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SHANGHAI ELECTRIC 上海电气

SHANGHAI ELECTRIC
AND THE BELT AND ROAD

ONGOING STORY

上海电气 SHANGHAI ELECTRIC

Editor's words

MAKE JOINT EFFORTS TO A SHARED AND WIN-WIN GREEN FUTURE

This year, there have been frequent and unusual weather conditions worldwide, including prolonged high temperatures, heavy rainfall, and resulting floods. These events have become almost an annual occurrence in recent years.

On November 30, the World Meteorological Organization (WMO) announced that 2023 is the hottest year on record.

According to statistics from the International Disaster Database, since 2000, there have been 300 - 400 extreme weather disasters each year, averaging one per day. Therefore, it is crucial to go beyond mere slogans and take concrete actions to reduce emissions and cool the planet.

China has pledged to peak carbon emissions by 2030 and achieve carbon neutrality by 2060. While these goals are attainable, they present a significant challenge. China must accomplish the most substantial reduction in carbon emissions intensity within the shortest timeframe ever witnessed worldwide.

At the recent 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28), a representative from Shanghai Electric stated at the opening ceremony of the China Pavilion and the side event titled "Ecological Civilization and Beautiful China Practice" that Shanghai Electric will provide green solutions to more energy and industrial enterprises through a variety of business models and innovative technologies. The company will work with all partners to build a shared and win-win green future, and contribute to the construction of a beautiful China through practical actions.

For Shanghai Electric, which bears the great responsibility of reducing carbon emissions, the process of achieving these goals will undoubtedly be long and challenging. On the other hand, the green transformation has highlighted the importance of technology-driven development.

The night sky sparkles with a celestial ballet of twinkling stars. The Earth is the only planet known to support life. The impacts of climate change are real, severe, and extensive. However, by joining forces, we can overcome these global environmental challenges and secure a sustainable and beautiful world for future generations.

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NEWS OVERVIEW

Two Shanghai Electric Entities Included in the List of Shanghai Green and Low Carbon Service Organizations

Recently, Shanghai Municipal Commission of Economy and Informatization announced the list of Shanghai Green and Low Carbon Service Organizations for 2023. Shanghai Electric Digital Technology Co., Ltd. and Shanghai Electric Intelligent Energy Technology Co., Ltd. were included into the list of "Shanghai Green and Low-Carbon Service Organizations", which indicates that their technical service capabilities in the field of carbon management and management system certification have been unanimously recognized by the government and experts. The list aims to implement "Shanghai Carbon Peak Implementation Plan", "Shanghai Industrial Carbon Peak Implementation Plan" and other documents, to promote enterprises' low-carbon, green and digital transformation, to optimize the energy structure and green upgrading of the industry, to create high-end industrial clusters with international competitiveness, and to build a low-carbon, clean, high-efficiency and recycling manufacturing system driven by the zero-carbon goal.

Guohe I Steam Generator Made to the List of First Sets of Major Technical Equipment in the Energy Sector

Recently, the National Energy Administration published the No. 6 document of 2023, "The List of the Third Batch of the First Sets of Major Technical Equipment in the Energy Sector (Project)", and the Guohe I steam generator manufactured by Shanghai Electric Nuclear Power Equipment Co., Ltd. made to the list. Guohe I steam generator boasts a length of 25 meters, a maximum diameter of 6.4 meters, and a heat transfer area of up to 14,666 square meters. Tackling a number of global processing challenges, the company independently developed a set of key manufacturing technologies, and the Guohe I demonstration project has delivered two steam generators, whose technology can be applied to the production of domestic three-generation CAP1000 and Hualong I reactor steam generators. National Energy Administration promotes the demonstration and application of major technology and equipment in the energy sector to accelerate the innovation and to effectively ensure the supply chain security.

Shanghai Electric Wind Power's Products Included in 2023 Advanced Clean Energy Equipment Catalogue

Recently, the 2023 World Conference on Clean Energy Equipment was held in Deyang, jointly organized by the Sichuan Provincial People's Government and the Ministry of Industry and Information Technology. At the conference, the 2023 Advanced Clean Energy Equipment Catalogue was released, and Shanghai Electric's EW8.5-230 offshore wind turbine, built on the Poseidon platform, and EW6.25N-202 wind turbine, built on the Xcaliber platform, were included into the catalogue. Shanghai Electric is committed to developing advanced clean energy equipment and will continue to innovate in technology and products with a focus on turbine upgrades.

Several Shanghai Electric Projects Included in the Second Batch of Carbon Management Pilot Projects in Industrial Communication Industry

On November 20, Shanghai Municipal Commission of Economy and Informatization announced the list of the second batch of carbon management pilot projects in the industrial communications industry in 2023. The "Carbon Footprint Certification of Elevators Based on Whole Life Cycle Evaluation" of Shanghai Mitsubishi Elevator Co., Ltd., "Carbon Footprint Evaluation of RMM3 Series Plastic Shell Breakers Based on Life Cycle Evaluation" of Shanghai Renmin Electrical Apparatus Works, the "Product Carbon Footprint of PP Cables and Cross-linked Polyethylene Cables" of Shanghai Huapu Cable Co., Ltd. were included in the list of pilot projects for product carbon footprint evaluation.
The "Intelligent Carbon Brain System" of Shanghai Electric Intelligent Energy Technology Co., Ltd. and the "High Voltage Green Chain Supply Chain Carbon Management" of Shanghai Siemens High Voltage Switchgear Co., Ltd. were included in the list of the pilot projects of supply chain carbon management. The carbon pilot projects aim to establish a sound carbon management work system, implement carbon management in the supply chain throughout the whole life cycle of products, establish a carbon footprint database of industrial products, promote the establishment of a carbon labeling system, build a public service platform for carbon management, and initially achieve mutual recognition of carbon footprint labeling.

Module Installation of PV Project in Palau, Romania Completed

Recently, the 91.54MW photovoltaic project in Palau, Romania, whose construction Shanghai Electric Power Generation Engineering Co., Ltd. participated in, celebrated the completion of the installation of photovoltaic panels, and the project owner and important partners expressed their appreciation for the high-quality and high-efficiency work.
The installation of the PV panels took 40 days, the shortest among the projects in the same region and scale. In addition to high efficiency and speed, the module installation quality is also higher than other projects of same type. The successful completion signifies that the project is about to enter the stage of commissioning and grid connection, which will lay the foundation for Shanghai Electric to expand and consolidate its presence in the new energy market in Romania.

BAW Signed a Tripartite Cooperation Agreement for the Assembly Line of Domestic Airliners

On November 23, Broetje Automation signed a cooperation agreement with Huarui Aerospace and Guanglian Aviation for a self-developed wide-body airliner wall panel assembly line, marking another key milestone in the civil aviation industry in China. In addition, Broetje Automation and Guanglian Aviation formally established a strategic partnership, and will jointly provide mature automation technology and services for this project in the future and deliver the key assembly equipment for this assembly line.

Shanghai Electric's Battery Production Line Landed in Thailand

Recently, the first electric vehicle battery production plant in SAIC Motor-CP was officially inaugurated in Chonburi Province, Thailand, and the power battery production line was supplied to the plant by Anwha Automation Engineering Co., Ltd., a subsidiary of Shanghai Electric. This move marks the milestone progress of Shanghai Electric's lithium-ion battery intelligent assembly solution in Southeast Asian market. The highly automated production line utilizes the advanced "cell to pack" (CTP) technology. The plant is important for SAIC Motor-CP in the Southeast Asian market. It is expected to be put into full operation within the year, with an annual production capacity of 50,000 batteries with product quality aligned with global standards, to accelerate Thailand's electric vehicle industry.

Shanghai Electric Brings Intelligence to the Yangtze River Economic Belt

Recently, Unit 1 of the 2×1,000MW CHN Energy Hunan Yueyang Power Plant passed the 168-hour full-load test run.
The boilers, medium-speed coal mills, primary fans and denitrification systems were supplied by Shanghai Electric Power Generation Group. The two self-developed 1,000MW ultra-supercritical primary reheat tower pulverized coal boilers are the first primary reheat tower boilers matched with BEST turbines. It is reported that the No.2 unit of the project is planned to be put into operation in December this year. After the project is fully put into operation, it will be the "most advanced, comprehensive, high-quality and fully intelligent" power plant in the northern part of Hunan Province, and will become the "main force" to promote the development of the Yangtze River Economic Belt.

Shanghai Electric Completes Lifting of the Largest Single Wind Power Project in Inner Mongolia

Recently, at the site of the first batch 600 MW Xingfu project, part of the Ulanqab Wind Power Base Phase I 6 million kilowatts demonstration project, with the successful impeller and the turbine docking at an altitude of 107 meters, 120 sets of wind turbines had all been lifted. So far, it is the single project with the largest number of installed turbines and the largest capacity in Inner Mongolia. These wind turbines are installed with a variety of Shanghai Electric models, including onshore WE4.X series W4800-146, W4500-155 and Xcaliber series WH6.25N-172 units. After the full capacity of the project is connected to the grid, it will provide 18 billion kWh of clean electricity annually, which can replace 6 million tons of standard coal, reduce carbon dioxide emissions by 15.3 million tons, sulfur dioxide emissions by 45,000 tons, and smoke emissions by 7,560 tons, which is of great significance in accelerating the low-carbon transformation of the local energy industry, boosting the energy conservation and carbon reduction of high energy-consuming industries, and promoting local green economy and environmental protection.

Shanghai Electric Enters the Korean Offshore Wind Power Market

Shanghai Electric Wind Power Group Co., Ltd. (hereinafter referred to as "Shanghai Electric Wind Power") signed a contract for the sale of wind turbines for the Saha offshore wind power project in Busan, South Korea together with Hyosung Heavy Industries and Corio. Saha offshore wind power project, with a total capacity of 102MW, will deploy 12 sets of Poseidon EW8.5-230 wind turbines. The project will promote the low-carbon transformation of the energy sector in the Busan region. Corio, Shanghai Electric Wind Power and Hyosung Heavy Industries will take this opportunity to further explore in-depth and localized cooperation, deepen the cooperation in the field of green energy, work together to create a win-win situation, and make contributions to the development of offshore wind power in China and South Korea.

Shanghai Electric's 50 Mvar GVPI Air-Cooling Synchronous Condenser Accepted as Shanghai's First Breakthrough Project

Recently, the first distributed 50 Mvar GVPI air-cooling synchronous condenser of Shanghai Electric Power Generation Group applied to wind-solar green energy power stations was accepted as Shanghai's First Breakthrough Project with internationally advanced technology. During the development process, Shanghai Electric Power Generation Group overcame numerous technical difficulties through advanced numerical calculations, structural design and testing technologies, and independently developed the "distributed 50 Mvar GVPI air-cooling synchronous condenser", which has flexible units, excellent transient dynamics, high safety and reliability, and easy operation and maintenance, filling the gap in China. It has inestimable social value in enhancing the consumption of new energy, reducing carbon emissions and improving the environment, and has exceeded the assessment targets of the special support project.

Shanghai Electric Successfully Selected as ESG Good Practice Case for Listed Companies

Recently, the Conference on Sustainable Development of Listed Companies in China, sponsored by China Association for Public Companies (CAPCO) and co-organized by CAPCO Sustainable Development (ESG) Committee and China Social Responsibility 100 Forum, was held in Beijing. Shanghai Electric's "ESG Practice Cases in Various Fields" was selected as one of the "ESG Good Practice Cases for Listed Companies in 2023 - ESG Comprehensive Practice".

The cases centered on environment, society, governance and ESG comprehensive practice, covering 13 topics such as carbon emission reduction, social contribution and service to national strategies. The selection into ESG Good Practice Cases for Listed Companies in 2023 signifies that the efforts and initiatives of Shanghai Electric in ESG have been widely recognized by the capital market and the public.

In recent years, Shanghai Electric has enhanced its ESG system and capability, explored new paths for green and low-carbon development, supported the national goal of building a zero-carbon society and high-quality development of the power industry, and created sustainable value for a better life. The company has made many breakthroughs in practicing the concept of sustainable governance, and has published ESG reports for seven consecutive years.

Through continuous technological innovation, Shanghai Electric has launched a variety of energy-saving innovative products in power generation, thermal power flexibility transformation, power transmission and distribution, rail transit and intelligent buildings, and other industry scenarios. Energy recycling is actively promoted through process design, and its system equipment is capable of treating flue gas, water and solid waste and significantly reducing carbon emissions. It further enhanced corporate governance by strengthening internal compliance management, establishing open communication channels, and protecting investors' rights and interests. Shanghai Electric also strictly complies with legal and regulatory requirements to ensure compliance and transparency of its operations. It practices the green concept in the whole chain of production and operation, clarifies the corporate responsibility for environmental protection, fulfills annual corporate environmental governance tasks, takes the "Negative List of Corporate Environmental Management of Shanghai Electric" as a basis, and actively promotes the risk governance work. On the basis of strengthening the closed-loop tracking and management of environmental protection and rectification at all levels, it has completed the "Shanghai Electric Environmental Protection Governance Three-Year Action Plan".

In addition, Shanghai Electric responds to the national sustainable development initiatives, focuses on environmental protection in the production and operation process, and actively advocates energy saving, water conservation and green office across the group. Through efficient and pragmatic management measures and the continuous culture communication, the group continuously improves the awareness and effort of environmental protection, and builds an environmentally friendly enterprise. Externally, Shanghai Electric is also committed to promoting the ecological balance and biodiversity protection in its operating sites and projects, and making continuous efforts to realize harmonious coexistence between human beings and nature.

In the future, Shanghai Electric will continue to enhance its independent research and development strength through innovation, actively fulfill the responsibility to achieve national "dual-carbon" targets, improve ESG level, and steadily promote high-quality development.

Continuing 30 Years of Win-Win Cooperation, Shanghai Electric and KSB Seek Greater Cooperation

On November 15, Liu Ping, Deputy Secretary of the Party Committee and President of Shanghai Electric Group, held talks with Dr. Stephan Timmermann, CEO of KSB at the headquarters of Shanghai Electric. They also exchanged views on deepening the cooperation in the field of nuclear energy and new energy.

Liu Ping welcomed Timmermann and his entourage. He said that earlier this month, Chinese President Xi Jinping emphasized in his meeting with German Chancellor Scholz that China and Germany, as all-around strategic partners, should accelerate cooperation in areas such as green transformation, environmental governance and biodiversity protection, and promote common development of the world by opening up at a higher level. At present, China's nuclear power industry has ushered in a golden period, and Mr. Liu hoped that the two companies, which have a satisfactory history of exchange and cooperation for nearly 30 years, will plan future cooperation on the consensus reached by the leaders of the two countries, seize the opportunities of the new round of development of China's nuclear power industry, and extend cooperation in more business segments, especially in the field of new energy, and give full play to the technological advantages of KSB and the resource and industrial advantages of Shanghai Electric. Together, the two sides can create a new benchmark for high-quality cooperation between Chinese and German enterprises.

Timmermann thanked Shanghai Electric for the long-term trust and support for KSB. He said, KSB had always attached great importance to the Chinese market, and in recent years the cooperation with Chinese enterprises had achieved remarkable results. China's current economic transformation and upgrading will undoubtedly provide a new growth driver for the development of KSB. KSB operates a wide range of business and shares the business philosophy of Shanghai Electric. The industrial sectors of the two groups are also highly compatible. It is hoped that the two sides will continue to consolidate the existing cooperation on the basis of current business, deepen the exchange and cooperation in wind power, photovoltaic, energy storage and other new energy fields, and work together to create a perfect Sino-German cooperation model.

In 1994, Shanghai Electric and KSB jointly invested in KSB Shanghai Pump Co., Ltd.*, which focuses on the fields of energy, industry, municipal administration and water conservancy, and has become one of the pump and valve manufacturers and solution providers with the widest range of products and the highest level of technology in China. In 2008, the two sides invested in Shanghai Electric-KSB Nuclear Pump & Valve Co., Ltd., which specializes in nuclear energy product design, engineering, manufacturing, assembly, testing, sales and after-sales service. Since its establishment, the company has produced and delivered hundreds of nuclear pumps and conventional island pumps for Fuqing, Ningde, Tianwan, Yangjiang, Fangchenggang, Hongyanhe and other nuclear power plants, which have filled the technical gaps of the domestic nuclear power industry, and moved to a higher level.

Shanghai Electric and Hitachi Energy

Establish a Joint Venture in Offshore Wind Power Transmission Field

On November 8, at Hitachi Energy's booth at the Sixth China International Import Expo, Shanghai Electric and Hitachi Energy announced the establishment of a joint venture, Shanghai Electric Hitachi Energy Power Technology Co., Ltd., and held the inauguration ceremony. At the ceremony, the joint venture signed a cooperation agreement with Shanghai Electric Wind Power Group. Liu Ping, Deputy Secretary of the Party Committee and President of Shanghai Electric Group, and Zhang Jinquan, Global Executive Vice President and President of Greater China of Hitachi Energy, inaugurated the joint venture and delivered speeches.

The joint venture will focus on offshore wind power business, utilizing the advantages of the new-generation offshore wind power flexible DC transmission technology to provide system solutions with "intensive sea area, lightweight offshore platform design, and lower cost of operation and maintenance" for China's offshore wind power transmission, and to improve the life-cycle investment returns of offshore wind power projects.

Liu Ping said in his speech that as leading energy equipment companies, Shanghai Electric and Hitachi Energy are always committed to promoting the development and upgrading of clean energy systems. Offshore wind power is an important part of green energy transformation, and the flexible direct transmission technology guarantees smooth transmission of offshore wind power. It can tailor intensive sea area, lightweight offshore platform and lower cost of operation and maintenance for offshore wind power projects to help customers achieve a greater return on investment.

Zhang Jinquan said that with the mission of "building a clean energy system and sharing a low-carbon future", Hitachi Energy works with all partners to innovate and continuously promote a cleaner, more flexible and safer global energy system. The new joint venture will fully combine the technical and market advantages of both parties to realize mutual benefits and contribute to the high-quality development of China's offshore wind power transmission.

China is rich in offshore wind resources, with more than 18,000 kilometers of coastline and 3 million square kilometers of usable sea area. With the energy load centers in the east and south, the development and utilization of offshore wind power have become the important drivers for clean energy. With the gradual development of deep-sea offshore wind power, the transmission distance and capacity will continue to improve. Flexible DC transmission technology will provide important technical support for future transmission with the advantages of large transmission capacity, low energy consumption and low reactive power demand.

As the pioneer and leader of HVDC transmission technology in the world, Hitachi Energy boasts nearly 70 years of experience in the industry and has delivered more than half of the world's HVDC projects and more than 70% of the world's flexible DC (light HVDC) projects. It has world-leading technology, reliable system solutions and long-term engineering experience in the field of offshore wind power, especially in the field of large-capacity and long-distance offshore wind power transmission. Shanghai Electric is a world-leading provider of industrial-grade green and intelligent system solutions, with advantages in equipment manufacturing and new energy. Upholding the principle of openness, coordination and win-win cooperation, Shanghai Electric promotes worldwide innovation and eco-friendly sustainable development through partnerships with more than 70 of the world's most prestigious enterprises.

The existing joint venture of Shanghai Electric and Hitachi Energy has achieved outstanding results in the field of dry-type transformers. Taking the establishment of this joint venture as a new starting point, the two companies will complement each other and promote the efficient development and utilization of offshore wind power resources, contributing to the construction of a new power system dominated by new energy and accelerating the realization of China's "dual-carbon" goal. D

Shanghai Electric and Johnson Controls "Carbon & Digitalization" Joint Laboratory Inaugurated

On November 6, at the 6th China International Import Expo, Johnson Controls held a “Boundless Creation, Smart Future" theme forum. David W Budzinski, President of Johnson Controls Global Products, Household and Light Commercial Products, and Liu Ping, Deputy Secretary of the Party Committee and President of Shanghai Electric, signed the "Carbon & Digitalization" Joint Lab Strategic Cooperation Agreement", and inaugurated the laboratory. The two sides will further support the national strategy, strive for the realization of the national "dual carbon" goal, deepen the cooperation in the field of green and low carbon development, and open a new chapter of cooperation.

Following the release of "Zero Carbon Industrial Park Path and Evaluation” in September at CIIF, which was initiated by the Shanghai Environment and Energy Exchange and Shanghai Electric, Johnson Controls and other partners, Johnson Controls and Shanghai Electric once again joined hands. The establishment of the Joint Laboratory will further deepen the cooperation of the two sides in green, low-carbon and sustainable development.

Jointly researching major projects, making technological innovation, and sharing resources and results, the joint laboratory will upgrade the open cooperation between the two sides. The two sides can give full play to their complementary advantages, resource and load synergy, close integration of digital intelligence, strengthen cooperation, and launch more cooperation projects in cities, neighborhoods, parks, buildings and other scenarios, to jointly build a platform of green, low-carbon and intelligent solutions and services integrating "electricity-cooling-heat-gas" sources, and to set more green low-carbon transformation benchmarks. In addition, the two sides will actively serve the country's green and low-carbon transformation, accelerate the construction of zero-carbon factories and parks, optimize the supply chain of green and clean energy, comprehensively build a green and low-carbon supply chain system, and explore energy saving, carbon reduction and efficiency promotion efforts.

Xu Shenjuan, Vice President and General Manager of Johnson Controls Asia-Pacific HVAC and Refrigeration, and Yang Hong, Vice President of Shanghai Electric, signed the agreement.

Johnson Controls is a global company dedicated to intelligent, healthy and sustainable building solutions. For nearly 140 years, it has been at the forefront of sustainable development, minimizing the impact of business operations on the environment through scientific and technological innovation. It provides sustainable building solutions for various industries and promotes diversified cooperation with its industrial influence, to create a partner ecosystem of energy saving and emission reduction.

Looking forward, Shanghai Electric will unswervingly adhere to the concept of openness, innovation and win-win cooperation, join hands with industry leaders, including Johnson Controls, explore green and low-carbon technologies, and strive to make greater contributions to green and low-carbon development.

First Domestic

Hydrogen-Doped Combustion Large F Class Heavy Duty Gas Turbine Lauched

On November 19, Shanghai Electric independently completed upgrade and demonstration verification of hydrogen doping technology for large F Class heavy-duty gas turbine in operation. The test was carried out jointly with Datang Haikou Power Plant, with a hydrogen doping ratio of 7%. During the test, all equipment ran stably with satisfactory emissions. This is the first time in China to implement the hydrogen doping combustion transformation and scientific research project for large F Class heavy-duty combustion engines, marking a major technological breakthrough.

The hydrogen doping project mainly covers work such as optimization of burner upgrading, monitoring and control system, hydrogen doping integration and on-site installation and commissioning. Since the project was initiated at the beginning of the year, based on the preliminary research on hydrogen doping combustion technology and the accumulation of test bench test data, Shanghai Electric has made concerted efforts in technology, service, and planning and procurement to customize the burner upgrading and monitoring program, and design the control strategy and protection logic to ensure the combustion stability and hardware safety of the unit during hydrogen doping combustion.

This major breakthrough is another solid step taken by Shanghai Electric to the realization of "dual carbon" goals. It also contributes to the construction of a safe, green, intensive and efficient low-carbon and clean energy production system in Hainan Province and accelerates the construction of the clean energy island. At present, Shanghai Electric, with the technology of hydrogen-doped combustion with higher proportion, is positioned to provide users with more green, low-carbon, combined-cycle solutions.

SUPPORTING SANMEN NUCLEAR POWER PLANT

Recently, the reactor pressure vessel for Unit 3 of the CAP1000 Sanmen Nuclear Power Phase II Project manufactured by Shanghai Electric Nuclear Power Equipment Co., Ltd. (hereinafter referred to as "Shanghai Electric Nuclear Power") was smoothly put into operation, which strongly guarantees the progress of the installation of the Sanmen nuclear power plant.

Reactor pressure vessel is one of the key primary equipment in the nuclear island of a nuclear power plant, which is important to the safe operation of the plant. The equipment is characterized by a long manufacturing cycle, high technical requirements, and strict requirements for raw materials, welding, machining, non-destructive testing, hydraulic testing and other aspects. Before shipment, the equipment passed the all-round joint acceptance inspection by the owner of Sanmen, Shanghai Nuclear Engineering Research and Design Institute, and Shanghai Electric Nuclear Power.

Accelerating the Construction of San'ao Nuclear Power Project

Recently, the secondary side hydraulic test for the first steam generator of Unit 1 of Zhejiang San'ao Nuclear Power Project, which is co-constructed by Shanghai Electric, was successfully completed, and passed the one-time inspection. The successful hydraulic test is the first step towards the successful completion and delivery of the San'ao Unit 1 project. It marks Shanghai Electric's another effort to ensure year-end progress and quality.

As the first equipment of this unit, in order to pass the one-time hydraulic test, Shanghai Electric Nuclear Power Equipment Co., Ltd., a subsidiary of Shanghai Electric, made active preparations, paid close attention to the quality, fully considered the possible risks of man-made factors, ensured safe production, and implemented it in strict accordance with the regulations.

In addition, San'ao Unit 1's control rod drive mechanism and reactor internals were also well-prepared for the test. Shanghai No.1 Machine Tool Works Co., Ltd. (hereinafter referred to as "No.1 Machine Tool "), a subsidiary of Shanghai Electric, carries out spot welding of the Y-ring of the control rod drive mechanism of San'ao Unit No. 1. To ensure the shipment of the control rod drive mechanism of the San'ao Unit No. 1 and the reactor internals by the end of the year, Shanghai No.1 Machine Tool is making the last pre-assembly of the lower reactor internals and the flow distribution components.

Zhejiang San'ao Nuclear Power Project is planning to build 6 sets of third-generation nuclear power Hualong I units, which will be planned at one time and implemented in phases. The first phase of the project was approved in 2020 and construction began in the same year. Shanghai Electric undertook the first phase of the project, which included several sets of main nuclear island equipment, including main pumps, steam generators, reactor internals and pressure vessels.It is learned that after the completion of all 6 units of Zhejiang San'ao Nuclear Power Project, the annual power generation will be up to 52.5 billion kWh, which can reduce the consumption of standard coal by 15.88 million tons per year, reduce carbon dioxide emissions by 43.68 million tons, equivalent to afforestation of 118,000 hectares, and provide a steady stream of clean energy for the sustainable development of Yangtze River Delta region, and make contribution to the "dual-carbon" strategy.

Undertaking CHN Energy Zhejiang Lishui Mountain Photovoltaic Project

Recently, Shanghai Electric Power Generation Equipment Co., Ltd. Generator Plant and CHN Energy Zhejiang signed the procurement contract of photovoltaic bearing system for Lishui Mountain Photovoltaic Project.

Lishui Mountain PV Project is located in the steep terrain of Zhejiang, bringing great challenges to the site terrain survey, program design and project implementation. The technical team independently developed PV module layout software, which analyzes the slope sunshine, eliminates roads, guardrails and other impact factors, and then derives the available range. The application of this software greatly improves the efficiency and accuracy of the layout and is verified at the project site, which provides important technical support for the smooth implementation of the project.

Malaysia Renewable Energy Power Plant Commenced

On October 17, a groundbreaking ceremony was held at the site of the renewable energy power plant project in Selangor, Malaysia. Amirudin bin Shari, Chief Minister of Selangor State Government, Zheng Le, representative of the Chinese Embassy in Malaysia, Norazlina Zakaria, CEO of Worldwide Holdings (the Owner), and the head of Shanghai Electric Power Generation Engineering Co., Ltd. dug up the earth at the site and witnessed the commencement of the pile foundation construction.

In his speech, Amiruddin Shari praised the most advanced and safest technology used by Shanghai Electric in the project and thanked Shanghai Electric for its efforts for the renewable energy industry and sustainable development in Selangor. As the first waste-to-energy project in Selangor, it will open a new chapter of local sustainable development, and become an important demonstration project.

Norazlina Zakaria said that Worldwide Holdings has always been committed to environmental protection and renewable energy production, and this groundbreaking ceremony marked a key milestone.

At the groundbreaking ceremony, a video on waste incineration technology was played, which demonstrated Shanghai Electric's safe and environmentally friendly image and the concept of green development. The ceremony was reported by Xinhua News Agency and many local mainstream media. The main leaders of Selangor state government, government officials of cities and counties around the project, representatives of cooperative banks, power grid companies and project subcontractors attended the ceremony.

It is reported that it is the first waste-to-energy (WtE) power plant in Selangor, and is also a national demonstration project for green growth, energy conservation and emission reduction in Malaysia. The first phase of the project has an installed capacity of 25 MW and a waste treatment capacity of 1,400 tons/day. The second phase of the project has an installed capacity of 26 MW and a waste treatment capacity of 1,500 tons/day. The total construction period is estimated to be 29 months.

The owner, Worldwide Holdings, is an enterprise wholly owned by the government of Selangor, Malaysia, whose business scope covers energy, project management, green technology, environmental management services, real estate, medical equipment manufacturing and others.

The World's First Floating Wind Power and Fishery Integrated Project Completed

Recently, the world's first floating wind power and fishery integrated project "Guoneng Sharing", which is developed and constructed by China Longyuan Power and supplied with wind power generation equipment and tower by Shanghai Electric Wind Power Group Co., Ltd. (hereinafter referred to as "Shanghai Electric Wind Power"), was successfully completed.

The project is the world's first deep-sea floating wind power and marine pasture integrated project, which was selected as one of the Top Ten Industrial Technology Problems by China Association for Science and Technology, and included in the Fujian Major Special Science and Technology Project. The project was built in Putian Nanri Island National Marine Pasture Demonstration Zone in Fujian. About 35 meters under water, it uses three-column semi-submersible floating platform, whose hexagonal center serves as the breeding area. The platform is installed with an electric wind power 4 MW offshore wind turbines and lightweight flexible photovoltaic modules, to achieve the intensive use of the sea and inter-industry development.

After the project is put into operation, the wind turbine can generate 96,000 kWh of electricity in the 24-hour full-load operation, equivalent to the power consumption of 42,500 people in one day. The innovative integration of wind power, photovoltaic power and fishery farming will also bring considerable green economic benefits.

Taking into account the complexity of the marine environment and the high cost of offshore wind power operation and maintenance, Shanghai Electric Wind Power has fully ensured the safety and reliability of the system from three aspects as design, experimental verification, and digitally-empowered operation and maintenance, in order to ensure the stable operation of the floating wind turbine under harsh offshore conditions for sustained harvest of wind power.

Shanghai Electric Wins Six Consecutive Bids in the Boiler Market

Recently, Shanghai Electric won six consecutive bids in the boiler market, fully supporting the achievement of annual target.

In the field of high-efficiency clean energy, Shanghai Electric won the orders of 2x660 MW double reheat boiler equipment for Hubei Energy Jiangling Project and the complete set of boiler equipment for Jiangsu Ligang Power Plant Phase V 2x1000 MW coal-fired power generation project. Besides, it has already received orders for steam turbine, generator and auxiliary equipment for Jiangling and Ligang power plant projects. So far, Shanghai Electric will provide a full set of host equipment for these two projects.

In the non-coal field, it has won successive bids for the cogeneration unit clean and efficiency improvement project 4 x 570 t/h subcritical high temperature intermediate reheat coal-fired boilers of SINOPEC Shanghai Petrochemical, the 2 x 450 t/h subcritical ultra-high-temperature intermediate reheat pulverized coal boiler of Jiangyin Zhoubei Cogeneration's new coal-fired subcritical back-pressure unit substitution and integration project, six pipelines for the 2 x 1000 MW unit of CR Power Wenzhou project, and six pipelines for the 2 x 660 MW unit of Huaihe Energy Panji Project, gaining great development momentum for the boiler segment in the field of high-efficiency and clean energy and non-coal field.

Project overview

The two 660 MW ultra-supercritical double reheat tower-type pulverized coal boilers supplied for the Jiangling project adopt the highly efficient and flexible coupled steam temperature regulation system and the fourth generation combustion technology of Shanghai Boiler Works, which features higher operational reliability, better economic and environmental benefits, and higher peak regulation flexibility, etc. The two 1,000 MW ultra-supercritical double reheat tower type pulverized coal boilers supplied to Ligang Power Plant are new-generation double reheat boilers independently researched and developed by Shanghai Boiler Works, which are characterized by excellent wide-load boiler efficiency and economy, wide-load steam temperature economy, and wide-load NOx emission and environmental protection, and can realize more reliable, high efficiency and flexible operation, and better adapt to the new power system under the stringent requirements of the new power system.

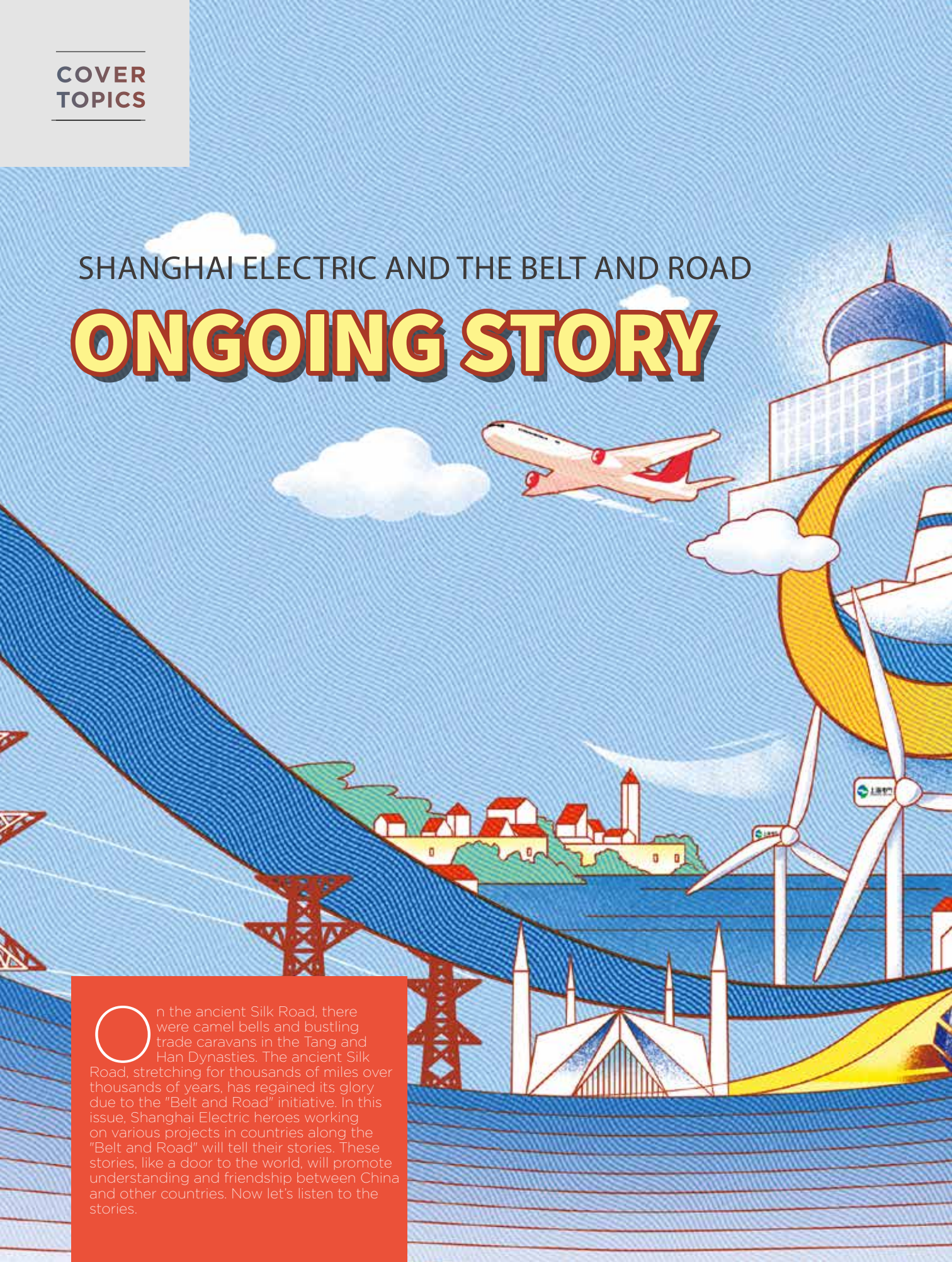
The 3 sets of pulverized coal boilers and 1 set of CFB boiler supplied for SINOPEC Shanghai Petrochemical Project are high-parameter products in the field of industrial boilers, which lead the direction of the current industry development. Compared with the traditional industrial boilers, they can significantly reduce the coal consumption, energy consumption of thermoelectric units, carbon emission and pollutant emission, in order to reduce the cost of electricity and heat for the users.

The 2 sets of independently developed 450t/h ultra-high-temperature sub-critical intermediate reheat pulverized coal boilers supplied for Jiangyin Zhoubei Thermal Power Project have excellent performance, low emission, stable combustion and low cost.

The six pipelines supplied for the projects of CR Power Wenzhou and Huaihe Energy Panji further enriched the product family and business type of Shanghai Electric's boiler segment, and consolidated and improved the leading position in the industry.

SHANGHAI ELECTRIC AND THE BELT AND ROAD

ONGOING STORY



On the ancient Silk Road, there were camel bells and bustling trade caravans in the Tang and Han Dynasties. The ancient Silk Road, stretching for thousands of miles over thousands of years, has regained its glory due to the "Belt and Road" initiative. In this issue, Shanghai Electric heroes working on various projects in countries along the "Belt and Road" will tell their stories. These stories, like a door to the world, will promote understanding and friendship between China and other countries. Now let's listen to the stories.


上海电气
SHANGHAI ELECTRIC

● Pancevo, Serbia (Gas turbine combined cycle power plant project)

Storyteller: Zhao Huaping (Senior Engineer of Technical Services)

BUILDING A POWER PYRAMID ON THE BANKS OF THE DANUBE

"I have been engaged in large generator installation services for many years, and have worked in several Asian and African countries, including Indonesia, Pakistan, and Iraq. European countries are predominantly fairly developed with more advanced infrastructure. I never thought that I would knock on the door of the European market with the Pancevo Combined Cycle Project in Serbia."

EXPLORING THE EUROPEAN MARKET WITH A PROFOUND KNOWLEDGE OF EUROPEAN STANDARDS

Driving about 16 kilometers northwest from Belgrade, along the tranquil banks of the Danube, we arrived at the site of the Pancevo Gas Turbine Combined Cycle Project, which is the first turnkey gas turbine power generation project built by Shanghai Electric in Europe.

This is the first project to be jointly designed by Chinese and foreign design institutes. Following the European Standards and Serbian AAA standards, the turbine equipment consists of two small F-class gas turbines, two independently-designed waste heat boilers, and a set of turbine generators, which can adapt to the two working conditions of straight condensing and steam supply, with a total output of 161 MW.

Considering the special nature of this project, before coming to Serbia, I made a special visit to the product design department to learn about the project development. I learned from the designers that they acquired a profound knowledge of the European standards and provided customized services for the users. In addition, for the convenience of use, the product documents have three versions respectively in Chinese, Serbian and English, including manuals for main unit and system installation, operation and maintenance, as well as the drawings. Well begun is half done. When I went deeper into the Pancevo project site, I felt more deeply about this idiom. In power construction, Serbia strictly follows the EU standards, with extremely strict requirements for engineering design, construction and installation, equipment manufacturing and product service. To meet the standards is undoubtedly the open sesame to enter the European market.

IMPRESSING THE STRICT EXPERTS

A few days after arriving in Serbia, I joined the project. One day, when I was installing the generator wind guide ring, someone whispered, "Look, Serbian supervisor Norwich is coming this way." Some of the young men on the site of the installation showed a hint of panic, which made me curious about this Norwich.

With a full head of grey hair and a cold face, a stout old man walked toward us. In Serbia, the supervision agencies are independent legal units specifically responsible for supervising the project construction, and Norwich is responsible for the supervision of gas turbine and generator installation of the Pancevo project. I heard Norwich had been engaged in research work in Serbia power plant generator turbines. Formerly a professor, he had very rich experience.

Just as we were discussing in a low voice, Norwich appeared in front of us, carefully checking up the components while communicating with technicians. Suddenly, he looked at me, probably because he saw the logo on my shirt, and asked: “Shanghai Electric?” Young man, are you from the manufacturer of the generator or gas turbine?” I walked up and said: “It's an honor to meet you. I'm Mr. Zhao, a service representative from Shanghai Electric. I am responsible for generator service on this project.” Norwich nodded slightly at me and then spoke to the heads of the electrical engineering and the installation agency, "Please call a meeting tomorrow about the gas turbine and generator installation.”

The next day, the small meeting room was filled with project staff, and Norwich spoke first: “The site is ready for installing the gas turbines. To meet the European standards for products and construction, how will you manage the installation work on site?” The participants discussed on the

foreseeable difficulties and the construction process. After a while, Norwich turned to me and said, "Manufacturer's service is very important on site and I'd like to hear from Mr. Zhao."

In fact, with many years of service experience, I was familiar with construction preparation meeting. I knew the manufacturer's technical briefing was very important, so I also did some preparation in case Norwich would take the opportunity to test me. I used the projector to introduce to the Serbian technicians the basic structure, functional principles, supporting systems of the generator, and detailed our installation process, technical requirements and quality control methods. Everyone listened carefully, and finally I said, "The pyramid is built up by piling one stone on another. A crooked stone will jeopardize a miracle. This metaphor can best describe the installation of complex equipment with the modular and process-oriented systems."

Norwich and the coworkers gave me approving looks as they listened. Norwich nodded, "I think the pyramid metaphor is very vivid and apt, and the comments made by Mr. Zhao, the manufacturer's representative, were very pragmatic and true. There were some details that I hadn't considered myself, which, although they may seem minute, are extremely important for electrical equipment." At the meeting, the Chinese and Serbian technicians were running towards a common goal, agreeing to closely integrate the manufacturer's quality control requirements with the Serbian quality supervision program to ensure the installation quality.

After the meeting, Norwich asked me to his office. He changed his usual "coldness" and said to me with a big smile: "Mr. Zhao, after the communication, I think you are very professional, and I have high expectations of you." Since then, Norwich and I have been on very cordial terms both in work and life. In fact, I also know that his coldness is just rigorousness toward work, and behind that coldness is a warm and interesting man. As long as you are professional and dedicated, you can impress him.

Through the continuous efforts of Chinese and Serbian staff, the project finally reached a key milestone in April 2022, when the two turbines completed the 72-hour test run, which marked their official commercial operation. In just a few years, the Serbian project team addressed numerous difficulties and obstacles, and kept forging forward in the European market. One miracle after another, with our professionalism and sincerity, we have blazed a way for Shanghai Electric and China in Europe.

United Arab Emirates
(Dubai Concentrated Solar Power and Photovoltaic Power Generation Project)

Storyteller: Mao Yuqing (Senior Communication Specialist), Guo Liming (Mechanical Engineer)

BUILDING A REPUTATION IN THE UNITED ARAB EMIRATES

Sixty-five kilometers from Dubai's bustling downtown is the site of a 700 MW concentrated solar power (CSP) and 250MW photovoltaic (PV) solar power project constructed by Shanghai Electric. Every day at 7 A.M., we take a bus. After travelling more than one hour on the asphalt and sandy roads, we arrive at the project site, which is half desert and half sand dunes. This is a key project of Shanghai Electric under the Belt and Road Initiative, with the concept of "collaboration, co-construction, and sharing". Covering 44 square kilometers, the equivalent of over 6,000 football fields, with a total installed capacity of 950 MW, it is the biggest concentrated solar power project in terms of installed capacity, investment amount and heat storage of molten salt tanks in the world.

PRACTICING THE CONCEPT OF ENVIRONMENTAL PROTECTION

When the project commenced, the desert was as far as the eye could see. Now we are both pleased and proud to see the initial completion of large-scale and neatly arranged power generation facilities. Shanghai Electric has been practicing the concept of environmental protection and minimizing the impact of the project on the local ecological environment. As the project continues to progress, the surrounding environment is continuously improving. It is a great encouragement and joy for us to witness all this and progress with the project.

The lizards, camels and antelopes are all the witnesses of this huge project. At the beginning of the project, how to ensure the safe migration of wild animals became the focus of the project department. The project department specially hired a local professional animal protection organization in Dubai to conduct surveys and set up feeding points near the fence openings to attract the wildlife remaining on site and move them safely.

"Knowing that oryx is a mammal that likes to live in groups and usually forage at dawn and dusk, and that it can go for a long time without drinking water, we prepared a lot of grass in advance." "The red fox is very vigilant, usually acting alone, mainly feeding on rodents, but also on wild birds, frogs, fish, insects, etc. and a variety of wild fruits and crops. We were very careful about the food selection." In retrospect, we became amateur zoologists, spending every spare moment with conservationists studying the habits of these wild animals.

In addition to wild animals, there were more than 200 trees on the site. Trees in the UAE are regarded as treasures and cannot be cut down without official permission, and violations will be heavily punished. Feng Yuxiang, a famous general during the Republic of China period, has a proverb, "Whoever cuts down my tree, I will cut off his head." This is the true case here. We worked hard to find ways to protect these precious trees, which had been growing in the desert for many years, and ensure that each tree could be safely transplanted. The trees in the area 40 square kilometers around the project site had to be located and numbered one by one using GPS in advance. We also hired a professional tree transplant company and paved special roads to ensure that all trees within the site were safely transplanted. The project was officially commenced only after the approval of the relevant departments.

THE SCORCHING DESERT

Dubai is the pearl of the Arab world, a paradise for the rich, a land of high-rise buildings... Perhaps many people will envy us, thinking that we are working in the world's most extravagant city. But in fact the living conditions here are far from ideal. At the project site, the scorching sun brings an unimaginable heat: For nine months of a year, the maximum temperature at noon can reach 50 degrees Celsius. The project is adjacent to the Persian Gulf, where the sea-land breeze will mix with fine sand and blow on us. With occasional seafood-flavored sandy rain, this place, with an average annual precipitation of less than 100 millimeters, has extremely great humidity.

A colleague at the project site said, "Cell phones here often give over-temperature warnings, and would automatically shut off shortly after picking up a phone call. To avoid sunburn, we must wear heavy overalls, and within five minutes we will be covered in sweat." "Every time I go to the site, I will bring a thermos of light salt water, but I will soon drink it up. The water at the site is steaming hot."

The project department is attentive to the protection of plants and animals, as well as the ecological environment. With the construction of the project, patches of green appear in the yellow sand beneath the solar panels, struggling to grow. They are what the employees call the "green romance" in the desert. It turns out that the leveling of the land and the installation of devices play a role in sand stabilization, which has not only helped reduce sandstorms around it, but created conditions for the growth of vegetation. The grass breaks through the soil after being watered with the panel cleaning water.

Before the tower turbine collector was connected to solar source for the first time, the site elevator was out of service due to strong sand and wind in the desert. In order to ensure the progress of the project, team members climbed 3,500 steps every day, equivalent of 70 stories, to the collector tower to work. "It was as hard as climbing a mountain. With the hard work, our technical skills also improved, bringing us sense of accomplishment."

With such tenacity, in just one year, the project department has transferred about 8 million cubic meters of sand and leveled 9 square kilometers of ground. Under extremely harsh desert conditions, it took only about two months to complete the pile foundation construction of the collector tower, the core equipment for CT photovoltaic power generation, which was planned to be completed in five months, and commenced the construction of the tower body slip form three months ahead of schedule. Two collector mirror assembly workshops will be handed over soon, where more than 3.7 million mirrors will be assembled and transported to various sites. Steam engine room, air-cooling equipment, molten salt pipe and other more than two hundred buildings and equipment will also be unveiled one by one in this vast desert hinterland.

At 6:00 every evening, the end of a busy day, everyone's uniforms and shoes will be dyed gray by the sand, sweaty hair sticking to their foreheads. On the way back to the apartment, the orange sunset hung in the cloudless sky, staining the earth and softening the desert. In the distance, birds fly as the sun sets. The bus drives on a bumpy and endless road. The lights on the bridge flicker and shine on the faces of the tired builders. Most of them are too tired to stay awake. But tomorrow morning, they will be back to the site and their mission.

Pakistan
(Karachi K-2/K-3 Nuclear Power Plant Project)

Storyteller: Yan Aijia (Project Electrical Engineer)

MY OVERSEAS ENCOUNTERS WITH HUALONG

I am Yan Aijia from Shanghai No.1 Machine Tool Works Co., Ltd. Since the end of 2019, I have participated in the installation and commissioning of the K-2/K-3 nuclear power plant in Karachi, Pakistan, and the overhaul and material replacement for three times. I have formed an unbreakable bond with this project.

THE UNFORGETTABLE FIRST ENCOUNTER

In December 2019, I was finally assigned to the project site, and that was my first trip to Pakistan. The project site is called Paradise Point, a mesmerizing name. During the ten hours of flight, I imagined the blue sky, the sea, and the clouds in the destination. But outside the airport, we were picked up by heavily armed security personnel and bulletproof armored vehicles. During the bumpy ride, seeing only the desolate landscape, I was sunk in melancholy.

It turns out the name "Paradise Point" is undeserved. I was overwhelmed with high temperature, poor living conditions, mosquito infestation and climate sickness. Disasters pile up on one another. In early 2020, due to the outbreak of Covid-19, all flights were suspended, leaving us stranded at the site and unable to fulfill our original rotation schedule.

With the encouragement of our family and the company's leadership, shouldering the responsibility of commissioning the first Hualong reactor overseas, I was determined to overcome the difficulties as an employee of Shanghai Electric and a citizen of China.

Tight schedule, heavy workload, and limited manpower were what I felt at that time. Because the fuel transfer system is the key equipment on the loading and unloading path, which should be completed by 3-4 people, but I was the only one on site then. Shuttling back and forth between the

nuclear island and the conventional island every day was a great psychological and physical test, but when the sun rises every day, I would determinedly go to the site.

In August 2020, the average temperature in Karachi had climbed to 40 degrees Celsius. At that time, work on turbine No. 2 was in full swing and turbine No. 3 was being installed and commissioned. Due to the shortage of manpower, I had to keep myself hydrated while running back and forth between Island No. 2 and Island No. 3. Despite the tough environment, there was not a single case of heat stroke among the personnel on site during the installation and commissioning. We joked that Karachi had made iron men out of us.

After the timely completion of the site in December and the success of the first loading of the K-2 turbine, the first overseas Hualong I reactor generated electricity on schedule. My original plan was to return home after the first loading of K-2 turbine, but it seemed that fate played another joke on me. On December 30, 2020, the first case of Covid-19 suddenly appeared on site, and the virus spread widely in a very short period of time. Declared a state of emergency closure and control, the site fell into silence. After I calmed down, I signed up as a volunteer for the fight against the virus.

PITIES AND REGRETS

Time flies, Karachi K-2 turbine has been put into commercial operation for one year, and is scheduled to be overhauled and replaced in May 2022, which is a comprehensive health examination of the turbine that has been running for one year. The owner and the purchaser attach great importance to it, and the company has decided to set up an overhaul support team to go to Pakistan. In view of my participation in the equipment commissioning and the first loading, and my familiarity with the site environment and equipment performance, they wanted me to join the team.

However, at that time, the Covid-19 situation in Pakistan was exceptionally severe. Nuclear Power Group was very concerned about the local situation, and communicated with CZEC for many times about safety measures. They also talked with me about the importance of the mission. I finally allayed my worries and decided to go back to Karachi, which was supported by my family.

However, as I was actively preparing for the departure, the travel plan was disrupted when Shanghai was locked down due to COVID-19. Despite a lot of efforts, I still couldn't make it. As I saw experts leave, I bid them farewell.

"The only important thing is I have contributed to the success of the project." During the overhaul period in May and June, although I was far away from the site, I also answered questions and provided remote guidance. Even though I couldn't make it to the site in Karachi, I contributed to the overhaul of the K-2 turbine.

FRUITFUL RESULTS

At the beginning of 2023, CZEC invited us to overhaul the K-3 turbine in Karachi, and I volunteered to join the overhaul team while I was commissioning a project in Zhangzhou.

After two years, I set foot on this land again, and when I saw the dome of the nuclear power plant from afar, I felt very close to it. I saw my old Pakistani friends from the commissioning team, and they all welcomed us.

We checked the equipment with the Pakistani personnel to ensure that all the equipment could operate normally and reliably during the overhaul. Watching a piece of spent fuel being lifted from underwater, and a piece of new fuel being slowly loaded in, the overhaul was carried out smoothly with the concerted effort of the Chinese and Pakistani personnel. Providing clean and stable power to Pakistan, the Karachi power plant with Hualong I has benefited the Pakistani people and enhanced the China-Pakistan friendship.

On May 30, 2023, when my flight took off, I bid farewell to Karachi and my Pakistani friends. I will always miss the place where I have strived to achieve the goal, and I am proud of my contribution to the construction of Karachi.

Kazakhstan
(Zhanatas Wind Power Project)

Storyteller: Wang Shouyu (Project Control Manager)

THE WIND OF ZHANATAS

"Zhanatas is a city located in the south of Kazakhstan, and in Kazakh, Zhanatas means new stone. The city flourished because of its abundance of phosphorus ore; now, the Zhanatas wind power project, a Sino-Kazakh joint venture, has given the city a new life, and I have grown with the project."

FROM 0 TO 1: EXEMPTION FORM

"How's your exemption form going? We are ready to start the shipping soon." When I received the call from the logistics company, my head went blank for a moment. Then I realized I would get really busy.

In July 2022, the Zhanatas wind power project site was still empty and silent, with winding roads leading to the rolling hills in the distance. My colleagues and I sat in a container, planning the access to roads, water and power and other preparatory work, not paying attention to the unfamiliar term "exemption form". When I received a phone call from the logistics company, I hurriedly went through the contract to find the information about "exemption form".

Exemption form, short for "form for customs duty exempted equipment", is introduced this year by the Kazakhstan government to encourage the construction of new energy projects. The general contractor, in cooperation with the owner, can apply to the Kazakhstan Customs for the pass of transportation of overseas

equipment, and the earlier the application, the more favorable for the implementation of the project.

After realizing the importance of the "exemption form", I immediately reported the matter. After receiving my report, the project department and the branch office immediately invited the owner, cooperators, equipment supplier, logistics company and other related parties to discuss the solution. With rounds of consultation, the whole process gradually became clear. Sorting out the list of imported equipment, authorization of the agent, sharing of the project's customs record information and other work was put on the agenda. I frequently visited the owner, the logistics company, the customs, and major equipment supplier. During that period of time, as long as I closed my eyes, all I could think of was the Exemption Form, and I was nervous at every step of the process.

After two months of communication, the Exemption Form for the Zhanatas wind power project was approved by the customs, and the imported equipment arrived at the site before the infrastructure equipment was ready, laying the foundation for the smooth implementation of the project. In these two months, I learned the nuts and bolts of the Exemption Form. It also taught me how to face pressure and how to maintain a stable mindset in changing circumstances, that is, to focus on the big picture, adopt a down-to-earth attitude, pay attention to details, never ignore the problem, and tackle each and every challenge seriously and efficiently.

TAKE THE BULL BY THE HORNS CRITICAL PERIOD

"Hurry down, the installation team has finished assembling the blades and is ready to lift them. The wind speed is just right now, and we need to hurry to the site to guide and verify, so as not to miss this valuable window period."

Zhanatas is rich in wind resources, and sometimes the wind is so strong that it is difficult to take a step. For a wind power project, high wind is ideal. However, during the lifting process, the howling wind becomes the biggest obstacle. Therefore, when the wind speed is low, it becomes the "window period" for lifting. Once the wind speed drops, no matter when and where, all the staff must race against time to lift the wind turbine.

When installing wind turbine No. 13, it was already three o'clock in the morning, and the wind speed gradually declined. A site specialist woke me up from a sound sleep. After washing away the sleepiness with cold water, he and I immediately drove to the site of the wind turbine No. 13. The streets were empty, the usually bustling and noisy Zhanatas looked quiet and peaceful at the moment. I sat in the car, hoping that the wind would quiet down.

In contrast to the tranquility of the city, the site was already in full swing, as the installation team was concentrating on checking the torque of the bolts one by one, which is a key step before lifting the blades. Other colleagues and I also quickly got into gear, verifying the safety protection of dangerous overhead lifting operations, emergency plans and the implementation of relevant precautions. However, just when the lifting was about to start, a wind suddenly blew, and the wind speed meter of the main crane showed a reading of 9 m/s. According to the process manual of the wind turbine supplier, when the wind speed exceeds 9 m/s, it is not recommended to lift the impeller. Since the wind speed was on the critical point, should we continue or pause? The site was instantly filled with nervousness and restlessness. Everyone looked to the general contractor, waiting for our final decision.

Under pressure, I suddenly calmed down. At that time, to request instructions from the project manager was too late, but to miss this valuable "window period" was to see all the early efforts go down the drain. After weighing the pros and cons, I

immediately picked up the lifting plan for wind turbine No. 13, and discussed with the representatives of the wind turbine manufacturer, the lifting team, and the crane team on the site about the special protection measures in case of excessive wind and the corresponding emergency measures. After an all-round assessment of the lifting operation in terms of safety, schedule and quality, I decisively ordered the construction team to continue the operation.

With my order, the site got busy again, where the lifting team and the crane team performed their respective responsibilities. The cables were fixed by their respective loaders, and the lifting team firmly grasped the cables. Under the gaze of all the people, the blades were slowly lifted and gradually became vertical. After the auxiliary lifting rope was successfully removed, accompanied by a loud click, the hub successfully docked with the cabin in the air. The site resounded with a burst of cheers.

I was finally relieved. It was seven o'clock in the morning, and the sun was about to rise in Zhanatas. At the moment of the successful lifting of the wind turbine, I realized that it were senses of responsibility and mission that had given me the courage to face the challenges.

PURSUING WIN-WIN COOPERATION

The Belt and Road Initiative is proposed by China for the world. Over the past ten years, the Belt and Road initiative has achieved fruitful results, expanded member network, and become a popular international public product and international cooperation platform.

In this process, Shanghai Electric's network along the Belt and Road has also been expanding, with people of different nationalities, different languages and different skin colors from Iraq, Serbia, the United Arab Emirates, Pakistan, Kazakhstan, the Democratic Republic of Congo (DRC), etc. telling their own stories.

These surprising, heart-warming, or inspiring stories of Shanghai Electric heroes will always be remembered.

At the Dubai project, a Shanghai Electric hero said: At the peak of civil engineering and installation, the project saw more than 9,600 Chinese and foreign employees working simultaneously on it at most, with foreign technical management personnel accounting for more than 25%, and foreign labor accounting for more than 90%. By integrating with the local people and community in Dubai, we seek mutual benefit and win-win situation. This high-quality project has become a vivid case of common development along the Belt and Road.

At the Zhanatas wind power project, a Shanghai Electric hero said: In the construction of overseas projects, great strength, rigorous attitude and the win-win cooperation are indispensable. When problems arise, it is critical to discuss with the owner promptly, standing in their shoes, and work out a mutually acceptable solution. We solve problem with strength, seek recognition with attitude, and create a win-win situation with sincerity, which can lay a solid foundation for cooperation.

The experience of working on the Belt and Road projects allow these Shanghai Electric heroes to focus on the big picture, promote customer success and take on great responsibilities. In the future, no matter where they are, this experience will always be a life treasure and corporate wealth.

Hand in hand, we will never lose hope. Let's light up the way ahead, with mutual assistance, collaboration and civilization. Along the Belt and Road, every builder of overseas projects is the guardian of light and the writer of a "win-win" chapter. We believe that there will be more wonderful stories along the Belt and Road.

TRAINING METRO "GPs"

THE FIRST TEAM OF COMPREHENSIVE AND INTELLIGENT MAINTENANCE WORKERS FOR METRO LINE 5 WAS PUT ON DUTY

Reproduced from Labor Daily

At present, with a world-leading total length, a great scale and complexity, a heavy operating load, and a tight maintenance schedule, Shanghai urban rail transit requires digital and intelligent maintenance management.

Shanghai Shendiantong Rail Transit Technology Co., Ltd. (hereinafter referred to as "Shendiantong") was inaugurated in February 2022, which is the first one to create a comprehensive intelligent maintenance mode based on "multi-disciplinary integration and multi-source data sharing" in the national urban rail transit industry. After one year of practice and exploration, the independently developed intelligent maintenance management platform was launched, where the first team of comprehensive and intelligent metro maintenance workers has been put on duty, and a multi-disciplinary operation and maintenance team is being set up, which provides a new solution for Shanghai to improve the operation of super large-scale rail transit network.

Cultivate Interdisciplinary Talents

Shendiantong is headquartered in Minhang District. Behind the humble doors was a wonderful place. With lush trees and wisterias, it is very beautiful. The railroad tracks in the distance identified the place: the "home" of railroad vehicles. Shendiantong is a joint venture company jointly invested by Shanghai Electric Group Co., Ltd. and Shanghai Shentong Metro Co., Ltd.

"Today is the training completion ceremony for the first batch of comprehensive metro maintenance workers," Sun Yi, Chairman of Shendiantong Labor Union, enthusiastically introduced. After a year, 30 workers in multiple positions of metro maintenance officially completed their training and will be responsible for the comprehensive repair and maintenance work of Metro Line 5. The completion ceremony was simple but formal, where the leadership team was present and presented a certificate of honor for outstanding students.

What is a comprehensive metro maintenance worker? What is the purpose of training this new type of worker? Geng Wenbo, head of the company's comprehensive maintenance department, introduced that the metro maintenance involves signals, vehicles, power supply, mechanical and electrical equipment and other specialized fields, which in the past are not connected. With the growth of metro maintenance workload, a failure may require a comprehensive multi-disciplinary judgment, and the original posts have been gradually failing to meet the daily maintenance needs.

"This affects the response efficiency of daily maintenance and is a waste of manpower. So we train comprehensive maintenance workers in the hope of creating a team of skilled personnel who master the comprehensive metro maintenance skills." Geng Wenbo said that since the establishment of Shendiantong, it has taken the cultivation of a multi-disciplinary rail transit operation and maintenance team as a key objective. "In the past few years, we have established our own training system for comprehensive maintenance workers, improved the training content and assessment methods, and cultivated the comprehensive technical talents needed for enterprise development.

In fact, the concept of comprehensive overhaul has already been applied in high-speed railroad maintenance. As early as January 2020, with the consent of the Ministry of Human Resources and Social Security, the China Employment Training Technology Guidance Center made a public announcement of the information related to 16 new occupations to be released, including the comprehensive maintenance worker for high-speed railway lines.

The traditional maintenance work is clearly divided. Today, the comprehensive & intelligent maintenance system (C&IMS), which targets at the equipment and facilities of the entire Metro Line 5 with multi-disciplinary fusion and multi-data sharing, greatly enhances the efficiency of metro

Independent Research and Development of Intelligent Maintenance Platform and Health Management Platform

If cultivating these metro “GPs” helps enterprises to improve the maintenance quality and efficiency, the development and application of the digital i-PHMart intelligent maintenance and health management platform provides "hard-core" technology support for the intelligent maintenance of Metro Line 5.

At MCC, the digital operation and maintenance control center of Shendiantong located in Zhuanqiao, the digital i-PHMart intelligent maintenance and health management platform was newly launched. This platform, independently researched and developed by Shanghai Electric Automation Group, has become the “brain” behind the intelligent maintenance of Metro Line 5.

Walking into the control center, you can see a huge electronic screen, and at different workstations, the staff is looking at the information on the screen and the computer. The platform monitors Metro Line 5, focusing on three key factors, namely equipment, data and people. It uses industrialized and flat management concepts and process design, and supports the company's current daily maintenance, vehicle frame overhaul and other services.

A step-down substation over-temperature warning signal was displayed on the computer in the control center. After seeing the warning signal, the operator on duty immediately sent a work order in the system to notify the nearest comprehensive maintenance workers on-site for confirmation, and opened the air conditioning equipment, which took less than 10 minutes from the discovery of the over-temperature warning to lifting the warning. Zhang Ke, the operator on duty, said, that in the past, upon receiving a repair task, the corresponding maintenance workers needed to check the site with drawings and instruments, to determine the cause of the failure, which wastes manpower, material resources and time. Now, after the establishment of MCC, i-PHMart intelligent maintenance and health management platform will alarm the fault information, after which the staff of the control center will take emergency actions and send a work order through the production management platform to the nearest comprehensive maintenance worker to the fault point. On-site personnel only need a cell phone to confirm all the work orders and information transfer.

More Intelligent and Efficient Maintenance

Rail transit is an important project for people's livelihood, which is related to the travel safety of the general public, and the maintenance work needs to be done "precisely" and “efficiently”. To Shen Jun, party branch secretary and general manager of Shendiantong, in the future, metro maintenance will be more intelligent and efficient, with the ultimate goal being "senseless maintenance", that is, failure can be predicted and prevented to protect the metro's safe and smooth operation.

To this end, Shendiantong put forward the concept of "metro hospital". With the idea of "a hospital and a platform for a metro line", each department and specialty is clearly divided and closely cooperates. The whole process of diagnosis, consultation, treatment and rehabilitation is managed like that of a hospital, so as to build a comprehensive intelligent maintenance ecosystem for rail transit.

In terms of talent training, intelligent maintenance should have a "brain" and "general practitioners", as well as a team of highly specialized physicians in areas such as "surgery, internal medicine and neurology". Within Shendiantong, labor competitions and skill competitions for vehicles, signals, power supply and other specialties, and the training and teaching of "comprehensive maintenance workers" have been carried out on a regular basis to provide talent support for the development of the group.

In the optimization of intelligent maintenance platform, the platform has three major functions: maintenance and production management, equipment condition monitoring and diagnosis, and full life-cycle management. "After troubleshooting, a typical case of fault disposal will be generated through the knowledge extraction system, which will be included in the fault expert knowledge base. Over time, the platform will integrate a multi-disciplinary, comprehensive, professional maintenance disposal system through the continuous accumulation of data and experience. It will provide a full life-cycle comprehensive intelligent operation and maintenance solutions and technical support for the operational safety of urban rail transit mega-network." Shen Jun said.

With the impact of emerging industries, represented by information technology, artificial intelligence, and high-end equipment manufacturing, on the rail transit industry, the construction of digital and intelligent rail transit has become an industry trend. “Metro hospital" is an innovative model and effective solution for the development of rail transit industry. D

2023

Top Buzzwords of 2023 Did you get them?

By Ni Hao

The clown 1

Neutral. It refers to those who intentionally seek attention.
"The clown" is indeed the hottest online buzzword. Brands, enterprises, organizations and the public have created a variety of contents to further popularize it, including the Weilong clown bag, Xinjiang college clowns, the four handsome clowns in the entertainment industry, the clowns in the museums. Its popularity is matchless.

Special forces style traveling 3

It refers to visiting as many sights as possible with minimum time and cost.
This type of travelers are mostly college students, who will travel on Friday evening after class or early Saturday morning, and return on Sunday night. The trips are tightly scheduled and the intensity of physical exertion is very high. And due to the low budget, the trips are not very enjoyable, hence the term special forces style travelling.

Boundless wealth and power 5

This terms describes a sudden and huge attention.
It is first heard on the TV series Back From The Brink. Now it mostly has a commendatory sense.
It is first heard on the TV series Back From The Brink. Now it mostly has a commendatory sense.
For example, after the scandal of beauty influencer Li Jiaqi, netizens have realized the scam of consumerism, and turned to buy cheap quality Chinese products. So it can be said Chinese brands should seize the opportunity to receive boundless wealth and power. When the platform copyright of Creation of the Gods was bought by Youku, netizens were surprised to find that the old works of the popular actors from the movie are also streaming on the platform. Empresses in the Palace has set Youku up for life, while the arrival of Creation of the Gods brought Youku boundless wealth and power.

Imperial grandeur 2

Commendatory. In ancient times, only the imperial family and the meritorious statesmen enjoyed the imperial grandeur, which was the highest honor and treatment back then. The term amusingly shows gratitude for someone's kindness.
When a person does a good deed, you can say, "You are worthy of the imperial grandeur!"

Warrior of pure love 4

Literally, a warrior of pure love firmly believes and pursues true love, uncompromised by the material condition.
It first came as a humorous taunt of the firm belief in true love. In the era of materialism, this term reminds us not to be swayed by it, but to bravely pursue true love. We should cherish the people around us and treat them with sincerity. The derivative term "the warrior of pure love fell to the ground" describes a resonance with beautiful love stories.

Far ahead of the pack 6

The term became popular after the Huawei Mate40 launch ceremony held on October 22, 2020, when Yu Chengdong repeatedly mentioned that Huawei's technology was "far ahead of the pack". But there was irony hidden in the term back then when it was quoted by the netizens. In 2023, when Huawei Mate60 was launched, the connotation of the term has shifted to the recognition of China's scientific and technological strength and the embodiment of national pride. Now it is used when showing high appreciation.

These buzzwords reflect the public sentiments in this year.
They reflect the philosophy of life. Life is not smooth sailing, each of us will encounter difficult moments in life. The buzzwords reflect the optimism of the ordinary people who are constantly seeking beauty in a less fulfilled life. They are the flame, the soul, and the heroes of the 21st century. The year 2023 is a success, and we look forward to a greater success in 2024!

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