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SPECIALIZED AND
SOPHISTICATED
SMES THRIVE UNDER SHANGHAI ELECTRIC



Editor's words



THE INCREDIBLE TENACITY OF SNOW LOTUS

In Yunnan, I had my first encounter with the snow lotus. It was amazing to see it grow amidst rocky terrain, exuding purity and elegance just as I had imagined. The snow lotus's roots were intricately intertwined with a piece of stone. If I hadn't witnessed it myself, I wouldn't have believed that such a gorgeous flower could bloom in such harsh and rugged conditions.

As I gazed at the snow lotus blooming from within the rocks, I suddenly realized that there were tremendous efforts behind its purity and sheer beauty. Like snow lotus, one can exude vitality amidst life's trials by confronting challenges with persistence and avoiding complacency.

The snow lotus blossoming on rocks is a perfect embodiment of tenacity. It reminds us that the pursuit of extraordinary achievements comes with an increased load of challenges, difficulties, and risks. Rather than succumbing to discouragement due to the harshness of our surroundings, it's wiser to channel these challenges into fuel for personal growth. Embracing these hurdles can lead us to an even more dazzling bloom.

Shanghai Electric also has its own "snow lotus," as it boasts a large number of national and municipal level specialized and sophisticated enterprises. These businesses are motivated to fill market gaps and tackle industry challenges. They focus on specific markets and are known for their strong innovation capabilities, high market share, expertise in key technologies, and reputation for excellent quality and efficiency. As a remarkable instance, all business units under Shanghai Prime Machinery have now been certified as specialized and sophisticated enterprises. These enterprises are essential in connecting different parts of the industry and supply chains, ensuring the smooth development of companies both upstream and downstream. As a result, they play a vital role in enhancing economic resilience and promoting overall growth.

In this cover feature, we highlight specialized and sophisticated enterprises affiliated with Shanghai Electric. We'll delve into their leadership in specific markets, their breakthroughs in key technologies, their strong core capabilities, and their competitive edge.

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NEWS OVERVIEW



Spain Welcomes Initial Delivery of Shanghai Electric's Tailor-Made Vanadium Flow Batteries (VFBs)

On July 19, Shanghai Electric (Anhui) Energy Storage Co., Ltd. passed the acceptance process for its vanadium flow batteries (VFBs) for a commercial energy storage project in Spain. These cutting-edge VFBs were then shipped from Shanghai Electric's Hefei production site to Zaragoza, a city in the northeast of Spain, marking a momentous occasion as the first large-scale export of the Group's VFB products to the European market. The selection of these VFBs for the Spanish project was a result of meticulous evaluation, taking into account the local market demands and rigorous performance testing of Shanghai Electric's offerings. This achievement demonstrates the exceptional market adaptability of Shanghai Electric's products, as they have proven to meet the diverse needs of their customers.

Shanghai Electric Nuclear Power Group Continues to Secure Major Research and Development Project Contracts

Shanghai Electric Nuclear Power Group recently secured the contract to develop the Test Piece of Flat Actuator, which serves as a crucial component of the DEST simulator at the Institute of Rock and Soil Mechanics, Chinese Academy of Sciences (CAS). This test piece is designed to reproduce real-world stress conditions through experiments, providing a basis for process planning in the evaluation and extraction of more eco-friendly "combustible ice" resources. Additionally, the Group has also received a notification from the Shenyang Institute of Automation, CAS, regarding their successful bid for a large-scale pressure simulation test device. This device, an integral part of major national projects, allows for the simulation of deep-sea pressures and provides a fully functional enclosed space for testing purposes.

Shanghai Electric Secures Consecutive Power Transmission and Distribution Orders in Egypt and Indonesia

Recently, Shanghai Electric Power Transmission and Distribution Engineering achieved breakthroughs in Egyptian and Indonesian markets with consecutive project wins. The company successfully secured bids for the primary equipment supply of the 500MW PV plant booster station in Kom Ombo, Egypt, as well as the design and equipment supply for the 150kV substation for Asia Pulp & Paper's (APP) OKI Mill Phase 2, and the equipment supply for the 150kV GIS for IKKPINDO Factory Phase 4. The Kom Ombo PV plant is the largest of its kind in Egypt and Africa. Upon completion, it will contribute to a higher share of new energy power generation, optimize the local power supply structure, reduce reliance on gas-fired power, and promote the advancement of a green economy and sustainable development in the region. Meanwhile, the two projects in Indonesia are set to complement the production site of APP, one of the world's largest pulp and paper groups, which will further expand Shanghai Electric's market presence in Southeast Asia.

Shanghai Electric Environmental Protection Group Earns World's First USCG Type Approval Certificate with T0 Zero Hour Holding Time

Recently, Shanghai Electric Cyeco Environmental Technology, a subsidiary of Shanghai Electric Environmental Protection Group, has received Type Approval Certificates from both the U.S. Coast Guard (USCG) and Det Norske Veritas (DNV) for its self-developed Cyeco™ BWMS. The USCG Type Approval is regarded as one of the most prestigious certificates in the global marine industry. By securing this certificate, the Cyeco system has demonstrated its compliance with the highest industry benchmarks, making it a viable and dependable solution that can be widely adopted 24/7 across the globe. The milestone solidifies Shanghai Electric's leading position in the offshore engineering domain and establishes a strong foundation for the company's future growth.

Shanghai Electric's Spinal Surgical Robot Development Team Receives Acclaimed IDEA Awards

Recently, the winners of the International Design Excellence Awards (IDEA), a highly influential global competition, were announced. Among numerous impressive entries, the robotic system for spinal surgery, developed by a dedicated R&D team from Shanghai Electric Group Co., Ltd. Central Academe, stood out and received the award. The robotic system was designed to address controllable anterior cervical ante-displacement and fusion (ACAF), assisting doctors in various crucial aspects of spinal surgery, covering automatic preoperative planning, pre-diagnosis of lesions, intra-operative navigation of osteotomy, and high-precision surgical operations. The system excels in ensuring both enhanced safety and seamless human-machine interaction. Its ultimate goal is to elevate the success rate of surgeries, reduce complications, and maximize the mobility recovery for patients suffering from cervical ossification of the posterior longitudinal ligament. Established in 1980, the IDEA is co-organized by the Industrial Designers Society of America and Bloomberg Businessweek. Known as the 'Academy Award of Industrial Design', it is renowned worldwide as one of the top three industrial design awards, along with Germany's iF Design Award and the Red Dot Design Award.





SEunicloud Listed as National Cross-Industry and Cross-Field Industrial Internet Platform

Recently, the Ministry of Industry and Information Technology announced the list of new cross-industry and cross-field industrial Internet platforms in 2023, and Shanghai Electric's SEunicloud industrial Internet platform was successfully selected as one of the 51 national industrial Internet platforms of the highest level. Highly versatile and specialized, with multi-industry compatibility and cross-industry applications, SEunicloud is an industrial Internet platform independently developed by Shanghai Electric on the basis of many years of manufacturing experience and a rich industrial background. The platform manages high-value equipment assets of more than RMB 154.6 billion, and has formed 23 solutions for 13 industries such as electric power, energy, equipment manufacturing, and light machinery, and 9 fields such as manufacturing, operation and maintenance services, energy saving and emission reduction.

SPIC Awards Shanghai Electric with First Large-Scale Lithium BESS Contract

Shanghai Electric Power Generation Group has won the bid for an innovative demonstration project in Tongwei County, Dingxi City, Gansu Province. The project marks Shanghai Electric's first order from SPIC for grid-scale integrated compressed air and Lithium BESS and is listed as a key project in the "National Energy Administration's 2023 Work Essentials for Rural Revitalization and Paired Assistance". It also represents SPIC's inaugural foray into an innovative demonstration project for grid-scale and distributed compressed air and lithium BESS. Of a total capacity of 100 MW/400 MWh, the project's phase I will consist of 50 MW/200 MWh, with 10 MW/110 MWh dedicated to compressed air BESS and 40 MW/90 MWh allocated for Lithium BESS. The comprehensive storage and utilization of new energy under this project are expected to effectively alleviate pressure on peak shaving and frequency regulation. Additionally, it aims to improve power distribution in the grid and enhance energy consumption capacity, ultimately bolstering local power supply capabilities and grid security.

Shanghai Electric's Poseidon Platform-Based Wind Turbine Recognized as Top 10 Outstanding Wind Energy Product

Recently, the 15th China (Jiangsu) Wind Power Development Forum took place in Yancheng, Jiangsu Province. During the forum, several awards were presented, including the "Top 10 Outstanding Wind Power Products" title awarded to Shanghai Electric Wind Power Group Co., Ltd. ("Shanghai Electric Wind Power") for their EW16.0-252 wind turbine based on the Poseidon platform. The Poseidon platform, which boasts the largest use case library of offshore wind turbines in China, has achieved remarkable advancements since its launch and has garnered numerous accolades. Shanghai Electric aims to continue developing groundbreaking turbines and actively explore new applications in the "wind power plus" field, fostering continuous technological and product upgrades while leading the innovative development of China's wind power industry.

Shanghai Electric Wind Power Honored with China Excellent Power Engineering Project Awards for Two Remarkable Projects

The China Electric Power Construction Association has recently revealed the recipients of the 2023 China Excellent Power Engineering Project Awards, recognizing 19 outstanding wind power projects. Among the distinguished winners are the Zhangjiakou-Beijing Renewable Energy Comprehensive Demonstration Project and the Jiangsu Rudong H7# Offshore Wind Farm, both equipped with wind turbines from the esteemed Wind Power Group. The awards, which are one of the highest honors in the engineering realm, aim to lead the improvement of power projects' construction quality and represent the cutting-edge standards achieved by domestic initiatives. The review is organized annually by the China Electric Power Construction Association.

Shanghai Electric Supports the Opening of Hefei Metro Line 1 Phase III

On July 1, Hefei Metro Line 1 Phase III, which was constructed by Thales SEC Transportation System Limited Company, a subsidiary of Shanghai Electric, officially started operations. This project expands northward from the previously completed Phase I and Phase II of Hefei Metro Line 1. With a total length of 4.54 km, it connects Binhu New District in the south and links the Xinzhan High-Tech Industrial Development Zone with Hefei Railway Station, Hefei South Railway Station, and other important transportation hubs. This expansion will significantly reduce traffic congestion along the line, improve the city's spatial layout, and provide a more convenient and eco-friendly transportation option for the public. Shanghai Electric has a history of successful collaborations with Hefei Metro, having previously provided signaling systems for Hefei Metro Line 1 and Line 4.





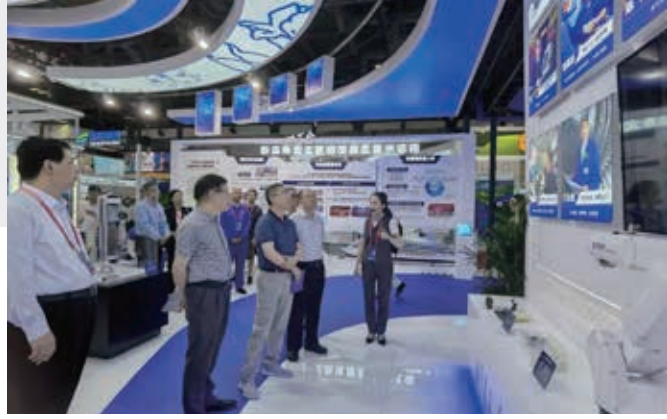
Gong Zheng, Deputy Secretary of Shanghai Municipal CPC Committee and Mayor of Shanghai, Visited Shanghai Electric's Booth at CSITF

On June 15, Gong Zheng, the Deputy Secretary of Shanghai Municipal CPC Committee and Mayor of Shanghai, visited Shanghai Electric's booth in the "Belt and Road" Sci-Tech Cooperation pavilion ahead of the opening ceremony of the 9th China (Shanghai) International Technology Fair (CSITF). During the visit, Liu Ping, the Deputy Secretary of the Party Committee and President of Shanghai Electric, provided an update on the Noor 1 hybrid CSP and PV Project in Dubai and highlighted Shanghai Electric's innovative initiatives focused on openness, coordination, and win-win cooperation, promoting collaborative development to empower the global industrial sector.

For many years, Shanghai Electric

has actively exhibited at the CSITF. This year, the company is showcasing its latest advancements in green energy equipment, automated production lines, and high-end health care. Leading with "Smart Energy", "Intelligent Manufacturing", and "Big Data and AI Integration", Shanghai Electric presents its new "4+2+X" development strategy to pave the way for a tech-enabled future.

Shanghai Electric is dedicated to technology-driven transformation and upgrading by focusing on smart energy, intelligent manufacturing, and the integration of big data and AI. The company aims to collaborate with global innovators to promote progress for humanity and foster sustainable development. Together, we can envision a win-win future that is more intelligent and advanced. **D**



The Second National Great Craftsmen Forum Kicked Off

Liu Xia Unveils Shanghai Electric's Journey of Innovation and Entrepreneurship at the Craftsman Roadshow

The Second Innovation Exchange Conference for Craftsmen of the Nation and the National Great Craftsmen Forum, which was co-sponsored by the All-China Federation of Trade Unions, the CPC Beijing Municipal Committee, and the Beijing Municipal People's Government, was held in Beijing from July 28th to 30th, to further implement the spirit of the 20th National Congress of the CPC and Chinese President Xi Jinping's letter to the First Innovation Exchange Conference for Craftsmen of the Nation, and to further promote the brand of Chinese Great Craftsmen. Representatives of Shanghai Electric Group's model craftsmen and staff brought their innovation achievements to the event.

Liu Xia, the recipient of the 7th National Innovation Excellence Award for Workers, made her debut at the Craftsman Roadshow. She presented a model of a welded rotor for a million-kilowatt nuclear reactor, highlighting the innovation and entrepreneurial spirit of Shanghai Electric employees. The event also featured the remarkable achievements of Li Bin Studio, a National Model Worker Innovation Studio, and Zhuang Qiufeng, a skilled craftsman from Shanghai. **D**

Shanghai Electric Honored CPEC Outstanding Contribution Award

On August 7 local time, to celebrate the 10th anniversary of the launch of the China-Pakistan Economic Corridor (CPEC), the Board of Investment (BOI) of the Prime Minister's Office (PMO) of Pakistan held a ceremony in Islamabad, to recognize the "Contributors to Shared Prosperity". At the ceremony, Pakistani Prime Minister Shahbaz Sharif presented "Outstanding Contribution Award" plaques to 29 Chinese-funded enterprises and organizations, among which Shanghai Electric was recognized for its efforts and contributions to the advance of the Thar Coalfield Block I Energy

Integration Project. After the completion of the project, it is expected to provide 4 million households in Pakistan with clean, affordable and sustainable electricity in the next 30 years of operation, helping Pakistan to further develop native resources, reduce energy imports, improve the energy structure and enhance national energy security. It is learned that the project was launched in 2014 and put into operation in February 2023. In the process of the construction, Shanghai Electric was widely praised for perfectly fulfilling corporate social responsibility and actively cultivating local talents. **D**



Enhancing Global Presence by Improving International Competitiveness through Open and Coordinated Strategies

From July 28 to 31, local time, Leng Weiqing, Secretary of the Party Committee and Chairman of the Board of Shanghai Electric Group, conducted an investigation and research trip to three overseas enterprises owned by Shanghai Electric, namely Broetje Automation, Nedschroef Holding B.V., and Highly-Marelli Holdings * Spanish factory.

Shanghai Electric has been committed to becoming a world-class enterprise. To achieve this goal, the Group has adopted an open and coordinated approach, focusing on win-win cooperation. It has strengthened its global business portfolio and integrated its resources, expediting the global expansion of its equipment, production capacity, and assets. The Group has also worked towards integrating its overseas business into the dual circulation development pattern, which involves both the domestic and international economic cycles. By operating in an open and cooperative environment, Shanghai Electric has sought opportunities to enhance its capacity and performance, leading to sustainable development with a win-win mindset. The Group aspires to be a leader

among Chinese enterprises in “going global” and to represent the highest standards of “Made in China”.

During her visit to Broetje Automation’s German factory, Leng Weiqing was briefed on the company’s recent technological innovations and its future development plans. She also learned about the company’s efforts to contribute to China’s goals of becoming a global science center, a higher education hub, and a talent incubator. Leng was updated on the progress of Broetje’s Delivery Center construction in China. She expressed her appreciation for the company’s proactive measures in response to the unexpected challenges faced by the global aerospace industry. Leng acknowledged the contribution of Broetje Automation to Shanghai Electric’s strategic ambitions and its collaborative, innovative, and high-quality development. She encouraged Broetje to continue its market-oriented, employee-centered, competence-based, and profit-driven approach while staying committed to its goal of becoming a leading player in the global aerospace industry.

During her visit to Nedschroef's Helmond facility, Leng Weiqing received a briefing from the facility's responsible person. She acknowledged Nedschroef's significant contributions to the European and global automobile manufacturing industry as a long-established fastener manufacturer. Leng emphasized the importance for the company to stay focused on its key services and products amidst the complex market challenges. She encouraged Nedschroef to put greater efforts into the Chinese market, enhance collaborations with other business segments, conduct in-depth research on market trends, and adapt to the transition towards a greener economy. Leng also highlighted the opportunities arising from the development of new-energy vehicles and the recovery of the aerospace market. She urged Nedschroef to accelerate its product transformation, improve profitability and flexibility, and solidify its position as one of the top automotive fastener manufacturers in Europe.

During her visit to the Highly-Marelli* factory in Spain, Leng Weiqing gained

a comprehensive understanding of the factory's business performance and development plans. She emphasized the need for the company to navigate the increasingly competitive market by expanding its international presence strategically. Leng encouraged Highly-Marelli* to focus on cultivating international talent and enhancing its operational and management capabilities. She emphasized the importance of driving innovation-led industrial upgrades, clarifying strategic direction, and strengthening communication and collaboration with Chinese automakers. Leng also suggested that the company should proactively establish a cost advantage through technological advancements, continuously improve its core competitiveness in the global market, and create new growth opportunities through cutting-edge technology and innovative products.

Chen Ganjin, a member of the Party Committee and vice president of Shanghai Electric, and relevant department and group leaders attended the research. **D**





172.581 billion yuan

Advanced, Sustainable, and Intelligent Development Contributes to Shanghai Electric's Brand Value Growth

On June 15, the 20th “World Brand Summit”, organized by the World Brand Lab, took place in Beijing. During the event, the 2023 report of “China’s 500 Most Valuable Brands”, which was developed based on financial data, brand strength, and consumer behavior analysis, was unveiled. With a brand value of 172.581 billion yuan, Shanghai Electric secured the 48th position on the list. This marked the seventh consecutive year that the Group has been ranked among the top 50 brands and maintained its leading position in the machinery industry.

According to a study conducted by the World Brand Lab, the COVID-19 pandemic has had a significant impact on industries such as textile and apparel, retail, energy, media, construction, and others. The study reveals that compared to the previous year, the number of brands in these industries has declined. However, Shanghai Electric has defied this trend by achieving a 6.7% increase in brand value. This remarkable growth can be attributed to the company’s strategic plan for the 14th “Five-Year” period, which prioritizes scientific and technological innovation, green transformation, and high-quality development.

Serving China's development strategies: Currently, Shanghai Electric is actively engaged in innovation while upholding its good traditions. The company has taken on numerous significant national research tasks, including the development of fourth-generation nuclear reactors, major projects related to aero-engines and gas turbines, large marine crankshafts, large castings and forgings, aircraft rotor blades, and advanced CNC machine tools. Through these endeavors, Shanghai Electric has successfully bridged gaps in key components for China's major equipment, making valuable contributions to the country's self-reliance in advanced equipment manufacturing. Additionally, the company's contributions extend to major national projects of international significance, such as Guohe One, Hualong One, and the Noor 1 hybrid CSP and PV Project in Dubai.

Technology-driven green development: Shanghai Electric prioritizes science and technology as the cornerstone of its strategy, placing innovation at the forefront of its high-quality development. The company fosters new momentum, industries, and business sectors through scientific and technological innovation. It leads the way in advancing industries through institutional innovation and breakthroughs in core and key technologies, with a strong focus on sustainable, green, and intelligent development. Moreover, Shanghai Electric is not only committed to its own growth but also actively seeks ways to help the industry reduce carbon emissions. The company provides innovative solutions to energy companies and manufacturing enterprises worldwide through its diverse business portfolio. By collaborating with global partners, Shanghai Electric strives to co-create a greener future for all.

Openness, coordinated development, and win-win cooperation:

Shanghai Electric's development journey is one of promoting openness, coordinated and integrated development, and win-win cooperation to empower innovation in the global industry. Throughout its century-long history, the Group has transformed from a major domestic enterprise importing advanced equipment and technology to becoming a leading exporter of advanced equipment manufactured in China. Shanghai Electric has successfully established over 70 joint ventures with renowned global multinationals such as Siemens, Mitsubishi Electric, Fanuc, ABB, Schneider Electric, and others. Through these partnerships, the company has achieved significant advancements in technology breakthroughs and market performance, and fruitful outcomes.

As Chinese brands persist in their global expansion, Shanghai Electric remains committed to its open and coordinated strategy for mutually beneficial partnerships. By bolstering its core competencies, the company aims to secure its position as a world-class advanced equipment manufacturer, ushering in a new era of high-quality development. **D**

Yanghuopan Power Station Receives World's First Natural Direct Cooling System by Shanghai Electric

Recently, the Second generator of the 660MW coal-fired power plant in the Yanghuopan Coal-Electricity Integration Project of Shaanxi Yulin Energy Group successfully completed a 168-hour test run. The first generator of the project began operating on February 15 this year. This project incorporates 12 innovative technologies, including the world's first natural direct cooling (NDC) system. The NDC system, designed by Shanghai Electric SPX Engineering & Technologies, offers significant advantages in energy efficiency, emission reduction, noise reduction, anti-freezing capability, and operational flexibility compared to traditional cooling systems such as conventional air-cooled condenser (ACC) and indirect natural cooling systems (ISC). The NDC system deployed in this project has been recognized as the first major technical equipment in China's energy sector for 2021 and has received the prestigious first prize of the Science and Technology Advancement Award from the China Installation Association. Notably, the equipment utilized in the project, including the supply fan, condensate pump motor, slurry circulating pump motor, and oxidizer motor, are all supplied by Shanghai Electric Power Generation Group. **D**



Multi-dimensional Collaboration Enables Promotion of Chinese Intelligent Manufacturing

Shanghai Electric Minhang Site Welcomes Visit from Xinhua News Agency Shanghai Branch



On July 3, Jiang Wei, Secretary of the Leading Party Members' Group, and Wang Yongqian, President of Xinhua News Agency Shanghai Branch, visited Shanghai Electric Minhang Base. They held extensive discussions with Leng Weiqing, Secretary of the Party Committee and Chair of the Board of Directors of Shanghai Electric Group, to enhance information sharing, resource exchange, business interactions, and multi-dimensional collaborations between the two parties.

Jiang and her colleagues visited the turbine manufacturing facility at Shanghai Electric's Minhang steam turbine manufacturing site. They gathered insights into the development progress of the first prototype of the heavy-duty gas turbine, including its components and assembly. They also learned about the current status of Shanghai Electric's intelligent manufacturing and digital transformation, and were briefed on the company's green transformation initiatives.

Afterwards, at Shanghai Mitsubishi Elevator, Jiang and her colleagues visited the high-speed elevator test tower and the intelligent manufacturing workshop. They gained insights into the company's

experimentation and implementation of intelligent manufacturing and maintenance services.

Jiang expressed that as a prominent equipment manufacturer in China, Shanghai Electric remains true to its founding mission of advancing the nation's manufacturing industry. The company has successfully undertaken vital national strategic tasks, contributing significantly to China's economic progress. The Xinhua News Agency Shanghai Branch has closely followed Shanghai Electric's growth, fostering a strong connection with the company through past collaborations. The agency is dedicated to harnessing its media strengths to unveil the transformative strides of Shanghai Electric, amplifying public awareness of its comprehensive endeavors, supporting its stories, and widely conveying the novel advancements and outcomes of its high-caliber growth, so as to present the company's corporate image in a more impactful manner.

Leng acknowledged the support of Xinhua News Agency Shanghai Branch and China Economic Information Service in enhancing Shanghai Electric's corporate image and brand communication. The two organizations have collaborated on various initiatives such as "China Brand Day" and "Dialogue with State-owned Enterprises in Shanghai", as well as important news events, with Xinhua News Agency providing featured reports for Shanghai Electric. Leng expressed the hope that the two organizations would leverage their expertise, talents, information, platforms, and resources to further expand their cooperation in the future.

Zhu Zhaokai, Deputy Secretary of the Party Committee of Shanghai Electric Group and Chairman of Shanghai Electrical and Mechanical Trade Union, along with representatives from both organizations, participated in the event. **D**



Shanghai Electric and Taonan City's Green Carbon Collaboration Supports Construction of "Land Three Gorges" in Jilin with New Achievements

On June 30, the unveiling ceremony of the first blade in the Shanghai Electric Taonan Wind Power Industrial Park was hosted in Taonan City in Jilin Province. The ceremony, themed "Wind Power in Taonan, Future of Green Electricity", also included the unveiling of complete equipment manufacturing and the signing and launching of an integrated green hydrogen project. Yang Dayong, Deputy Secretary of the Party Committee and Mayor of Baicheng City, Jilin, and Jin Xiaolong, Member of the Party Committee and Vice President of Shanghai Electric, were present to witness the signing and launch of the integrated green hydrogen project in Taonan by Shanghai Electric. The ceremony also included the unveiling of the first blade in the Shanghai Electric Taonan Wind Power Industrial Park and the establishment of Shanghai Electric Wind Power Equipment (Jilin) Co., Ltd.

At the ceremony, Shanghai Electric New Energy Development Co., Ltd. signed a strategic cooperation agreement with the People's Government of Taonan City regarding the integrated project of green methanol production from wind power coupled with biomass. The project is designed to generate electricity from wind energy and produce hydrogen by electrolyzing water, which is then combined with gasified biomass to produce green methanol. Once completed, the project will reduce environmental pollution caused by straw burning. It is envisioned as a "green energy + green chemical" industrial chain project that promotes local energy generation, connection to the power grid, and consumption of new energy sources. This project is the largest green methanol initiative in Jilin and the first biomass gasification-based green methanol project in Northeast China. It was included in Jilin's hydrogen power action plan last year. The project will contribute to the implementation of the province's high-quality

development strategy and the construction of the "Land Three Gorges" in the western region of Jilin.

The partnership between Shanghai Electric Wind Power and Taonan began around 2021. With the joint efforts of the management teams, Shanghai Electric and Taonan signed the Shanghai Electric Equipment Manufacturing Industrial Park project in October 2021. Subsequently, in June of the following year, the construction of the Shanghai Electric Wind Power Blade Manufacturing Site commenced in Taonan. The product rolled off the line at the Shanghai Electric Taonan Wind Power Industrial Park is the S98 blade, independently developed and manufactured by Shanghai Electric Wind Power. This extra-long blade integrates advanced concepts and technologies such as blade and machine integration, system optimization based on power generation distribution, and efficient lightweight design of air operation and structure. The introduction of this blade will provide significant impetus to Taonan's initiatives in establishing a green equipment manufacturing hub for the national carbon peaking and carbon neutrality objectives and developing a "zero-carbon green city".

Furthermore, Shanghai Electric intends to enhance collaboration across various sectors and expand cooperation opportunities. As part of this effort, they plan to establish a major project for intelligent wind turbine manufacturing and set up Shanghai Electric Wind Power Equipment (Jilin) in Taonan. By working closely with the Taonan municipal government and other partners, the company aims to build a manufacturing site specifically for large-scale intelligent wind turbines of 5.0 MW and above, fostering the development of a delivery ecosystem for the wind power industry. This initiative will contribute to the development, enhancement, and expansion of the wind power industry chain in Taonan, as well as the entire Jilin region. **D**

COVER
TOPICS



SPECIALIZED AND SOPHISTICATED SMES THRIVE UNDER SHANGHAI ELECTRIC



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hanghai Electric Group Company Limited (“Shanghai Electric”) has prioritized the cultivation of “Specialized and Sophisticated Enterprises” for many years. In mid-March of this year, Shanghai Electric was selected by the

State-owned Assets Supervision and Administration Commission (SASAC) as a model enterprise for developing world-class Specialized and Sophisticated Enterprises. Currently, the Group owns 38 Specialized and Sophisticated Enterprises and 5 “little giant” firms. These enterprises are leaders in various sectors such as electrical equipment manufacturing, transportation equipment manufacturing, new energy, intelligent manufacturing, and information technology. They continuously enhance their independent innovation, specialized production and service capabilities to steady their core strength and nurture competitive advantages.

These “Specialized and Sophisticated Enterprises”, while excelling in their respective industries, constantly make significant breakthroughs in key technologies, which allows them to build strong capabilities and possess a competitive edge in the market.

SHANGHAI ELECTRIC: STRENGTHENING CORE COMPETENCE VIA "SPECIALIZED AND SOPHISTICATED ENTERPRISES"

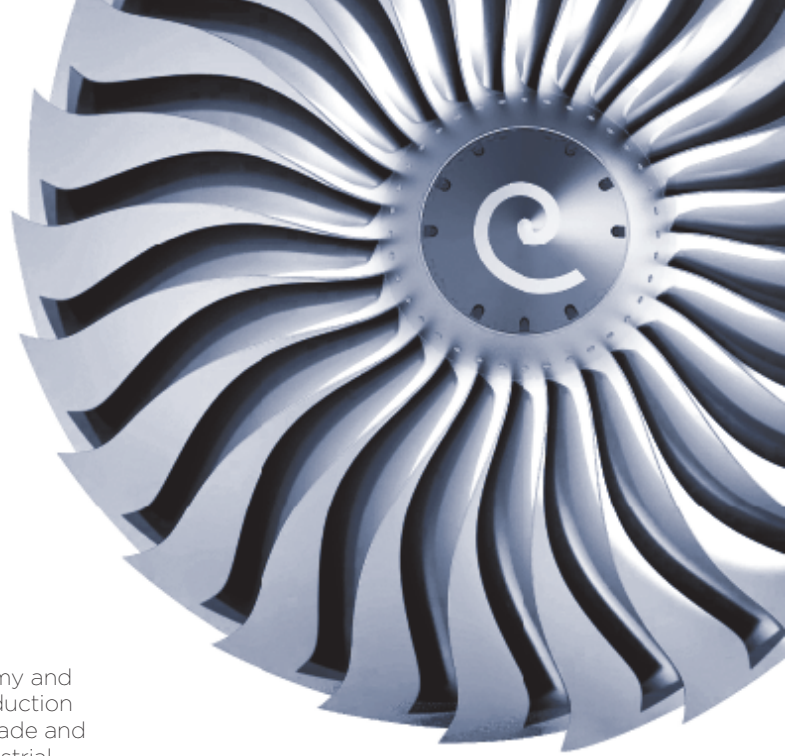
Specialized and Sophisticated Enterprises can be seen as pioneering companies that specialize in sub-markets. They boast strong innovation capabilities, a high market share, expertise in key and core technologies, and a reputation for excellent quality and efficiency.



SHANGHAI PRIME MACHINERY PROPEL LEAP FORWARD THROUGH SPECIALIZED AND SOPHISTICATED ENTERPRISES

In mid-April of this year, the Shanghai Municipal Commission of Economy and Informatization announced the "2022 List of Shanghai Specialized and Sophisticated SMEs (2nd Batch)". Shanghai Tool Works, a subsidiary of Shanghai Prime Machinery, was successfully included in this list due to its exceptional performance in areas such as innovation, brand awareness, economic benefits, and operational management. With this achievement, all business units under Shanghai Prime Machinery have now been certified as Specialized and Sophisticated enterprises. Previously, Shanghai United Bearing and Shanghai Zhenhua Bearing Factory were recognized as Specialized and Sophisticated "little giant" firms by the Ministry of Industry and Information Technology, while Shanghai Tian An Bearing was acknowledged as a Specialized and Sophisticated SME by the Shanghai

SPECIALIZED AND
SOPHISTICATED



Municipal Commission of Economy and Informatization. In the blade production sector, Shanghai Wuxi Turbine Blade and Shanghai Prime Machinery's industrial fasteners segment were included in the first group of Manufacturing Champions by the Ministry of Industry and Information Technology.

Shanghai Wuxi Turbine Blade is the largest manufacturer of large turbine blades for steam turbines. They supply blades for power generators worldwide, including large-capacity ultra-supercritical steam turbines for thermal power plants, nuclear power turbines, and gas turbines. As a leading aerospace component supplier in China, the company specializes in material and process research, as well as manufacturing of critical components such as blades, impellers, disks, and casings. These components are essential for power equipment used in aeronautics and astronautics, and other industries both domestically and internationally. Shanghai Wuxi Turbine Blade possesses globally leading technologies and equipment, including clutch-operated screw presses, advanced five-axis CNC machining centers, three-coordinate measuring instruments, welding machines, laser surface treatment devices, CNC polishing, and other specialized processing and testing equipment. Additionally, the company has R&D platforms such as national-level technology centers, a national-level large turbine blade research center, a national-level experiment and testing center, postdoctoral workstations, academician workstations, and so forth.

Shanghai Tool Works, as one of the pacesetters in China's machine tools industry, specializes in manufacturing metal cutting tools. It is a large-scale, key, and backbone enterprise in the domestic machinery industry and was once the only national-level enterprise in the machine tools industry. Currently, Shanghai Tool Works offers a

comprehensive selection of advanced, high-quality products in ten categories, including hole-machining tools, threading tools, milling and reaming tools, gear cutting tools, broaching tools, carbide cutting tools, machine tool accessories, super-hard cutting tools, gauges, and inserts. Particularly, its core products, high-speed steel hole-cutting tools and threading tools, hold the largest market share in the domestic market.

In the bearings industry, Shanghai Tian An Bearing excels in producing miniature bearings for the aeronautics and astronautics industry. Shanghai United Bearing is one of the select bearing suppliers for railroad and has provided a significant number of railroad wagon bearings to China Railway. Specializing in automotive bearings, Shanghai Zhenhua Bearing Factory manufactures steering gear bearings, transmission shaft bearings, tensioner wheel bearings, gearbox bearings, and other types of special bearings. In recent years, they have also successfully developed innovative bearings for industrial robots.

In the fasteners industry, Shanghai BiaoWu Tensile Fasteners ("BiaoWu Fasteners") has revolutionized the traditional sales approach by integrating e-commerce and the real economy. They have established the e-commerce platform "SFIEC.CN" combining B2B, offline negotiations, online operations, mobile ordering, and 24/7 customer support to offer quality, value-added, efficient, cost-effective and convenient services. Additionally, BiaoWu Fasteners has developed an e-commerce platform for export sales, utilizing big data analysis to understand domestic



and international market trends. The platform helps optimize customer demand forecasting, product planning, and warehouse preparation, resulting in improved customer satisfaction, faster turnover, reduced costs, and precise marketing and management. They have also incorporated the procurement process into their e-commerce platforms, ensuring comprehensive supply chain coverage. Shanghai High Strength Bolts Factory is the oldest and largest manufacturer of high-strength fasteners in China. They specialize in producing fasteners such as bolts and arc bolts used in subway corridor and tunnel tube assembly. Their products are widely utilized in major tunnels throughout China. Shanghai Fastener and Welding Material Technology Research Center is dedicated to the development and of new technologies, processes, and products for the fastener and welding industries. They also conduct inspection and non-destructive testing of related products, metal materials, and steel structures. The center holds various certificates from CNAS, CMA, and other relevant authorities.

Wei Xudong, the General Manager of Shanghai Prime Machinery, has outlined the company's strategic direction. In addition to strengthening their position in industries like industrial, automotive, energy, and transportation, Shanghai Prime Machinery plans to integrate resources and boost research and development investments in component manufacturing technologies for new markets. They aim to focus on sectors such as aerospace, new energy vehicles, rail transit, robotics, advanced medical equipment, and hydrogen energy, so as to establish a new competitive edge for the company.



“LITTLE GIANT” ENTERPRISES TAKE CENTER STAGE IN NUCLEAR POWER TECHNOLOGY INNOVATION

Shanghai Electric Nuclear Power Equipment, (“Shanghai Electric Nuclear Power”), has been recognized as one of the third group of national Specialized and Sophisticated “little giant” firms. As one of the pioneering companies in China's nuclear sector, the company is dedicated to the research and development of crucial components like reactor pressure vessels and steam generators for nuclear islands.

Shanghai Electric Nuclear Power has achieved a remarkable milestone in the development of Specialized and Sophisticated Enterprises. On July 14, the Shanghai Municipal Commission of Economy and Informatization announced the fifth group of Specialized and Sophisticated “little giant” firms, comprising a total of 206 companies. Among these notable firms, there were Shanghai No.5 Valve Factory, Shanghai Rocksensor Automation (RKS), Shanghai Huali Safety Devices, Shanghai Xinmin Heavy Forging, CNNC Repair Services, Shanghai Nagamori Machinery, Baowu Special Metallurgy, and Shanghai Jianing New Material Technology from the nuclear sector, enabling Shanghai Electric Nuclear Power secured the top position in terms of the number of companies selected into the list.

In recent years, Shanghai Electric



Nuclear Power has remained at the forefront of global advancements by significantly boosting its R&D expenditure. The company has effectively utilized the scientific resources available at domestic universities and research institutes. It has also expedited the implementation of automation, intelligent manufacturing, and inspection technologies to streamline operations. Additionally, it has placed great emphasis on enhancing the skills and knowledge of their workforce, particularly their technicians.

According to Chief Engineer Zhang Maolong, Shanghai Electric Nuclear Power prioritizes the identification and selection of high-potential talents to fuel innovation. These individuals should exhibit remarkable potential for creativity, possess innovative ideas, and display a strong passion for driving forward new concepts. Additionally, they should demonstrate a strong work ethic, a willingness to exert their effort, and a readiness to assume challenging responsibilities.

Based on this approach, it is essential for the company to establish a robust platform that fosters an encouraging atmosphere for innovation. This platform should allow high-potential talents to take on significant projects, providing them with practical experience and opportunities for growth through challenges.

Zhang commented, "the spirit of craftsmanship is centered around the pursuit of excellence. In our field of work, there might not be many revolutionary innovations. For instance, the welding technology commonly employed by our company is focused on two opposite directions: ultra-high and ultra-low temperatures.

In general, the efficiency of power generation in a pressurized water reactor increases as the temperature rises. Currently, pressurized water reactors operate at a temperature of 300 degrees. However, there

are plans to conduct experiments at 600 degrees in the future, and we need to be prepared for the possibility of reaching 900 degrees. Therefore, it is crucial to explore the full potential of materials.

Fusion reactors, considered the future of energy sources, utilize low-temperature superconductivity. This involves using liquid nitrogen at -196°C and helium at -269°C , which is close to absolute zero. To meet the performance and safety requirements under various conditions, the materials used in these reactors need to possess both strength and toughness. Therefore, it is crucial for us to discover materials that fully meet these requirements. To achieve this, we are collaborating with universities and focusing on process innovation. As a company specialized in manufacturing machinery and equipment, we adhere to the spirit of craftsmanship in every task we undertake. This means striving for excellence in all aspects. For example, the manufacturing of chip storage cabinets requires an exceptionally high level of precision, and we cannot achieve this without giving 100 percent effort in pursuit of the most perfect result."

Shanghai Electric Nuclear Power's primary focus is on manufacturing nuclear islands and their main equipment. Zhang Maolong takes pride in the company's domestic leading position and is eager to narrow the gap with international counterparts. The company has consistently held the top market share. Since supplying the key equipment for Unit 1 of Qinshan Nuclear Power Plant, China's first nuclear power plant, Shanghai Electric Nuclear Power plays a significant role in the market as a major manufacturer of nuclear power equipment.

From a technical perspective, while domestic enterprises in the nuclear power industry have similar capabilities in

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equipment manufacturing, Shanghai Electric Nuclear Power stands out with its wide range of technological routes and reliability. The company is also at the forefront of applying new technologies. According to Zhang, the company's manufacturing technology for nuclear island main equipment is generally at an internationally advanced level. However, there are still gaps to be bridged when compared with global-leading enterprises. Acknowledging these gaps demonstrates the company's self-confidence and determination to address them. Shanghai Electric Nuclear Power is actively catching up with its international counterparts. Zhang highlighted several areas where the company is working to bridge the gaps. Firstly, there is a need to improve product manufacturing efficiency and quality control. Sometimes, the company takes too much time, and product quality can be unstable. Secondly, there are deficiencies in the application of intelligent, automation, and inspection technologies. While nuclear power equipment represents advanced technology, the company still relies on conventional metal processing methods and lacks intelligence and automation, especially in product inspection, compared to internationally leading manufacturers. However, efforts are being made to bridge the skills gaps. Additionally, the company has yet to fully utilize the value of IT-based process control. Finally, there is a gap between Shanghai Electric Nuclear Power and its global-leading counterparts in terms of cost control, performance control, and the proportion of new materials in the development of nuclear power technology (in its fourth generation). These four areas are the main focus for the company's efforts to improve its competitive edge.

So, how to become a global-leading nuclear enterprise? Firstly, increasing R&D expenditure is crucial. By allocating more resources to R&D and leveraging the expertise and resources available in domestic universities and research

institutes, technological advancements can be achieved. Secondly, optimizing and standardizing the manufacturing process is important. This involves speeding up the adoption of automation, intelligent manufacturing, and inspection technologies. Thirdly, skilled technicians play a vital role in improving product quality. It is essential to attract and retain the best workers in the field.



HIDDEN CHAMPIONS OF THE NICHE FIELDS

In mid-April this year, Shanghai government announced the 2022 list of Shanghai Specialized and Sophisticated Small and Medium-sized Enterprises (SMEs) (Second Batch) and the review list. Shanghai Electric Power Electronics Co., Ltd. and Shanghai Dahua Electric Co., Ltd., the two holding companies of Shanghai Electric Power Transmission & Distribution Group, and Siemens Circuit Protection Systems Ltd., Shanghai, a joint-stock subsidiary of the Group, made it on to the list, and the Group's



another holding company, Shanghai Renmin Electrical Apparatus Works Co., Ltd. passed the review. Shanghai Electric's holding company ZTC Technology (Suzhou) Co., Ltd. was recognized as one of the Jiangsu Specialized and Sophisticated SMEs in 2022. Shanghai Nanhua-Lanling Electrical Co., Ltd., a holding company, and Shanghai Siemens High Voltage Switchgear Co., Ltd. and Siemens Switchgear Ltd., Shanghai, two joint-stock subsidiaries were recognized as Shanghai Specialized and Sophisticated Enterprises in 2021. Up to now, eight holding companies and joint-stock subsidiaries of Shanghai Electric Power Transmission & Distribution Group are among the ranks of Specialized and Sophisticated Enterprises.

Li Xiaoming, Investment Director and Director of Industrial Development Department of Shanghai Electric Power Transmission & Distribution Group, told persuasive reasons for the outstanding achievements.

He said, the changing industry is a risk for those fettered by old conventions, but an opportunity for growth for those who seek changes. Facing the ups and downs in the industry, what new products should Shanghai Electric Power Transmission & Distribution Group develop now or in the future, what new business should it do, and what new model should it adopt, in order to embark on a fast-growing track and to profit in the industry? We think there are several key phrases:

The first one is lower carbon emissions and environmental protection. We always focus on new economic drivers and develop

low-carbon and environmentally friendly products. In 2021, we successfully developed energy-saving, environmentally friendly and plant-oil-based transformers. We actively promoted environmentally friendly gas-insulated switchgear for the substitution of traditional sulfur hexafluoride gas switchgear to significantly reduce greenhouse gas emissions. We independently researched and developed China's first environmentally friendly polypropylene material PP cables, which have been connected to the State Grid in the trial run for nearly 2 years continuously, reducing carbon dioxide emissions by 40% in the preparation process, compared with the traditional crosslinked polyethylene cables. We contributed to the construction of China's first "1.2 km level 35kV high-temperature superconducting cable demonstration project", with the world's largest transmission capacity and the longest transmission distance, which was put into operation in December 2021. The transmission capacity of the cable is equivalent to six ordinary voltage level cables, saving up to 70% of the central urban underground pipe well space.

The second one is scientific and technological innovation. In 2021, the structure of science and technology R&D investment was again optimized. With an R&D investment of 412 million yuan, one-third of the amount was invested in new industries and new businesses. We focus on the ultra-high voltage field to achieve new breakthroughs. Wujiang Transformer Co. Ltd. successfully developed the 2,000kV test transformer, which marks that the Wujiang ultra-high voltage products have reached the highest level in the design, technology, production, testing and other aspects, laying a solid foundation for the "first set" performance breakthrough. Our test center completed the "construction of 252kV and below power transmission and distribution equipment R&D test platform". As part of the capacity to be the first in the industry, it won an innovation fund of 29 million RMB from Shanghai Municipal State-owned Assets Supervision and Administration Commission. We completed the research and development of onshore 5MW and below full-range wind turbine pitch products, which covered the application of the 5-11MW units, and achieved the application performance of offshore 6.25MW wind turbine pitch. The "Integrated Power Quality Intelligent Compensator" won the Second Prize of Scientific and Technological Progress of China Power Supply Society, reflecting the first-class technology of power quality



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control devices in China. The "AC/DC Hybrid Grid Energy Router" project was selected as the Science and Technology Innovation Action Plan of Science and Technology Commission of Shanghai Municipality. We actively applied for government projects and talent evaluations, and the person in charge of the technology center was selected as "Shanghai Young Leading Talent" and "SASAC Talent". We established "Shanghai Electric Power Semiconductor Engineering Center" with Shanghai Electric Central Academe, conducted in-depth research and analysis on entering the field of power semiconductors, and completed the roadmap planning.

The third is digital intelligence. We accelerated the implementation of the digital and intelligent product production line, launched Dahua Electric 12kV digital production line project, ZTC industrial heating cable project, and new energy vehicle communication single pair balanced cable production line. The intelligent manufacturing project of Shanghai Renmin Electrical Apparatus Works Co., Ltd. was included in the first batch of intelligent manufacturing demonstration projects within the Shanghai Electric Group. We accelerated the standardized customization program of one and two integrated ring network cabinets to promote the application of intelligent DTU in traditional transformers and neutral cabinets, and supported industrial transformation with measurement digitization, control networking, state visualization and functional integration of intelligent power equipment. We accelerated the integration of intelligent operation and maintenance of substations and rolled out the intelligent operation and maintenance market of substations within the Group. We improved energy-efficiency services, and took the substations under Shanghai Electricity Nuclear Power Group and Shanghai Electric Lingang Heavy Machinery in the Lingang Park as the first batch of pilot enterprises, in order to build a cloud platform for intelligent operation and maintenance, turn the data into products

and services, and drive the updating of equipment.

The fourth is model innovation. We impacted the field of offshore wind power transmission system engineering, intend to cooperate with partners in offshore wind power integrated transmission system integration, and share business resources with Shanghai Electric Wind Power to jointly develop offshore wind power delivery projects. We promoted power sales business with carbon and power synergy. Utilizing the substation intelligent maintenance user side data, we provided customers with integrated energy services of distribution network operation + energy saving services + distributed energy + energy storage + power sales. In the power auxiliary service market, we won the bidding for the Dapu Power Plant Energy Storage and Frequency Regulation Project of Guangdong Energy Group, which completed the whole scenario of Shanghai Electric's application in the field of energy storage. It became the first fire storage and frequency regulation project in the mode of "investing, building and operating" of Shanghai Electric, as the first PCS system for energy storage independently researched and developed by the Transmission and Distribution Technology Center. The overall matching rate reached more than 50%, and the economic benefits were also better than the original business plan prediction, ranking among the top four in the Guangdong Power Grid frequency regulation market revenue in September, October and November. We promoted an "intelligent microgrid solution", used distributed medium-voltage islanded microgrid technology, leveraged the islanded grid energy storage system and control protection and energy management system independently researched and developed by the power transmission and distribution technology center to provide uninterrupted supply of green power for the jungle village of about 100 residents and the schools. It was the first islanded microgrid project, which is now a demonstration project to be modeled.



LEADER IN INTELLIGENT AND GREEN DEVELOPMENT

In 2013, Anhui Highly Precision Casting took root in Hanshan County, Anhui Province, which is the gathering area of the casting industry. Adhering to the development concept of "green casting, great performance, limited resources, unlimited use". After 10 years' development, Anhui Highly has expanded its business from the traditional ferrous casting into the newly emerging non-ferrous casting, and from the traditional home appliances into the growing field of automobile parts and components, from the domestic market to the overseas international market. At present, its annual production capacity of castings exceeds 100,000 tons, annual production of machined parts reaches 110 million pieces, and the annual output value is over 1 billion RMB. Its products are exported to 3 continents, 11 countries, and the exports have been growing year after year.

Anhui Highly also won a number of honors, such as China Foundry Industry Top 100 Comprehensive Enterprise, Anhui Province Top 100 Innovation Enterprise, and Anhui Province Specialized and Sophisticated Champion Enterprises.

At this stage, China's new energy automobile market is rapidly expanding, driving the growth of new energy automobile parts and components market. The lightweight technology trends in new energy industry have brought a new round of development opportunities to the non-ferrous casting industry. Anhui Highly seized the new opportunities and entered the auto parts market. With great product quality, Anhui Highly's auto parts business has built up a sales network in more than 30 developed cities across the country, and its products have steadily entered the famous domestic and foreign enterprises. In

addition, the products are also exported to Japan, France, Turkey and other countries, and the foreign trade turnover has been rising year by year, forming a two-channel market of domestic and foreign sales, and the enterprise's anti-risk ability has been significantly enhanced.

According to Zhou Fei, deputy general manager of Anhui Highly, in the field of intelligent manufacturing, the company established the OA system in 2014, started to build the PLM system in 2018, established the MES system in 2019, and put the SAP system into use in 2022. It has eliminated the information barriers between different businesses and improved the digital governance capacity through the SAP system. At present, the Company has 102 articulated robots and more than 200 truss manipulators, to realize the automation and intelligence of production lines through the use of machines, to reduce labor costs, to increase production speed and productivity, and to enhance the flexibility of production line improvement and layout.

In terms of green production, Anhui Highly practices the concept of sustainable development, builds green factories, and optimizes processes, products, equipment and factory design to realize intensive, large-scale and specialized production. It reduces energy and material consumption in the production process, improves the operating environment, reduces emissions, and realizes energy-saving and carbon-reducing casting in the whole process. The casting and melting equipment adopts an advanced energy-saving dual power supply medium frequency (frequency conversion) induction furnace.

At the same time, Anhui Highly installed 3.9MW rooftop photovoltaic, generating 4.5 million kWh of power annually, effectively promoting the use of green energy.

It adopts intelligent logistics technologies, such as automated

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warehousing and unmanned transportation, and mobilizes 16 AGV unmanned trolleys and 7 three-dimensional warehouses through the WMS system to realize the first-in-first-out of the products, improve the logistics efficiency and reduce the energy consumption. Intelligent logistics can realize the automation and intelligence of the logistics process, reduce labor cost and transportation time, and also improve the efficiency of product delivery.

Anhui Highly continues to promote technological innovation, and the degree of automated production reaches 90%. Through the combination of intelligent manufacturing, green production, and intelligent logistics, it has opened up a new track for the new energy automobile market.

In the future, Anhui Highly will firmly stick to the strategy of development transformation and product upgrading, and seize the opportunity of industrial development in the complex and changing market environment. It will enhance digital production and R&D capabilities, accelerate the construction of smart factories and human resources, in order to achieve industrial diversification and healthy development, and become a benchmark enterprise of green factories in China's foundry industry.



AN UNFAILING FLAG FOR HIGH-END MACHINE TOOL MANUFACTURING

Shanghai Machine Tool Works Co., Ltd. (hereinafter referred to as "Shanghai Machine Tool Works") is a subsidiary of Shanghai Electric Group Co., Ltd. As a large-scale precision grinder manufacturer in China, it was regarded as one of the "Eighteen Giants" and "Two Pearls" of China's machine tool industry and has created a number of "China's first". The Company has always adhered to the development principle of self-reliance and self-improvement in science

and technology, constantly pursuing breakthroughs in high-end grinders and committed to providing the best integrated processing solutions.

As a backbone enterprise in the first echelon of China's machine tool industry, Shanghai Machine Tool Works has established a national-level corporate technical center and an industry key laboratory and applied for more than 200 patents, possessing independent intellectual property rights for all its products. It can provide customers with more than 200 kinds of grinder products and services in nine categories, including external cylindrical, crankshaft, roll, plane, internal cylindrical, double-end, vertical, spline, and thread. Every year, more than 1,500 sets of grinders are widely used in various fields, such as automobile, steel, engineering machinery, energy equipment, etc. In the field of grinders, the mainframe products are extremely large (large/super-large), extremely precise (high precision/ultra-high precision), extremely fast (high speed and high efficiency), and extremely unique (customized development).

It yields fruitful specialized and sophisticated results. In terms of specialization, the Company has always focused on the development of various types of grinders, and the sales of cylindrical grinders, its main product, have a leading position in domestic industry segments, with an average net profit growth rate of more than 10% in the past two years. In terms of refinement, it has 96 effective patents, including 40 invention patents, and 8 software copyrights. It joins hands with Shanghai Jiao Tong University, Shanghai University, University of Shanghai for Science and Technology, Donghua University, Harbin Institute of Technology and other well-known universities in China for close cooperation and exchanges, carrying out the basic and major key technology research in the field of precision grinding. Its key laboratory of precision grinders is used to carry out research on basic generic technology and major key technology in precision grinding. In terms of characteristics, in the past two years, it has presided over the formulation of one national standard, participated in the revision of one national standard, formulated one group standard, and is in the process of formulating two industry standards, of which it has



presided over one and participated in one. It has its own brand and has won the third prize of Shanghai Electric Quality Management, and won "Quality Team" and Shanghai Quality Management Award from Shanghai Association for Quality. In terms of novelty, it is in line with the development characteristics of "new technology, new industry, new business form, new model", and has high valuation and financing attractiveness.

Independent technology has yielded fruitful results. Over the years, we have conducted in-depth research on the core functional components of high-grade CNC machine tools such as hydrostatic spindles, hydrostatic electric spindles and closed hydrostatic guide rails, high-precision rotary tables, etc., and accumulated a number of precision machining, assembly, testing and other process technologies. The rotary accuracy of the precision hydrostatic/hybrid spindle system and the repetitive positioning accuracy of the closed hydrostatic guide rails have reached the 100-nanometer level, which is advanced even in the international machine tool industry.

With digital empowerment, machine design is revitalizing intelligent manufacturing. In the process of machine design, it accurately grasps the differentiated characteristics, customizes to meet the demand, and becomes the "chief equipment engineer" and "chief technician" for users. Through the application of digital twin technology such as virtual simulation and virtual debugging, it ensures the efficient connection of design, production and performance evaluation, shortens the manufacturing cycle and improves product quality.

In-depth research and development focuses on the grinding process and the creation of a smart brain. It has developed the "Grinding Star" machine tool software with independent intellectual property rights, which uses optimized algorithms to realize the functions of grinding process encapsulation, parametric programming, and visualization of the grinding process,

while providing a user-friendly human-computer interaction interface. The embedded grinding process expert system can recommend the corresponding grinding parameters by considering the grinding efficiency, grinding accuracy and processing cost, so as to better serve the users' processing needs.

It continuously optimizes science and technology innovation management systems. Shanghai Machine Tool Works focuses on the scientific and technological feasibility of planning. It scientifically rolls out research projects, and optimizes scientific research project management systems, to ensure the implementation of scientific research projects. It increases the incentives for scientific and technological innovation results, and promotes the transformation of these results. It strengthens scientific and technological talent team training and solidifies scientific and technological innovation capacity, to support the high-quality development of the Company.

It ensures R&D investment for key technologies. With the national strategy as the guide and market demand as the center, relying on the support of a number of national key scientific research projects, Shanghai Machine Tool Works ensures the investment in scientific and technological R&D, and focuses on the core technologies and core processes required for high-end CNC machine tools. In recent years, the Company has made breakthroughs in a series of key technologies such as the development of high-precision electric spindles, high-precision multi-grinding head turret, software for machine tool grinding process, high-precision grinding of difficult-to-machine materials, etc., and developed ultra-high-precision composite grinders, high-precision cold-rolling roll grinders, high-precision and high-efficiency cylindrical grinders, and pre-researched a series of key equipment related to the development of the national strategy, such as composite grinders for the landing gears of large-scale aircrafts, and heavy-duty numerical-controlled cut-point-tracking crankshaft grinders. These have effectively enhanced the independent and controllable R&D capability of domestic high-end CNC machine tools.

Founded in 1946, Shanghai Machine Tool Works has been restructured and reorganized several times over the past 70 years, and has become an "unfailing flag" in China's metal cutting machine tool manufacturing industry. **D**

ZHAO JUAN

RECIPIENT OF THE
“SHANGHAI MUNICIPAL
MAY 1ST LABOR MEDAL”

Zhao Juan: Coil Plant of Shanghai Electric Group
Shanghai Electric Machinery Co., Ltd.

ZHAO JUAN



"I'm currently learning multiple types of work in production, and I realize that my knowledge of coils, products and even Shanghai Electric is just very limited. I want to unlock more skills, such as further mastering the procurement process system and knowledge of electrical insulation, and understanding the process optimization of new products and materials. These require continuous learning and accumulation of experience." Starting as an ordinary worker, Zhao Juan, now a skillful talent, said that Shanghai Electric Machinery Co., Ltd. (hereinafter referred to as "Shanghai Electric Machinery") has provided her with the platform for growth and achievements.

Coiling, in fact, is to construct a most powerful heart for the motor. "Coil is the heart of the motor, and the slightest failure can lead to short service life or short-circuit, which will damage the motor."

"The plant's key products play a role in high-precision nuclear power and military projects, which makes me feel that the work is particularly valuable." Now, Zhao Juan has her own innovation studio, and the center of her work has shifted to tackling new and difficult problems.

THE STUBBORN ONLY CHILD

"During the summer vacation when I was 7 years old, my parents, who were working in Shanghai, took me to the city for a short stay. At night, my parents took me to the city center. Under the beautiful neon lights, standing on the footbridge looking at the flow of traffic, and the hustling and bustling crowd, I suddenly felt a pang of yearning. But at that time, I didn't really associate myself with Shanghai." Born in the 90s, Zhao Juan is an only child, but because her parents were not around when she was growing up, she has never been doted on. As a left-behind child, Zhao Juan especially treasured the days when her family was together.

"As luck would have it, the year I graduated from technical school, my neighbor got the information that Shanghai Electric Machinery was recruiting, and asked me if I was interested." Her childhood memories were quickly awakened, and with little hesitation, Zhao Juan picked up her traveling bag and went to Shanghai, which is 350km away from her hometown.

Zhao Juan studied mechanical engineering, and in 2008, she went to the Coil Plant of Shanghai Electric Machinery to do coiling work. With her strong learning ability, she could read drawings fast and use vernier calipers skillfully. At that time, her master, who was about to retire and happy with his last pupil, told everyone, "I don't have to teach her much, she knows everything!"

But for coiling, theoretical knowledge is not enough. Entering the workshop, Zhao Juan realized that this work was dirty and tiring. Let alone how heavy the copper wire was, the step of painting copper wire alone made the girl who just turned 18 years old back off. "All girls want to look pretty. After a day's work, I became so dirty that even my hair smelled like paint. I would be lying if I said I didn't mind." Zhao Juan said frankly.

But Zhao Juan is unyielding. "A pretty girl like her won't last too long," "This is a job for men," the words of her coworkers made her even more determined. Zhao Juan silently pledged that she would persevere even if it was hard.



THE CALLUS IS HER "MEDAL"

Coiling is a very elaborate process, which requires a highly concentrated mind. Some products use copper wires with a diameter of only 0.65 millimeters, equivalent to two or three hair strands. Thin copper wires are easy to break, and winding a fine copper wire into a specific shape is the biggest challenge.

Zhao Juan remembers vividly that soon after she learned the skill, the workshop leader put a very important new product into her hands. She didn't say yes immediately and asked to study the drawings first. Coiling wires layer by layer is actually not difficult, but when the coil is collected into a ladder shape, especially when reaching a certain height, it tends to collapse downward. The difficulty of coiling is how to "make the pagoda". That night, Zhao Juan called her retired master for help, and finally finished only two coils. The next day, the leader saw them and gave her a gesture of encouragement, saying that it was already a great achievement at the first try. At that moment, Zhao Juan deeply felt the joy of being recognized, and was even more determined to keep this job.

In Zhao Juan's long career, there was more than one memorable event. Once, just before the Lunar New Year, the Coil Plant received a new task. With a tight schedule and the New Year approaching, everyone understood that the coiling of a new product required repeated attempts, and whoever took over the "hot potato" would surely have to work overtime. The leader of the Coil Plant approached Zhao Juan, hoping that she would take over the great responsibility. Zhao Juan was caught in a dilemma. She would have not hesitated if she had not bought tickets to go home and if her family wasn't waiting for her. However, the technical requirements of the new product were high, and if something went wrong, the subsequent production would certainly be affected. On second thought, she resolutely returned the ticket and stayed on her post.

In this way, the timid little girl gradually grew into a backbone at work. In 13 years, for her hard work, she got Kashin-Beck disease, tenosynovitis and callus. Zhao Juan is very proud of these "medals" that she can carry with her at all times. With pride, she shares and teaches all her experience to colleagues, and earnestly passes them on. She is also actively involved in the creation, operation and maintenance of the Women's Innovation Workshop of Shanghai Electric Machinery, leading the completion of a number of key projects, as well as the development of the main insulation package for small-pitch AC stator coil, and the improvement of the molding process for the lead connector of the pole coil, creating a number of firsts in the manufacturing of motor coils.

ADVICE FROM "AUNTIE HU"

In life, we are sometimes blessed with kind advice-givers. They help you either by chance, or because they like you as a person, or simply because you and them hit it off. Zhao Juan said that her life was changed by one person, whom she affectionately called "Auntie Hu".

Who is Auntie Hu? Vigorous and effective, her real name is Hu Zhiyu, and she is the former section chief of the copper section at Coil Plant. One day in 2015, Auntie Hu asked Zhao Juan to come to the office and said she wanted to talk to her.

Zhao Juan was a bit puzzled, what could the section chief have to do with her, since everything seems so normal so far?

"Xiao Zhao, do you want to keep your job at Shanghai Electric Machinery?"

"Of course I do!"

"Then I have to advise you. You've been working in the plant for seven years, but you're still a labor worker, if you want to continue, you need to work hard to become a contract worker. In addition, your education and skill level need to be improved....."

Auntie Hu's words woke her up. Before that, Zhao Juan worked a normal shift, finding nothing wrong in her uneventful daily life. It was Auntie Hu who made her realize that she could work harder and become better. After that conversation, Zhao Juan immediately devoted herself to her studies. She used her spare time to attend motor manufacturing level training and open university undergraduate classes. Constantly learning more professional knowledge and improving her operating





ZHAO JUAN

skills, in just a few years, she obtained a technician certificate and a bachelor's degree, becoming a coiling leader of the new generation. During this period, Zhao Juan won the first place in various employee skill competitions. With her solid technical skills, she was selected as Shanghai Electric "Skillful Technician 2020", and was awarded the "May 1st Outstanding Woman Award" in 2021 and the "March 8th Red Banner Holder" by Shanghai Mechanical and Electrical Labor Union in 2022.

"In fact, I should thank not only Auntie Hu, but also the neighbor who introduced me to work in Shanghai Electric Machinery and later became my husband. We are family and colleagues, and he is my lifelong mentor and friend. However, Auntie Hu made me realize that your efforts will always be seen, but opportunities are always in the favor of those who are prepared." Zhao Juan said slowly.

SPEAKING OUT FOR THE PEOPLE

In March 2023, Zhao Juan, as a Shanghai deputy to the 16th National People's Congress, attended the two sessions of the Shanghai Municipal People's Congress. She humbly said that she was a first-time deputy, and she had to learn more and think hard to better voice the needs of the people.

"Now many front-line professions and positions are in fact not eligible for settlement in Shanghai, but the talents on these 'unpopular' positions are also making contribution to the economic and social development. As a deputy, I look forward to more in-depth research and coordination of the Shanghai government in this regard, to liberalize the settlement policy in more fields, and to cultivate, retain and motivate talents with better policies and measures for Shanghai." In Zhao Juan's opinion, Shanghai should be a city that can accommodate all kinds of talents, which is also a reflection of the city's soft power.

At this year's two sessions, Zhao Juan also submitted a proposal calling for Shanghai to provide free HPV vaccination for women of the appropriate age, which attracted attention from all sides.

Zhao Juan said that as a post-90s woman, she has always been concerned about women's health issues. From the second half of 2021, a number of provinces across the country are gradually promoting HPV vaccination and strategies for women of the appropriate age. On the market, imported HPV vaccines are hard to find, and the prices also deterred many women. Therefore, she suggested that Shanghai gradually offer free HPV vaccines for women of the appropriate age, highlighting Shanghai's care for individuals as an international metropolis. "Shanghai is a city full of love, and I hope more women can enjoy the free vaccine policy and reduce their health risks."

Today, Zhao Juan is confident and graceful, with a broader vision. The little girl who watched the neon lights on the footbridge at the age of seven was just a passer-by. Now, as a member of Shanghai Electric and a voice for Shanghai's citizens, she has truly become a part of the city. Zhao Juan said that Shanghai has not only dazzling neon lights, but also her beloved family and career. She is proud to dedicate her youth to this land. **D**



SHANGHAI ELECTRIC: LOWER CARBON

At the recent Carbon Neutral Expo and China (Shanghai) International Technology Fair, Shanghai Electric's booth took on a new look. Thermal power and nuclear power equipment manufacturing used to be representative of Shanghai Electric's business. At the new booth of Shanghai Electric, the most eye-catching and most inquired are the newly released "wind, solar, energy storage, and hydrogen" products, which are all from the new energy field. On June 11, Shanghai Electric released the first Shanghai Electric Group Dual-Carbon Action Plan (referred to as the "Action Plan"), announcing that it will achieve carbon neutrality within the Group in 2035 and along the whole value chain in 2055, this is much earlier than the national "dual carbon" target.

What drives the traditional energy manufacturing giant to quickly change to the low-carbon track? It is not just because of national strategy and social responsibility. In the dialogue with a number of responsible persons for Shanghai Electric new energy field, the reporter found that the low-carbon transformation is a matter of development and survival of the enterprise. As the low-carbon wave comes, Shanghai Electric as a large state-owned equipment giant is shifting direction.

DUAL-CARBON OPPORTUNITIES

In fact, as a manufacturing enterprise deeply involved in the field of energy, Shanghai Electric has long realized the urgency of energy transition.

As early as 2011, Shanghai Electric has begun in-depth research and development of energy storage technology, in order to make an energy transition. In more than a decade, it has rolled out lithium, liquid current, photothermal molten salt, compressed air, flywheel, superconductivity and other diversified energy storage technologies. The liquid current energy storage innovation

company, which is internally incubated, has opened the rapid A-round of socialized financing. In its annual report 2018, Shanghai Electric used the words "low carbon" for the first time and made the statement "the low-carbon trend of the electric power structure is becoming more and more obvious". In September 2019, Shanghai Electric built a smart energy demonstration project in the old industrial park in Minhang, gaining experience in the management of a clean and smart energy network combining wind, solar and energy storage. These actions were all before the release of the national "dual carbon" strategy.

However, from a comprehensive point of view, Shanghai Electric's transformation and upgrading at that time were more focused on improving the efficiency of energy utilization, and the development of new energy equipment was still secondary to traditional energy equipment. Since 2020, these earlier "seedlings" of the transformation suddenly became "the focus of the whole field".

In September 2020, China proposed to achieve "carbon peak" before 2030, and "carbon neutrality" before 2060, which is known as the "dual carbon" strategy. An employee of Shanghai Electric engaged in new energy research and development work told the reporter that in 2019, Shanghai Electric identified the development of hydrogen energy and other new energy technology routes, but at that time their work was relatively low-profile. In 2020, after the national "dual-carbon" strategy was put forward, the project he was responsible for suddenly began to receive a lot of attention, and the support within the group also increased. Later, as his R&D team quickly gained

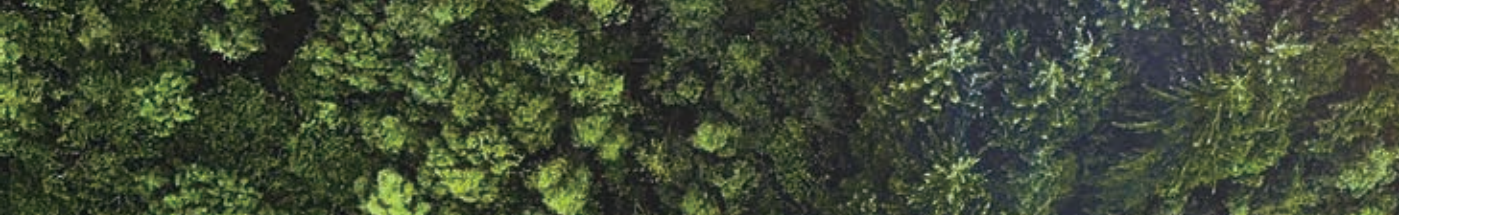
the opportunity to cooperate with top universities in China, the process of independent research and development was accelerated.

Most of Shanghai Electric's earliest personnel engaged in low-carbon transformation technology research and development have experienced the transition from "nobody" to the focus of all parties. On the surface, this is because the "dual-carbon" policy set mandatory carbon reduction target for enterprises, but deeper research would reveal that the emphasis on new energy and the new track is an inevitable move.

Hu Jianbo, the leader of the smart energy demonstration project at Minhang Industrial Park, told the reporter: "For a state-owned enterprise like Shanghai Electric, low-carbon transformation is both a social responsibility and a way of survival." If the product application scenarios are changing, Shanghai Electric, as an equipment manufacturer, must follow suit, or even achieve transformation in advance. Therefore, in recent years, Shanghai Electric has carried out a series of internal planning adjustments, including those of the R&D system, the investment system and the industrial layout, which are all efforts to achieve the "dual-carbon" targets.

DUAL NETWORK

With the planning, how to implement the "dual carbon" goal? On June 11, at the Carbon Neutral Expo, Liu Ping, Deputy Secretary of the Party Committee and President of Shanghai Electric, announced Shanghai Electric's first "Dual Carbon" Action Plan. Shanghai Electric's future



products and their application scenarios are reflected in the "Action Plan".

According to the Action Plan, Shanghai Electric is expected to reach Carbon Peak by 2030 and achieve Carbon Neutrality in its operations by 2035, followed by carbon neutrality across the entire value chain by 2055. There are two details worth noting, one is that the target time for Shanghai Electric to reach "Carbon Neutrality" is much earlier than 2060, the national target, and the second is Shanghai Electric will realize "Carbon Neutrality" across the supply chain in 2055, which means that it hopes to come up with "zero-carbon" products in the whole process and realize the transformation and upgrading of the industry by then.

The reason for Shanghai Electric setting its goal so far ahead lies in downstream application scenario change.

Energy and industrial equipment manufacturing have been the two main sources of revenue for Shanghai Electric, which happen to be the two most urgent areas of transformation under the national dual-carbon policy. China Consulting Data show that, in China, energy and industrial sectors account for the highest carbon emissions, 51% and 28% respectively. Among them, the energy field, including power generation, heating and other scenarios, is transforming to a new type of power system, and the industrial sector, including metallurgy, chemical industry, building materials and other scenarios, is transforming to zero-carbon production.

The changing needs of application scenarios are forcing equipment manufacturing enterprises to rapidly adjust their products. In terms of energy, the main battlefield for emission reduction, Shanghai Electric is actively developing the four new tracks of "wind, solar, energy storage, and hydrogen", while upgrading and linking with efficient and clean coal power, to

build a new type of power system solutions. In the face of the zero-carbon production requirements of industrial scenarios, Shanghai Electric is building zero-carbon industrial park solutions through distributed new energy supply, low-carbon operation of smart buildings, and green intelligent manufacturing lines, which will be promoted in the upstream and downstream of the industrial chain.

In addition, the two application scenarios of energy and industry are closely linked. Shanghai Electric believes that the development of hydrogen energy is the key to the synergistic carbon reduction of the two application scenarios. Hydrogen energy is both an extension of renewable energy, an important part of building a new power system, and one of the important industrial raw materials. Hydrogen production through green power has been listed as an important step in Shanghai Electric's low-carbon initiatives.

KEY TECHNOLOGIES

Shanghai Electric is traditionally strong in some of the above areas, such as coal power efficiency, nuclear power, wind power, etc., and some are brand-new areas, such as photovoltaic, energy storage, hydrogen energy, etc. In these new tracks, Shanghai Electric has to complete the basic R&D process, and face the rapidly changing and competitive market environment.

Taking the hydrogen industry as an example, at the end of 2022, Hydrogen Equipment Era Technology Co., Ltd., the first company under Shanghai Electric focusing on hydrogen production from electrolytic water, was established and launched the alkaline electrolytic water hydrogen production equipment with a single hydrogen production

capacity of 1,500 standard cubic meters per hour. Only half a year later, Hydrogen Equipment Era brought the upgraded version of this product, 2000 standard cubic meters/hour alkaline electrolytic water hydrogen production equipment, to the first Carbon Neutral Expo. This equipment is the largest alkaline electrolytic water hydrogen production device in China, which can achieve lower DC energy consumption with higher current density, a 6% year-on-year decrease in the production cost of hydrogen per standard square meter, and a 33% year-on-year decrease in the floor space under the same scale of hydrogen production capacity, which can be better used in scenarios of large-scale hydrogen production and industrial hydrogen.

In the current hydrogen energy field, Shanghai Electric quickly launched "superior" products, partly because of its forward-looking rollout of the new industry, and partly because the "dual carbon" strategy highlights the importance of science and technology and talent. Xiong Chenglong, the comprehensive management department minister of Hydrogen Equipment Era, told the reporter, that the hydrogen field is actually not difficult to enter, but the difficulty lies in the iteration of the products. "To avoid falling into a vicious competition, we need hardcore technology," Xiong Chenglong said.

After deciding to vigorously develop the hydrogen energy industry, Hydrogen Equipment Era selected the best and brightest talents from within Shanghai Electric and recruited a number of talent in specialized fields from the outside the past two years, and quickly set up a complete, strong and professional R&D team. In less than half a year, the R&D team made a breakthrough in hydrogen production from alkaline water, which ensured the smooth incubation of Hydrogen Equipment Era **D**

BOOST BRAND VALUE WITH GOOD CORPORATE MANAGEMENT

By Wang Xiang

Grouping, through the integration of industry chain resources and the formation of synergistic advantages, is inevitable for modern enterprises that want to grow bigger. The control of group headquarters over the subsidiaries can effectively enhance the transparency of their operations. Through scientific control, the business development direction of the subsidiaries can always be consistent with the development direction of the head office. They can carry out each link of economic business in an orderly manner according to the requirements of the head office, and better reflect the development concept of the group in the development, so as to safeguard the group's good image, maximize the interests of the subsidiaries and better protect the interests of the group as a whole.

At present, the main grouping control methods are financial, strategic and operational methods. According to their business situation, different enterprise groups may take different types of control. Financial type takes the decentralized mode, that is, only the main financial indicators of the subordinate enterprises are supervised and controlled, without much interference with their specific operation and business or strategic direction. Enterprises groups with diversified businesses often adopt this type of control mode. Many large state-owned enterprises are developing in this direction, with reduced administrative intervention, to realize the added value of state-owned assets. The operational control is on the other extreme, that is, the group company adopts the centralized mode, where the parent company acts as a business decision-making center and production index management center, implements centralized management and control of subordinate enterprises. With special emphasis on the unity of the company's business behavior, the company aims for coordinated growth, with centralized control and management of the industry's success factors. The businesses of groups adopting this operation mode tend to be relatively less diverse, and the subordinate enterprises have strong business relevance. Take the retail giant Wal-Mart for instance. The function of its headquarters is sound, and each store has a highly consistent strategy to achieve the ultimate low-cost operation.

More companies take a relatively eclectic strategic model that is between decentralization and centralization. Group headquarters is responsible for

the development of the overall strategy and regular assessment, but does not interfere with the specific business activities, whereas the subsidiaries carry out the work in accordance with the unified group strategy. Shanghai Electric adopts this model. This is determined by the business characteristics of Shanghai Electric, which has diversified businesses with a focus on energy equipment, industrial equipment and integration services. A strategic model is the most appropriate.

How to explore competitive advantages in the market and keep a foothold in the fierce market? I believe, that by sticking to strategic objectives and common brand value and integrating the relatively decentralized business units into a brand as strong as Shanghai Electric, it can avoid market risks of less diverse businesses and prevent decentralized financial control and lack of core competitiveness.

In fact, the government of Zibo offered a model for enterprises with a strategic control model. Local government also manages local enterprises and infrastructure with these three models, and for the local economic ecosystem, the local government is equivalent to the group headquarters. Governments in developed regions tend to adopt a model similar to financial control, with a small government and a large market, a rich tax base, and a strong service function. The government of underdeveloped areas often adopts a model that is similar to operational control, where the government manages everything, with a focus on management functions. The government of Zibo reshapes the city from an industrial city to a tourism city, which forms a rich service industry chain including hotels, cabs, catering, attraction services and so on. Seemingly independent, these businesses in fact all belong to the tourism industry and shape the brand of Zibo. Around the image creation of the city and a grand strategy, the Zibo municipal government enhances the tourist experience. In order to create a good business environment, it loosens city administration, allowing barbecue stalls on the street and providing free parking. To protect consumer rights and interests, it strengthens supervision and claims "severe punishment for offenders", resolutely putting an end to all rip-off behavior. In terms of service for the business, it abandons banning, outlawing, fines, etc. and solves the problem on-site by guidance, service and standardization, ultimately building a high-quality and honest brand image for Zibo.

Relative to the control of enterprises, the management of Zibo is much more difficult, because it is about each link on the entire industry chain of the city, including individual stall owners. This requires a very good atmosphere, which the Zibo government spent a full eight years to rectify and build. Enterprise groups achieve unity through strategic management and control. To promote industrial transformation and upgrading and to create strong brands around enterprise vision also need such determination and courage. We should stay true to the common mission, and strictly monitor and eliminate detrimental behaviors of each company. The Group should delegate power, give full play to the initiative of subordinate enterprises, and make image-building a deep-rooted idea. Therefore, the Group's strategic policy will be effectively implemented, and the strategic vision will be realized. **D**

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