelerates the construction of a well-governed, operationally compliant, regulated, law-abiding, and honest enterprise. The Company strictly follows the compliance requirements, continuously monitors the trends of regulatory laws and regulations in the listed location, and fully implements the regulatory requirements. Besides, ongoing efforts are made to improve the Company's governance and operations, and to enhance its ability to prevent risks and manage business operations, in an attempt to foster a culture of integrity.

4.2.1 Party Building Leadership

In terms of political construction, the Company thoroughly studies and implements the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, fully implements the spirit of the 20th National Congress of the Communist Party of China (CPC) and the second and third Plenary Sessions of the 20th Central Committee of the CPC, formulates and issues key tasks, organizes the Party Committee and the Party Committee's Theoretical Study Centre Group expands meetings to focus on studying and discussing the spirit of the Plenary Sessions. All members of the Party Committee publicizes the spirit of the Plenary Sessions in their respective branches, and organizes training for Party members and cadres in batches to promote the implementation of the spirit of the Plenary Sessions. We strictly implement the "first topic" (第一議題) system, the Party Committee promptly conveys and studies the "first topic", formulates and implements measures, arranges various study contents through monthly work prompts and supervision and inspection mechanisms of the branch, ensuring that the branch keeps pace with the Party Committee's study progress, and promoting the full coverage of the study of the Party's innovative theories. The Party Committee has formulated a theoretical study plan, clarified key topics, organized collective study, and in-depth exchanges and discussions among Party Committee members, and the theoretical study results of the Party Committee have been published in the Central Party School's "Zhonghuahun" (《中華魂》) and the Group Company's "Party Building Leadership + Work Exchange" (《黨建引領+工作交流》).

In terms of ideological construction, the Company strictly implements the responsibility system for ideological work (including online ideology). The Party Committee conducts special studies on ideological work, carries out special investigations into risks and hidden dangers, focuses on preventing and resolving all types of risks, and ensures stability during critical periods. The Company also regularly holds "Moral Lectures", taking the 30th anniversary of its establishment as an opportunity, vigorously promotes the "Three-Color" company corporate culture. We established a special web page, designed cultural and creative products, produced promotional videos, documentary materials, and asset image clips, collected and organized major events records, and continuously broadcasted "Today in Huaneng International History". Fully utilizing the Company's website, multimedia television, and promotional display boards to disseminate various types of information, the Company has further united the staff and workers in their efforts. The Company continues to maintain its title as a Civilized Unit within the Group Company.

In terms of organizational development, the Company always maintains a clear orientation towards strengthening the primary-level. We have established a "three-level linkage" mechanism where "the Party Committee has a clear position, the Party Branches have clear roles, and the Party members take active actions", thereby reinforcing the chain of responsibility for Party building. The Company has launched a special "Party Building Leadership Innovation Year" initiative and commended outstanding performance project under the theme of "Party Building Leadership and Collective Effort in Tackling Difficulties". The Company has diligently carried out education on Party discipline, consistently prioritizing it as a key aspect of Party building work. It has leveraged the role of Party discipline education in constraining, safeguarding, and motivating members. The Company has promptly conveyed and studied the important speeches, directives, and instructions of the General Secretary Xi Jinping regarding Party discipline education, as well as significant discourses on comprehensively strengthening Party discipline. The Company has organized Party members and cadres to participate the State-owned Enterprise (SOE) Cadre Study and Research Class, the SOE Cadre Joint Study Class, and interpretation courses of the "Regulations of the Communist Party of China on Disciplinary Punishments" (《中國共產黨紀律處分條例》) on platforms such as "China E-learning Academy For Leadership", the "State-owned Assets Supervision and Administration Commission of the State Council (SASAC) e-Learning", and "Huaneng e-Learning". It has also held reading classes to ensure comprehensive coverage of learning and training. The Company has also conducted warning education, utilizing examples from people and events close to the employees for educational purposes. The Party Committee Secretary and the secretaries of various Party branches have delivered discipline-related Party lessons, combining their learning experiences with actual work. They have also organized follow-up meetings and summary meetings to consolidate and deepen the outcomes of education, promoting the learning regularization and long-term effectiveness. The Company has optimized and adjusted the settings of "responsibility zones, demonstration posts, task forces, and task groups" and selected and commended outstanding Party member demonstration posts and outstanding Party member task forces. We explored new models of government-enterprise cooperation, with the Yutaoyuan renovation project winning the accolade of "Top Ten Joint Construction Projects in Xicheng District". The Company has deepened the creation of "Red Flag Party Branches", multiple branches being awarded the title of "Red Flag Party Branch" by the Group Company, and the collective and several individuals have been commended for "Two Excellences and One Vanguard" (兩優一先).

4.2.2 Governance by Law

In 2024, the Company upheld Xi Jinping Thought on the Rule of Law. Under the unified leadership of the Party committee and management of the Company, we firmly implemented the requirements of the newly revised Company Law of the People's Republic of China (《中華人民共和國公司法》), and integrated the concept of governing businesses by law into corporate governance, with the construction of better enterprise governance structure as the base, improving the management of compliant operation as key point, enhancing the capability of the team engaged in the rule of law as a means, and strengthening the construction of corporate rule of law culture as a guarantee. In this way, the Company gains new achievements in developing Huaneng under the rule of law.

Improving the Corporate Governance Structure

After years of exploration and practice, the Company has insisted on deepening reforms based on the requirements of the modern enterprise system, continuously strengthened organizational development, established and improved the corporate governance structure consisting of the shareholders' meeting, the Board of Directors, the Supervisory Committee, and management, and continuously improved the system of decision-making, execution and supervision on the basis of equal rights and responsibilities, coordinated operation, and effective checks and balances.

In 2024, the Company successfully completed the legality revision of the Articles of Association, considering the regulatory requirements and management practices. In accordance with the newly revised Company Law of the People's Republic of China (《中華人民共和國公司法》) and the relevant requirements of the "paperless" listing regime set by the HKEX, the Company has further formulated the amendment plan and decision-making documents of the Articles of Association. Such measure provides a solid guarantee for the governance and standardized operations of the Company.

Building a Sound Compliance Management System

The Company focuses on "compliance risk management", continuously strengthens the construction of management systems and operational mechanisms to firmly develop the compliance concept and cultivate a compliance culture. We have strictly implemented a compliance reporting mechanism and prepared the Company's Annual Compliance Management Report, which was considered and approved by the Board of Directors. Meanwhile, we have improved the operational mechanism of compliance management. Oriented by risk prevention and control, we formulated and issued the compliance and internal control process checklist. Additionally, we focus on key areas and stages, integrating the requirements of compliance risk prevention and control into positions and processes. The Company proactively implements the management requirements of internal control process for compliance and explores the establishment of a model that aligns the compliance duties with the business duties. Leveraging the mechanism, we break down the key matters in each management mechanism, pinpoint the key review stages, and form the process control list, promoting the realization of the seamless integration of compliance management and business activities. The Company summarized and refined practical cases, and was awarded the "Best Practice Award for Corporate Culture Construction of Listed Companies" (《上市公司文化建設最佳實踐案例》) by the China Association For Public Companies in 2024.

Strengthening the Mechanism of Litigation Risk Prevention and Control

The Company strictly complies with laws and regulations, including the Anti-Unfair Competition Law of the People's Republic of China (《中華人民共和國反不正當競爭法》), as well as relevant policies. We continuously strengthens the management of litigation and disputes within the corporate system, proactively assessing and scientifically analyzing the exposure of litigation-related cases in advance. The Company adopts a problem-oriented approach, making efforts in overseeing the handling of the cases carried over from the past. For significant cases that have impaired the Company's reputation or caused heavy losses, we strengthen coordination, follow up on the work progress in a timely manner, and ensure solid service delivery. Meanwhile, we actively urge the relevant units to take positive and accountable actions, effectively deal with the cases in a standardized manner, so as to safeguard the rights and interests of Huaneng. The Company has strengthened regulatory oversight of significant case risks and the reporting mechanism for litigation cases, standardized the case record management, improved the quality of case information reporting, and ensured the accuracy, completeness and timeliness of the filed information. Such measures have continuously improved the Company's risk prevention capabilities. By identifying legal and management risks, and weaknesses in the institutional framework and management, the Company has further strengthened the identification of daily dynamic risks, enhancing the level of accurate prevention and control.

In order to avoid copyright disputes concerning new media accounts, the Company has issued the "Notice on Strengthening the Prevention of Copyright Infringement Risks for New Media Accounts" (《關於加強新媒體賬號著作權侵權風險防範的函》). This notice analyzes the risks and causes of copyright infringement in new media accounts, standardizes the process for handling disputes, and puts forward suggestions for risk prevention, thereby promoting the lawful and compliant operation of the Company's new media accounts. To regulate the Company's contract management work, the Company has also issued the "Work Tips on Further Strengthening the Prevention of Legal Risks in Contracts" (《關於進一步加強合同法律風險防範的工作提示》). This document provides risk warnings in three aspects including contract subject, contract conclusion, and contract performance, further standardizes contract management work, improves long-term mechanisms, and effectively controls contract management risks. In addition, the Company fully implements the Group Company's compliance risk warning requirements, issued the Legal Risk Warning Letter – Horizontal Monopoly Agreement (《法律風險提示函-橫向壟斷協議篇》), disseminated market regulatory requirements in a timely manner, standardized transaction behavior, and ensured the implementation of risk management and control in place. To address potential anti-monopoly compliance risks in the electricity trading market, we have issued the Reminder on the Prevention of Legal Risks Related to the Abuse of Market Dominance (《關於防範濫用市場支配地位法律風險的工作提示》), which highlights the legal risks that may be caused by the abuse of market dominance, and facilitates the Company's continuous improvement of legal awareness in external operations, thereby realizing high-quality development. The Company has established and improved a comprehensive management system for anti-unfair competition and has developed response plans and rectification requirements for potential negative contentious incidents. The Company does not engage in false advertising, implementation of monopolies, or infringement of others' trade secrets. During the reporting period, the Company has not received any litigation or administrative penalties arising from suspected anti-unfair competition activities.

Enhancing the Review of Legal Issues

Following the strategy of governing the enterprise by law and the idea of solving the difficulties of reform with a thinking and methodology based on the rule of law, the Company has promoted the thorough integration of legal affair management and operation management to ensure mutual cooperation and efficient coordination between the legal affair department and other business departments. The Company has continued to enhance the supporting and safeguarding role of legal review, promoting more standardized, normalized, and refined legal compliance reviews and achieved comprehensive coverage of legal review across key decision-making processes, capital operations, investment and financing activities, articles of association, legal authorizations, contracts, and business administration. This has further regulated transaction behaviors and strengthened risk prevention and control in all aspects of operations management to ensure that all operations are conducted in accordance with legal principles and steadily progressed. Moreover, the Company continued to improve the systematization and integration of legal affairs management, fully exploiting the system-based management efficiency, made legal affairs management more visualized and standardized across all aspects, effectively strengthened risk management and control efforts, and continuously improved management efficiency.

Improving Staff's Awareness of Laws by Various Activities

The Company further advances various publicity and education campaigns on laws in an effective manner, and promotes the implementation of the relevant requirements. In 2024, upon thorough study on and implementation of Xi Jinping Thought on the Rule of Law, the newly revised Company Law of the People's Republic of China (《中華人民共和國公司法》) and other legal and regulatory requirements, the Company systematically carried out the work of legal literacy for the need of corporate management.

The Company continued to carry out routine legal literacy publicity campaigns. Taking into account the business practices and in accordance with the revised Company Law of the People's Republic of China (《中華人民共和國公司法》), we have drafted and issued the New Legislation Briefing (《新法簡報》) and the Key Point Interpretation of the New Company Law (《新公司法要點解讀》) for legal literacy publicity. We have also provided face-to-face explanations to our employees to further enhance the awareness and capability of all employees in compliance with their duties and to cultivate a culture of compliance. We organized legal literacy publicity campaigns themed on the eleventh National Constitution Day, and collaborated with our legal adviser Haiwen & Partners to deliver legal lectures and Party branch co-building activities, strengthening Party leadership and empowering governance with rule of law. We have a comprehensive, accurate and full understanding of the Company Law of the People's Republic of China (《中華人民共和國公司法》), the Accounting Law of the People's Republic of China (《中華人民共和國會計法》), the Energy Law of the People's Republic of China (《中華人民共和國能源法》), and related regulatory rules newly revised and published this year. Based on our management practice, we have comprehensively, accurately, and fully grasped the requirements of the new laws. This has further driven the entire company to consciously use the rule of law thinking and methods to deepen reforms and plan for development. It has also played an important role in serving the Company's risk prevention and compliance operations through the rule of law. We actively participate in state-owned asset compliance publicity activities. In 2024, the Company organized participation in four sessions of SASAC's "Rule of Law Lecture". This initiative enabled the Company to promptly grasp the dynamics of state-owned asset supervision, thoroughly understand the deployment of compliance management work, implement regulatory requirements, diligently study and draw on the compliance management experience of advanced enterprises, and, based on actual conditions, continuously improve the Company's compliance system construction.

4.2.3 Anti-corruption

In 2024, strictly complying with the Oversight Law of the People's Republic of China (《中華人民共和國監察法》), the Regulation on the Implementation of the Oversight Law of the People's Republic of China (《中華人民共和國監察法實施條例》), and the Criminal Law of the People's Republic of China (《中華人民共和國刑法》) and other laws and regulations, the Company assiduously carried out conduct improvement and anti-corruption campaigns, urged all employees to uphold ethics as well as Party disciplines and state laws, and created an atmosphere where everyone remains disciplined, abides by the law, discharges duties in a standardized fashion, and practices clean operation so as to provide reliable support for the Company's high-quality business development. Guided by the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, the Company thoroughly studies and implements the important thought of General Secretary Xi Jinping on the Party's self-reform, the guiding principles of the 20th CPC National Congress, and the deployment of the third Plenary Session of the 20th CPC Central Commission for Discipline Inspection. Focusing on the core tasks and serving the overarching interests, we prioritize political supervision, enhance comprehensive supervision, and strengthen disciplinary education, and persistently address the "four malfeasances". With these efforts, we have achieved new results in advancing our Party conduct improvement, clean governance and anti-corruption work. In 2024, the Company maintained a sound momentum in political ecosystem and Party conduct improvement and clean governance, fostering a clean and upright atmosphere with a stronger drive for entrepreneurship and development. There was no commercial bribery and corruption case, and the number of lawsuits on commercial bribery or corruption raised and concluded against the Company or the Board members, management, or its employees was zero.



Implementing the Responsibility System for Conduct Improvement and Clean Governance



The Company held the 2024 conference of conduct improvement, clean governance and anti-corruption campaigns.



The Company has formulated and issued the Schedule of Priority Tasks for Fulfilling the Main Responsibility for Comprehensive and Strict Party Governance and Implementing Party Conduct Improvement, Clean Governance and Anti-corruption Campaigns in 2024 (《公司2024年落實全面從嚴治黨主體責任開展黨風廉政建設和反腐敗工作重點任務安排表》). By adopting the "checklist + accountability" approach, the Company divides the annual tasks into 19 specific action items in five aspects, reinforcing responsibilities at each level.



The Company convened a special meeting on comprehensive and strict party governance in 2024, listened to the "dual responsibilities" of the Company's team members, the special supervision of the Company's discipline inspection commission, and the work reports of various departments and offices at the management, supervision, and execution levels. At the meeting, the Company analyzed the prevailing trends and tasks, worked out solutions to solve existing issues, and arranged priorities.



Strengthening Daily Supervision and Targeted Supervision



The Company has strengthened supervision over the “top leaders” and the leadership team, making the “five strengthening”¹³ requirements the focus of supervision. Taking into account the actual operations, the Company has formulated the Implementation Measures on Strengthening Dialogue Practices in the Supervision over the “Top Leaders” and the Leadership Team (《關於在「一把手」和領導班子監督中加強談話工作的實施辦法》), and regularly reported on the main work carried out to supervise the “top leaders” and the leadership team.



The Company has established the integrity archives of middle-level management cadres of the Company's Party Committee and expatriates for dynamic management.



The Company strictly assesses the integrity when appointing and promoting cadres to prevent the promotion or appointment of any cadre with improper conduct.



The Company has made continuous efforts to deepen special governance on “petty corruption”, rectifying the corruption issues and reinforcing the clean culture. The Company has refined the checklist of issues in focused areas, and adhered to a pragmatic and problem-oriented approach to identify misconducts, while urging relevant departments and offices to implement corrective measures effectively. This facilitates preventing and managing “petty corruption” issues.



The Company has enhanced oversight of overseas projects. In compliance with the integrity and compliance guidelines for overseas operations of central enterprises and the Group Company's requirements for integrity risk control in overseas projects, the Company supervised and implemented the overseas integrity risk control.



Promoting the “Three Non-corruptions”¹⁴

The Company strengthens the standardized management of letters, visits and reports, strictly implements the Detailed Rules for the Implementation of the Discipline Inspection Commission of the Company (Trial) (《公司紀委執紀工作實施細則(試行)》) and the Measures for the Management of Letters and Visits of China Huaneng Group Co., Ltd. (《中國華能集團有限公司信訪工作管理辦法》), and sets up reception places, recording phones, reporting mailboxes, etc. to receive letters, visits and telephone reports.



The management of complaint reporting and problem clues shall adhere to the principles of centralized management, standardized procedures and strict discipline, strictly implement the handling procedures according to the management authority, and establish a management ledger.



The personnel of the Company's Discipline Inspection Commission strictly implement the confidentiality system and avoidance system, strictly control the scope of knowledge of the review and investigation work, and are not allowed to privately retain, conceal, read, extract, copy, or carry clues to issues and information related to the case, as well as to disclose the review and investigation work.



We have improved the mechanism for assisting in investigation and evidence collection, developed the Form of Transferring Relevant Evidence and Documents (《協助調取有關證據材料審批表》) and the Form of Providing Relevant Evidence and Documents (《協助提供有關證據材料審批表》) to further standardize the investigation and evidence collection process and review.

¹³ Strengthening supervision over the loyalty to and practices of the Party's principles of the “top leaders” and the leadership team; strengthening supervision over implementation of the Party's lines and policies and the CPC Central Committee's major decisions and plans, and practices of “two upholds” (uphold Comrade Xi Jinping's core position on the Party Central Committee and in the Party as a whole and uphold the Central Committee's authority and its centralized, unified leadership); strengthening supervision over understanding of the new development stage, application of the new development philosophy, creation of a new development dynamic, and promotion of the high-quality development; strengthening supervision over the responsibility body and supervision body for full and rigorous Party self-governance; strengthening supervision over the implementation of democratic centralism, the compliant discharge of duties and use of power, responsibilities, and the integrity and self-discipline.

¹⁴ “No one dares to be corrupt, no one can be corrupt, and no one wants to be corrupt.”



Strengthening Integrity Campaigns



The Company sends integrity message at important moments. On major holidays such as New Year's Day, Spring Festival, Labor Day, Dragon Boat Festival, Mid-Autumn Festival, and National Day, by sending integrity messages and issuing Job Alert (《工作提示》), we urge cadres at all levels to uphold integrity, frugality, and high moral standards.



We coordinate and implement targeted campaigns against irregular official hospitality and concentrated efforts to address malpractices and corruption issues close to the people. These efforts aim to demonstrate a firm resolve in upholding integrity, enforcing discipline, and combating corruption, while persistently eradicating the conditions that enable misconducts and corruption issues.



Considering the special governance of issues violating the spirit of the Central Eight Provisions and the relevant notifications, the company has conducted a thorough self-examination and correction, drawing lessons from the cases mentioned, rectifying identified issues.



Conducting Education on Professional Integrity



The Party Committee and the Discipline Inspection Commission of the Company have conducted "one-to-one" talks with the heads of departments and offices on key tasks, aiming to align their understanding and awareness, identify current issues, and clarify next-phase objectives.



We conduct Party discipline education and learning campaigns, hold Party discipline learning and warning education meetings, and organized all employees to watch a warning education film, leveraging the warning and educational role of individuals and incidents in the vicinity. Wang Kui, Secretary of the Party Committee and Chairman of the Board of the Company, delivered a Party discipline lecture, further reinforcing discipline learning and education efforts.



We prepare and organize all cadres to learn the Guidelines on Integrity Culture (《廉潔文化教育手冊》), and regularly issue the Window of Discipline (《紀律之窗》) bulletin to all employees. We also regularly share meeting guidelines and educational materials through the "Discipline and Integrity" column on our internal website to constantly enhance the resistance of Party members and cadres against misconduct, reinforcing integrity reminders during holidays and fostering a healthy, clean, and transparent atmosphere for promoting the integrity culture. In 2024, a total of 29 directors and management personnel at the Company's headquarters received anti-commercial bribery and anti-corruption training. The total number of employees across the Company who received anti-commercial bribery and anti-corruption training was 56,263. The coverage rate in both cases was 100%.



We keep a close eye on key issues, priority areas, and focused targets, resolutely combat corruption, and consistently signal a commitment to strict governance. We have reported several typical cases of violations against regulation and discipline by central enterprises.



Facilitating the Construction of Discipline Inspection Teams



We highly value learning and training, aiming to improve the overall quality of discipline inspection cadres in the areas of political development, ideological guidance, and professional work. We have organized cadres to participate in the Group Company's training courses on supervision, discipline enforcement, law enforcement, investigation of business leaders, and inspection practices, thereby further improving their political quality and competence.



We consistently intensify publicity and guidance. We have uniformly distributed training materials such as the Warning Cases of Disciplinary and Legal Violations by "Top Leaders" and Leadership Team Members (《“一把手”和班子成員違紀違法案件警示錄》), the Confessions of Cadres and Employees Involving Disciplinary and Legal Violations (《違紀違法幹部員工懺悔錄》), and the Compilation of Comprehensive Training Courses for Discipline Inspection and Supervision Cadres (《紀檢監察幹部全員培訓系列課程彙編》) for full-time and part-time discipline inspection cadres, Party branch secretaries, and discipline inspection commission members. These efforts aim to enhance the capabilities of discipline inspection cadres and cultivate a cohort of business champions.



The Company attaches importance to strengthening self-supervision. Through daily work exchanges, and routine interviews, we conduct strict education, management and supervision for discipline inspection personnel to prevent them from "being blind to their own problems".

4.2.4 Protection of Intellectual Property Rights

The Company earnestly implements the decisions and arrangements of the central government on protection of intellectual property rights to further enhance the protection of intellectual property rights, and thoroughly implements the requirements of the Outline for Building a Powerful Country with Intellectual Property Rights (2021–2035) (《知識產權強國建設綱要(2021–2035年)》) and the Plan for Protection and Application of Intellectual Property Rights for the 14th Five-Year Plan Period (《“十四五”國家知識產權保護和運用規劃》) so as to facilitate the high-quality development in patent application and technological innovation of the Company. The Company constantly establishes and improves the intellectual property rights protection systems, and based on patents-related needs, unremittingly refines the requirements and policies for intellectual property rights agency to open and optimize channels for patent application, guarantee the efficiency of patent application, and promote the steady development of quality and quantity of patents.

To effectively strengthen the strategic layout of intellectual property rights, the Company launched a special project for patent enhancement, and cooperated with professional organizations to optimize the cooperation mechanism, integrate resources and coordinate and carry out patent application and renewal based on the Company's management conditions. Meanwhile, we further enhance the application and protection of the Company's international patents, standardize the management, development and application of intellectual property rights, refining the protection mechanism for technological achievements and facilitating the formation and application of technological innovation and proprietary intellectual property rights.

In 2024, the Company strictly followed the Patent Law of the People's Republic of China (《中華人民共和國專利法》), the Copyright Law of the People's Republic of China (《中華人民共和國著作權法》), the Trademark Law of the People's Republic of China (《中華人民共和國商標法》) and their respective implementation rules and regulations, abided by the international conventions and general standards related to protection of intellectual property rights to ensure that the Company is protected in the ownership and use of intellectual property rights under applicable laws, and received no punishment or lawsuit from the government for intellectual property infringement.

Formulating Patent Improvement Measures

Patent quality is an important indicator to measure technological innovation. The heads of the Company's secondary unit division and the chief engineers take the lead in establishing a special working group to explore the establishment of a responsibility system for technological innovation headed by the chief engineers, and refine and implement various patent indicators, deeply integrating the patent work with scientific research, planning, infrastructure and technical transformation of production, and formulating patent improvement measures appropriate to the Company.

Strengthening Trainings for Intellectual Property Rights

The Company actively conducts research on the compliance management of intellectual property rights. We organize patent work trainings within the system and complete the patent application and protection as well as the trademark protection and publicity to improve the patent application knowledge of frontline employees and guide all units to achieve Industry-University-Research-Practice cooperation, in an effort to promote joint application, ownership and use of patents.

Protecting and Maintaining Intellectual Property Rights

Huaneng International attaches great importance to the protection and maintenance of intellectual property rights, and requires all units to strictly follow relevant laws, regulations and policies. In accordance with the management requirements, the Company constantly improves and optimizes the top-level design. In the light of the Measures for the Management of Trademarks and Fonts of the Company (《商標及字號管理辦法》), we continuously strengthen the protection for intellectual properties such as core technologies, trademarks and fonts, and software copyright, improve the mechanism for dealing with impostor enterprises, proactively investigate the unauthorized use of our trademark, fight against infringement, so as to safeguard the legitimate rights and interests of the Company. Meanwhile, the Company further enhances all-round management of core technical secrets and business secrets and reinforces competition restrictions on key talents in possession of the Company's core technology secrets. With respect to intellectual property rights of others, we, adhering to the principle of full respect and proper use, define the scope of use, methods, prohibited acts and liability for breach through a license agreement to use such intellectual property in a legal and compliant manner. In addition, the Company establishes and improves the coordination mechanism between intellectual property rights agencies and Legal Department of the Company so as to better handle disputes arising from intellectual property rights, enhance risk control and establish a multi-level intellectual property protection system.

Strengthening the Management of Patent Information

The Company establishes a patent information management system covering the whole process. Starting from the patent application, we dynamically monitor and maintain the patent information using technological means, and link all patents to relevant project, realizing full tracking management throughout the life cycle of patent including its application, authorization, maintenance, achievement transformation and expiration.



05

*TRANSFORMATION
DRIVEN BY INNOVATION*



Huaneng International adheres to the concept of green development and responds to the global trend of green and low-carbon transformation, striving to build a new type of electricity system powered by new energy sources, continuously developing clean energy such as photovoltaics and wind power, implementing energy conservation and carbon reduction, enhancing energy utilization efficiency, and resolutely advancing the high-quality development path of green and low-carbon, effectively playing the role of a vanguard in the transformation of energy and power.

TRANSFORMATION DRIVEN BY INNOVATION



5.1 Deepening the Energy Revolution

President Xi Jinping has stated the goal to have CO₂ emissions peak before 2030 and achieve carbon neutrality before 2060, and the Chinese government's response to climate change has been accorded as a major strategy for national economic and social development. The country vigorously develops a green economy and earnestly promotes various emissions reduction measures as core climate change policies. The Company fully implements the new development philosophy of "innovation, coordination, greenness, openness and sharing". Adhering to the systems thinking and abiding by the requirements of building a modern energy system that is clean, low-carbon, safe and efficient. The Company centers on quality and efficiency, driven by reform and innovation, and guaranteed by systems and mechanisms, and focuses on deepening supply-side structural reform as the main thread. We coordinate energy security and green development for higher-quality progress. By doing so, we aim to grow into a world-class listed power generation company with sound governance, excellent operations, environmental protection, and outstanding market value.

The 14th Five-Year Plan period is the first five years of a new journey towards building China into a modern socialist country in an all-round way, the start of a new normality in China's economic and social development, as well as a crucial period for developing Huaneng International into a world-class listed power generation company. In the meantime, Huaneng International strived to promote the development of low-carbon and clean energy by continuously improving the development quality, and advanced business transformation and upgrading by introducing low-carbon and clean energy power units. We proactively adapted to the development of the power generating industry to accelerate the green development. In 2024, the Company carried out a mid-term evaluation in response to the 14th Five-Year Plan. The results showed that the Company had been performing well on all indicators.

Looking ahead, the Company will strengthen and improve the integrated energy services, actively adapt to the transformation of China's energy supply structure, continue to develop strategic emerging industries through digitalization, and carry out diversified supply and energy service transformation centered on core industries. We adhere to integrating into the new development pattern of dual domestic and international circulation. In accordance with the principles of prioritizing clean energy, focusing on benefits, and emphasizing stability, we enhance international cooperation, improve the efficient operation of overseas assets, and boost their risk resistance and profitability. The Company will also continue to follow the new energy security strategy of "Four Revolutions and One Cooperation" and the national goal of "carbon peaking and carbon neutrality", prioritizing the quality and efficiency, and vigorously develop the new energy sources, thereby breaking new ground and building a "new engine" for the Company's high-quality development.

Developing Clean Energy Vigorously

The Company gives priority to quality and benefit, and adheres to the principle of “adopting centralization and decentralization, and focusing on self-sustaining development”, making full use of the favorable conditions for the centralized development of new energy in the country’s “Three-North”, coastal regions, southwest and part of the central China, and further build an energy base of “base type, clean type, and complementary type; intensification, digitalization, and standardization”. This initiative aims to promote the leap-forward development of new energy, promotes the optimization and upgrading of coal-fired power structure, and prefers the opportunities for development of gas-fired power and other clean energy sources for power generation.



Huaneng Tianjin Port 50 MW Wind Power Project

The Huaneng Tianjin Port Dongjiang North Breakwater 50 MW Wind Power Project is the first breakwater wind power project in China and also the first wind power project that approved for sea use through the three-dimensional layered authorization approach. The project has driven the transformation of maritime management models from “two-dimensional” to “three-dimensional” and from “planar” to “spatial”, carving out a new path for the development of marine renewable energy. After being put into operation, the project is expected to supply 135 million kWh of green electricity to the local community, and reduce emissions by 108,000 tons of carbon dioxide, 18,000 tons of soot, 16.4 tons of nitrogen oxides, and 10.1 tons of other exhaust on an annually basis.



Huaneng Tianjin Port 50 MW
Wind Power Project



Huaneng Pu'er Centralized Photovoltaic Project

Huaneng's first batch of Centralized Photovoltaic Project in Pu'er is located in Ning'er, Jinggu and Lancang counties in Pu'er City, Yunnan Province. With a planned installed capacity of 700 thousand kW, the project construction will advance the development of tertiary industries such as transportation and building materials, and provide 1.12 billion kWh of clean energy to the Pu'er City, save about 350 thousand metric tons of standard coal, reduce carbon dioxide emissions by about 840 thousand metric tons, and contribute taxes of 42 million yuan each year, with significant benefits in energy saving, environmental protection and social value.



Huaneng Pu'er Centralized Photovoltaic Project



Huaneng Henan Yanjin Rooftop Distributed Photovoltaic Project

The Huaneng Yanjin Rooftop Distributed Photovoltaic Project is located in Yanjin County, Xinxiang City, Henan Province, and is constructed on the rooftop. With an installed capacity of 10.61MW, the project operates under the “self-generation and self-use, with surplus power fed into the grid” model and is connected to the grid through three 10kV connection points. The project achieved full-capacity grid connection and power generation in March 2024, with an average annual electricity generation of 13.1035 million kWh. Annually, it is expected to save approximately 4,000 tons of standard coal and reduce carbon dioxide emissions by about 10,000 tons, thereby adding green impetus to local rural revitalization and economic development.



Huaneng Henan Yanjin Rooftop Distributed Photovoltaic Project

Transformation and Development of Coal Power

The Company will be based on the coal-based national conditions, pay attention to the reality that the proportion of coal power units in the Company is relatively high, comply with the trend of coal power from the main power source to the basic security and system regulation power source providing reliable capacity, peak shifting and frequency adjustment and other auxiliary services, strictly control the incremental amount of coal power, and optimize the stock of coal power. We will adopt advanced energy-saving, heat supply and flexibility technologies to realize “three reforms” and continue to improve the profitability of coal power units, so as to optimize and upgrade the structure of the Company’s coal power generation.

Optimizing the Development of Gas Power and Other Clean Energy

The Company insists on optimizing the development of gas power, biomass and garbage power generation projects, and actively participates in nuclear power generation, so as to enrich the Company’s diversified low-carbon and clean energy technology system. In areas where electricity prices are affordable and where there is a large demand for peaking, the Company focuses on the layout of gas and electricity projects. In regions with large installed capacity of gas turbines, the Company will explore the integrated development mode of gas and electricity by comprehensively considering the use of existing pipeline natural gas, liquefied natural gas (LNG) receiving terminals, self-built LNG receiving terminals, or cooperative development with upstream gas suppliers. The Company actively participates in the centralized incineration and harmless treatment of urban sludge and the utilization of sewage resources in water-scarce cities, develops agricultural and forestry biomass power generation in an orderly manner, and accelerates the planning and construction of the Yangtze River Economic Belt, the ecological protection of the Yellow River Basin, and the comprehensive environmental protection management of northern cities. On the basis of a large proportion of shares in Hainan Changjiang nuclear power phase I, Shidao Bay nuclear power, Xiapu nuclear power, the Company has made great efforts in participating in nuclear power investment and broadening the channels of its future profitability.

Coordinated Planning for Strategic Emerging Industries

The Company takes the initiative to adapt to the transformation of the national energy supply structure, insists on digitalization as a means to actively develop strategic emerging industries. We plan the development of energy storage in a comprehensive manner and explore the innovation of “new energy + energy storage” mode in various forms such as self-consumption mode, sharing mode, leasing mode, etc., to enhance the stable supply of new energy power. We also explore and research on the change of the energy system brought by the large-scale development of hydrogen energy, and actively participate in the demonstration project of the green hydrogen industry. Relying on the policy environment and market mechanism, the Company develops various forms of energy storage based on new energy development and regional peak demand. We innovate energy storage application scenarios and adopt various business models to develop, utilize and share large-scale energy storage power stations. In regions with high demand for grid frequency regulation and concentration of renewable energy, we invest in energy storage projects with better returns on the power supply side; in regions with large differences in peak and valley electricity prices, we invest in energy storage projects on the load side. On the premise of reasonable returns, we will actively develop other energy storage technologies.

The Company pays close attention to other strategic emerging industry projects, and actively seeks investment opportunities for project development cooperation, reorganization, and merger and acquisition of assets.

5.2 Innovation Driven by Technology

Upholding Xi Jinping's Thoughts on Socialism with Chinese Characteristics for a New Era, Huaneng comprehensively implements the spirit of the 20th National Congress of the Communist Party of China. Based on the new era, new journey, new mission and new positioning of state-owned enterprises, we play "three roles"¹⁵ to serve national strategic needs, promote quality corporate development, and earnestly complete the tasks assigned at the Company's annual work conference, we strive to be the "national team" in scientific and technological innovation. In addition, we deepen the reform of systems and mechanisms and stimulate sci-tech innovation, so as to make breakthroughs in key and core technologies. We pick up the pace to transform sci-tech achievements into practical productivity, thus driving our new journey to a world-class enterprise. The Company focuses on major needs, adheres to digital and intelligent development, implements scientific and technological demonstration projects, and strengthens the basic and forward-looking technology research. The Company is committed to becoming an innovation-driven enterprise by adhering to the improvement of technological innovation as the main line, continuously enhancing our innovation capability, earnestly investing in research and development, optimizing the systems for technology innovation decision-making and management, and relentlessly developing innovation platforms to accelerate the development of the Company.

Innovation Management

The Company implements the new development concept in an all-round way. We earnestly implement the decisions and arrangements of the central government and the SASAC on technological innovation, thoroughly practice the technological innovation strategy, and vigorously embrace the challenges and opportunities in technological innovation arising from the "carbon neutrality" and the new round of revolution in the energy industry. In alignment with the strategy of serving the country and the major demands for the Company's development, we focus on strategic emerging and future industries, improve our competence in independent innovation and continuously raise the industrialized level of technological achievements by adhering to making breakthroughs in key technologies, attaching great importance to improving innovation systems and mechanisms, and relying on strengthening the construction of technological talent teams and innovation platforms. In addition, we deepen and enhance our independent innovation capabilities, continuously improve the industrialization level of scientific and technological achievements, and provide strong support and guidance for the Company's high-quality development.

In 2024, Huaneng International was committed to serving the national strategies and accelerating innovative development. We strengthened efforts to tackle key and core technologies in an effort to facilitate the national major strategies. We actively laid out strategic emerging industries and planned refined scientific and technological projects involving fields such as cyber security, gas turbine control, efficient energy storage, and offshore platforms in deep seas. We cultivated and developed new types of productive forces and continuously advanced the process of professional qualification certification and high-tech enterprise recognition. The "Key Technology and Engineering Application of Whole-process Collaborative Development of Offshore Wind Power" project was awarded the first prize of the Beijing Science and Technology Award. The "Key Technology and Application of Status Monitoring and Safety Risk Prevention for New Energy Power Generation and Boost Collection Equipment" project, in which the Company participated, won the first prize of Scientific and Technological Progress Award of Jilin Province. The "Key Technology of the Design, Construction and Monitoring of Single-pile Foundation for Large-capacity Offshore Wind Turbines on Complex Geology" project won the first prize of Science and Technology Award of Shandong Province. The "Intelligent, Flexible and Stable Control Technology and Platform of Multiple Scenarios for Grid-forming Renewable Energy Sources and Energy Storage System" project won a gold medal at the Geneva International Invention Exhibition.

The Company has optimized the R&D investment mechanism, enhanced the efficiency of direct R&D funding, and refined the centralized coordination mechanism for funding of cutting-edge, basic and cross-field science and technology projects. We have also intensified the monitoring and inspection of assembled investment in technological research to make it compliant and effective. In 2024, the Company saw a continuous improvement in patent quality, obtained 4,586 applications for invention patents filed and 2,083 valid patents held throughout the year, including 1,021 invention patent authorizations, 746 utility model patent authorizations, and 316 international patents authorizations.

¹⁵ Technological innovation, industrial control, and security support.



Huaneng Anhui Branch Drove the Smart Engine by Science and Technology Innovation

Huaneng Anhui Branch put into operation an intelligent operation and maintenance center in 2024. The center is connected to the Company's unified intelligent energy management platform and the branch's marketing and operation center, achieving a "triple integration", enabling the sharing of resources and data. The technology project of "Research on Intelligent Combustion Control System Based on Boiler Digital Twin" implemented by Anhui Branch reduces coal consumption by 1.5g/kWh per year, and won the Five-star Gold Medal of Intelligent Power Generation Technology Innovation in 2024. Additionally, the "Zhao Jixing Innovation Studio" of Huaneng Chaohu Power Plant was awarded as the Huaneng Creativity and Innovation Studio and the Labor Model (Craftsman) Innovation Studio of Anhui Energy and Chemical Industry Union.



Intelligent Operation and Maintenance Center of Anhui Branch



Innovation Achievements

1

The world's first project applying COAP technology was put into operation at Linyi Power Plant;

2

China's first wave-resistant floating photovoltaic platform, "Yellow Sea No. 1", began experimental data collection and analysis;

3

China's first Molten Salt Heat Storage Coupled Technology Demonstration Project at a Million-level Capacity was completed at Haimen Power Plant;

4

China's first safe and reliable DCS was renovated for the No.3 unit at Weihai Power Plant;

5

China's first set of desulphurization slurry waste heat utilization equipment was put into operation at Yangliuqing Power Plant;

6

The world's largest wind turbine with a single unit power of 18 MW began generating power at the Huaneng Xianrendao Thermal Power Plant in Yingkou, Liaoning province, laying a foundation for the subsequent mass installation and application of large-capacity offshore wind turbines.

Development Directions

Huaneng International puts technological innovation in a more prominent position according to the requirements of the Company's strategic development. The Company vigorously increases investments in the R&D of strategic emerging industries and technologies of future industries and strengthens and consolidates the funding for basic, forward-looking, long-term and revolutionary large-scale scientific research programs, thus continuously breaking technological bottleneck and strengthening the Company's technological capability for transformation and high-quality development. Next, we will promote key technology R&D for high-temperature alloy materials and commence the construction of the world's first 650℃ thermal power units. To develop strategic emerging industries according to local conditions, we will accelerate the projects of molten salt heat storage, hydrogen production with green electricity and geothermal heat utilization. We will also promote the construction of the national pilot demonstration project of compressed air energy storage in salt caverns in Jintan. In this way, we can apply geothermal technology and civilian heating supply, green electricity and green hydrogen and green alcohol (ammonia) blending, thereby pooling up efforts to create new quality productivity. Huaneng empowers the upgrading of traditional industries with science and technology and conducts in-depth "replacement of small units with large ones" for existing wind turbines, orderly implement the domestication of DCS and PLC, and advance the "three-linkage reform" of coal machines on a solid pace. We aim to transform scientific and technological achievements and make breakthroughs in invention patent authorization.



The Technology-driven Enterprise Huaneng Nanjing Thermal Power Plant Strengthens Corporate Performance

The Huaneng Nanjing Thermal Power Plant has long adhered to the "technology-driven enterprise" strategy. Relying on the Innovation Studio for Employees, the plant has delved deeply into technological innovation, focusing on resolving complex issues and enhancing unit efficiency. In 2024, the plant achieved significant breakthroughs in both equipment management and technological innovation, winning the First Prize for Innovation Achievements in Equipment Management in the National Power Industry and the First-Class Achievement in QC from the Chinese Workers' Technical Association. More than 30 innovative outcomes within the plant have yielded tangible results. Through the application of new technologies, the plant has achieved enhanced reliability in coal blending and combustion, with the pulverizing system operating without faults for 100 consecutive days. The efficiency of the units has been significantly improved, resulting in a 20% increase in the power plant's profits. These advancements provide robust support for the safe and stable operation of the enterprise, as well as for cost reduction and efficiency enhancement.



Huaneng Nanjing Thermal Power Plant
Innovation Studio

5.3 Focusing on Green and Low-Carbon Operations

Chinese-style modernization is a modernization where humans and nature coexist harmoniously. In 2024, the Company kept reducing carbon emissions intensity in line with the goal of "carbon peaking and carbon neutrality", and promoted the energy-saving upgrading and transformation of coal-fired power, and high-quality heat supply renovation. These were effectively implemented with the goals of improving major technical and economic indicators and realizing energy consumption indicator's "leading positions in overall energy consumption efficiency", under the principles of improving the quality of energy management and focusing on energy consumption indicator benchmarking. In 2024, the Company did not incur any unexpected environmental accident that was defined as major or above grade. No major administrative punishment or criminal responsibility was imposed by relevant departments such as ecological environment authorities due to environmental incidents.

5.3.1 Overall Planning

Committed to being an industry leader in overall energy consumption indicator and ultra-supercritical unit energy consumption indicator, Huaneng International has successively formulated rules and regulations, such as the Measures for Energy Saving Management (《節能管理辦法》), the Regulations on Environmental Protection Management (《環境保護管理規定》), the Standards and Acceptance Measures for Energy Saving and Environmentally Friendly Coal-Fired Power Plants (《節約環保型燃煤發電廠標準及驗收考核辦法》), and the Incentive Measures for Achievement of Energy Efficiency Excellence and Enhancement in (Ultra-) Supercritical Power Units (《超(超)臨界機組能耗指標創優及能耗指標提升獎勵辦法》), and effectively implemented energy saving and consumption reduction responsibilities. Various systems of energy saving are specified by each unit of the Company according to their actual circumstances, and publicity, training, supervision and inspection are carried out in a timely manner as well. The Company actively promotes coal-fired power units' energy saving and emission reduction, plans to carry out energy saving and environmental protection renovations annually, and has successfully fulfilled its targets and responsibilities of energy saving and emission reduction to ensure that the Company's coal-fired units continuously lead in energy conservation and environmental protection and maintain its competitive advantage, contribute to the reform of the national energy production and consumption and enhance the clean and efficient development of coal power generation.

5.3.2 Energy Consumption Management

Huaneng International adheres to Xi Jinping's ecological civilization ideology, implements the spirit of the National Conference on Ecological and Environmental Protection, and the opinions on comprehensively promoting the construction of a beautiful China. The Company will deepen the fight against pollution, focus on safeguarding blue skies, clear waters, and clean lands, and cultivate a green concept for high-quality development. As an advanced power company, during its development, the Company strictly abides by the Environmental Protection Law of the People's Republic of China (《中華人民共和國環境保護法》), the Energy Conservation Law of the People's Republic of China (《中華人民共和國節約能源法》) and other relevant laws, strictly guard against environmental risks and resolutely enhance the green image of Huaneng. The Company mainly consumes coal and natural gas in the power generation process and consumes a certain amount of oil during the start-up ignition and production combustion process. In 2024, the Company's coal consumption for power generation of thermal power units was 293.90 g/kWh. The house consumption rate of thermal power unit was 4.44%. The annual consumption of standard coal was 13,245.62 ten thousand tons. Oil consumption in production totaled 42,920.19 tons, while natural gas consumption was 596,625.26 ten thousand standard cubic meters.

Management Objective

The Company is taking multiple measures and making concerted efforts to maintain a good level of energy efficiency each year. In light of this goal, with the more frequent peak-valley cycling operation of units and the gradual saturation of the heating market, the space for reducing coal consumption for power generation has been further squeezed. In 2024, the Company tapped into the potential for energy savings in existing thermal power generation, implemented deep energy-saving transformations for some units, actively carried out optimization of unit overhauls, operation adjustments, and technical supervision measures and other measures. The main energy consumption indicators continued to maintain a good level.

Management Mechanism

The Company's regional branches are responsible for the energy saving management. In accordance with the Law of the People's Republic of China on Conserving Energy (《中華人民共和國節約能源法》), and with the consideration of the Company's actual operations, we have formulated the Measures for Energy Saving Management (《節能管理辦法》), the Incentive Measures for Achievement of Energy Efficiency Excellence and Enhancement in (Ultra-) Supercritical Power Units (《超(超)臨界機組能耗指標創優及能耗指標提升獎勵辦法》), the Standards for Energy Saving and Environmentally Friendly Coal-Fired Power Plants (《節約環保型燃煤發電廠標準》), the Acceptance Measures for Energy Saving and Environmentally Friendly Coal-Fired Power Plants (《節約環保型燃煤發電廠驗收考核辦法》), the Measures for the Selection of Advanced Energy Saving Units (《節能先進單位評選辦法》) and the Implementation Plan for the Comprehensive Upgrading and Retrofitting and Energy Saving Replacement of Coal-Fired Power Plants (《燃煤電廠綜合升級改造及節能替代實施方案》) and other regulations and work guidelines for energy conservation.

During the construction period, each project formulates the Overall Planning of Green Construction Project (《綠色建造工程總體規劃》) to specify detailed plans for the quantitative control of construction water and electricity indicators, and establishes the Implementation Plan and Rules of Green Construction Project (《綠色建造工程實施方案與細則》) and the Measures for Green Construction, Energy Saving and Emission Reduction (《綠色施工及節能減排措施》), and other management policies to define specific control measures.

With respect to the energy saving target, the Company maintains a relatively good level within the industry in energy consumption indicators by vigorously developing heat supply renovation, implementing energy-saving projects and practicing effective energy saving management measures. Huaneng International strengthens the budget management of energy consumption indicators and has formulated special assessment regulations to ensure that each unit can achieve optimal consumption of coal, electricity, oil, natural gas, etc. The Company adopts an approach that combines goal management and process management. Firstly, we set the annual energy consumption indicators taking into account specific energy efficiency level of each grassroots power generation unit and carry out assessment on the degree to which the reference target is met. Secondly, regarding those units which have difficulty in meeting the target or unsatisfactory energy consumption outcome, the Company will arrange on-site inspection performed by professionals, who then carry out comprehensive investigations according to specialties and systems, provide recommendations and take remedial measures to ensure the fulfillment of target energy saving and emission reduction assigned by the Company, and ensure that the Company's coal-fired units maintain a sound performance in energy saving.

Management Measures

In 2024, the Company continued to aim towards the leading position in key energy consumption performance indicators and focused on energy saving and consumption reduction measures in five areas, namely institutional development, capacity building, benchmark cultivation, equipment management and engineering construction. With the concerted effort of various units, the Company has maintained its industry-leading position in terms of its achieved key energy consumption performance targets by various key energy attributes.

In terms of institutional development, to adapt to the construction of new power systems and the spot market, we summarized and refined the operation and maintenance experience of various unit divisions, organized the compilation or revision of relevant rules, regulations and technical guidelines, and continued to tap into the energy-saving potential of existing coal power units.

In terms of capacity building, we mapped out the basic situation of energy-saving specialists in each unit and delivered training sessions to those with less than three years of service in their positions. Based on the on-site energy-saving assessment under the Company's "energy-saving and consumption reduction special project", we carried out on-the-job training. Moreover, we organized activities of the Energy Conservation Publicity Week and the National Low Carbon Day.

In terms of benchmark cultivation, we implemented a new round of two-oriented enterprises. We were actively engaged in fostering well-performing heat supply companies, so as to reduce heat demand indicators per unit area and energy consumption indicators for heat supply, such as water consumption and electricity consumption. Besides, the Company vigorously cultivated model power units and formulated cultivation plans. Every month, we notified the coal consumption, plant power consumption rate and other key sub-indicators of the model units. With an industry-leading quality, these units won many prizes in the energy-efficiency benchmarking of thermal power units in the electric power industry, and the number of 5A units and individual awards were in the forefront.

In terms of equipment management, we included issues affecting energy consumption into the supervisory lists of the Company and each unit division, taking into account the energy efficiency of equipment operation. We strengthened the governance of key sub-indicators. Given the year-on-year reduction in unit water replenishment rate, we carried out special governance of water leakage in the thermal system. We supervised the grass-roots branches to benchmark the unit design value and the historical optimal value, and enhanced the management of key sub-indicators such as exhaust gas temperature, air leakage rate of air preheaters, carbon content of fly ash, unit vacuum, circulating water temperature at the outlet, and unit water replenishment rate.

In terms of engineering construction, the Company formulates reasonable construction energy consumption indicators to improve construction energy utilization. To reduce the energy loss caused by various media, we require all project groups to improve system proposals at the stage of preliminary design and arrange equipment in a reasonable and compact manner while ensuring safe operation and convenient maintenance of the equipment. Compact arrangement together with appropriate structures and light wall materials is adopted for the main powerhouse and production buildings. Priority is given to locally sourced materials such as sand, stone, lime and brick, as well as advanced construction equipment and construction technology that feature high efficiency, help save energy and support environmental protection. Controls are in place to rationally reduce the time for night work through reasonable arrangement of construction procedures and progress with sharing of construction machinery. The processes of construction and commissioning are carried out in a refined manner to strive for the success the first time of each trial operation and test with consideration of trial operation condition of power units at all stages.

In 2024, the Company made steady progress with positive momentum in its production and environmental protection. In terms of equipment management, reliability was improved year by year and outperformed industry peers. In terms of energy saving and consumption reduction, the equivalent availability coefficient of the unit increased year by year, and the energy efficiency of thermal power units remained industry-leading for many years. The Company paid close attention to optimizing the energy consumption and achieving the environmental protection targets, and stepped on a new journey of high-efficiency and low-carbon development. The Company strived for excellence of energy consumption indicators, guided and assisted underperforming power units, and applied advanced energy-saving technologies such as wide-load high-efficiency power generation and generalized regeneration in a targeted manner. The leading advantage of key models was continuously consolidated. In addition, the Company consistently drove the green and low-carbon development.

In the future, the Company will continue to promote the transformation of existing power units for thermoelectric power cogeneration technology, implement energy-saving technical retrofits of existing power units and deepen the application of generator unit ratings to facilitate management improvement.



Huaneng Beijing Thermal Power Plant's Waste Heat Utilization Project of Flue Gas from Gas Turbines

The Huaneng Beijing Thermal Power Plant's Waste Heat Utilization Project of Flue Gas from Gas Turbines has added approximately 7.5 million square meters of zero-carbon heating area in Beijing. During the heating season from 2023 to 2024, the project produced green heat of over 1.8 million GJ, saving natural gas by nearly 57 million cubic meters, meeting the heating needs of about 90,000 households in the capital. In April 2024, the project was awarded the first place in the list of "2023 Beijing Excellent Projects in Advanced Low-carbon Piloting" by Beijing Municipal Ecology and Environment Bureau, demonstrating the exemplary role played by Huaneng Beijing Thermal Power Plant in the field of clean heating.



Huaneng Beijing Thermal Power Plant

5.3.3 Water Resources Management

Huaneng International strictly follows the government's requirements for the protection of fresh water. We vigorously promote comprehensive water-saving and wastewater treatment actions for thermal power plants and issued the Guiding Opinions for Thermal Power Plant's Water Saving and Wastewater Treatment (《火電廠全廠節水及廢水綜合治理指導意見》). The main water consumption of Huaneng International is for generating electricity with power units, replenishing water for closed circulating water, and wet desulphurization, etc. Surface water, urban water, a small amount of groundwater and other water sources are used for generating power, and river water or sea water is used for circulating. In 2024, the overall water consumption of the Company was 21,490.41 million tons, the freshwater consumption for power generation was 428.95 million tons, the open cooling circulation water consumption was 21,061.46 million tons, and the performance value of freshwater consumption for power generation was 0.89 kg/kWh.

Management Objective

By 2025, the Company is committed to devoting greater effort in the transformation of water conservation for the purpose of zero discharge of wastewater. To achieve the objective, the Company stepped up efforts in water-saving transformation in 2024. Nanjing Thermal Power Plant launched a water-saving and comprehensive wastewater treatment project across the plant, and Fuzhou Power Plant completed water trading for the first time.

Management Mechanism

In accordance with the Company's management systems for technical supervision, maintenance, technical transformation and energy conservation, the various thermal power plants have established a set of water consumption management systems and procedures, which include:



A water management system has been established and managed by professional personnel, who shall formulate rules for water usage, instruments maintenance and management, etc. All water usage sectors and professionals conduct regular maintenance and calibration for water metering, water quality testing instruments and water-usage equipment, etc., so as to eliminate unreasonable water usage.



An account management system has been constructed, including the whole plant account and drainage account, water quality monitoring, water metering instrument basic information table, equipment installation location and parameter table, records of instrument test, calibration and maintenance, etc. They also regularly calculate the water management indicator of the whole plant, and the water usage account is based on the actual monitoring data.



According to the principles of shunting sewage and clean water, classification and recovery, and disposal and reuse, the Company comprehensively recycles various wastewater of the plant area, thereby reducing discharge rate.

Management Measures

Huaneng International has comprehensively launched the water saving and wastewater treatment work plan in its power plants. As at the date of the report, all subordinate power plants enforced the water saving and wastewater comprehensive treatment. Upon the treatment, the freshwater consumption for power generation has met the criteria set out in the Standards for Energy Saving and Environmentally Friendly Coal-Fired Power Plants of the Company (《節約環保型燃煤發電廠標準》), with wastewater discharge meeting the requirements set out in the waste discharge permits and local environmental regulations.

In 2024, to address the water shortage risk, the Company adopted a precise management approach for water supply and consumption based on the Guiding Opinion for Thermal Power Plant's Water Saving and Wastewater Treatment (《火電廠全廠節水及廢水綜合治理指導意見》) to refine the criteria for water recycling and classified water utilization and reduce the fresh water consumption. Currently, the projects of water saving and wastewater treatment of all plants in key areas such as Beijing-Tianjin-Hebei and neighboring "2+26" cities, Yangtze River Delta and Fen-Wei Plain are advanced in an orderly manner.

The Company requires project groups to prepare reports on resource conservation at the stage of preliminary design and take practical and effective measures in the construction of "sponge city" in accordance with the requirements of regions where projects are implemented; In addition, these groups are required to carry out research of water-conservation engineering facilities such as water for multiple uses and wastewater reuse to achieve zero wastewater discharge of new units for water conservation and environment protection. During the construction period, the Company's infrastructure projects respectively determined domestic water and construction water quota indicators based on the characteristics of projects and on-site construction conditions, and conducted calculation and assessment management separately. When a service contract was signed with the construction unit, the water conservation quota indicators were included in the contract terms for calculation and assessment. A reusable water collection and treatment system shall be established at the construction site to make water resources available for cascade recycling, rainwater collection tanks shall be set up to recover rainwater, which will be used for road spraying, vehicle washing and greening after treatment, domestic sewage treatment stations shall be designed, constructed and put into use in advance, and all the domestic sewage in the construction area will be treated by the sewage treatment stations, and the treated water shall be reused for secondary recycling applications such as vegetation greening and road spraying. The Company's water resource consumption during the construction of various projects shall be kept within the scope of management objectives. The Company faced no imminent threats in terms of tapping water resources.



Jurong Island Desalination Plant Project of Singapore Tuas Power Ltd.

In order to alleviate Singapore's water scarcity and ensure the security of freshwater resources, Singapore Tuas Power Ltd. has increased its investment in strategic emerging industries, investing significant strategic infrastructure project in Singapore by constructing the Jurong Island Desalination Plant. Additionally, Singapore Tuas Power Ltd. has signed a 25-year long-term water purchase agreement with Singapore Public Utilities Board, to provide a stable and secure revenue stream. The project has successfully commenced commercial operations, with a maximum daily production capacity of 3,000 ten thousand gallons (equivalent to about 137,000 cubic meters), which can meet 7% of Singapore's national water demand. Through this project, Singapore Tuas Power Ltd. has achieved a breakthrough in the key area of seawater desalination, guiding the industry towards high-quality development and providing new support for the accelerated growth of new-quality productive forces.



Tuas Power Desalination Plant

5.3.4 Emissions Management

The Company abides by laws and regulations such as the Environmental Protection Law of the People's Republic of China (《中華人民共和國環境保護法》), the Law of the People's Republic of China on Prevention and Control of Environmental Pollution Caused by Solid Wastes (《中華人民共和國固體廢物污染環境防治法》), the Atmospheric Pollution Prevention and Control Law of the People's Republic of China (《中華人民共和國大氣污染防治法》) and the Law of the People's Republic of China on Prevention and Control of Pollution from Environmental Noise (《中華人民共和國環境噪聲污染防治法》). In accordance with the national policies on environmental protection and policy documents regarding ecological environment and energy conservation and emission reduction and the requirements of relevant authorities, the Company has put forward the plan to become a first-class enterprise for environmental protection based on the aim to build a world-class listed power generation company and its actual situation. In addition, actions for ultralow emission transformation, water saving and wastewater treatment, and comprehensive utilization of solid waste are fully deployed. The Company attaches great importance to the discharge management of pollutants. All thermal power units are required to install desulphurization, denitration and dust removal devices and wastewater treatment and other environmental protection facilities. We strengthen the operation, maintenance and repair of environmental protection facilities, and strictly abide by the requirements of sewage permits, ensuring that the discharge of pollutants meets national standards and territorial requirements. Relevant entities strictly follow the requirements of the environmental impact report and the approval documents, and organize regular medical examinations for employees, and have not caused any health impact on employees and local community residents.

During the construction period, the Company attaches great importance to ecological and environmental protection by carrying out green construction and in-depth treatment of dust, noise, garbage and wastewater to minimize the negative impact on the environment. The constructors and all parties engaged in the construction establish a green construction management system, and formulate management systems such as the overall planning of green construction project, the implementation plan and detailed rules of green construction project and the measures for green construction and energy saving and emission reduction, which are independently defined in the general design of the engineering construction organization with detailed regulations on green construction and environmental protection. The quantitative control targets for emissions during the green construction process are clarified with specific pollution control measures. The Company's construction projects strictly implement the requirements of "Three Simultaneity"¹⁶ for environmental protection, in accordance with various environmental protection work and environmental protection measures recommended by the environmental impact assessment approval. In addition, we strengthen the stable operation of environmental protection facilities, ensure that the emission of pollutants meets the standards, and entrust environmental protection supervisors to supervise, inspect and guide the implementation.

To enhance capability building in environmental emergency response, enable the effective prevention, timely control and elimination of environmental emergency hazards, and to keep the red line of ecological and environmental protection firmly in place, Huaneng International has formulated the Management Measures for Environmental Emergencies (《突發環境事件應急管理辦法》) in accordance with the Regulations on Ecological and Environmental Protection Management (《生態環境保護管理規定》) and the Management Measures for Emergencies (《突發事件應急管理辦法》). The Company requires relevant grassroots units to implement the policies and requirements of the State and the Company on environmental emergency response, formulate emergency plans for environmental emergencies in accordance with the Measures for the Administration of Contingency Plans for Emergencies (《突發事件應急預案管理辦法》) (Guo Ban Fa [2024] No. 5), regularly revise and improve the plans, establish and improve the early warning mechanism for environmental emergencies, and conduct training, filing, drill and revision of the plans. In case of any situation that may lead to environmental emergencies, an early warning should be given in time, with preventive measures taken immediately.

During the reporting period, the Company was not subjected to any significant administrative penalties or criminal liability for pollutant discharge, and there were no significant deficiencies in the Company's environmental monitoring plan and risk management measures.

¹⁶ Facilities for pollution prevention should be designed, constructed, and implemented simultaneously with the construction project.

5.3.4.1 Exhaust Gas Management

The wind, photovoltaic and hydro projects of the Company do not produce air pollutants in the production and operation. Thermal power enterprises produce soot, sulphur dioxide, nitrogen oxides and other air pollutants mainly from the combustion of coal in the boiler. In 2024, the Company's actual total emissions of soot, sulphur dioxide and nitrogen oxides were 3,780.93 tons, 27,203.63 tons and 56,412.55 tons, respectively, far lower than the certified total emissions of 24,124.47 tons, 102,382.73 tons and 136,664.41 tons, respectively, indicating zero excessive emissions.

Management Objective

We completed the coal field enclosure retrofits in key areas such as the Yangtze River Delta and Fen-Wei Plain by the mid-term of the 14th Five-Year Plan and strictly enforced the local authority's requirements of fugitive emissions to ensure that there is no major environmental protection safety accident during the 14th Five-Year Plan period. In 2024, with careful maintenance of the desulphurization and denitration equipment and facilities of coal-fired units, the Company maintained a stable standard emission, and completed the flue gas ultra-clean renovation of all the Company's domestic coal-fired units. The capacities of ultra-low emission units reached 100%. The emission density of sulphur dioxide, nitrogen oxides and soot were 0.06 g/kWh, 0.13 g/kWh and 0.01 g/kWh respectively. The coal field enclosure retrofits in key areas such as Beijing-Tianjin-Hebei and neighboring "2+26" cities, the Yangtze River Delta and Fen-Wei Plain have been fully completed.

Management Mechanism

The Company has formulated the Regulations on Environmental Protection Management (《環境保護管理規定》), the Measures for Evaluation and Accountability for Environmental Protection Work (《環境保護工作考核及責任追究辦法》), the Operation Management Rules (《運行管理規定》), the Overhaul Management Rules (《檢修管理辦法》), the Technical Supervision Management Measures (《技術監督管理辦法》), the Management Measures for Capital Expenditure in Electricity Generation (《電力生產資本性支出項目管理辦法》) and others to ensure the progress on the work related to ecological environment protection and air pollution prevention and control projects.

The Company makes full use of its internal information platform to capture the situation of excessive emission, focusing on the analysis of events with long duration, seriously excessive emissions and typical cases, and guided all units to learn from one another and take active measures to improve the Company's overall environmental protection management capability. In addition, giving consideration to the promotion of annual key tasks, major projects, air quality assurance tasks, etc., the Company launches environmental protection inspections occasionally to ensure active and effective control of environmental protection risks.

Management Measures

The Company has taken the following measures to enhance waste gas management:



Enhancing the supervision and implementation of work tasks. The Company has enhanced the review management of environmental protection renovation projects, optimized review procedures, secured renovation investment, strengthened supervision and management of key processes such as bidding process, and inspected and supervised key work tasks to carry forward the pollution prevention and control tasks.



Ensuring effective clean production. The Company has continuously maintained the safe and reliable operation of environmental protection facilities, strengthened real-time monitoring of pollutant discharge, ensured discharge compliance, and controlled pollutant discharge in accordance with requirements set out in the pollutant discharge permit to secure a leading position in terms of pollutant discharge in the industry.



Successfully completed the air quality assurance tasks. The Company has ensured good air quality during key hours and weathers with serious pollution, ensured effective pollution prevention and control in key regions such as Beijing-Tianjin-Hebei and neighboring region, Yangtze River Delta and Fen-Wei Plain, and fully adopted measures such as load reduction of diesel trucks, non-peak-hour transportation and control of fugitive emissions to fulfil the Company's social responsibilities.

Work Achievements

With careful maintenance of the desulphurization and denitration equipment and facilities of coal-fired units, the Company has maintained a stable standard emission, and completed the flue gas ultra-clean renovation of all the Company's domestic coal-fired units. The capacities of ultra-low emission units have reached 100%. The Company has concentrated on implementing ultra-low emission transformation projects of thermal power enterprises. The technologies adopted mainly include electric-bag integrated dust removal and coordinated dust removal for soot treatment, limestone-plaster wet desulphurization for sulphur dioxide treatment, and low-nitrogen combustion and selective catalytic reduction (SCR) for nitrogen oxide treatment.



Huaneng Linyi Power Plant Leading the Way with Innovation to Activate the Driving Force for Development

The Cold Oxidation Adsorption Process (COAP) is “the world's first and Huaneng's original” technology for the integrated removal of pollutants. Linyi Power Plant has intensified exchanges and discussions to solve the technical bottlenecks encountered in the commissioning of COAP projects. Team members of the project work together to break down barriers, successfully overcome technical bottlenecks, and promote the smooth operation of the project. The emission density of soot, sulphur dioxide and nitrogen oxides are all lower than the near-zero emission target of 1 mg/standard cubic meter, which provides a “Huaneng Model” for the promotion and application of COAP in fields like waste incineration, gas-fired power generation and chemical waste gas treatment.



Huaneng Linyi Power Plant

Future Plan

First, the Company will continue to drive its pollution prevention and control efforts, focus on environmental protection transformation projects in key regions, including close-down of coal field, wastewater treatment, and ash field treatment for power plants, while expediting pollution prevention and control projects such as ultra-low emission renovation for clean energy heating units in the northern region.

Second, the Company will continuously promote clean production practices, enhance permit-based waste discharge management, ensure effective management and control for air quality in key hours and weathers with serious pollution, strengthen the inspection management for environmental protection supervision at different level and improve the prevention and emergency response for public opinion risk related to environmental protection.

Third, the Company will maintain vigorous environmental protection supervision and management, strictly comply with the requirements set out in the Environmental Protection and Pollution Control Accountability Measures 《生態環境保護及污染防治攻堅工作責任追究辦法》), strengthen supervision and site inspection to ensure effective supervision and management of the implementation of air pollution prevention and control tasks, etc.

Fourth, the Company will optimize environmental protection standard system, promote the research and development and application of technologies such as integrative removal of pollutants and comprehensive energy saving and environmental protection transformation, and summarize experience from demonstrative projects to provide guidance to other projects.

5.3.4.2 Management of Greenhouse Gas

In 2020, China made a solemn commitment to reach “carbon peaking” by 2030 and achieve “carbon neutrality” by 2060. In accordance with relevant national regulations, the Company issued the Measures for the Administration of Greenhouse Gas Emission Reduction (《溫室氣體減排管理辦法》) to strengthen the management of greenhouse gas emission reduction. During the 14th Five-Year Plan period, the Company will promote the green transformation and increase the use of clean energy. In specific, great efforts will be made to strengthen the transformation of environmental protection equipment of coal-fired units, and to reduce energy consumption and carbon emission through the optimization of management, structure and technology, etc., thereby succeeding in lowering the Company’s carbon emission intensity.

The Company pays close attention to developments in national policies on carbon emissions and carbon trading and actively participates in the construction of the national carbon market. Drawing on the experience of carbon trading pilots, the Company has issued the Interim Measures for the Administration of Carbon Emission Trading (《碳排放權交易管理暫行辦法》). Clear guides are thus provided relating to the division of responsibilities, management process, data management, trading management, risk management and other aspects of carbon trading, guaranteeing the Company’s active participation in market trading and successful obligation fulfillment.

Carbon Reduction Goals

Through structural adjustment and energy saving and consumption reduction efforts, the Company will achieve carbon peaking as early as possible, and the Company’s full-caliber carbon emission intensity will gradually decline during the 14th Five-Year Plan period. The Company will implement in-depth renovation in energy conservation by unwaveringly accelerating green transformation, increasing the proportion of clean energy and further exploring the energy-saving and carbon-reduction potential of the existing thermal power plants. In addition, the Company will actively explore the heating market, continuously enhance the performance in clean and low-carbon power generation, and further reduce the carbon emission intensity per unit of electricity generation. In 2024, the Company’s carbon emission intensity across the entire scope was maintained at a good level.

Carbon Asset Management

The Company carries out the following work:



The Company actively participates in the construction of the national carbon trade market, and delves into key management rules for the carbon market, including regulations on the administration of carbon trading, quota allocation plan, and accounting methods for carbon emission.



The Company issued regulations on the administration of carbon trading, specifying the management institutions and their responsibilities, along with various requirements of transactions and contract fulfillment and risk management. The Company promotes centralized and professional management of carbon trading. Professional institutions are therefore engaged to provide one-on-one professional services for the grassroots enterprises, and carbon trading-based business training is also held, so as to continuously improve management capability on carbon trading, thus aligning its management model with the national carbon market.



The Company advocates refined management of carbon trading and dynamic calculation on quota surplus and deficit of grassroots enterprises, makes the annual trading work arrangement, and carries out some transactions in advance to reduce the performance pressure arising from the carbon trading at the end of the performance period.



With the successive implementation of domestic policies on green power, green certificates and voluntary emission reduction as well as the gradual establishment of relevant trading market, the Company takes the advantage of large-scale operation and coordinates electricity, carbon and green certificate markets through a combination of electricity retail channels and user base to strive for the environmental benefits of new energy projects.

Participation in National Carbon Emission Trading Market

In 2024, the Company’s subsidiaries actively participated in carbon trading. As of December 5, 2024, the quota payments had all been settled and obligations fulfilled. The grassroots units of the Company purchased emission 170,000 tons of China Certified Emission Reduction (CCER) through the CCER trading platform, which was used to settle the excessive emissions in 2023. Currently, the Company has started preparing for the annual trading and organized all related units to propose trading plans. The trading will be organized when conditions permit to ensure that all power plants included in the carbon market complete the trading on schedule. In addition, in response to the newly launched voluntary carbon market, the Company is considering a comprehensive assessment on the environmental benefits expected of the existing offshore wind power projects, such as subsidies, green power certificates and potential carbon reductions. The most favorable option will be adopted to ensure the highest environmental value. During the year, the Company has not been subject to any requests for rectification or initiated for investigation by relevant authorities. In the future, the Company will actively participate in carbon credit trading, continuously optimize carbon asset management and promote the sustainable development of the Company.



Huaneng Yueyang Power Plant Successfully Put into Operation a Kilo-ton Pilot-scale Device for Carbon Dioxide Capture from Flue Gas of Coal-fired Using Low Temperature Adsorption Method

Based on the COAP technology, the device further adopts the moving bed adsorption process for carbon dioxide capture and the steam heating coupled with vacuum suction regeneration process, and is equipped with a series of new adsorption and collection equipment, which can achieve efficient co-removal of flue gas pollutants and carbon dioxide. During the trial operation period, the carbon dioxide capture rate reached 95%, with a regeneration heat consumption of 0.96 GJ/ton of carbon dioxide, which was more than 50% lower than conventional carbon capture technology. In particular, a single adsorption can increase the carbon dioxide concentration from 10% to more than 90%, which breaks the technical bottleneck that the low-concentration carbon dioxide in coal-fired flue gas is difficult to purify through a single adsorption.



Pilot-scale Device for Carbon Dioxide Capture from Flue Gas of Coal-fired Power Plants at Huaneng Yueyang Power Plant

Future Plan



Firstly, we will strengthen our research and analysis of policies for carbon market, and revise the carbon emission management regulations in a timely manner according to the national policies regarding carbon market. We will further clarify major responsibilities of the management at all levels, build up an efficiently functioning management system and process system at all levels, and continue to strengthen the unified and professional management of carbon emissions.



Secondly, we will strengthen the management of supervision and assessment of carbon emission indicators, expand the scope of online monitoring on carbon emission of flue gas, and implement the routine management of carbon emission data. In addition, we will strengthen the analysis and comparison of carbon emission data, and quantify the comprehensive impacts of changes in carbon trading costs on energy conservation and emission reduction, blended coal fuel, market bidding, and the construction of new thermal power plants.



Thirdly, we will study the trading mechanism of carbon market and explore innovative trading management while ensuring risks are controllable to continuously reduce the costs of carbon trading and performance fulfillment and enhance our resistance to risks in the carbon market.



Fourthly, we will accelerate our progress in green and low-carbon transformation, facilitate the development of renewable energy, and continuously increase the proportion of electricity generated by non-fossil energy. We will improve the clean and efficient utilization of coal to continuously reduce carbon emissions from all sources.



Fifthly, we will continue to take advantage of large-scale operation and coordinate multiple markets for synergistic efficiency enhancement to strive for the environmental benefits of new energy projects.



Sixthly, we will coordinate the in-depth energy conservation and emission reduction and increase the investment in the "three improvements" to enhance unit's adaptability to economical coals and wide-load. We will improve the indicators for energy conservation and carbon reduction and facilitate centralized clean and efficient heat supply.

5.3.4.3 Wastewater Management

The Company, with coal-fired power generation as its main business, generates a certain amount of wastewater in the process of electricity production, including those from the concentration of steam turbine circulating cooling water, the wet desulphurization facilities, the auxiliary production facilities of the generator set, the coal field flush as well as sanitary sewage. In strict accordance with the requirements of environmental assessment and pollutant discharge permits, the Company has achieved zero discharge of wastewater, and recycled domestic sewage, industrial wastewater, desulphurization wastewater and chemical wastewater through the sewage treatment station in the factory. In accordance with the requirements of environmental assessment and pollutant discharge permits, some water chillers discharge recycled cooling water. The major pollutants are salts, and do not cause discharge in excess of the prescribed standard.

In 2024, the total water discharge of the Company amounted to 20,509.94 million tons, the discharge of open cooling circulation water totaled 20,482.85 million tons, and the total discharge of sewage (including industrial and desulphurization wastewater) from operation was 27.09 million tons. Some of the wastewater was allowed to be discharged when they reached a certain standard after treatment, e.g., wastewater from circulating water; some was reused after treatment and could not be discharged, e.g., those from desulphurization facilities and coal field flush; and zero discharge was required for certain power plants which were not allowed to discharge any wastewater. The Company's certified chemical oxygen demand (COD) emissions is 219.18 tons, and the certified ammonia-nitrogen emissions is 42.36 tons. The actual discharge volume is significantly lower than the permitted discharge volume, and there have been no instances of exceeding the discharge limits.

Management Measures

The Company adopts the following measures in the management of wastewater treatment and discharge:



The Company rigorously implements the applicable water pollution prevention and control policies and sewage discharge licensing requirements. All thermal power plants of the Company have obtained the corresponding sewage discharge licenses as scheduled.



Inspection and rectification are carried out against the sewage discharge licensing requirements. A comprehensive pollution prevention and control plan at the company level has been formulated based on environmental protection requirements at various levels, and power plant water saving, and wastewater treatment transformation projects are launched in an orderly manner in accordance with the requirements of local governments and environmental assessment.



The Company performs on-site checks and inspections of environmental protection facilities, including wastewater treatment units.



The Company built a sound standard system for environmental protection, and formulated guiding opinions on water saving and wastewater discharge transformation to ensure the compliance with environmental protection requirements through research and optimization.



The Company actively adopts the latest wastewater treatment technology and launches wastewater transformation demonstrative projects.



Huaneng Guilin Gas Turbine Selected as a Typical Case of Industrial Wastewater Recycling by Ministry of Industry and Information Technology in 2024

Huaneng Guilin Gas Turbine uses well-treated recycled water instead of tap water. Combined cycle gas turbine units are built to supply clean, high-quality steam for enterprises in the surrounding areas. With an improved reclaimed water collection system, the project achieves 100% recycling of production and domestic water and zero wastewater discharge, saving a lot of tap water resources, and solving the problem of high pollution from small coal-fired boilers. The water recycling rate has reached 96.7%, and recycled water accounts for 25% of the total water consumed.



Huaneng Guilin Gas Turbine

Future Plan

The Company will continue to strengthen water pollution control and promote the enhanced in-depth treatment and comprehensive utilization of industrial wastewater and domestic sewage, as well as launch wastewater zero discharge transformation projects in an orderly manner in areas where specific environmental protection requirements apply.

With the gradual deepening of wastewater treatment work as well as the increased wastewater treatment technology research efforts by domestic tertiary institute, Xi'an Thermal Power Research Institute Co., Ltd. ("Xi'an Thermal") and Huaneng Clean Energy Research Institute, etc., we will formulate a roadmap for developing practical, reliable and cost-effective wastewater treatment technology. We will gradually carry out thermal power plant water saving and wastewater comprehensive treatment transformation in key areas in order to eventually enable all of the Company's subsidiary thermal power plants to comply with the updated pollutant discharge licensing requirements, with some reaching even higher standards.

5.3.4.4 Waste Management

The Company's disposal of wastes strictly complies with laws and regulations such as the Law of the People's Republic of China on Prevention and Control of Environment Pollution Caused by Solid Wastes (《中華人民共和國固體廢物污染環境防治法》) as well as the Company's regulations including the Regulations on Environmental Protection Management (《環境保護管理規定》), the Measures for Evaluation and Accountability for Environmental Protection Work (《環境保護工作考核及責任追究辦法》), the Management Standards for Solid Waste (《固體廢棄物管理規範》), the Governance and Management Standards for Desulphurization By-products (《脫硫副產品治理管理規範》), the Governance and Management Standards for Fly Ash (《粉煤灰治理管理規範》), etc. The Company requires that the storage, discharge, and disposal of waste comply with national laws and local policies. We also cooperate with qualified third parties to deal with waste and strengthen waste recycling to minimize waste emissions.

Management Objective

In accordance with the Law of the People's Republic of China on Prevention and Control of Environment Pollution Caused by Solid Wastes (《中華人民共和國固體廢物污染環境防治法》) and the principles of "reduction, recycling, harmlessness" in the prevention and control of solid waste pollution, the Company actively promotes the compliant and comprehensive utilization of solid waste and insists on source management with whole-process responsibility system and traceable information management in place. The hazardous waste management plan is filed in accordance with regulations with such waste stored, transported and disposed of as required. The comprehensive ecological protection treatment and transformation for ash disposal area is expected to be completed by 2025. In 2024, Yangliuqing Power Plant has completed renovation projects of environmental protection facilities in ash disposal area. Luohuang Power Plant has completed the comprehensive management of Luojiawan Ash Pond and Hetaowan Ash Pond.

Non-hazardous Waste

Huaneng International's production activities are mainly concentrated in the area of power production. The solid waste (including fly ash, gypsum and slag) and hazardous waste (denitrification catalyst) generated during the operation of thermal power plants are subject to comprehensive utilization of solid waste and other measures, causing significantly less impact on the environment. The main solid waste generated during the Company's power generation process includes fly ash and cinder produced during the combustion process of the boiler, and gypsum produced during the limestone wet desulphurization in power plants. In 2024, the Company produced 49.4026 million tons of solid waste, including 39.3371 million tons of fly ash and cinder, and 10.0655 million tons of desulphurized gypsum. The comprehensive utilization rate of fly ash and cinder stood at 83.09%, and the desulphurization gypsum disposal utilization rate was 73.05%. The general solid waste density was 0.1 kg/kWh.

Fly ash and cinder, desulphurization gypsum and other solid waste can be sold as raw materials in related industries, such as cement, concrete, aerated blocks and gypsum board. The Company has established an environmental protection supervision and management system in accordance with the requirements of national and local standards and policies on environmental protection to effectively control the canning, stacking and marketing of fly ash and cinder and desulphurization gypsum.

When loading fly ash and cinder and gypsum, the Company rigorously follows the operational norm for load control, separates the fly ash and cinder from gypsum and controls the load capacity during transportation and conducts thorough check and cleaning before vehicle entry to prevent "escaping, spilling over, dripping and leakage" of solid wastes. Most of the fly ash and cinder and gypsum collected from boilers will be directly transported to the processing plants for secondary use. The Company closely monitors where the by-products of power generation are being transported and how they are going to be used to prevent environmental pollution and public issues that have a negative impact on society.

Some fly ash and cinder in the power plants will be temporarily stored in the ash field, and the Company strengthens supervision and management of the ash field. In accordance with the requirements of local environmental protection authorities, construction and retrofitting of wind-proof and dust control facilities have been carried out to ensure that the storage of ash and gypsum is in line with local environmental protection standards.

The Company requires that the storage, discharge, and disposal of waste comply with national laws and local policies. We also cooperate with qualified third parties to deal with waste and strengthen waste recycling to minimize waste emissions. The project waste is collected by classification, stored in a centralized way and cleaned up regularly, and corresponding units are entrusted to clear and transport it regularly. The gravel and earthwork construction waste from the project is used as the on-site roadbed backfill material to realize harmless treatment.



Efficient Carbon Reduction at Huaneng Wuhan Botanic Plant

The project represents the first plant factory in Hubei Province that is highly integrated with a power plant. It is also the result of a collaborative effort between Huaneng Yangluo Power Plant and Huaneng Clean Energy Research Institute. Located within the Yangluo Power Plant, the project is fully integrated with the existing elements of the power plant. It is powered by electricity generated from the power plant itself, as well as from distributed photovoltaic and energy storage projects within the plant. The project makes comprehensive use of resources such as chemically demineralized water, residual heat from circulating water, and fly ash to provide plants with the necessary “light, temperature, water, and air” for growth. While producing high-quality organic vegetables, the project achieves efficient carbon reduction and carbon fixation.



Huaneng Wuhan Botanic Plant

Hazardous Waste

The major hazardous waste produced during the process of power generation includes solid waste such as inactivated denitration catalysts and ion exchange resin deactivated in water treatment, as well as liquid waste like waste oil produced during power units' operation. The Company regenerates the denitration catalysts which have reached their life limit and continues to charge them into denitration devices for use. Inactivated ion-exchange resin from chemical water treatment can be restored to its original state for reuse after being rinsed with mineral acids or alkalis of a certain concentration. The Company will, based on relevant requirements, hire qualified agencies to deal with denitration catalysts that could not be renewable anymore, ion exchange resins that cannot be reused and hazardous liquid waste such as lubricant and other waste oil during operations. Besides, through managing the accounts, we will detail statistics on the amount of waste generated, the amount of disposal, the audit of the qualifications of disposal units, etc., and strictly manage the generation and disposal of waste. In 2024, the Company generated 12,851.03 tons of waste denitrification catalysts, 514.32 tons of other hazardous solid wastes such as ion exchange resins, and 968.55 tons of hazardous liquid wastes such as waste oil during its production and operation processes. The density of hazardous wastes was 0.03 g/kWh.

Future Plan

The Company will continue to strengthen waste recycling and strive to minimize waste emissions. In addition, the Company will well implement environmental protection transformation projects in key regions, including close-down of coal field and treatment of ash field for power plants, etc.

5.3.5 Management of Other Environmental Impacts

Huaneng International always handles its operations with great care to minimize their impact on the environment, and performs strict management of noise, dust and the environmental impacts of engineering projects and others in accordance with the Law of the People's Republic of China on Prevention and Control of Pollution from Environmental Noise (《中華人民共和國環境噪聲污染防治法》), etc.

5.3.5.1 Noise Management

During the initial stage of the construction of power plants subordinated to the Company, relevant departments of environmental protection determined the sensitive points of noise along the boundaries of the power plants and their relevant noise control level in accordance with the requirements in the environmental impact assessment approval. Power plants are designed and constructed in accordance with the specifications, and noise emissions meet the environmental protection standards, generating minimal impact on the surrounding areas. The noise control during the construction of each project met the national standards. For the environmental completion and acceptance of the power units in all power plants, the monitoring authorities will investigate the site based on the requirements in the environmental impact assessment approval, and only when the monitoring results are qualified will the acceptance concerning noise control pass. During the operation of power units, the power plants commissioned relevant monitoring authorities to investigate the noise control regularly in accordance with the requirements of the environmental protection authorities and published the monitoring reports through multiple ways. The power plants installed acoustic enclosures for major noise sources such as fans and other equipment in the plant, and built noise walls for key areas such as the cooling water tower area. When excessive noise is caused by events like power units renovation or equipment failures, the Company will implement noise control for equipment that generates excessive noise accordingly.

5.3.5.2 Dust Impact

Unorganized emissions, such as coal field dust, ash field dust and other emissions from non-road machinery are also environmental impacts caused by power plants. All power plants owned by the Company are required to obtain the environmental impact assessment approval by the relevant environmental protection departments during their initial stage of construction to avoid severe impact on the surrounding environment and natural resources during operations. The power plants strictly abide by national environmental emission standards during operations and discharge wastes according to the standards. When the requirements of surrounding environment change, the affected power plants actively respond to ensure that the surrounding environment and natural resources are protected. To enhance the management of unorganized emissions from coal yards, the Company has carried out segregated coal field retrofits for key areas, and for other areas, the Company introduced wind and dust suppression nets, covers and sprays to effectively control coal dust pollution from coal fields and improve the surrounding environments. In terms of engineering construction, all participating units have carried out construction in strict accordance with the green construction plan and organizational measures, and suppressed the generation of dust by taking measures such as regular spraying and construction road pavement hardening.

5.3.5.3 Environmental Impact of Engineering Projects

Nature-related risk and impact is a key aspect of the Company's comprehensive risk management. The environmental impacts of the Company's projects are fully comprehended during feasibility study before the projects enter the approval or filing stage. Following national policies and requirements on environmental protection and the land use planning by the government, the Company avoid choosing location in or near the ecological red lines such as nature reserves or agricultural land to prevent the consequent ecological problems. After the site selection, the Company conducts a systematic survey of the surrounding environment during the feasibility study stage and prepares a detailed environmental management and monitoring plan based on actual condition and relevant regulations. In strict compliance with the environmental protection standards, the Company implements control measures against air pollution, water pollution and noise, actively initiates water and soil conservation design and environmental impact analysis, and accepts assessment on the impact to biodiversity. The Company has no significant impact on the protection and restoration of areas surrounding business premises, key ecological function areas of land and sea, ecological conservation redlines, nature reserves and other areas with key ecological functions or areas of sensitive and fragile ecological environment.

The impact of the Company's production and operation activities on ecosystems and biodiversity mainly occurs during the construction of hydropower stations, where issues such as the disruption of fish communication and other aquatic ecological problems arise. During the construction process, there are impacts on vegetation and animal habitats, which are related to terrestrial ecological issues.

1

Perform production and operation activities strictly outside nature reserves, and carry out publicity campaigns on ecological protection jointly with nature reserve management organizations; select the best watershed hydropower development plans, avoid ecologically sensitive targets, and protect and restore areas with key ecological functions or areas of sensitive and fragile ecological environment.

2

Set up rare botanical gardens and rare animal rescue stations to gradually realize harmonious coexistence between human beings and nature, create a relatively safe and comfortable habitat for wild animals and plants, and protect wild animals and plants and terrestrial biodiversity.

3

Maintain river connectivity and carry out fish habitat planning, restoration and reconstruction; strengthen the protection of tributaries and restore river connectivity, to avoid population decline due to infrastructure obstruction and protect natural habitats and watershed biodiversity.

4

Participate in ecological environmental protection projects, regularly conduct investigation on terrestrial and aquatic ecosystems, monitoring of biological genetic diversity and scientific researches, and build a smart monitoring platform for watershed ecology and the environment to enhance capabilities of inspection, early warning and risk control; carry out breeding and releasing of the next-generation indigenous fish to protect fish genetic diversity and genetic resources.

5

Implement ecological flow management, develop integrated ecological scheduling model of cascade hydropower stations leveraging advantages of integrated watershed scheduling, and create hydrological and hydraulic conditions essential for fish reproduction to protect the river ecosystem; conduct ecological compensation programs, researches on the artificial breeding of indigenous fishes as well as breeding and releasing activities of indigenous fishes; and promote ecological restoration, including the creation of riverine habitats and terrestrial ecosystem restoration using the near-natural method.



Huaneng Henan Clean Energy Company Leverages Medium-Deep Geothermal Heating Technology To Help Solve Heating Challenges in the Yellow River Basin of Zhengzhou

In 2024, Huaneng's first medium-deep geothermal heating project—the clean energy heating project for Hechanglinyucheng and Yifeng Forest Lake residential areas in Zhengzhou, Henan—commenced heating supply ahead of schedule. The project marks a “zero breakthrough” in the application of medium-deep geothermal energy heating technology. The heating area covers five residential areas, totaling 670,000 square meters, effectively addressing the heating needs of nearly 7,000 households in the heating gap area of the Yellow River Basin in Zhengzhou. Once fully operational, the project is expected to save 7,000 tons of standard coal and reduce carbon dioxide emissions by 12,000 tons annually. This project is of great significance for ensuring and improving people's livelihoods, promoting the comprehensive green transformation of economic and social development, and vigorously advancing the ecological protection of the Yellow River Basin.



The Clean Energy Heating Project Commenced Heating Supply Ahead of Schedule.

5.3.6 Response to Climate Change

Governance

To address the global climate challenge, the Company has established a governance structure led by the Board of Directors. By introducing a robust organization, we are committed to advancing the climate strategy to mitigate the impact of climate risks on our business growth and operations, and seizing the opportunities presented by the global energy transition and low-carbon development. For more information on governance, please refer to the ABOUT US section.

Strategy

With reference to climate change scenarios (such as IPCC SSP 1-2.6, IPCC SSP 2-4.5 and IPCC SSP 5-8.5) released by major international institutions, the Company, in the context of actual business operations, analyzes the potential impacts of climate-related risks or opportunities in the short, medium and long term as well as its own adaptability to strategies and business models. Risk management and action plans for different time horizons are adjusted accordingly.

In the long run, physical risks may have some impact on the new energy business, while transition risks mainly affect the thermal power business. Specifically, for the photovoltaic and wind power businesses, physical risks mainly arise from the instable meteorological conditions, such as solar irradiance and wind speed. Significant changes in these factors will affect the business operation. For thermal power business, the impact of physical risks is not significant. However, as the society shifts to a low-carbon economy, existing assets of the thermal power business may be subject to early decommissioning or idling, with carbon price affecting operating costs as well.

In response to the above risks, the Company is committed to vigorously developing clean energy, strengthen meteorological monitoring and promote the flexibility transformation of thermal power units. The Company also explores decarbonization technologies, keeps abreast of policy changes in the national carbon market, and coordinates and optimizes carbon trading strategy to achieve sustainable development. In 2024, the Company completed flexibility retrofits for 10 coal-fired power generating units, with a total installed capacity of 6.572 million kilowatts. The proportion of low-carbon and clean energy installations in the Company's total capacity reached 35.82%. The Company performs on-going risk monitoring and pays close attention to early warning information on meteorological, natural and geological disasters. A professional team has been established for meteorological analysis and early warning. By fully utilizing public macro meteorological data, the team has built a microscale meteorological model that focuses on application scenarios such as hydropower, wind power and photovoltaic, supporting the Company in making decisions for production and operation. The Company tracks policy changes relating to low-carbon transition and carbon trading, and analyzes their impact on business operation and development planning. In addition, based on thorough communication with the government and regulatory authorities at all levels, the Company promptly responds to policy requirements by deploying internal resources, formulating strategies and making preparations.

Main Climate Risk Type	Main Climate Risk Factor	Time Horizon	Risk Description
Physical Risks	Extreme weather events such as rainstorms, floods and typhoons	Short term	Extreme weather events such as rainstorms, floods and typhoons may damage the Company's power generation facilities and undermine the stability of power generation and supply. For example, heavy rainfall may lead to water accumulation around the power plants and disrupt equipment operation. Typhoons may damage equipment such as transmission lines and wind turbines.
	Changes in climate models	Long term	Climate change may result in changes in a wide range of factors, such as temperature, humidity, irradiance, wind speed, precipitation patterns, thus affecting the Company's overall power generation capacity and economic benefits.
Transition Risks	Stranded assets	Medium and long term	During the low-carbon transition, existing assets of thermal power companies may be subject to early decommissioning or idling. If thermal power units are forced to exit markets before reaching the end of their useful lives, investments may be unrecoverable and company competitiveness may be weakened.
	Carbon pricing	Medium term	<p>With its principal place of business within the territory of China, the Company shall follow requirements under the National Carbon Emission Trading System. Fluctuations in carbon prices may have an impact on the Company's operating costs.</p> <p>In 2024, the Company's expenses in and income from carbon allowance trading were RMB0.361 billion and RMB49.40 million respectively.</p>

Risk Management

Constantly focusing on the business impact and financial impact of climate-related risks, Huaneng International has carried out the identification, analysis and assessment of climate-related risks and opportunities. During the risk identification of material issues, we take the initiative to communicate extensively with stakeholders to fully understand potential risk types, and analyze the potential consequences associated with key risks to ensure comprehensive identification of climate-related risks. For more information on risk management, please refer to 2.8 Communication with Stakeholders and Identification of Material Issues.

Metrics and Targets

We actively implement the “carbon peaking and carbon neutrality” strategy of the CPC Central Committee and the State Council, further respond to climate changes and enhance management in this regard. Based on our development strategy, we have set metrics and targets around identified key climate-related risks, and tracked progress through ongoing monitoring. Relevant targets and progress have been disclosed in the preceding section, please refer to 5.3.4 Emissions Management for details.

This report contains forward-looking statements relating to climate. These statements are based on Huaneng International’s expectations, estimates and assumptions at the time this report was prepared, and involve many uncertainties. Such expectations, estimates and assumptions may be affected by market dynamics, regulatory and policy changes, technological advances, the general economic environment and limitations in data or methodologies. Therefore, forward-looking statements should not be regarded as guarantees, expectations or predictions of future performance or results.





Safe production is an important line of defense for the well-being of people and a prerequisite for stable economic and social development. Huaneng International always adheres to bottom-line thinking and red-line awareness, and solidly implements its three-year rectification action to improve the system and capability of safe production management, thus fundamentally eliminating potential dangers and preventing and resolving major safety risks to ensure the safety of our people and facilitate high-quality development of the Company.



06

*DEFENDING
PRODUCTION SAFETY*

DEFENDING PRODUCTION SAFETY



In accordance with the Production Safety Law of the People's Republic of China (《中華人民共和國安全生產法》) and other production safety laws and regulations, Huaneng International regards safety as its top priority and builds a solid foundation for production safety. Adhering to the production safety principles of “people-oriented, safety first, prevention first, comprehensive management” and upholding the safety conception of “safety is credibility, safety is efficiency, safety is competitiveness, and safety responsibility is of the utmost importance”, the Company pays attention to the inspection and remedy of safety hazards and insists on zero-tolerance policy for safety incidents. In addition, the Company aims to prevent fatal production accident, mishandling of operations with malicious intent, major equipment damage, serious and extraordinary equipment incidents, fire outbreaks, traffic accidents induced by human factors, environmental pollution disasters and other incidents that may adversely affect the Company's reputation. The Company places safety in the first place and attaches great importance to the personal safety and occupational health of our employees. We strengthen the red-line awareness to ensure that production safety is properly conducted.

Typhoon, flooding, and other natural disasters are becoming more and more frequent in recent years, and they threaten the life safety and production safety of local enterprises and their employees. The Company has identified five key safety management tasks for this year: (1) continuously carried out inspections and evaluations of the production safety responsibility system, ensured the establishment of a list of responsibilities for each post, standards for the work in place and accountability mechanisms, and sorted out, summarized, and notified common problems to encourage enterprises to rectify jointly; (2) promoted a dual prevention mechanism and made earnest efforts in the implementation of Guidelines for Classified Production Safety Risk Control (《安全生產風險分級管控導則》); (3) vigorously strengthened safety management in infrastructure construction and promoted an intrinsic safety management system in this regard; (4) learned from the accidents and monitored the shortcomings in outsourcing safety management and the system implementation to enhance outsourcing safety management, strictly controlled outsourcing personnel's entry, and enhanced rectifications for violations to ensure construction safety; (5) arranged tasks for safe production and prepared for major floodings during flood seasons to get through the flood season safely. The Company is committed to strengthening the implementation of safety responsibility and outsourcing management to mitigate the impact of natural disasters on employees and production safety through the above key tasks.

In 2024, there was no significant violation identified in the Company related to providing a safe working environment and protecting the employees from occupational hazards. In 2024, the number and ratio of employee occupational death were 0. In 2023 and 2022, the number and ratio of employee occupational death were 0.



6.1 Strengthening Intrinsic Safety System

According to the national laws and regulations on production safety, the Company, taking actualities of its subsidiaries into consideration, has established its own fourfold Intrinsic Safety System, which comprises intrinsic safety of personnel, process equipment, environment and management, including:

Ensuring Intrinsic Safety of Personnel

Intrinsic safety of personnel includes management staff and all employees' safety awareness, safety conception and safety management knowledge and skills. Management staff are required to have safety management knowledge and skills and lead by example, while employees are required to ensure safe operation by carrying out adequate controls. The safety behaviors of employees should gradually change from passive to active, and we urge employees to act in accordance with rules and regulations and show good safety behavior everywhere.

Ensuring Intrinsic Safety of Equipment

Intrinsic safety of equipment refers to that equipment, facilities, or process technologies possess inherent mechanisms for accident prevention. We adhere to high design and manufacturing standards and conduct systematic safety risk analysis for all stages, including the construction stages such as process adoption and equipment design, etc., as well as the routine inspection and maintenance during operation. We also proposed and implemented risk control measures and installed proper protection mechanisms for our processes and equipment to ensure the safe, stable and normal operation of equipment and systems within the prescribed operating period and maintain effective control throughout the time.

Ensuring Intrinsic Safety of Environment

Environment includes spatial environment, physical and chemical environment, natural environment, etc. The environment should comply with various standards. For the intrinsic safety of the spatial environment, we make sure that the production space, layout, various safety and sanitation facilities and passages comply with the state's relevant regulations and national standards. For the intrinsic safety of the physical and chemical environment, effective measures are taken to manage and control lighting, ventilation, temperature and humidity, noise, dust and toxic and harmful substances in compliance with national standards to ensure workers' health and safety. As for the intrinsic safety of the natural environment, we enhance the disaster resistance and prevention capabilities of process and equipment and implement emergency response and precautionary measures.

Ensuring Intrinsic Safety of Management

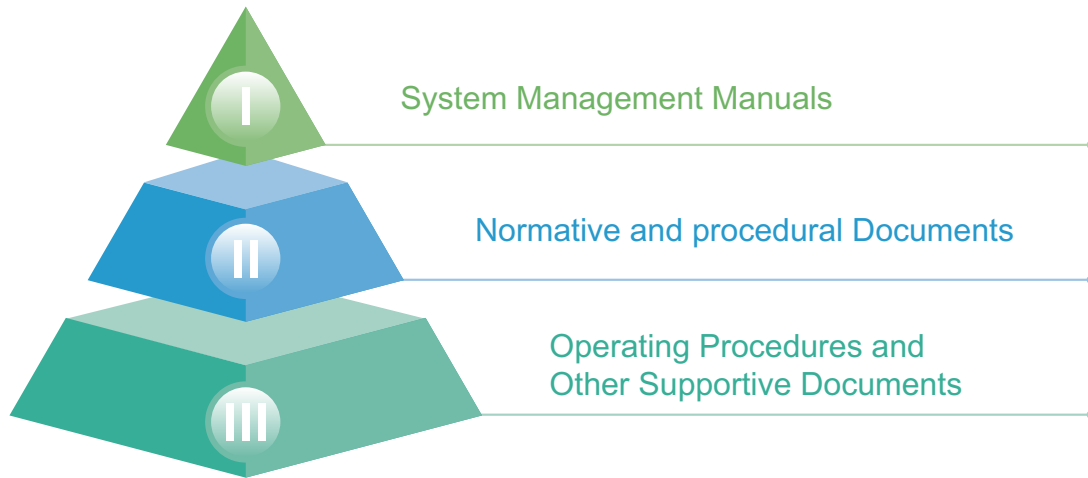
Intrinsic safety of management requires, under the condition of abiding by the national laws and regulations, companies' formulation and implementation of higher standards on safety, norms, and regulations, as well as their development of a comprehensive management system. In respect of safety management, we are transitioning from post-incident based to identification-based in our safety management, and we are emphasizing more on process controls rather than remedial efforts when responding to safety incidents. We also seek to apply safety system engineering principles and conduct scientific analysis in formulating pre-emptive measures.

The PDCA Management Model of Intrinsic Safety System

The Company's Intrinsic Safety System follows the PDCA management model, e.g., PLAN, DO, CHECK and ACTION, and this loop-closed system can enable continuous improvement. The management model consists of six key elements: leaders' commitments, policies concerning safety, health and environment, planning, implementation and operation, inspection and corrective measures, and management review.



The Company's documents concerning Intrinsic Safety System consist of system management manuals, normative and procedural documents, as well as operating procedures and other supportive documents. Some major documents include the Administrative Measures for Production Safety Supervision (《安全生產監督工作管理辦法》), the Regulations on Production Safety (《安全生產工作規定》), the Implementation Rules for Safety Performance Assessment (《安全績效考核實施細則》), and the Emergency Management Measures for Major Incidents (Accidents) (《重大突發事件(事故)應急管理辦法》), etc.



In 2024, the Company continued to develop its intrinsic safety system:

1

Solidly carry out the Three-Year Action Plan for Tackling Root Causes in Production Safety and deeply implement the “The Year of Tackling Hazards” action. We implemented hazard classification and hierarchical management to improve the quality of hazard detection and control.

2

Continuously conduct assessments and inspections on the implementation of the production safety responsibility system, adopting a four-tier collaborative inspection model that includes self-inspections by grassroots enterprises, spot checks by secondary units, mutual inspections among regions, and supervisory inspections by the company. Efforts will be made to establish a normalized and long-term mechanism. For identified issues and hidden dangers, the root causes will be analyzed, rectification suggestions will be put forward, and assessment reports will be issued. A holistic approach will be applied to address common problems effectively.

3

Taking “combating the three violations, six strict checks, and hidden danger rectification” as the main thread, strengthen on-site safety management and create a safe working environment. Place high emphasis on organizational management outside of “regular working hours” and during holidays to ensure that on-site safety production remains uninterrupted 24/7. Conduct special inspections for flood prevention and safe navigation, peak summer management, hazardous chemicals, network-related safety, confined spaces, and power supply assurance during special periods.

4

Focus on the contract performance management, responsibility management, and supervision of outsourcing units, and promote the optimization and reduction of the number of outsourcing teams.

5

Enhance emergency response capabilities. Clarify responsibilities and optimize early warning and response procedures. Strengthen monitoring and early warning systems, and promptly activate emergency plans. During the battle against the super typhoon “Yagi”, Hainan Company, with 25% of the total installed capacity, provided 40% of the electricity to the entire grid. Organize emergency drills for flood prevention and response, gas leakage, and total power loss at Dezhou Power Plant, Nanjing Gas Turbine Power Plant, and Haikou Power Plant.

6.2 Enhancing Safety Supervision Effectiveness

The Company and all its affiliated units have established a robust safety management structure and a complete set of safety supervision mechanisms to fulfil safety supervision responsibility. The management, construction and operation maintenance team and other business functions incorporate the production safety principle with their business line to better form a production safety protection system. The interaction of safety supervision and protection ensures the accomplishment of production safety targets.

Establishing Safety Supervision System

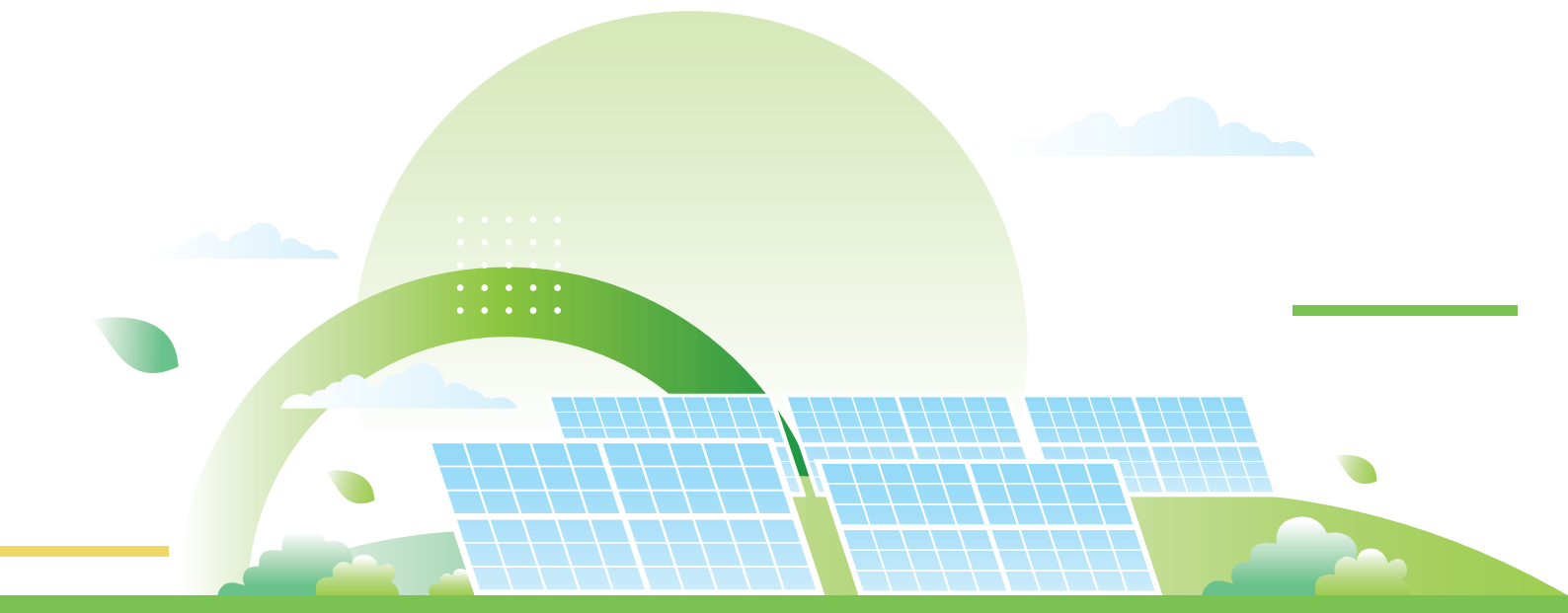
Huaneng International always adheres to the policy of “safety first, prevention first, comprehensive management” and implements the national, industrial, and Group Company’s guidance and arrangements on production safety. The Company established a rigorous safety supervision system to ensure intrinsic safety is implemented for every stage of production and operation. The Company takes charge of system design, business strategy, on-site supervision and other work. Regional branches are responsible for implementing the Company’s various safety management requirements, work plans and deployment decisions, and fulfilling the duty of organization and coordination as well as specifying the major responsibilities of their affiliated grassroots units. Grassroots business units are tasked with implementing the Standard on the Fulfillment of Production Safety Responsibilities (《各級人員安全生產責任到位標準》) and the safety responsibility of all levels and positions, establishing the responsibility consciousness of “the one who is responsible is the one who works, the one who inspects, the one who is in charge and the one who approves”.

6.3 Implementing Safety Measures

Huaneng International thoroughly implements the proposition of Xi Jinping on production safety, addresses the importance of production safety, and orientates with comprehensively improving the level of intrinsic safety, continues to deepen the reform and development of production safety, promotes to assign production responsibility at all aspects, and strives for the goal of “zero accidents” and “zero deaths”. The Company has taken comprehensive and effective measures in system improvement, risk control reinforcement and emergency management through the responsibility system to promote the implementation of production safety, and solidly implemented special rectifications for production safety, contributing to the continuous enhancement of production safety.

Overall Production Safety

In line with the deployment of the State Council Work Safety Committee to conduct the Year for Strengthening Safety Management action among Central Enterprises throughout the country, Huaneng International implemented various special rectification works and successfully accomplished the task of ensuring power supply during the crucial period. The Company also conducted flooding prevention and control to defend against the natural disasters. In 2024, there was no major or above accidents that occurred in the Company.





Carrying out Comprehensive Safety Inspections to Eliminate Hazards in Time



Strengthening process tracking and making decisions in real time. We hold morning meetings concerning production safety to analyze problems, keep abreast of the production safety conditions of the grassroots units, provide security instructions, and commence related work in time.



Enhancing organization management to ensure that responsibilities are individual-specific and the on-duty policy is strictly implemented. The leading groups at all levels take the lead in fighting the flood.



Strengthening the routine investigation and handling of potential hazards. We focus on the hazards identified to ensure thorough risk prevention and control with measures in place and hazards being properly managed.



Putting emphasis on "Personnel Safety". We inspect the slopes around the production and living areas, as well as the prevention and avoidance of debris flow, to ensure that production and living facilities are away from hazardous areas.



Strengthening emergency management, performing emergency drills, improving emergency plans and ensuring sufficient material reserve for emergency.



Strengthening monitoring and early warning, taking emergency response measures promptly and scientifically. We cooperate with local governments by following the orders, actively participating in emergency rescue and evacuate personnel in time.





Strengthening Risk Management and Control, and Improving Comprehensive Safety Risk Management and Control Ability



We strictly implement the “three musts”¹⁷ principle to ensure the effectiveness of the production safety responsibility system, and mainly conduct “penetrating” supervision and inspection on units liable for accidents. Secondary units are subject to safety management evaluation, and grassroots units shall make rectification in safety management. We continuously inspect and evaluate the implementation of the production safety responsibility system. In 2024, we organized experts within the system to carry out inspection and evaluation of the responsibility system, as well as safety re-evaluation for grassroots units. These experts analyzed the root causes of hazards, provided suggestions and issued assessment report, to promote joint rectification of common problems and improve the Company’s overall production safety management.



We earnestly carry out the Three-Year Action Plan for Tackling Root Causes in Production Safety (安全生產治本攻堅三年行動). Specifically, we have formed action plans and a specialized organization with clearly defined responsibilities and strong leadership to proceed with “The Year of Tackling Hazards” action. We implemented hazard classification and hierarchical management to improve the quality of hazard detection and control, achieve a “dynamic zero” of significant hazards and properly control safety risks on site.



We make targeted efforts on the in-depth analysis of risks in key areas to shift the focus of safety management to prevention, thus preventing and resolving major risks at the source. For infrastructure construction, we focused on key aspects such as lifting and major risks such as fall accidents to strengthen on-site risk prediction and control. More targeted safety measures have been formulated and implemented for different operations in new energy infrastructure projects. For power generation, we thoroughly adopt “personnel defense, technology defense, engineering defense, management defense” measures and provide more guarantee for production safety fund to eliminate the hazards of generation unit operation in a timely manner. For thermal power entities, we have fully implemented the urea substitution transformation project to eliminate all major hazards related to liquid ammonia. For outsourced projects, our management of the outsourcing units focused on contract performance, responsibility, and supervision, optimizing the units to a reduced size. For new businesses and other areas, we further improve our professional management capabilities, and supervise key areas such as power network, energy storage and hydrogen energy, and coal chemical industry to ensure that risks are managed to a controllable extent.



“Production Safety Month” Activities of Huaneng Shandong Branch

Adhering to General Secretary Xi Jinping’s important instructions on production safety, Huaneng Shandong Branch carefully made arrangements for the “Production Safety Month” and encouraged all units to actively carry out emergency drills for flood prevention and life-saving passages clearing. The drills focused on eight scenarios including the loss of power in 6KV section during generation unit operation, backflow of stormwater in main building, and water intrusion in cable tunnels. These activities effectively enhanced the safety awareness of all employees and built a solid line of defense for safety.



“Production Safety Month”
Activities of Huaneng Shandong Branch

¹⁷ Industry regulators, enterprise managers and persons responsible for production and operations must all oversee production safety.

Enhancing Safety Risk Awareness, and Improving Staff's Emergency Response

Through Production Safety Promotion Year Action, Huaneng International strengthened the safety management in key areas and weak links, and further fulfilled safety responsibilities. We promoted the implementation of the “dual prevention” mechanism integrating classified risk control and potential risk inspection and clearance in all respects, effectively containing production safety accidents and facilitating high-quality development of the Company.

The Company continued to promote scenario-based emergency drills expanding from traditional accident scene emergency simulation to enterprise-local government cooperation in disaster relief, crisis response, and aftermath recovery. From the comprehensive scenario-based drills, the Company identified issues, refined its emergency response processes, strengthened the construction of emergency management team and enhanced its emergency response capacity and efficiency.

6.4 Safeguarding Employees' Health

The occupational health of our employees has always remained Huaneng International's top concern. In compliance with the Labor Law of the People's Republic of China (《中華人民共和國勞動法》), the Production Safety Law of the People's Republic of China (《中華人民共和國安全生產法》), the Law of the People's Republic of China on Prevention and Control of Occupational Diseases (《中華人民共和國職業病防治法》) and other laws and regulations, the affiliated units of the Company formulated the Occupational Disease and Hazard Management Standards (《職業病危害管理標準》), Employee Health Supervision and Management Standards (《職工健康監護管理標準》), Management Standards for Health Protection of Female Employee (《女職工健康保護管理標準》) and Occupational Health Management Rules (《職業健康管理規範》) in accordance with the requirements of the Company's intrinsic safety management system. We always put our employees' health and safety first by raising awareness of work safety and preventing accidents.

The Company strictly implemented regular safety hazard inspection, hazard notification, prevention and control and offered regular health checks for positions with exposure to occupational hazards. A health monitoring file inventory has been established for positions at different levels to ensure that occupational health and safety were under control. All grassroots business units set up occupational health management organizations to implement occupational disease prevention responsibilities as well as identify workplaces with occupational hazards against relevant standards to determine the hazard level and form a list of positions with occupational hazards and notifications of occupational disease hazards. Employees are trained on occupational disease prevention, while clear warnings are put up in workplaces with potential occupational hazards where regular inspection is carried out. We provide employees with sufficient personal protective equipment that meets the national occupational health standards, as well as instructions on correct wearing and operating methods. Regular occupational health examinations, e.g., chest X-ray and hearing test, were conducted for employees in relevant production positions such as fuel supply, boiler operation and overhaul, and an established occupational health management database was in place. To safeguard employees' health, the Company has installed climbers or elevators for all new projects to reduce the possibility of typical occupational diseases, such as lumbar disc herniation in the wind power industry. Projects that had already been put into production are also required to install the equipment to reduce the employees' climbing exercise intensity and reduce the inducing factor for diseases.

6.5 Raising Employees' Safety Awareness

Raising employees' safety awareness is the key to the Company's safety management. Providing safety training for employees and encouraging them to participate in the Company's safety activities to ensure that they are aware of the importance of safety and practice appropriate safety behaviors is the key guarantee to creating an intrinsically safe enterprise.

Huaneng International incorporated safety education and training into the Company's annual and medium-term and long-term plan. It established double-level and triple-level educational and training mechanisms and ensured the supply of required coaches, funds and logistics. The Company is responsible for preparing training plans according to the safety education outline, organizing safety education and training, and maintaining training records and archives. All business units of the Company ensured that employees receive adequate training, customize safety education plans and organize training for power plants, departments, and teams based on their production characteristics.

6.6 Consolidating Infrastructure Construction Safety

The Company is devoted to infrastructure safety management and promotes the execution of the intrinsic safety management system in this regard. The Company monitored the gaps in outsourcing safety management and the system implementation to improve outsourcing safety management. The Company strictly controlled the entry of outsourcing personnel and enhanced rectification measures for violations to ensure construction safety. The Company formulated the Regulations for the Safety Management of Power Engineering Construction (《電力工程建設安全管理規定》), specifying rules on how contractors should fulfill safety management when contracting power engineering construction and regulating the accomplishment of the safety management target.

Strictly Managing Contractors' Qualifications

The Company ensures that only qualified contractors can participate in the construction of the Company's projects. The contractors' qualifications, performance records and bidding documents are carefully evaluated. Bidding is only open to contractors with appropriate qualifications, proven performance records and adequate capabilities for the project. Those with a history of major safety accidents are strictly prohibited from bidding for the Company's projects.

Strictly Managing Subcontracting

Any form of illegal subcontracting is strictly prohibited by the Company. The contractor must obtain the construction unit's consent for subcontracting and the subcontractor must have corresponding qualifications and production safety licenses. Contractors assume overall responsibilities for on-site construction safety. They shall strengthen on-site management and control by incorporating their subcontractors into their safety management system and implementing safety measures.

Strictly Managing Safety Training and Education

The Company requires contractors to organize production safety training and education, establish a safety training system, specify the production safety training department and its principal, formulate an education and training plan for production safety, establish employee safety training filing records, regularly identify safety education and training needs, and assess the effectiveness of training to continuously improve employees' awareness of safety and self-protection.



Deepening the Implementation of the Responsibility Subject

The Company has established a sound production safety responsibility system, specified the responsible personnel, scope of responsibility and assessment standards for each production safety position, as well as safety management responsibilities for engineering construction at all levels, and strengthened safety supervision and management, ensuring the effective operation of the safety supervision and assurance system.

Enhancing On-site Safety Control

The Company vigorously improves safety through technology, develops and promotes the function of smart infrastructure security modules to assist on-site safety control, implements closed management of construction sites by strict access control, tightens management and control of employees' actions and working process, and reduces habitual violations. The Company also prepares and approves a technical scheme for operation safety and fulfills technical disclosure for construction safety and on-site safety supervision to control safety risks of contractors effectively.

Enhancing Potential Risk Inspection and Mitigation

The Company organizes contractors to carry out large-scale on-site safety inspection on a regular basis to assess, record and file the potential safety risks identified. The Company is responsible for supervising contractors to formulate and implement rigorous mitigation plans as well as performing acceptance inspection of the potential hazards mitigation for closed-loop management of potential risk inspection and mitigation to consolidate and improve the infrastructure safety.





07

*FORGING TALENT FOR A
GLORIOUS FUTURE*



People are the most precious asset of an organization and the core driving force for its sustainable development. Human resource is essential to the success of the Company. Huaneng International is conscious of the significance of workforce cultivation and dedicated to building a top-notch professional talent reservoir. At the Company, we respect employees' rights and interests and acknowledge their value. We also provide a development platform and a favorable working environment for them. Regarding employees as the cornerstone of the Company's long-term prosperity, we make every effort to promote the common development of the Company and the employees.

FORGING TALENT FOR A GLORIOUS FUTURE

4 QUALITY EDUCATION



5 GENDER EQUALITY



8 DECENT WORK AND ECONOMIC GROWTH



10 REDUCED INEQUALITIES



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



7.1 Safeguarding Employees' Rights and Interests

We are devoted to the goal of “maintaining long-term, stable and good relationships with the employees” and the principle of “lawful employment and equal employment opportunity”. We create a friendly environment where everyone has a chance to contribute and achieve career development and self-worth. We are dedicated to improving employees’ sense of fulfillment and happiness while continuously enhancing unity within the Company.

Lawful Employment Equity

The Company strictly abides by the Labor Law of the People’s Republic of China 《中華人民共和國勞動法》, the Labor Contract Law of the People’s Republic of China 《中華人民共和國勞動合同法》 and the Provisions on the Prohibition of Use of Child Labor 《禁止使用童工規定》, as well as the Administrative Measures for the Recruitment of College Graduates (Trial) 《高校畢業生招聘管理辦法（試行）》, signs employment contracts with all staff and employs no minors under the age of 16. The Company has consistently and strictly implemented national laws and regulations on the minimum age limit and clarified the rights and obligations of both parties regarding labor and employment to avoid the risks of violation such as child labor and forced employment at the institutional and operational levels. The Company provides equal career opportunity and protection to staff with different nationalities, races, genders, religious beliefs and cultural backgrounds. We offer equal terms to male and female employees, oppose forced labor and job discrimination and adopt an equal employment policy through the entire employment period of each employee. The Company has diversified recruitment demands and thus can offer employees flexible choices of job positions. In terms of employment relationships termination, the Company strictly follows the established procedures to safeguard the rights and interests of all parties during the employee departure process, and to maintain the standardization and fairness of the Company’s human resources management. As the risk of the Company employing child labor and forced labor is rather low, there is no need to establish remedial measures for identified violations.

As of the end of 2024, the Company had a total of 56,263 employees, of whom 85.71% had received college qualifications or above. In 2024, no labor dispute arising from breaches of laws and regulations occurred.



Protection System of Employee Rights and Interests

Upholding our “people-oriented” principle, the Company regards employees as the primary resource and has established a comprehensive and robust system to protect employees’ fundamental rights and interests. We take employees’ concerns to heart, aim to improve employees’ loyalty, and strive to be a caring employer.

Basic Protection: In strict accordance with the requirements of the Labor Law of the People’s Republic of China 《中華人民共和國勞動法》 and the Social Insurance Law of the People’s Republic of China 《中華人民共和國社會保險法》 concerning employees’ rights and obligations, the Company has set up several social insurances including basic pension, basic medical insurance, work-related injury insurance, unemployment insurance and childbirth insurance as well as housing provident funds, annuities and supplementary medical insurances to ensure that employees’ rights are protected in the event of retirement, medical treatment, work-related injuries, unemployment or childbirth. The Company provides employees with work safety liability insurance to better safeguard their rights and interests. In 2024, the Company did not have any social insurance violations or defaults, and achieved full coverage of work-related injury insurance and work safety liability insurance.

Compensation System: The Company, based on the employee’s “position, performance, work efficiency and the principle of equality”, has established an effective incentive mechanism under which employee’s compensation is linked to the Company’s operating result and the employee’s individual performance. An employee’s total compensation includes basic salary, bonus, and allowance, and is paid on time in full amount.

Right for Leave and Vacation: The Company and its subsidiaries have established sound leave systems in accordance with the state regulations and local policies. The leave system specifies that leaves shall include statutory holidays, paid annual leave, home leave, marriage leave, funeral leave, maternity leave, sick leave and personal leave. Either the standard working hour system, the flexible working hour system, and the aggregated working hour system may be adopted based on the Company’s production condition and the employee’s position to protect the employee’s right to take leave.

Democratic Management and Openness of Factory Affairs

The Company continuously deepens democratic management and makes factory affairs more transparent to standardize the operation of employees’ assembly and clarify its functions. The Company organized the third plenary meeting of the second representative assembly of the labor union. The Company also held the fourth meeting of the second employees’ assembly and implemented the Guiding Opinion on Further Strengthening the Construction of the Employees’ Assembly System of Central Enterprises 《關於進一步加強中央企業職工代表大會制度建設的指導意見》 issued by the Party Committee of the State-owned Assets Supervision and Administration Commission. During the meeting, the work focus of the Company’s labor union in 2024 was determined, as part of our efforts to further deepen the standardization of the employees’ assembly. The Company strengthened the construction of the democratic management system, implemented the employees’ assembly system and the factory affairs openness system, standardized the management and performance of employee representative supervisors, so as to expand the participation of employee representatives in the Company governance in an orderly manner and improve the scientific level of democratic management. We also uploaded policies regarding the labor union to the Openness of Factory Affairs tab on our official website, thus protecting employees’ rights to know, participate, express and supervise in order to promote joint development of the Company and our employees.

7.2 Improving Talent Cultivation Mechanism

In the spirit of “human resource as the primary resources of the Company”, Huaneng International vigorously promotes its talent-driven development strategy. With talent capacity building as the core and optimization of talent structure as the main task, we develop talent resources, optimize talent allocation, improve talent ability and quality, create an enabling environment for talent growth, and inspire talent innovation by seizing the three links of attracting, training and making good use of talents. By doing so, we build a loyal, honest and responsible team of talents with excellent quality and proficiency, which is well structured, professionally equipped, devoted to careers in Huaneng and in line with the Company’s development and strategic needs.

Training and Development

To strengthen the construction of a training organization system and further improve the three-level training system consisting of “headquarters – regional branches – grassroots business units”, the Company has established nine group level training bases (training classrooms). All grassroots business units have training centers to actively carry out training related to technology, skills and management.

The Company strictly follows the Regulations on Team Leader Training (《班組長培訓規定》) and the Regulations on Production Worker Training (《生產人員培訓規定》) to facilitate training that meets the needs of the Company and employees at the regional branches and grassroots business units based on the actual situation. Focusing on the critical tasks of the year, the Company has developed the 2024 training plan, actively and steadily promoting training related to professions, skills and management. Based on the actual situation, each regional branch has formulated its training plan, comprehensively summarizing the training work of this year, studying and proposing training plans and ideas for the next year, to further improve the training work.

In 2024, the Company, regional branches and grassroots business units conscientiously implemented the annual training plans, coordinating and organizing on-board training for new recruits, business management training and production skill training. We carried out various skill contests, technical competitions and on-the-job exercises, 50 were awarded the “Huaneng Craftsmen” title, and 130 were awarded the “Huaneng Group Technical Expert” title. The Company also proactively arranged recognition of occupational skills and occupational skill appraisals, and deepened the reform of evaluation on skilled talents, so as to effectively enhance employees’ management ability as well as professional and production skills.

In 2024, the Company invested RMB30.8392 million in employee training.



Huaneng Jiangsu Gas Turbine Operation and Maintenance Skills Training Base

In 2024, Jiangsu Gas Turbine Operation and Maintenance Skills Training Base actively promoted skill training and competitions for gas turbine operation and maintenance at all levels. It held multiple training classes for gas turbine operation and maintenance skills and conducted concentrated skill assessment work for gas turbine duty officers. These efforts were of great significance for further enhancing the technical skills of operating personnel and promoting the construction of a high-level workforce in the gas turbine industry. The base also successfully hosted the Gas Turbine Duty Officer Skills Competition for enterprises under the provincial departments in Jiangsu Province, which effectively encouraged employees to love their jobs and be dedicated to their duties, created an atmosphere of learning from each other and striving to be the best, and provided an important support platform for the growth and development of employees.



Jiangsu Gas Turbine Operation and Maintenance Skills Training Base



Huaneng Chongqing Branch Established and Improved a Talent Evaluation System Based on “Points System”

Huaneng Chongqing Branch records employees’ behavioral performance, innovative achievements, work performance, and other aspects in the form of points, which serves as the “master switch” for the selection and appointment of cadres and the comprehensive development of employees.

1

Conduct comprehensive assessments. A talent development coordinate system covering 60 indicators has been established, encompassing 10 aspects such as professional technical qualifications, technological (management) innovation, patent invention, and system establishment. The points-based system is applied to draw a roadmap for talent evaluation.

2

Conduct comprehensive investigations. Methods such as self-reporting and survey questionnaires are used to guide employees to conduct career planning from five aspects: time management, development direction, development position, corresponding goals, and development pathways. This sets a broad and boundless “career development highway” for talent development. The point-based talent evaluation system promotes more targeted selection and employment of personnel and provides valuable exploration for identifying talents.

Career Development

The Company focuses on employees’ career development, continues to optimize the talent allocation and growth environment, constantly refines employee promotion system, provides diversified career development paths of management, professional and technical, and skilled operations to employees, and further stimulates talents’ enthusiasm and injects vitality into the Company.

The Company makes further efforts to refine its talent system and mechanism and optimize the recruitment procedure and evaluation mechanism for professional and technical positions. The Company promotes employees with outstanding skill sets and performance or those well-recognized by their peers. Through this approach, the Company has set a stage for talent to stand out and has built an excellent platform for talents to showcase their potential.

The Company continues to strengthen its core management team. Upholding Xi Jinping’s Thoughts on Socialism with Chinese Characteristics for a New Era, and implementing CPC’s roadmap in the New Era, we adhere to the basic principles of “evaluating candidates by their moral integrity and professional competence with priority given to the former and appointing those with good merits” to select and appoint cadres. Moreover, we persist in the correct orientation for the selection and appointment of people and concentrate on developing both the Company and Huaneng’s business to select the cadres with the right political ideology, a strong sense of responsibility, an aspiration to do great things and great performance. We train the cadres in practice through job rotation and more extensive communication, thereby facilitating talent flow and optimizing human resource structure. We continuously improve management’s performance to handle complex situations and build a talented team of high-quality and professional cadres, which meets the standards of qualified cadres in the new era who are loyal, honest and responsible.

The Company continuously strengthens talent development, deepens the cultivation of international talents, actively and steadily carries out training work, proactively carries out title management and talent evaluation work, and optimizes employee recruitment to improve core management and professional teams’ comprehensive skills and management capability.

In 2024, the Company further strengthened the selection and training of young cadres, continuously improving the age structure and stimulating young employees’ working enthusiasm. The Company formulated development plans for young talents and enhanced talent training with the consideration of the Youth League Committee’s work, providing a platform for outstanding youth to practice and strengthen their ability to help the Company develop versatile talents.

In the future, the Company will deepen the reform of labor, personnel and distribution system, enhance the effectiveness of these reforms, further improve the talent cultivation mechanism, optimize talent development environment, strengthen talent resource development and encourage staff to continuously improve themselves in their positions to achieve self-realization and joint development with the Company and staff.

7.3 Maintaining the Mental and Physical Health of Employees

Employees are fundamental to the development of the Company. The Company can only continuously and steadily supply energy for economic and social development based on the hard work and dedication of all employees. The Company always adheres to the “people-oriented” development concept and vigorously implements the talent-driven development strategy to enable staff and the enterprise to grow together, sharing the fruits of reform and development, thus filling employees’ work and life with happiness.

In 2024, adhering to the newly revised Trade Union Law of the People’s Republic of China 《中華人民共和國工會法》), the Company was devoted to serving the employees. In preparation for natural disasters and major safety accidents, the labor union organized knowledge training on personal safety protection and emergency response for all employees. The training contains four modules, including CPR and AED use, hemostasis and bandaging, medical emergency treatment, disaster prevention and emergency knowledge training. In addition, the Company actively helped employees solve problems and difficulties in their work and life, so that employees can feel the care and warmth of the Party Committee of the Company and feel happier and more secure. In doing so, the unity, cohesion and synergy of the Company can be promoted.



Training on Personal Safety Protection and Emergency Response

The Company protects the legal rights and interests of female employees and encourages them to achieve success in their posts. On the occasion of the International Women’s Day, we organized a Q&A activity regarding the 18th National Congress of the All-China Federation of Trade Unions (ACFTU) and the 13th National Women’s Congress of China, during which female employees recalled the highlights of the congresses, to encourage female employees to be entrepreneurial and proactive. We organized female employees to participate in the “March 8th” Female Employees’ Walking Competition for the Group Company’s business units in Beijing. We also mobilized female employees to take part in events such as the 12th “Literary March 8th” reading campaign and vigorously cultivates and selects the Company’s “March 8th Red-Banner Collectives” and “March 8 Red-Banner Holders”. The Company conducts primary survey on preparation of employees’ children for primary school, or junior high school, as well as for high school or college entrance exams, and sent gifts and blessings to them before the entrance exam.



Participating in the “March 8th” Female Employees’ Walking Competition for the Group Company’s Business Units in Beijing

The Company has carried out a wide variety of colorful cultural and sports events both online and offline. We organized employees to participate in the Group Company's Summer Fitness Jogging Event 2024 and "Messengers of Light – Celebrating the 75th Anniversary of the Founding of the People's Republic of China" 2024 China Electric Power Art Exhibition held by China Electric Power Art Association. We mobilized employees to contribute to "My Motherland and I" calligraphy and painting collection event held by the Group Company's Calligraphy and Painting Association. We also participated in the 2024 National Electric Power Workers Table Tennis Competition. These efforts help employees to devote themselves to the new journey of high-quality development of the Company with a better mental state and healthier physique.



Participating in the 2024 National Electric Power Workers Table Tennis Competition





The Company has always adhered to the harmonious development concept of “serving the nation, benefiting the society, seeking multiple wins and growing together.” While seeking our own development, we take into account the reasonable expectations of stakeholders and join hands with all parties to promote the high-quality development of the economy and society. The Company formulated management policies such as Supplier Management Measures of Huaneng Power International, Inc. (《華能國際電力股份有限公司供應商管理辦法》) and attaches great importance to supplier management and collaboration, ensuring the stable and efficient operation of the supply chain and providing high-quality energy services to downstream customers. In addition, the Company supports the sustainable development of the communities where it operates. We contribute to public welfare projects and community building, with a view to the common prosperity of the Company and the communities.



08

*STRIDING FORWARD
SHOULDER TO SHOULDER*

STRIDING FORWARD SHOULDER TO SHOULDER



8.1 Collaborating Closely to Co-create Development Momentum

Building trusted and cooperative relationships with suppliers is crucial to realizing the Company's strategy, and fundamental to improving the stability of supply chains. Our policy is to remain open, fair and just in working with suppliers, and we emphasize effective communication to strive for suppliers' understanding and recognition of the Company's corporate values and culture. We hope to maintain long-term and mutually beneficial relationships with suppliers and jointly promote the stable and sustainable development of the industry.

Based on the supply category, the Company divides our suppliers into three categories: material, service and engineering. The Company's supplier management emphasizes the principle of "Classified management, stringent acceptance control, quantitative assessment and dynamic maintenance".

Supplier Development

The Company's business units at all levels conduct supplier stocktaking and analysis each year to identify more high-quality suppliers for our supplier inventory. Meanwhile, the Company solicits eligible suppliers through various channels, such as procurement guides, mass media, product launches, product showcase (sales) events, industry associations, employee recommendations, public tenders and supplier liaisons.

Supplier Acceptance

The Company's business units at all levels impose stringent controls on supplier acceptance. Only suppliers with a good reputation, advanced technologies, excellent product performance and strong ability to perform are accepted, and accepted suppliers are scrutinized for the legality of their business operations and the authenticity of their qualifications, among other things.

Supplier Selection

We select suppliers in an open, fair and just manner, considering their environmental and social impact. Procurement activities are classified into two categories, namely tendering procurement and non-tendering procurement. Tendering procurement includes open tender and invitation to tender, while non-tendering procurement includes competitive negotiation, quotation and single-source procurement. For tender projects that are required to be conducted openly according to the law, the related work procedures are carried out in strict accordance with national laws and management systems of the Company, and all procurement activities are implemented publicly through the procurement management platform and e-commerce platform to achieve the goal of "all tenders should be recruited, and all activities shall be disclosed publicly".

The Company requires all suppliers taking part in a tender to have the ISO 14001 environmental management systems certification and the ISO 9001 quality management systems certification. Suppliers included in the List of Enterprises with Serious Illegal and Dishonest Acts by the industry and commerce administration authorities in the National Enterprise Credit Information Publicity System, or the List of Dishonest Persons Subject to Enforcement by the Supreme People's Court on the website of "Credit China" or credit information sharing platforms at all levels are prohibited from participating in procurement activities. If the supplier has already participated in procurement activities, the tendering documents or response documents will be rendered invalid. Suppliers whose related relationships are prohibited by law and agents and suppliers sub-authorized are prohibited from participating in the procurement activities of the same project. The tendering documents or response documents of those who have participated in procurement activities will also be rendered invalid.



Supplier Assessment

Supplier assessment is based on the “user assesses” principle. Based on Huaneng’s procurement management platform, each of the Company’s various business units conducts comprehensive and annual assessments on the project implementation of suppliers who have contractual relationships with the unit. Suppliers will receive assessment feedback through the e-commerce platform, which serves as an essential reference for future procurement.

Supplier Monitoring

In response to the quality problems occurring in the provision of procurement services by suppliers as well as the problems in suppliers’ integrity, delivery, and service during their participation in warehousing applications, procurement activities, and contract performance, the Company will, depending on the severity of the problems, take punitive measures such as downgrading, suspension of the award of contracts, and suspension of cooperation for a limited time.

Supply Chain Risk Management

Huaneng International is committed to ensuring the stability of the supply chain through effective risk management measures. The Company integrates procurement and supply chain risk control into its comprehensive risk management system as a key component, and clearly defined the risk management responsibilities of different levels such as the Board of Directors, the general manager’s office, the management, and the risk management coordination and consultation body. The Company has established a supply chain risk analytic model, a collaborative risk early-warning system, and a material reserve system, to collaborate more effectively with suppliers, build up our capabilities in supply chain risk assessment, early-warning, and emergency response, and strengthen our ability to deal with market changes and unexpected events. The improvements help reduce the impact of supply disruptions and provide a solid guarantee for the Company’s sustainable development.

Additionally, the Company vigorously promotes in-house R&D and technological innovation. Relying on the strength of internal professional organizations, we have identified products prone to tight supply with equipment and components inventory, and developed supply chain risk response measures accordingly. In the process of procuring infrastructure and production materials under framework agreements, the Company clearly states that it will promote and substitute with domestic products to reduce the supply chain’s dependence on overseas sources of goods, thereby further improving the stability of the supply chain.

Coal Procurement

Medium and long-term coal procurement contracts are the “ballast” and “stabilizer” of energy security and supply. Strictly assign and fulfill coal procurement medium and long-term contracts, and forming “industry, operation and demand” stabilized and effective long-term mechanism, plays an important role in promoting healthy development of industry upstream and downstream, ensure the safe and reliable supply of coal, and maintain national energy security. As a large power-generating company, Huaneng International places much emphasis on fuel supplier management. The Company’s Fuel Supplier Management Measures (《燃料供應商管理辦法》) clearly defines the supplier development and audit responsibilities at all levels, the principle of supplier access, the approval body and process for supplier approval, as well as the supplier evaluation, promotion and downgrading, and withdrawal mechanisms and others. It also specifies the classifications of suppliers and their corresponding management measures, and regulates the supply channels and procurement activities for fuel purchase. Regarding the monitoring and management of suppliers, the Company’s business units assess suppliers each year in terms of coal supply stability, contract performance, contract fulfillment, production volume, procurement pricing and dispute resolution. At the same time, the Company’s business units perform fuel supplier management inspections from time to time, examining whether the relevant supplier management system is sound; whether such system is effectively implemented and whether the acceptance approval is regulated; whether the supplier assessments are objective and accurate; and whether the exit mechanism is put in place.

The Company selects suppliers with great care and carries out the authorized approval procedures for shortlisted suppliers. The Company works with its strategic suppliers in a “plant-mine direct supply” mode. In our view, strategic suppliers possess higher capability to fulfill contracts, have more stringent product quality controls, are more compliant with laws and regulations and are more likely to take social and environmental responsibilities. Strategic suppliers are usually large coal mine operators and are subject to stringent environmental protection requirements imposed by the state concerning their planning, design, infrastructure, exploitation and mining area management. Only those coal mine operators that meet these requirements are allowed for construction and operation. With constantly intensified efforts in releasing quality production capacity in recent years, large coal mines’ coal production work has further improved in terms of quality, environmental protection standards, safety and labor protection. There is also a specific set of requirements formulated by the state for the recruitment of miners in large coal mines. By selecting state-owned large mine operators and large coal mine operators, we ensure that suppliers fulfill their social, environmental, and labor protection responsibilities and obligations.

Always taking the green development concept of “energy saving, emission reduction, clean and environmental protection” as the guide, Huaneng International regards environmental protection as a prerequisite for the survival and development of the Company with the basis on national conditions and energy reform trends. Correspondingly, the coal-fired structure is optimized ceaselessly during the development process to improve resource utilization efficiency. In the process of fuel procurement, strictly abiding by the Interim Measures for the Quality Management of Commodity Coal 《商品煤質量管理暫行辦法》 announced by the state, the Company prohibits the purchase of low-quality coal that fails to meet the national control standards while encouraging the use of high-quality resources of high-calorie, low-sulphur and low-ash, which has made outstanding contributions to the national targets of achieving the annual target of controlling energy consumption and carbon emissions and promoting energy saving and emission reduction.

8.2 Providing Wholehearted Service for Harmonious Co-advancement

Huaneng International is devoted to providing power grid companies and other downstream enterprise consumers with high-quality power products and services in sharing the Company’s achievements with clients whilst ensuring a safe and stable power supply. The Company has formulated the Marketing Management Regulations 《市場營銷管理規定》, Electricity Market Trading Management Measures 《電力市場交易工作管理辦法》, Heat Supply Marketing Management Measures 《熱力市場營銷管理辦法》 and other marketing-related policies to regulate customer service processes. In 2024, the scale of electricity transactions in the provincial and municipal electricity markets expanded. The Company made use of various channels through electricity sales companies to strengthen the development of power users. It had a variety of customer types, a relatively stable number and electricity consumption of large users signed for the whole year, and a rapid increase in the number and electricity consumption of small and medium-sized users. Adhering to the customer-oriented service concept, the Company established a customer service mechanism, and conducted promotion meetings, regular communication via telephone and regular return visits to understand customer needs and solve their problems with electricity. The Company also actively developed value-added services for customers, providing information consultation, quotation agency, electricity consumption monitoring, energy consumption diagnosis, energy saving renovation, operation and maintenance, etc., to continuously improve customer satisfaction and maintain harmonious customer relationships. When receiving customer complaints, the Company immediately transfers the complaints to regional branches and grassroots units and supervises them to handle the complaints in accordance with the management regulations and procedures.



The Company adopts the following three approaches to improve customer service quality and customer satisfaction and gain greater access to the end customer market:



Continuously improve the level of professional technology and electricity sales services, fully consider the differentiated needs of users, and provide users with accurate and high-quality services.



Establish the service concept and a customer service system, which reflects the warmth of our service and technical professionalism, thus drawing customer relationships closer and improving the adhesiveness of users.



Encourage the development of chargeable value-added services for individual needs, promote the rapid development of value-added services, and actively explore business models that combine carbon trading with electricity trading.

8.3 Flourishing in Symbiosis and Jointly Constructing Our Shared Home

Huaneng International adheres to the development concept of “building a power station, driving regional economic growth, protecting the surrounding environment, benefiting the people and developing a harmonious community”, by promoting development of enterprises, wellness of people and protection of environment, and earnestly fulfilling our social responsibilities and giving an impetus to build a harmonious and win-win society.

Assisting in Rural Revitalization

For the nation to rejuvenate, rural areas must thrive. Huaneng International earnestly implements General Secretary Xi Jinping's important instructions on the work related to agriculture, rural areas, and rural people, as well as all the plans of the Group Company regarding rural revitalization. We focus on the five major areas, namely industrial revitalization, talent revitalization, cultural revitalization, ecological revitalization, and organizational revitalization. Drawing on the experience of the "Thousand Villages for Demonstration and Ten Thousand Villages for Renovation" Project and our own main business advantages, we optimized assistance initiatives based on the resource characteristics of the target areas, and carried out assistance projects in a targeted manner. We contribute considerably to the national rural revitalization strategy, and continuously vitalize the local economy. With a combined effort, we can write a new chapter in rural revitalization. In 2024, based on the resources available in the targeted assistance areas and the advantages of its main business, the Company invested in the construction of photovoltaic projects to improve the local energy supply and stimulate the collective revenue growth. In addition, the Company strengthened the support for characteristic industries and construction of public infrastructure to improve local economic vitality and promote sustainable rural development. The total investment in the assistance fund of the Company amounted to RMB17.756 million during the year. Besides, the Company made every effort to implement consumption assistance and promote the stable increase of income of the people in the assistance areas. The agricultural products that the targeted assistance areas sold to or through the Company worth about RMB40 million this year. The Company supports the national rural revitalization strategy through targeted assistance, stationing support teams in villages, and targeted donations. The Company has carried out various public welfare activities and been included in the "Top 500 Chinese Enterprises in Charity and Public Welfare of 2024", the "Top 500 Chinese Listed Companies in Charity and Public Welfare of 2024", and the "Top 500 Chinese Enterprises in Rural Revitalization of 2024". While contributing to the harmonious development of society, those efforts also enhance the Company's brand value.

Huaneng Shanghai Branch Assisted Tea Farm in Developing a "Tea-Photovoltaic Complementary" Power Generation Project

In 2024, Huaneng Shanghai branch forged ahead with the construction of ecological civilization in rural revitalization. It carried out a "tea-photovoltaic complementary" power generation project in local rural tea farms. In the project, one piece of land was used for multiple purposes. On the tea fields leased from the village groups and local people, tea plants are cultivated, and photovoltaic modules are installed above them. By adjusting parameters such as the installation positions, intervals, and the height from the ground of the photovoltaic modules, the yield of the economic crops beneath the photovoltaic modules remained unaffected. In light of the actual needs of the project, Huaneng Shanghai Branch arranged local people to train on maintenance and inspection of photovoltaic power station equipment, providing reliable job positions to local people and strengthening employment assistance.



"Tea-photovoltaic Complementary"
Power Generation Project



Huaneng Huaiyin Power Plant's Innovative Practice – Green Community Zero-carbon Intelligent Microgrid

With the aim of promoting the transformation of rural energy application, Huaneng Huaiyin Power Plant carried out an innovative demonstration project – zero-carbon intelligent microgrid. In 2024, the project, with a total investment of RMB1.58 million, was put into operation in Qianying community. The project is located in Weiying Town, Sihong County, Suqian City, Jiangsu Province. Monocrystalline silicon modules and breeze generators were installed on the rooftops of the community's village committee buildings, in the parking lots, and on the green open spaces. The project can provide 130 thousand kWh of green electricity for the community every year, generating a total income of RMB100 thousand. During its entire lifespan, the total revenue can reach RMB2.6 million, providing a new model for the integrated development of rural revitalization.



Zero-carbon Intelligent Microgrid Demonstration Project

Huaneng Hubei Branch Provided Assistance to Communities Affected by Flood Damage

During the flood season in 2024, Gaojiagou Village in Sanguandian Sub-district of Danjiangkou City was hit by continuous torrential rain and the resultant flood damage, which severely affected the production and daily lives of more than 400 local households. Huaneng Hubei Branch quickly called on all its business units to organize donations. All the management and employees, with a strong sense of social responsibility, lent a helping hand. The Party committee of the branch immediately handed over the RMB177.9 thousand raised and the letter of consolation to the local people. It also instructed Huaneng's working team stationed there to assist in the post-disaster reconstruction of facilities such as houses and roads. By taking practical actions, Huaneng Hubei Branch helped the affected people come over difficulties, restore the order of production and daily life, and rebuild their beautiful homeland.





Huaneng Chongqing Branch Engages in Public Welfare and Volunteer Activities

Huaneng Chongqing Branch always keeps its social responsibilities in mind and fulfils its mission by actively engaging in a wide range of volunteer service activities. It organizes young volunteers to visit local communities and schools to conduct science popularization activities on knowledge about electricity. They introduce the basic process flow of power plants to local residents and basic knowledge of electricity and electrical safety to students. On important festivals such as Children's Day and New Year's Day, volunteers visit local primary schools to deliver caring materials and scholarships to students and celebrate the festivals together with teachers and students. In 2024, Huaneng Chongqing Branch organized 284 volunteers to participate in volunteer services, with a total service duration of 64 hours. Through these practical actions, Huaneng Chongqing Branch has contributed actively to the harmonious development of society.



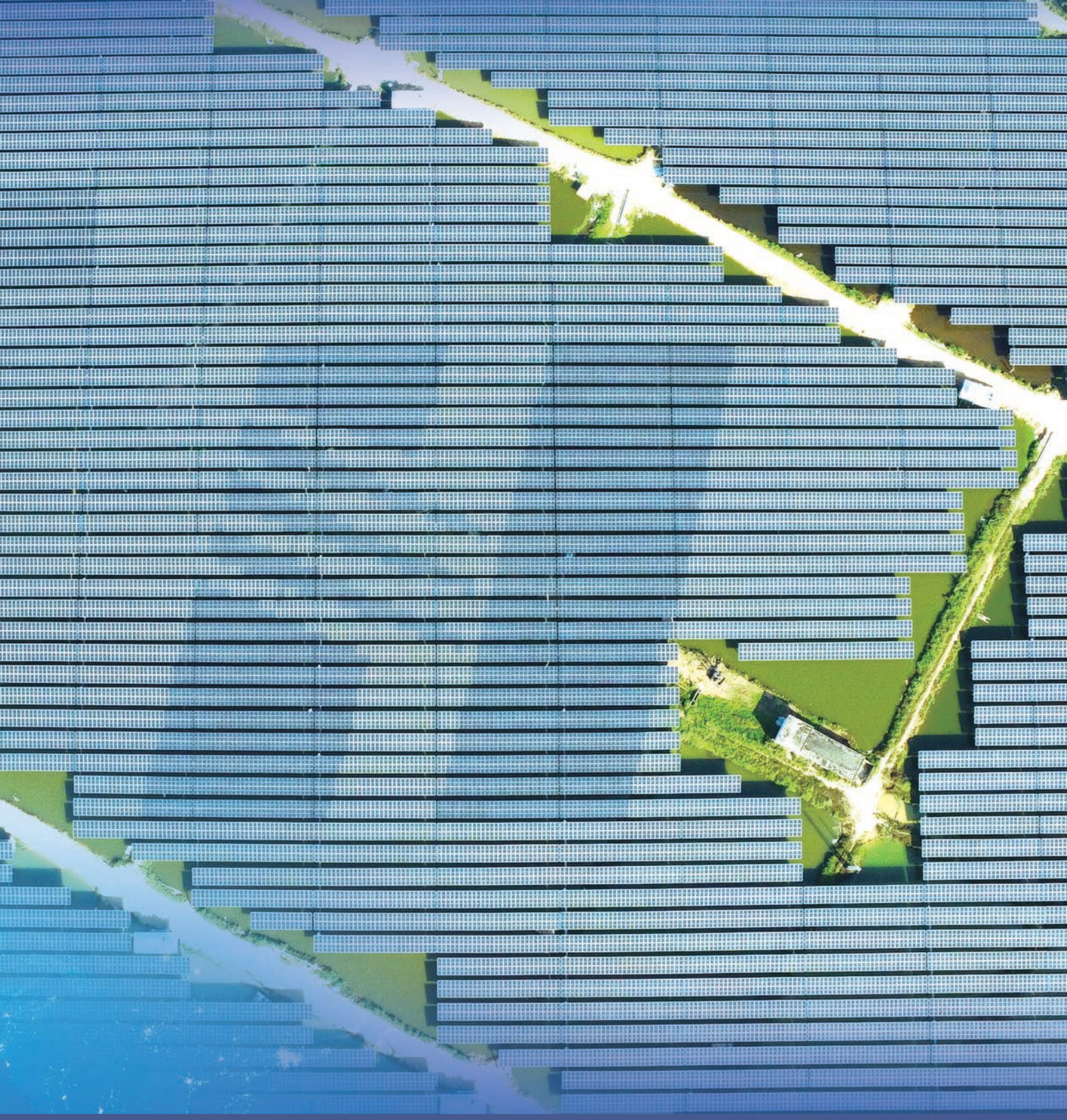
Huaneng Chongqing Branch Organizes Science Popularization Activities on Knowledge about Electricity





09

*ELEVATING THE BRAND WITH A
GLOBAL PERSPECTIVE*



Huaneng International successfully acquired 100% equity in Singapore Tuas Power Ltd. (“Tuas Power”) in 2008. Tuas Power is one of the three major power-generating companies in Singapore and one of Singapore’s major public utility and environmental service providers.

ELEVATING THE BRAND WITH A GLOBAL PERSPECTIVE



About Tuas Power

As of December 31, 2024, Tuas Power mainly owns assets such as Tuas Power Station, Tembusu Multi-Utilities Complex (TMUC), desalination plant, electricity retail company, and operates 7 generating units with a total installed capacity of 2.01 million kW. Among them, the Tuas Power Plant has an installed capacity of 1.876 million kW, and the Tembusu Multi-Utilities Complex (TMUC) has an installed capacity of 133.5 thousand kW. Tuas Power's share of Singapore's electricity market in 2024 is approximately 19.2%.

Tuas Power Station has been providing safe, reliable and efficient electricity supply to Singapore since 1999. The Station currently has five units of gas-fired Combined Cycle Plants (CCP) in operation that contribute to the country's electricity demand at a highly reliable performance of over 99%.

The Tembusu Multi-Utilities Complex serves the petrochemical industries in the Tembusu area of Jurong Island. TMUC comprises a Biomass Clean-Coal (BMCC) cogeneration plant, seawater desalination treatment plant and wastewater treatment plant, which provides different types of utilities – electricity, steam, high-quality industrial water and demineralized water for industrial customers. In respect of steam supply, TMUC provides a variety of pressure grades of steam to meet the differentiated needs of different customers while generating electricity. This process is completed by steam turbine generator sets. This cogeneration process helps to further improve the efficiency of the TMUC.

Going beyond providing energy service, Tuas Power enlarged its operations to cover multi-utility, environmental, oil terminals and storage and oil tank lease services – all of which utilized cutting-edge technologies and world-class practices to power today's industries. So far, Singapore Jurong Island Desalination Plant project co-developed by a consortium of Tuas Power and ST Marine has been put into operation, with a daily output of up to 30 million gallons (equivalent to about 137 thousand cubic meters) of drinking water.

Tuas Power emphasizes efficient and environmentally responsible energy solutions for modern business and industrial needs. Tuas Power insists on conducting operations in an environmentally responsible manner by maximizing plant efficiency, resource conservation, reducing waste and controlling emissions.

In 2024, Tuas Power had no reportable environment-related incidents. In the future, Tuas Power will continue to enhance environmental protection and safeguard measures.



Energy Conservation

Since 2024, Tuas Power has started to monitor energy performance. Using well-tested and calibrated thermodynamic models to perform off-line heat balance calculations, Tuas Power is able to monitor the efficiency performance of each unit. By comparing the current performance levels of the entire plant and its major facilities with the “Renewed · Clean” benchmarks under similar process conditions, Tuas Power can identify deviations and quantify the gaps in terms of energy savings and cost savings, so as to further follow up with and improve the efficiency of the power plant. This system can also provide early warnings and detect abnormalities, enhancing the reliability of the power plant. In 2024, Tuas Power exchanged and shared experience with power plants in China for many times to help their employees better monitor and analyze power plant performance.

The environmental, occupational health and safety management and planning systems of both Tuas Power Station and TMUC are certified to ISO 45001:2018 (Occupational Health and Safety Management System), ISO 14001 (Environmental Management System) and ISO 50001 (Energy Management System). While ensuring compliance with laws and regulations, these certifications help to identify key processes for improvement, and demonstrate the Company's tireless efforts to practice energy conservation and compliance.

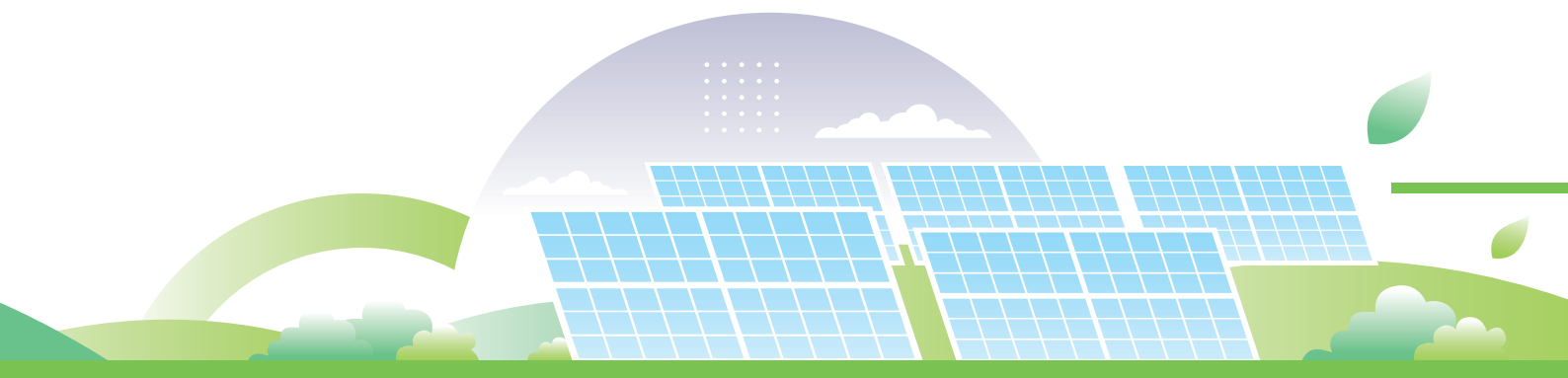
Jurong Island Desalination Plant (JIDP) commenced commercial operations on March 31, 2023, after rigorous testing and commissioning, marking another milestone in the Company's history. In 2024, the Operation and Maintenance (O&M) team of the desalination plant made great efforts to ensure the safe and reliable operation of the plant. With a focus on continuous improvement, the O&M Team has improved the operational control and maintenance systems with an emphasis on improving safety. In 2024, JIDP obtained the certifications of ISO 45001:2018 and ISO 14001:2015 management systems. These certifications demonstrate Tuas Power's commitment to safe and environmentally friendly operations. In addition to meeting the dispatch requirements of the Singapore Public Utilities Board for drinking water, the desalination plant has also collaborated with special consulting service providers to conduct long-term monitoring and research on the environmental impact of the project on the surrounding marine areas during operation. Through online testing of the backflow water of the desalination plant and regular sampling testing of water in the surrounding marine areas, the desalination plant ensures that its drainage always meets the emission standards of the National Environment Agency of Singapore and the impact on the surrounding marine is minimized.



Tuas Power Station



Tembusu Multi-Utilities Complex



Emissions Management

Management of Greenhouse Gas

In terms of greenhouse gas management, the carbon emission of the five units of CCP of Tuas Power Station is lower than that of the national average of all power plants in Singapore. Tuas Power Station has completed the CCP4 and CCP3 Unit F upgrade project in January 2023 and December 2023 respectively, which, as measured, can reduce carbon emissions by about 18 thousand metric tons per year. It is scheduled to be carried out the CCP1 and CCP2 Unit F upgrade project during overhaul in 2025 and 2026, which is expected to reduce carbon emissions by 17.1 thousand metric tons per year. The usage of 20% carbon-neutral biomass (Palm Shells & Woodchips) is a mandatory requirement by the Government of Singapore to lower the carbon footprint of TMUC. By co-firing 80% coal with 20% carbon neutral biomass, TMUC has lowered the carbon emission and thus lowered the carbon tax. To remain competitive, TMUC gradually increased the proportion of wood chips in its fuel mix. An increased usage of wood chips provided greater flexibility for fuel mix ratio to maintain a higher percentage of carbon-neutral biomass fuel and reduce fuel costs. TMUC is planning a 100% biomass transformation project, which will further reduce carbon emissions.

In addition, mitigation measures that reduce energy losses from power plants or increase the power generation efficiency of power plants can also help reduce greenhouse gas emissions. In accordance with the measurement and reporting requirements for greenhouse gas emissions from Singapore's National Environment Agency, Tuas Power and TMUC submitted their plans and supporting documents for the measurement of greenhouse gas emissions to the Singapore authorities and received approvals in December 2018. In 2024, Tuas Power and TMUC submitted their annual emission reports based on these approved documents and paid the relevant carbon taxes accordingly.

Other Exhaust Gas Management

In terms of other exhaust gas management, Tuas Power Plant operated five units of natural-gas-fired CCP generators to achieve zero emission of sulphur dioxide. TMUC reduces NOx and SO2 emissions by using advanced Circulating Fluidized Bed (CFB) boilers and purchasing low-sulphur low-ash coal. The low furnace temperature of the CFB boilers and the use of low-sulphur low-ash coal have ensured a low NOx and low SO2 emission, utilization of high-efficiency bag filters at the CFB boilers has ensured the emission is within the compliance limit, which made TMUC able to meet the stringent air emission limits set by the Air Impurities Regulation of the Singapore Environmental Protection and Management Act (《環境保護和管理法案》).

Ash Recycling

In ash recycling, TMUC has achieved 100% comprehensive utilization of ash (fly ash and bed ash) by working together with local building materials companies. With the 100% biomass transformation project in the works, TMUC is seeking approval from relevant regulators to continuously recycle the generated ash and slag.

Wastewater Management

In the case of water treatment, the TMUC project has established wastewater treatment facilities to treat the wastewater produced internally and the wastewater generated by the petrochemical industry in compliance with relevant regulations. To fully utilize the well-designed water cycle, customers are incentivized to return clean condensate for TMUC's steam production. High-temperature return condensate from the customers is used to pre-heat deaerator feed water to improve efficiency. Boiler blowdown water is recycled back to the Water Treatment Plant as an alternative source of raw water. Partially treated water from the wastewater treatment plant is being reused for plant washing in TMUC Site 2.

Green Plan

Adhering to the development principle of “green, clean, benefit, steady”, and focusing on green development, the Company promotes the development of new energy projects at home and abroad, continues to advance the development of new businesses such as transnational power imports and international green certificates, and builds high-quality model projects. Tuas Power has embarked on various initiatives in support of Singapore’s carbon emission reduction to address the challenges posed by climate change and meet carbon reduction goals. Our initiatives include exploring and participating in importing renewable energy, providing carbon-reduction solutions for customers, constructing in-plant photovoltaics and registering for international green certificates. In 2024, the Company actively promoted the construction of in-plant photovoltaic projects at Tuas Power Station, TMUC and Jurong Island Desalination Plant.

The Company actively leverages the role of Tuas Power as a platform to facilitate Sinosing Green Investment Pte. Ltd. to hold shares in domestic renewable energy projects. The first renewable energy project within China in which Sinosing Green Investment Pte. Ltd. has a stake – the 100 MW photovoltaic project in Qionghai, Hainan had been put into operation before September 30, 2024. In 2024, it obtained stakes in two new renewable energy projects in China. Among them, the 57 MW fishery-photovoltaic complementary project in Rudong, Jiangsu was completed and put into operation within the year, and the 220 MW fishery-photovoltaic complementary project in Lukou, Nanjing, Jiangsu entered the preliminary stage.

Customer Information Protection

When handling customer information, Tuas Power has introduced relevant procedures to protect users’ privacy. Employees also receive regular compliance training to ensure strict adherence to our governance policies for protecting customer information. Tuas Power also involves external auditors to ensure the quality of its work.

Community Joint Building

Tuas Power actively cooperated with Statutory Boards of the Singapore Government, charity organizations and non-profit organizations to give back to the society through volunteer activities, funding public welfare and welfare organizations, etc., and has established a good corporate culture and responsible corporate image. In 2024, Tuas Power provided funds of estimated 34 thousand Singapore dollars to charitable, voluntary and welfare organizations such as Metta Welfare Association, PCS Living Blood Centre, Food From The Heart (FFTH), Garden City Fund, Power and Gas Industry Unions, Singapore Children’s Society, Focus on the Family Singapore, Gardens by the Bay, The Straits Times Campus Subsidy Fund to help groups and families in need, and support horticultural research and conservation to protect Singapore’s green environment.

Digital Intelligence

Tuas Power is pushing forward with its digital and intelligent transformation by upgrading and integrating existing business systems to form end-to-end solutions. The system is designed to simplify and integrate the processes of all departments, so as to improve the quality of service provided to customers, operational efficiency, and the visibility of business processes, and support strategic planning and decision-making.



We have mission and responsibility, and believe only truth is practicable and diligence is sustainable. We forge ahead and make sound development for a far-reaching success. The electric power industry is closely related to national development and people's lives. Although it has existed for over a century, it is still vibrant. As a responsible enterprise, we will continuously explore our potentials and improve quality and efficiency. Facing the current co-existing situations of both risks and opportunities, Huaneng International, is orientated with Xi Jinping's thoughts on Socialism with Chinese Characteristics for a New Era, thoroughly implements the guiding principles of the 20th CPC National Congress and the second and third plenary sessions of the 20th CPC Central Committee, implements the Company's development strategy whilst adhering to steady progress, promoting transformation and upgrading, and actively carrying out reforms and innovations, making more contributions to both national development and rejuvenation.



*PRESSING AHEAD
TOWARDS NEW HEIGHTS*

PRESSING AHEAD TOWARDS NEW HEIGHTS

By 2025, Huaneng International will complete the foundation of an electricity-centered and innovation-oriented modern energy industry system with multi-energy synergy and global layout. With all major indicators reaching the advanced level of peer energy enterprises worldwide, Huaneng International will become one of the world-class listed power generation companies.

We comprehensively take advantages of company's technology and marketing, proactively participates in the construction of new type of power and energy systems that are characterized by clean and low-carbon, safe and sufficient, economically efficient, synergized supply and demand, flexible and intelligent, building a "new engine" for the Company's high-quality development to promote green, low-carbon and circular development, we promote the development of an integration of sources, networks, loads and storage and the multi-energy complementary smart energy system. Targeting "carbon peak" and "carbon neutrality", we promote green and low-carbon energy transformation, effectively reduce carbon emissions. We adopt alternatives of renewable energy, vigorously develop the new energy sources, increase efforts to plan and build a new energy supply based on large-scale wind and solar power bases and supported by clean, efficient, advanced and energy-saving coal power in the vicinity, transform the development of coal power, optimize the development of gas power and other clean energy power generation, actively lay out pumped storage, and build the integration of source, network, load and storage, as well as the development pattern of multi-energy complementarity. We try to realize that the Company's low-carbon clean energy installed capacity accounts for about 45% of the total energy supply by 2025.

We strengthen and improve the comprehensive energy services, actively adapt to the transformation of China's energy supply structure and continue to develop strategy-focused emerging industries through digitalization and measures tailored to local conditions. To carry out diversified supply and energy service transformation centered on core industries, we actively develop energy storage, and participate in the demonstration of integrated green hydrogen industry of "production, storage, transportation and utilization".

Bearing the principle of "clean, benefit, steady" in mind, we insist on the integration into the new "dual circulation" development pattern, strengthening the international cooperation with Tuas Power. We build the Company's overseas innovation and development platform, strengthen efficient operation of overseas assets, optimize the asset portfolio, and improve the risk resistance and profitability of the Company's overseas assets.

We support high-quality development and forge new quality productive forces with scientific and technological innovation, adhere to the strategy of serving the country, adapt to the urgent need of the Company's development, stick to the digital intelligent development, strengthen the basic and forward-looking technology research, implement demonstrative project of science and technology, further enhance the independent innovation ability, create new forms of productive forces, and support and lead the Company's high-quality development.

The Company adheres to the orientation of promoting profitability, improving efficiency and creating value, works hard to ensure the safety of production, energy conservation and efficiency improvement, and the protection of the ecological environment, strengthens and optimizes major industries and enhances industrial coordination. With our focus on the "one benefits and five rates"¹⁸, we strive to improve quality and efficiency, continuously optimize asset structure, enhance the Company's operational vitality, promoting the improvement operational efficiency and other indicators until reaching the international advanced level.

¹⁸ Refers to total profit, asset liability ratio, revenue cash collection rate, return on equity, R&D investment intensity, and overall labor productivity

APPENDIX

11.1 About this Report

This report is the ninth “Environmental, Social and Governance Report” (《環境、社會及管治報告》) released by Huaneng International. This report focuses on the Company’s efforts and contributions to the environment, society and governance, as well as our outlook for the future. We hope that through the publication of this report, we can strengthen communication and liaison with our stakeholders.

The Board of Directors and all the Directors hereby warrant that the contents of this report do not contain any false representations, misleading statements or material omissions and take joint and several liabilities for the authenticity, accuracy and completeness of the contents.

The Scope of the Subject of this Report

Huaneng International and its domestic and overseas affiliated branches and its wholly owned and controlled companies. Unless otherwise stated, the data disclosed in this report are about Huaneng International and its affiliated domestic subsidiaries and its wholly owned and controlled companies.

No major adjustments have been made to the disclosure scope hereof compared with that of the Company’s previous ESG reports, and the statistical approaches adopted remains consistent.

Reporting Period

The Company’s “Environmental, Social and Governance Report” (《環境、社會及管治報告》) is an annual report for the period from 1 January 2024 to 31 December 2024, and some of the statements and data are traced back to the previous year.

Reference Remarks

In order to facilitate the presentation and be easy to read, “Huaneng Power International, Inc.” in this report is referred to as “Huaneng International”, “the Company” or “we”. “China Huaneng Group Co., Ltd.” in this report is referred to as “Huaneng Group” and “Group Company”.

Content Compiling

The contents of this report are prepared in the light of the HKEx’s “Environmental, Social and Governance Reporting Code” (《環境、社會及管治報告守則》), the Guidelines No. 14 of Shanghai Stock Exchange for Self-Regulation of Listed Companies – Sustainability Report (Trial) (《上市公司自律監管指引第14號—可持續發展報告(試行)》) and the Global Reporting Initiative (GRI) Sustainability Reporting Standards (GRI Standards) (《可持續發展報告標準》). The chapters of this report reflect the efforts and contributions made by the Company to achieve the 17 Sustainable Development Goals (SDGs) of the United Nations. Currency used in this report is expressed in RMB unless otherwise specified.

Access to this Report

You can download the Chinese and English version of this report on Huaneng International’s website at <http://www.hpi.com.cn>. This report is published in both Chinese and English. In case of any discrepancies among the different versions, the Chinese version shall prevail. If you have any questions or suggestions, please call 010-63226999.

11.2 Statement of the Board of Directors

The Board of Directors assumes the overall responsibility for the Company’s ESG management and disclosure and holds annual board meetings to discuss important ESG-related issues.

The strategy committee is in charge of supervising the Company’s comprehensive risk management. The Company has incorporated safe production, environmental protection and other ESG material topics into the comprehensive risk management assessment process. The strategy committee meets regularly every year to discuss assessment over the comprehensive risk management. In 2024, the strategy committee deliberated on and approved the 2024 Comprehensive Risk Management Report 《公司2024年度全面風險管理報告》), which comprehensively summarized safe production, environmental protection, climate change and other ESG-related risks, and formulated detailed responses, with changes in material risks closely tracked and monitored.

At the 2024 annual board meeting, the Board emphasized the review of the assessment of ESG material topics, the establishment of environmental targets, and the targets completion progress. The Company identified 27 ESG reporting topics, including 3 material topics that possess both financial materiality and impact materiality. They are Environmental Compliance Management, Response to Climate Change, and Production Safety and Occupational Health. The Company sets five environmental performance targets in emission reduction, carbon reduction, waste reduction, energy saving and water conservation, covering Emissions Management, Energy Consumption Management, and Water Resources Management.

2024 ESG Report provides detailed disclosure of the progress and key performance indicators in relation to the above work and ESG topics. The report was reviewed and approved by the Board of Directors on 25 March 2025.



11.3 Contents Index of the Environmental, Social and Governance (ESG) Reporting Code by the Hong Kong Stock Exchange

Environmental, Social and Governance Reporting Code	Page Number	Report Content
Governance Structure		
<ul style="list-style-type: none"> A disclosure of the board's oversight of ESG issues; A disclosure of the board's ESG management approach and strategy, including the process used to evaluate, prioritise and manage material ESG-related issues (including risks to the issuer's businesses); A disclosure of how the board reviews progress made against ESG-related goals and targets with an explanation of how they relate to the issuer's businesses. 	106	11.2 Statement of the Board of Directors
Reporting Principles		
Materiality: (i) the process to identify and the criteria for the selection of material ESG factors; (ii) if a stakeholder engagement is conducted, a description of significant stakeholders identified, and the process and results of the issuer's stakeholder engagement.	18–21	2.8 Communication with Stakeholders and Identification of Material Issues
Quantitative: Information on the standards, methodologies, assumptions and/or calculation tools used, and source of conversion factors used, for the reporting of emissions/energy consumption (where applicable) should be disclosed.	13–17 105	2.7 Table of Key Performance Indicators in 2024 11.1 About this Report
Consistency: The issuer should disclose in the ESG report any changes to the methods or KPIs used, or any other relevant factors affecting a meaningful comparison.	105	11.1 About this Report
Reporting Boundary		
A narrative explaining the reporting boundaries of the ESG report and describing the process used to identify which entities or operations are included in the ESG report. If there is a change in the scope, the issuer should explain the difference and reason for the change.	105	11.1 About this Report

Environmental, Social and Governance Reporting Code		Page Number	Report Content
Subject Area A: Environmental			
Aspect A1: Emissions			
A1	General Disclosure	54–62	5.3.4 Emissions Management
A1.1	The types of emissions and respective emissions data.	13–17	2.7 Table of Key Performance Indicators in 2024
		54–62	5.3.4 Emissions Management
A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	13–17	2.7 Table of Key Performance Indicators in 2024
		54–62	5.3.4 Emissions Management
A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	13–17	2.7 Table of Key Performance Indicators in 2024
		54–62	5.3.4 Emissions Management
A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	13–17	2.7 Table of Key Performance Indicators in 2024
		54–62	5.3.4 Emissions Management
A1.5	Description of emissions target(s) set and steps taken to achieve them.	54–62 96–101	5.3.4 Emissions Management 9 Elevating the Brand with a Global Perspective
A1.6	Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them.	54–62 96–101	5.3.4 Emissions Management 9 Elevating the Brand with a Global Perspective

Environmental, Social and Governance Reporting Code		Page Number	Report Content
Aspect A2: Use of Resources			
A2	General Disclosure	50–52	5.3.2 Energy Consumption Management
		52–53	5.3.3 Water Resources Management
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	13–17	2.7 Table of Key Performance Indicators in 2024
		50–52	5.3.2 Energy Consumption Management
A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	13–17	2.7 Table of Key Performance Indicators in 2024
		52–53	5.3.3 Water Resources Management
A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	50–52	5.3.2 Energy Consumption Management
		96–101	9 Elevating the Brand with a Global Perspective
A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	52–53	5.3.3 Water Resources Management
A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	–	Not applicable due to product nature
Aspect A3: The Environment and Natural Resources			
A3	General Disclosure	42–67	5 Transformation Driven by Innovation
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	42–67	5 Transformation Driven by Innovation
Aspect A4: Climate Change			
A4	General Disclosure	65–67	5.3.6 Response to Climate Change
A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	65–67	5.3.6 Response to Climate Change

Environmental, Social and Governance Reporting Code		Page Number	Report Content	
Subject Area B: Social				
Employment and Labour Practices				
Aspect B1: Employment				
B1	General Disclosure	82–83	7.1	Safeguarding Employees' Rights and Interests
		84–85	7.2	Improving Talent Cultivation Mechanism
B1.1	Total workforce by gender, employment type (for example, full-or part-time), age group and geographical region.	13–17	2.7	Table of Key Performance Indicators in 2024
B1.2	Employee turnover rate by gender, age group and geographical region.	13–17	2.7	Table of Key Performance Indicators in 2024
Aspect B2: Health and Safety				
B2	General Disclosure	68–79	6	Defending Production Safety
B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	13–17	2.7	Table of Key Performance Indicators in 2024
		68–79	6	Defending Production Safety
B2.2	Lost days due to work injury.	13–17	2.7	Table of Key Performance Indicators in 2024
B2.3	Description of occupational health and safety measures adopted, and how they are implemented and monitored.	74–77	6.3	Implementing Safety Measures
		77	6.4	Safeguarding Employees' Health
		86–87	7.3	Maintaining the Mental and Physical Health of Employees
Aspect B3: Development and Training				
B3	General Disclosure	77	6.5	Raising Employees' Safety Awareness
		84–85	7.2	Improving Talent Cultivation Mechanism
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	13–17	2.7	Table of Key Performance Indicators in 2024
B3.2	The average training hours completed per employee by gender and employee category.	13–17	2.7	Table of Key Performance Indicators in 2024

Environmental, Social and Governance Reporting Code		Page Number	Report Content	
Aspect B4: Labour Standards				
B4	General Disclosure	82–83	7.1	Safeguarding Employees' Rights and Interests
B4.1	Description of measures to review employment practices to avoid child and forced labour.	82–83	7.1	Safeguarding Employees' Rights and Interests
B4.2	Description of steps taken to eliminate such practices when discovered.	82–83	7.1	Safeguarding Employees' Rights and Interests
Operating Practices				
Aspect B5: Supply Chain Management				
B5	General Disclosure	90–92	8.1	Collaborating Closely to Co-create Development Momentum
B5.1	Number of suppliers by geographical region.	13–17	2.7	Table of Key Performance Indicators in 2024
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored.	90–92	8.1	Collaborating Closely to Co-create Development Momentum
B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	90–92	8.1	Collaborating Closely to Co-create Development Momentum
B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	90–92	8.1	Collaborating Closely to Co-create Development Momentum
Aspect B6: Product Responsibility				
B6	General Disclosure	30–33	4.1	Consolidating the Foundation of Energy Security
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	–	Not applicable due to product nature	
B6.2	Number of products and service related complaints received and how they are dealt with.	92	8.2	Providing Wholehearted Service for Harmonious Co-advancement
		13–17	2.7	Table of Key Performance Indicators in 2024
B6.3	Description of practices relating to observing and protecting intellectual property rights.	40–41	4.2.4	Protection of Intellectual Property Rights
B6.4	Description of quality assurance process and recall procedures.	–	Not applicable due to product nature	
B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	–	Not applicable due to product nature	

Environmental, Social and Governance Reporting Code		Page Number	Report Content
Aspect B7: Anticorruption			
B7	General Disclosure	35–37	4.2.2 Governance by Law
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	35–37	4.2.2 Governance by Law
B7.2	Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	35–37	4.2.2 Governance by Law
B7.3	Description of anti-corruption training provided to directors and staff.	11–12	2.6 Company's ESG Responsibility Management
		35–37	4.2.2 Governance by Law
Community			
Aspect B8: Community Investment			
B8	General Disclosure	92–95	8.3 Flourishing in Symbiosis and Jointly Constructing Our Shared Home
		96–101	9 Elevating the Brand with a global perspective
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	92–95	8.3 Flourishing in Symbiosis and Jointly Constructing Our Shared Home
		96–101	9 Elevating the Brand with a global perspective
B8.2	Resources contributed (e.g. money or time) to the focus area.	92–95	8.3 Flourishing in Symbiosis and Jointly Constructing Our Shared Home

11.4 Contents Index of the Guidelines No. 14 for Self-Regulation of Listed Companies – Sustainability Report (Trial) by the Shanghai Stock Exchange

Guidelines No. 14 for Self-Regulation of Listed Companies – Sustainability Report (Trial) ¹⁹	Page Number	Report Content
<p>A disclosing entity shall develop a sound corporate governance structure and sound internal rules; ensure its relevant internal bodies possess the requisite expertise and can effectively carry out such duties as the identification, assessment, management, and oversight of sustainability-related impacts, risks, and opportunities; and disclose the following governance information:</p> <p>(1) The internal bodies (such as the board of directors and specialized committees) tasked with managing and overseeing sustainability-related impacts, risks, and opportunities, including their composition, authority, tasks, and objectives;</p> <p>(2) The professional expertise and capabilities of the aforementioned internal bodies and personnel in executing and overseeing the strategies and rules and systems for sustainability-related impacts, risks, and opportunities;</p> <p>(3) The information reporting mechanisms the company has established to ensure the aforementioned internal bodies and personnel can be promptly informed of the sustainability-related impacts, risks, and opportunities, including but not limited to the method and frequency of such reports;</p> <p>(4) Information on the setting of targets, execution of strategies, and achievement of goals by the aforementioned internal bodies and personnel in overseeing and managing the sustainability-related impacts, risks, and opportunities, including but not limited to information on internal controls, oversight procedures, oversight measures, and evaluations; and</p> <p>(5) The measures and methodologies employed by the aforementioned internal bodies and personnel to incorporate sustainability-related impacts, risks, and opportunities into the decision-making process as they oversee strategy implementation, major transaction decisions, and risk management activities of the disclosing entity.</p>	11–12	2.6 Company's ESG Responsibility Management

¹⁹ The remaining non-disclosure articles and encouraged disclosure articles are not listed in this table.

Guidelines No. 14 for Self-Regulation of Listed Companies – Sustainability Report (Trial) ¹⁹	Page Number	Report Content
<p>A disclosing entity shall identify and thoroughly assess the sustainability-related risks and opportunities that may have a material impact on such aspects as its business model, operations, development strategy, financial positions, operation results, cash flows, financing methods and costs, over the short, medium, or long term, and shall disclose:</p> <p>(1) The sustainability-related risks (such as the physical and transition risks associated with climate change) and opportunities that the company has identified, as well as the timeframes within which these risks and opportunities will have a material impact on the company; and</p> <p>(2) The company's definitions for short-term, medium-term, and long-term periods, and the alignment of these definitions with its strategic development planning and resource allocation.</p>	<p>18–21</p> <p>65–67</p>	<p>2.8 Communication with Stakeholders and Identification of Material Issues</p> <p>5.3.6 Response to Climate Change</p>
<p>A disclosing entity shall disclose the effect of sustainability-related impacts, risks, and opportunities on its strategies and decision-making, including but not limited to:</p> <p>(1) Methods employed by the company to develop strategies and make key decisions to address sustainability-related impacts, risks, and opportunities such as strategy decision-making mechanism, management approach etc.;</p> <p>(2) The plans developed for achieving the relevant strategic goals and the qualitative and quantitative metrics to evaluate the progress on those plans; and</p> <p>(3) The assessments and judgments made by the company regarding the sustainability-related impacts, risks, and opportunities.</p>	<p>18–21</p> <p>65–67</p>	<p>2.8 Communication with Stakeholders and Identification of Material Issues</p> <p>5.3.6 Response to Climate Change</p>
<p>A disclosing entity shall analyze and disclose the impacts of sustainability-related risks and opportunities on its current period's financial positions, operating results, and cash flows and whether such risks and opportunities will impact its financial positions, operating results, and cash flows in the following year.</p>	<p>65–67</p>	<p>5.3.6 Response to Climate Change</p>

Guidelines No. 14 for Self-Regulation of Listed Companies – Sustainability Report (Trial) ¹⁹	Page Number	Report Content
A disclosing entity shall disclose its procedures for identifying, assessing, and managing the sustainability-related impacts, risks, and opportunities, including but not limited to:		
(1) Its methodology for identifying and assessing sustainability-related impacts, risks, and opportunities and its approach for estimating their likelihood, severity, and impact;	11–12	2.6 Company's ESG Responsibility Management
(2) Its priority ranking and ranking standards for the sustainability-related impacts, risks, and opportunities;	18–21	2.8 Communication with Stakeholders and Identification of Material Issues
(3) How the company monitors the sustainability-related impacts, risks, and opportunities such as management mechanism and detailed procedures; and	65–67	5.3.6 Response to Climate Change
(4) The integration of the processes for managing sustainability-related impacts, risks, and opportunities into the company's internal management procedures, and any adjustments thereto in the reporting period.		
A disclosing entity shall disclose the sustainability targets and related indicators mandated by Laws and Regulations and these <i>Guidelines</i> or based on the entity's needs, as well as the overall achievement of these targets as of the end of the reporting period and the progress made in the reporting period.	49–67 96–101	5.3 Focusing on Green and Low-Carbon Operations 9 Elevating the Brand with a Global Perspective
A disclosing entity shall, in the context of the climate risks and opportunities it has identified, assess the extent to which its strategies, business models, and other similar aspects are adapted to climate change, and disclose:		
(1) Its assessment of how climate change impacts its strategies and business models, as well as how it responds to these impacts;	65–67	5.3.6 Response to Climate Change
(2) Significant uncertainties it has considered when assessing its climate adaptation; and		
(3) Its capacity to adjust its strategies and business models over the short, medium, and long term to adapt to climate change.		

Guidelines No. 14 for Self-Regulation of Listed Companies – Sustainability Report (Trial) ¹⁹	Page Number	Report Content
<p>A disclosing entity shall disclose its transition plans, actions, and progress in responding to climate risks and opportunities, including but not limited to:</p> <ol style="list-style-type: none"> (1) Adjustments made in the company's current and future strategies, business models, and resource allocation to respond to climate risks and opportunities; (2) Actions taken or planned by the company to update the production processes and equipment to directly or indirectly tackle climate risks and opportunities; (3) The transition plan created by the company to address climate risks and opportunities and the fundamental assumptions underpinning the plan; (4) The resources allocated by the company to execute the transition plan; and (5) The progress in executing the company's transition plan. 	65–67	5.3.6 Response to Climate Change
<p>A disclosing entity shall calculate and disclose its total GHG emissions in the reporting period, and convert different GHG emissions into metric tons of carbon dioxide equivalent. The disclosing entity shall disclose Scope 1 and Scope 2 emissions.</p>	13–17	2.7 Table of Key Performance Indicators in 2024
<p>Any disclosing entity that uses carbon credits shall disclose the source and amount of the carbon credits it uses. Any disclosing entity that participates in carbon emissions trading shall disclose whether it has completed settlement and whether it has been ordered to take corrective actions or is formally investigated by a government agency within the reporting period.</p>	54–62	5.3.4 Emissions Management
<p>A disclosing entity shall disclose the standards, methods, assumptions, or calculation tools used for GHG emissions accounting and state how emissions data are consolidated (such as by equity share proportion or financial and operating control). If there is a change to the accounting standards, methods, or assumptions in the reporting period, the disclosing entity shall state the reasons and specific impacts of these changes.</p>	13–17	2.7 Table of Key Performance Indicators in 2024

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A disclosing entity shall disclose information on GHG emissions reduction practices, including its participation in the various emissions reduction initiatives, emissions reduction targets and measures (e.g., management strategies, funding, development of technologies), and the outcomes.

The disclosing entity shall disclose, for each scope level, the amount of GHG emissions directly reduced by such emissions reduction measures as redesigning production procedures, updating equipment, improving manufacturing processes, and switching fuels, and convert the data into metric tons of carbon dioxide equivalent. Emissions reductions may be disclosed by each measure used to achieve the reduction.

54–62

5.3.4 Emissions Management

The disclosing entity shall disclose its registration and trading activities in relation to the national projects for voluntary GHG emissions reduction and the China Certified Emission Reduction (CCER), as well as its registration and trading of any other emissions reduction initiatives and emissions savings.

Any disclosing entity that discloses new technologies, products, and services that contribute to decarbonization and carbon neutrality and the related R&D progress shall provide an objective and prudent account of the specifics of the technologies or services developed based on the relevant processes and technologies, the R&D investment and progress in the relevant businesses, approvals or certifications it has obtained, its mass production capacity, and its existing orders, among other information.

54–62

5.3.4 Emissions Management

If a disclosing entity or one of its significant subsidiaries is listed on the registry of enterprises legally obligated to release environmental information, the disclosing entity shall disclose:

- (1) Information on pollutant discharge, including but not limited to the types, names, total discharge, certified total discharge, over-discharge, and environmental performance grade (if any) of or in relation to the key pollutants, characteristic pollutants, and the controlled substances specified by international environmental conventions. Disclosing entities are encouraged to present details on its pollutant discharge by category in the dimensions of business units or facilities, type of source, and type of activity.
- (2) The technologies and methods employed to treat pollutants, as well as the building, operation, and results achieved by pollution control facilities (e.g., reduction in the concentration/intensity or total amount of discharge);
- (3) The targets set for the amount of discharge reduction of the key pollutants and the specific actions taken to achieve these targets; and
- (4) The impact of pollutant discharge on such groups as its employees and local communities; and
- (5) Any major administrative penalties received by and any criminal liabilities charged against it in the reporting period for pollutant discharge, and whether there exist significant flaws in the company's environmental monitoring schemes and risk management practices.

54–62

5.3.4 Emissions Management

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<p>If the wastes produced by a disclosing entity's production and operational activities have a material impact on the environment, the disclosing entity shall disclose the essential details of the wastes produced in the reporting period, including:</p>	54–62	5.3.4 Emissions Management
<p>(1) The total amounts (in metric tons) and density (e.g., per unit of revenue, unit of output, or facility) of hazardous wastes and non-hazardous wastes produced; and</p>		
<p>(2) The treatment methods and disposal of hazardous and non-hazardous wastes.</p>		
<p>(3) The targets set for the amount of discharge of the wastes and the specific actions taken to achieve these targets.</p>		
<p>If a disclosing entity's production and operational activities have a material impact on the ecosystem or biodiversity, the disclosing entity shall disclose the below content in the reporting period:</p>	63–64	5.3.5 Management of Other Environmental Impacts
<p>(1) The discontinuation of any production and operational activities and relevant facilities that were in the ecological red zones;</p>		
<p>(2) Efforts and achievements in the protection and restoration of the areas around the production and operational sites, key land and marine ecological functional areas, ecological red zones, nature reserves, and other regions with critical ecological functions or ecologically fragile regions;</p>		
<p>(3) Efforts and achievements in the protection of wild plants and wildlife and protection and restoration of natural habitats;</p>		
<p>(4) Efforts and achievements in the protection, sustainable use, obtainment and benefit-sharing, monitoring and early warning, and risk management of biological genetic resources; and</p>		
<p>(5) Efforts and achievements in reducing its products' ecological footprint and reliance on the ecosystem, biological species and their habitats, and biological genetic resources over their lifecycles.</p>		

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A disclosing entity shall disclose the following environmental information in accordance with the actual situations in the reporting period:

- (1) Risk assessments for environmental incidents, management protocols to prevent the related risks, and the overview of contingency plans for environmental emergencies;
- (2) The dates, locations, and duration of the major environmental emergencies in the reporting period; the classification of these incidents, the responses, and the outcome of these responses; their impacts on the company and the public; and its corrective actions; and
- (3) Details on any major administrative penalties or criminal charges received from an ecological and environmental authority or other government agencies in the reporting period for an environmental incident, including but not limited to violations, the reasons for and the amount of the penalties, the impacts on the company's production and operational activities, and its corrective actions.

49–67

5.3 Focusing on Green and Low-Carbon Operations

A disclosing entity shall disclose the details of its energy use in the reporting period, including but not limited to:

- (1) An overview of energy usage, including but not limited to the total direct and indirect consumption (expressed in metric tons of standard coal) of energy (e.g., coal, electricity, gas, or oil) categorized by type, the energy consumption structure, and the overall energy intensity (e.g., expressed as per unit of output);
- (2) Details on the use of clean energy, including but not limited to wind, solar, hydro, geothermal, biomass, and marine energy, as well as the types, total amounts, and proportions of clean energy used such as natural gas; and
- (3) Energy saving goals and the specific actions taken, including but not limited to purchasing energy-efficient production, lighting, and temperature control equipment and implementing residual heat and pressure recovery and tiered energy use, and any specific challenges encountered in the use of energy.

6–7
50–522.1 Company Profile
5.3.2 Energy Consumption Management

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A disclosing entity shall disclose the specifics of its use of water resources in the reporting period, including but not limited to:		
(1) An overview of the usage of water resources, including but not limited to total water consumption (expressed in metric tons) and usage intensity (e.g., per unit of output); and	52–53	5.3.3 Water Resources Management
(2) Water conservation goals and the specific actions taken, and any specific challenges encountered in the recycling and the use of water resources.		
A disclosing entity shall disclose the specifics of the circular economy activities conducted within the reporting period, including but not limited to:		
(1) The specific goals and plans established to achieve a circular economy;		
(2) The specific actions taken in the reporting period toward achieving a circular economy, including reducing the use of resources, improving resource efficiency, using renewable resources, and preventing and reducing waste creation and recycling wastes; and	54–62	5.3.4 Emissions Management
(3) The specific progress and achievements in attaining circular economy objectives in the reporting period, such as the recycling and comprehensive utilization of wastes (including the amount of waste recycled), the consumption of renewable resources, and the proportion of renewable resources in the total amount of resources consumed.		
A disclosing entity shall disclose its contributions to rural revitalization in the reporting period, including but not limited to:		
(1) If a high proportion of the disclosing entity's businesses is in the rural and poverty alleviation areas, it shall, in the context of its business activities, disclose in detail how its support for rural revitalization and for current progress on poverty alleviation is integrated into its corporate strategies;	92–95	8.3 Flourishing in Symbiosis and Jointly Constructing Our Shared Home
(2) The specific actions taken to support the specialty industries and local employment in rural areas in the context of its business activities in the rural and poverty alleviation areas, as well as other specific actions taken to support rural revitalization;		
(3) The specific achievements, such as the total investment made and the scope and number of beneficiaries in the reporting period, and the impact on the company's brand and businesses.		

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A disclosing entity shall provide an overview of its contributions to the public and society in the reporting period, including but not limited to details on any charitable and volunteer activities organized, the amount of funds invested, number of personnel and time allocated, the outcomes, and the impact on its brand and businesses.	92–95	8.3 Flourishing in Symbiosis and Jointly Constructing Our Shared Home
Any disclosing entity engaged in such activities as scientific research and technology development in an ethically sensitive domain such as life sciences and artificial intelligence shall provide an overview of its compliance with the ethics of science and technology in the reporting period, including but not limited to:	–	Not applicable due to the nature of the Company's business
(1) The fields of the company's scientific and technological activities such as research and development, and the ethical standards in science and technology it adheres to;		
(2) Rules within the company's internal management systems that concern the ethics of science and technology and the company's observance thereof, the establishment of any ethics (review) committee for science and technology programs and its operations;		
(3) Any instances of a violation of the ethics of science and technology, including an overview of such violations, the penalties imposed by competent authorities, the internal investigation and accountability processes conducted, and the corrective actions taken; and		
(4) The internal and external training on ethics in science and technology and efforts to raise public awareness on the related topics (if any).		
Any industrial enterprise that is a disclosing entity may disclose its efforts to enhance supply chain risk management and ensure the security and stability of the supply chain in the reporting period, including but not limited to:		
(1) An overview of its supply chain risk management program, including but not limited to its objectives and specific plans for supply chain risk management, risk response mechanisms, actions taken, and their outcomes; and	90–92	8.1 Collaborating Closely to Co-create Development Momentum
(2) Actions, such as mergers, acquisitions, or reorganization and technological innovations, and the positive outcomes related to maintaining supply chain security and increasing the company's competitive edge in supply chain management.		

Guidelines No. 14 for Self-Regulation of Listed Companies – Sustainability Report (Trial) ¹⁹	Page Number	Report Content
<p>If the balance of accounts payable (including notes payable) exceeds RMB30,000,000,000 or represents more than 50 percent of the total assets at the end of the reporting period, the disclosing entity shall disclose the amount of overdue accounts payable as of the end of the reporting period and the solutions it plans to implement.</p> <p>If a disclosing entity or one of its subsidiaries publicly indicates through the National Enterprise Credit Information Publicity System that it owes an overdue payment to a small and medium-sized enterprise (“SME”), it shall disclose the amount of the overdue payment, the payment term for SME suppliers, the reasons behind the overdue payment, whether the overdue payment has led to litigation or arbitration, and the solutions.</p>	–	<p>The balance of accounts payable (including notes payable) at the end of the reporting period did not exceed 30 billion yuan and did not represent more than 50% of the total assets. For more details, please refer to “Section 3 Management’s Discussion and Analysis – V. Main Operating Results During the Reporting Period – (III) Analysis of Assets and Liabilities” in the 2024 Annual Report.</p> <p>The Company and its controlled subsidiaries have not yet publicly disclosed information on overdue unpaid amounts to small and medium-sized enterprises (“SME”) through the National Enterprise Credit Information Publicity System.</p>
<p>A disclosing entity shall provide an overview of the safety and quality management of its products and services in the reporting period, including but not limited to:</p> <ol style="list-style-type: none"> (1) The establishment, execution, and specific measures of the product and service quality management systems and policies; (2) Quality management-related certifications received by the company and the certification status of its quality management systems for the major products and services; (3) Any significant safety or quality liability incidents in the reporting period relating to its products and services, including the nature of such incidents (e.g., administrative penalties), their impact and the amount of damages, and the actions taken in response and the progress on those actions; and (4) The establishment and implementation of after-sales service and product recall policies, the channels for receiving customer complaints, and the process and outcome of complaint handling. 	<p>30–33</p> <p>92</p>	<p>4.1 Consolidating the Foundation of Energy Security</p> <p>8.2 Providing Wholehearted Service for Harmonious Co-advancement</p>

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A disclosing entity shall provide an overview of its data security and customer privacy programs in the reporting period, including but not limited to:

- (1) The development, functioning, and specific measures of its data security management system and certifications (if any);
- (2) Details on any data security incident that occurred in the reporting period, including its impact, the monetary amount involved, the actions taken in response and the progress on those actions;
- (3) The development and functioning of its customer privacy protection system; and
- (4) Details on any privacy breach incident that occurred in the reporting period, including its impact, the monetary amount involved, and the actions taken in response and the progress on those actions.

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Not applicable due to the nature of the Company's business

A disclosing entity shall disclose the general information about its employees in the reporting period, including but not limited to:

- (1) Employment and compensation policies and how they are implemented, information including but not limited to job creation and flexible employment in the reporting period, a breakdown of the gender and age distribution of employees at the end of the period, as well as information on payment of salary and social security, labor disputes, employee turnover, protection of the rights of flexible employees and the compliance, fairness, and transparency of the recruitment and hiring procedures;
- (2) Basic information on occupational health and safety, including but not limited to the identification and assessment of occupational safety risks and their sources, the establishment and implementation of the occupational health and safety management systems, the obtainment of certain certifications, related training, the investment in and coverage of work-related injury insurance and workplace safety liability insurance, and the details of any safety accidents that occurred in the reporting period; and
- (3) General information on employee career development and training, including but not limited to the disclosing entity's position structure, the mechanisms for employee promotion, selection, and career development, the type, frequency, and implementation of employee training, as well as the annual expenditure on training and the training coverage rate.

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2.7 Table of Key Performance Indicators in 2024

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6.2 Enhancing Safety Supervision Effectiveness
6.4 Safeguarding Employees' Health

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7.1 Safeguarding Employees' Rights and Interests

84–85

7.2 Improving Talent Cultivation Mechanism

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9 Elevating the Brand with a Global Perspective

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A disclosing entity shall disclose the details about its engagement with investors and other stakeholders during the reporting period, including but not limited to:	18–21	2.8 Communication with Stakeholders and Identification of Material Issues
(1) The establishment and execution of its stakeholder engagement rules; and		
(2) The channels for receiving and responding to stakeholder comments and suggestions and how they are implemented, e.g., the method, frequency, and content of the relevant communications.		
A disclosing entity shall disclose the specifics of its anti-commercial bribery and anti-corruption efforts in the reporting period, including but not limited to:	35–37	4.2.2 Governance by Law
(1) The establishment and operation of the anti-commercial bribery and anti-corruption risk management system, and whether a whistleblower protection policy has been established;		
(2) An assessment of the commercial bribery and corruption risks;		
(3) The total count and percentage of board members, management-level staff and other employees who received anti-commercial bribery and anti-corruption training; and		
(4) Details about all commercial bribery and corruption incidents that occurred in the reporting period, including the specifics of the resulting dismissals or disciplinary actions against any board members, management-level staff and employees, investigations by competent authorities, termination or non-renewal of contracts with business partners, and any lawsuits against the disclosing entity, its board members, management-level staff or employees.	35–37	4.2.2 Governance by Law
A disclosing entity shall disclose the specifics of its efforts to combat unfair competition in the reporting period, including but not limited to:		
(1) The establishment, operation, and specific measures of the management system to prevent unfair competition (e.g., untrue publicity, implementing monopoly behaviors, and infringing on commercial secrets); and	35–37	4.2.2 Governance by Law
(2) If any litigation or significant administrative penalties arise from the disclosing entity's anti-competitive practices in the reporting period, it shall disclose the specifics about the litigation, the amount involved, the administrative penalties imposed, and its corrective actions.		

11.5 Contents Index of GRI Sustainability Reporting Standards (GRI Standards) of Global Reporting Initiative

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2-6	Activities, value chain and other business relationships	90–92	8.1 Collaborating Closely to Co-create Development Momentum
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11.6 Readers' Feedback

Dear readers:

Hello! Thank you for reading this report. We particularly wish to listen to your comments and suggestions, and your comments and suggestions are the driving force behind our continuous improvement of our report.

Please help to complete the relevant questions raised in the feedback form and mail it to the headquarters of the Company (headquarters address: Huaneng Building, Fuxingmennei Street 6, Xicheng District, Beijing).

1. Your overall assessment of the Company's "Environmental, Social and Governance Report" is:
☐good ☐fair ☐poor
2. Do you think this report reflects the Company's significant impacts on the environmental, social and governance?
☐good ☐fair ☐poor
3. What do you think of the information, and the accuracy and completeness of the indicator data disclosed in this report?
☐good ☐fair ☐poor
4. What do you think of the Company in serving its customers and protecting the interests of its stakeholders?
☐good ☐fair ☐poor
5. Which part of the report do you concern the most?

6. Is there any content that you are looking for but not found in this report? If yes, please write down what you are concerned about.

If you wish, you are welcome to provide personal information to facilitate further communication with you:

Name:	Occupation:
Organisation:	Contact Address:
Postal Code:	Tel:
Fax:	E-mail:



華能國際電力股份有限公司
Huaneng Power International, Inc.