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SHANGHAI ELECTRIC 上海电气

COVER TOPICS

SHANGHAI ELECTRIC: A JOURNEY OF 120 YEARS

上海电气 SHANGHAI ELECTRIC

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Shanghai Electric

120 YEARS OF A GLORIOUS JOURNEY, CONCERTED EFFORTS TOWARDS FUTURE

We celebrate the 120th anniversary of the founding of Shanghai Electric in Autumn, a season of harvest and aroma.
The past 120 years have witnessed major shifts. Some are heartbreaking, and some are inspiring. Carrying high hopes of leaders of our country, Shanghai Electric has progressed from striving to thriving together with its employees who devote themselves to and make creations for the enterprise wholeheartedly generation after generation. Motivated by expectation and commitment, we head towards a manufacturer of quality from one of quantity.
Looking back on our successes, we have a deeper understanding of the inherent needs and power for reform and development, which fuel our aspiration and confidence to vitalize Chinese high-end manufacturing. New needs and challenges create huge responsibilities for Shanghai Electric.
We will seize strategic opportunities and seek new breakthroughs and development drivers to enhance technology, brand and performance. We are to deliver on the significant promise.
Heritage and glory achieved in the past 120 years will always drive us on the path of high-quality development for a new revival. In line with the missions and visions of a crucial enterprise for our country, Shanghai Electric will reinforce innovation and competitive edges by drawing energy from the past for a more brilliant tomorrow.
We, Shanghai Electric, believe in the future and join hands with creators to make our own future!

SHANGHAI ELECTRIC 上海电气

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ELECTRIC NEWS

Shanghai Electric Elevated to 40th on ENR's List

Shanghai Electric moved up to the 40th position, up by 11 places compared with its ranking last year, on the 2022 Top 250 International Contractors list that was recently released by the American magazine Engineering News-Record (ENR). The list ranks applicants mainly according to their annual revenues generated by overseas contracted projects. Shanghai Electric occupied a higher place thanks to a number of projects including the NE1-700MW CSP+250MW PV Hybrid Project in Dubai, Thar Block-1 Integrated Coal Mine Power Project in Pakistan, Phase 5 of Dubai Solar Park, Pancevo power plant at Serbia, Rupsha combined-cycle power project in Bangladesh and the Wassit power plant in Iraq. It is also worth mentioning that Shanghai Electric ranked third in the state-owned enterprises on electric power engineering, up by 1 place compared with 2021.

Shanghai Electric Ranked 15th in 2022 Top 100 Enterprises in Shanghai

Recently, Shanghai Enterprise Council and Shanghai Entrepreneur Association jointly released the list of 2022 Top 100 Enterprises in Shanghai. Shanghai Electric Holdings Group Co., Ltd. placed 15th in the list due to its revenue of over 160 billion yuan in 2021, and 5th in the sub-list "Top 100 Manufacturers in Shanghai". Standing up to difficulties and challenges in 2021, Shanghai Electric implemented principles of "seeking progress in stable development, making innovations while staying true to original aspiration, and promoting high-quality development" with unwavering efforts. Regarding talents as the most valuable asset, it strived to boost main businesses with innovation and invention as the biggest driver, which ensured that the company ran stably while fulfilling its primary duty-supporting national strategies.

Shanghai Electric's Two Industrial Software Awarded "Top 101 Gongfu Software"

The list of "Top 101 Gongfu Software" was announced on August 25th, which was evaluated by Shanghai Industrial Internet Association, Shanghai Information Services Association and other societies under the direction of Shanghai Municipal Commission of Economy and Informatization. Shanghai Electric's SEunicloud industrial internet platform and Shanghe smart supply chain platform were awarded. All the 101 winners were voted by the public and suggesters who believed that they deserved a score of 101, 1 higher than 100. The event aims at providing small and medium-sized enterprises in Shanghai with practical, innovative and targeted products and services to address their difficulties, and supporting their development with concerted efforts by mobilizing the whole society.

Shanghai Electric Machinery Obtained First Polyolefin Order

In the last few weeks, Shanghai Electric Machinery Co., Ltd. (hereinafter as "Shanghai Electric Machinery") won the tender from Shandong Xinshidai High Polymer Materials Co., Ltd. for producing 70 tons of high-end polyolefin annually, which was the first polyolefin order it received. Shanghai Electric Machinery has accelerated its expansion into new territories in the past few years, and this order, a big breakthrough in the polyolefin segment, will pave the way for the company to occupy more market shares in the petrochemical industry.

Tutepali, India Water Pump Station Constructed by Shanghai Electric Power Generation Group Completed Full-Load Commissioning Successfully

Recently, the first unit of electromechanical equipment for the water pump station at Tutepali in India successfully completed full-water-load commissioning with Shanghai Electric Power Generation Group as the supplier, and was recognized by the Indian property owner, local government and general contractor. What was more, Shanghai Electric refreshed its world record for the biggest capacity of a frequency converter in this project. While equipment began to be transported to India in the second half of 2020, the project team failed to conduct on-site installation and commissioning due to the pandemic. Engineers and technicians hence assisted a local installation company through online support in installing and commissioning equipment sets, ensuring the project commissioned as scheduled.

Shanghai Electric to Participate in Key Guohe Nuclear Power Equipment R&D

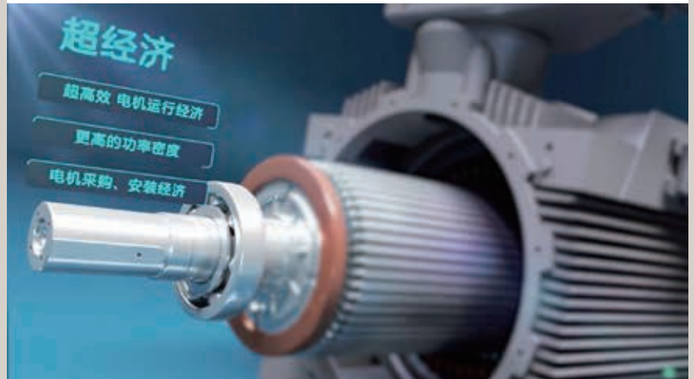
The Yangtze River Delta Integrated Development Forum was held in Shanghai on August 17, at which Party Sectaries of Jiangsu, Zhejiang and Anhui provinces and Shanghai shared in-depth views on new missions and visions for the regional integrated development in the new era together with experts. Shanghai Electric and China Power Investment Corporation, members of "Guohe No. 1" Industrial Chain Alliance, inked an agreement on jointly developing and manufacturing the reactor coolant pump for the Guohe series at the forum, which would drive independent development of science and technology, coordinated industrial development and the achievement of the "Dual Carbon Goals".

Shanghai Electric Automation Group's Project Awarded First Prize of Zhejiang Provincial Science and Technology Progress Award

In the past few weeks, the project "Life-cycle Internal Security Active Defense Big Platform for Industrial Control System" with Shanghai Electric Automation Group as one of developers was awarded the first prize of Zhejiang Provincial Science and Technology Progress Award, which was a new solution for ensuring the security of critical national infrastructure. This project realized a number of technological breakthroughs on internal security and active defense of an industrial control system including an internal security active defense architecture covering end, edge and cloud, vulnerability mining and association platform, threat situational awareness and emergency response platform, the first whole life-cycle process attack-defense model and behavior monitoring and security enhancement.

Shanghai Electric Unveiled New Super-Efficient Compact High-Voltage Motor

In the last few weeks, Shanghai Electric Power Generation Group unveiled its new product-YX3 super-efficient compact high-voltage motor-in a press conference at Suzhou City. The YX3 motor, a high-performance universal high-voltage asynchronous motor with external tendons developed by Shanghai Electric Power Generation, can be applied to a large number of areas including petrochemical industry, metallurgy, power, hydraulic engineering, pubic utilities, mining and construction materials, and a lot of universal equipment, such as blowers, compressors, water pumps, crushers and belt conveyors. The YX3 series features advantages of a high power density, compact structure, low vibration and low noise, high machine reliability and fast delivery with all products reaching grade-1 of energy efficiency.



2022 WAIC | Shanghai Electric Shared Industry Metacosm Outlook at Industry Intelligence Summit Forum

The Industry Intelligence Summit Forum with the theme "Combination of virtual and real, insight into the future" was held online and offline on September 2nd, which was a major event for 2022 World Artificial Intelligence Conference. Shanghai Electric, a leading high-end manufacturer in China, joined China Unicom Shanghai Branch, China Baowu Steel Group, Cmsemicon and other influential companies in the summit.

Shanghai Electric has boosted high-quality development of major businesses by leveraging the combination of digitalization and manufacturing. Cheng Yan, Executive Director and General Manager of Shanghai Electric Digital Technology Co., Ltd., exchanged insights and best practices in intelligent manufacturing with other enterprise representatives.

Chinese Ambassador to UAE Visited Shanghai Electric's NE1-700MW CSP+250MW PV Hybrid Project in Dubai

Not long ago, Chinese ambassador to UAE Zhang Yiming and counsellor Li Xiaodong visited the NE1-700MW CSP+250MW PV Hybrid Project constructed by Shanghai Electric in Dubai, especially CT and PT facilities, and listened to reports on project construction, COVID-19 containment and Party building work. Zhang Yiming recognized their progresses made against difficulties and stressed that this project was of unique importance to UAE as one of primary programs of the "Belt and Road" Initiative. He hoped that Shanghai Electric's team can press ahead with a stronger momentum, so it can get connected to grid as early as possible, operating as a new energy benchmark in the Middle East.

Shanghai Electric Awarded Environment Excellence Award by Pakistan Again for Project in Thar

In the past few weeks, Shanghai Electric was awarded the 19th Environment Excellence Award 2022 from National Forum of Environment and Health (NFEH) held in Karachi for a second year after 2021, which recognized its outstanding contributions to energy conservation and decarbonization amid the construction of the Thar Block-1 Integrated Coal Mine Power Project. The forum was organized by a national forum for environment protection in Pakistan and a social responsibility commission and supported by the Federation of Pakistan Chambers of Commerce & Industry with an aim to enhance local companies' awareness of green development and advocate the rebuilding of the "Green Earth".

Shanghai Electric Listed in Top 50 Chinese Companies Promoting Carbon Neutrality

Taiyuan Energy Low-Carbon Development Forum was held from September 1st to 3rd, where domestic and international participants shared advanced opinions and showed latest products and technologies under the forum theme "Energy, Carbon Peaking and Carbon Neutrality and Development". Among awards honored during the forum, Shanghai Electric was rated "Top 50 Chinese Companies Promoting Carbon Neutrality", and Shanghai Electric Wind Power Group Co., Ltd., its subsidiary, was granted "Influential Green Brand for Carbon Neutrality" and "Global Top 500 New Energy Companies".

The 2022 edition of "Top 50 Chinese Companies Promoting Carbon Neutrality" list was a comprehensive ranking for energy enterprises updated from the 2021 list of low-carbon development contribution that was also the first edition. While adding six universal indexes of carbon emission level, science-based carbon reduction targets, carbon digital intelligence platform, green investment, environment information disclosure, carbon inclusion and carbon-related practices of social responsibilities and modifying weights, it assessed energy companies by contributions they made to carbon neutrality in the following five aspects: carbon emission reduction and the quantity of carbon absorbed by carbon sinks, action plan for carbon neutrality, reduction technologies, carbon finance and corporate social responsibilities.

Jin Xiaolong, Member of the Party Committee and VP of Shanghai Electric, expressed his views titled "New Power Systems Shall Be Driven by Digital Technologies" in the roundtable dialogue of the Digital Intelligence Enabling New Power System Construction Forum with other participants on the theme "Digital Energy Ecology in New Power System". This edition is co-organized by the Ministry of Foreign Affairs, National Development and Reform Commission, Ministry of Science and Technology, Ministry of Natural Resources, Ministry of Ecology and Environment, Ministry of Commerce, National Energy Administration and Shanxi Provincial People's Government, and contained "1+3+N" activities held online and offline including the opening ceremony and summit forum, China (Taiyuan) International Energy Industry Expo, the 12th Global Top 500 New Energy Companies Forum, signing ceremonies, 13 sub-forums, roundtable meetings for foreign diplomats, and activities for Israel, the guest country of honor.

Shanghai Electric Shared Experience on First National Great Craftsman Forum

The first National Great Craftsman Forum opened in Changsha City on September 2nd at which Zhu Zhaokai, Deputy Secretary of the Party Committee of Shanghai Electric Group and Chairman of Shanghai Municipal Mechanical Labor Union shared insights on the theme "Social Environment Building and National Great Craftsman Cultivation".

Zhu Zhaokai said during an on-site interview that Shanghai Electric was a Chinese high-end equipment manufacturer, and had set up Shanghai Electric Libin Technician College which was named after the National Model Worker-Li Bin. With a mission to become "a platform for cultivating and reinforcing technicians and specialists", the college adopts an education model characterized by "school + factory" and "certificate + skill", and provides programs according to needs of industry development and technicians by combining instruction with practices, fulfilling its responsibility as a major training organization. Based on technicians' development path, the college implements a series of innovative measures including the "3+3+3" training model and "Model Worker Training Class", and tries to develop systems for skill competitions, operation of chief technician's workshop and technician assessment. Therefore, it improves technicians' skills and helps them grow into excellent craftsmen by way of creating favorable systems and incentives centered on skill training, improvement and application.

Zhu Zhaokai stressed that as China transforms from a manufacturer of quantity to one of quality, and empowers technicians to "National Great Craftsmen", Shanghai Electric will explore how to better implement talent cultivation and leverage existing platforms and systems to develop more specialists and "National Great Craftsmen".

The forum themed "Pursuing Dreams with Craftsmanship and Contributing to Making China Stronger" was co-hosted by the CPC Hunan Provincial Committee and the People's Government of Hunan Province with an aim to offer an platform where National Great Craftsmen and excellent technicians can share experiences and reinforce skills, and to encourage technicians to enhance competencies and make more contributions by forging an environment that adores diligence, techniques and creation. The forum invited National Great Craftsmen, government officials, professionals, leaders of labor unions and commercial representatives to deliver keynote speeches and have dialogues in a wide range of activities.

Shanghai Electric Interviewed by China Energy News

Amid the 2022 Taiyuan Energy Low Carbon Development Forum held on September 1st, Jin Xiaolong, VP of Shanghai Electric and President of Shanghai Electric Power Generation Group, was interviewed by China Energy News (hereinafter as "CEN") in the program "Energy Lounge" and introduced how Shanghai Electric promoted efficient and clean use of coal and low-carbon transformation through innovations.

CEN: Shanxi Province, which has a large reserve of coal, has strived to use it in a cleaner and more efficient way, . In your opinion, how will the coal industry develop, and what are your suggestions for clean use of coal?

Jin Xiaolong: Concerning its "rich in coal, poor in oil and short of gas" situation, China has to figure out how to align carbon peaking and neutrality with the utilization of coal, China's major energy source.

First and foremost, we need to integrate coal and coal-based power to ensure low-carbon use. With our world-leading technologies for coal-fired power plants, Shanghai Electric develops the cutting-edge double reheat ultra-supercritical technology that increases power generation efficiency by large. The coal consumption of the latest 1-million-kilowatt-level ultra-supercritical generator is only 249.6 g/kwh (editor's note: the coal used to generate a kilowatt-hour of electricity in China was about 305g).

Secondly, we need to combine carbon use with decarbonization. Shanghai Electric is making every effort to develop CCUS (Carbon capture, utilization and storage) technologies to capture, collect and recycle CO_2 produced in the use of coal.

At the same time, we have done many researches on how to turn coal-fired power plants into peakers for ones powered by renewable energy. As per national regulations, Shanghai Electric upgrades coal-fired plants on energy conservation and emission reduction, heating performance and flexibility to make them cleaner, more efficient and effective in deep peak regulation.

Thirdly, we need to couple coal with new energy to realize efficient and low-carbon development. It is necessary to factor coal in attaining the "Dual Carbon Goals", national energy security strategy and digital technologies to leverage its fundamental role in China's energy landscape.

CEN: In the backdrop of carbon peaking and neutrality, Shanghai Electric has made remarkable breakthroughs in improving flexibility of coal-fired power plant and CCUS. Could you please share with us some of your innovations and inventions of green technology, and key areas for energy transformation in the future?

Jin Xiaolong: Shanghai Electric used to take the lead with respect to technologies of coal-fired power generation, nuclear power and steam turbines. We plan to promote energy transformation through following measures.

Firstly, we have taken part in the construction of all new nuclear power projects initiated on a national level; secondly, we have been pushing forward researches on technologies of efficient and clean use of coal, such as the 650℃ ultra-supercritical double reheat and CCUS, many of which have been applied in demonstration projects. The gas turbine powered by 10% to 100% hydrogen blended with natural gas is also under research.

What's more, we have put "wind, solar, storage and hydrogen" high on our innovation agenda during the 14th "Five-Year Plan" period. While our 11MW offshore wind turbines have been used in commercial projects and the world's longest wind turbine blade just rolled off the production line, we are developing offshore turbines with a capacity of more than 14MW.

Shanghai Electric's First PV Project at Japan Accepted

Shanghai Electric's project team pressed ahead overseas projects as scheduled despite changing situations and difficulties brought about by the pandemic. In the last few weeks, the Yakai PV power generation project in Japan implemented by Shanghai Electric Power Generation Group was accepted by the local government with a high power generation efficiency. Prior to this acceptance, three PV projects in Bishaopu, Outewode and Yinggehamu got connected to the grid. With its technological edges and strong ability to perform agreements, Shanghai Electric has showed its muscles and commitment to expand into new and overseas markets and push new energy and traditional energy businesses in parallel.

The project located at Yatsu, Fukushima is Shanghai Electric's first large PV project in Japan with a total installed capacity of 28MW. It broke ground on July 15th, 2020, completed Reverse power transmission at the end of January, 2022, with one trial, got connected to grid at full load in the middle of April and received the project acceptance letter from local authorities not long ago, and is expected to produce 31,293MWhs annually.

Shanghai Electric made financial donations to build an agricultural well for local residents, which was appreciated by the regional government. Despite COVID-19 and earthquakes, Shanghai Electric still managed to complete the project construction successfully while improving public utilities for a green future in line with corporate social responsibilities.

Earlier than the security check, the power plant finished the performance test which showed a higher PV system efficiency than what was guaranteed in the agreement, and was highly acknowledged by the property owner.

COOPERATION RENEWED

Shanghai Electric Obtained Another Gas Turbine Order from China Huaneng Group

Recently, Shanghai Electric has won two bids for the supply of main equipment used in the turbine island and boiler island and their life cycle maintenance for the expansion project of Nanshan Power Plant's 2×460,000-kilowatt gas-steam combined cycle generator set. It is the second gas turbine project contracted between Shanghai Electric and Huaneng after the Huaneng Qingyuan 100MW gas-fired co-generation project in July this year, promoting the partnership between the two sides to a new level.

Equipped with Shanghai Electric's F-Class AE94.3A Gas Turbine and ancillary combined cycle unit, the net efficiency of the project will exceed 60% with significantly decreased CO2 emissions. In addition, the single-shaft unit comes with a self-synchronizing clutch to support fast and frequent power peak regulation and start/stop operations.

Shanghai Electric has been collaborating with Huaneng Group on innovation-driven independent development and lifecycle support of gas turbines since 2020. Over the past two years, Shanghai Electric has fully met Huaneng's core needs for energy security and low-carbon generation units based on its key technologies, independent innovation capabilities and highly scalable services. Shanghai Electric has provided the best-in-class solution for Huaneng's new project, and has been praised by the partner for its open-minded attitude for win-win collaboration in terms of autonomous O&M.

Reportedly, the Nanshan Power Plant Expansion Project is the first gas turbine project publicly tendered by Huaneng's Hainan Branch during the 14th Five Year Plan period. Adjacent to two 5A-class tourist attractions, Daxiaodongtian (big & small fairyland) and Nanshan Temple, the power plant is expected to provide 2,469 million kWh of clean energy per year after being put into operation.

Shanghai Electric Obtained New Contract of 1000MW Turbines from Jiahuwan Power Plant

Recently, Shanghai Electric won the bid for supplying main and auxiliary equipment for the 2×1000MW electromechanical furnaces of Phase II of the Jiahuwan Power Plant at Lufeng City, Guangdong Province. Shanghai Electric renews its cooperation with Guangdong Baolihua New Energy Stock Co., Ltd. (hereinafter referred to as "Baolihua") after the Heshuyuan Power Plant and Jiahuwan's Phase I.

Jiahuwan Power Plant is designed with a total installed capacity of 8×1000MW, making it the largest efficient and clean energy base by planned capacity in China. The 2×1000MW units in Phase I have begun operation since April 2019, and Phase II adds another 2×1000MW coal-fired units with 100% desulfurizing and denitrification facilities being built concurrently. After it is put into operation, it will meet Guangdong's growing need for electricity, enhance grid security and stability, and mitigate regional power shortage, contributing to provincial economic development.

The Phase II project employs the new 1000MW ultra-supercritical reheat CT furnace that has better low-load stable combustion and deep peak regulation index. Coupled with new high-parameter 1000MW steam turbines which have higher parameters than regular ones at the same level, it makes a breakthrough for adapting to new markets by responding to clients' specific needs. The project also uses the latest-improved 1000MW generator that has advantages of high reliability, efficiency and easy installation, operation and maintenance owing to multistage axial fans used, and can work as effectively as those of Phase I.

As a long-standing supplier for Baolihua, Shanghai Electric has provided main and auxiliary equipment for electromechanical furnaces in the Heshuyuan Power Plant 2×300MW project in 2006 and Jiahuwan Power Plant's Phase I 2×1000MW project in 2019. Since its operation, Phase I of Jiahuwan Power Plant has been recognized for its excellent stability, efficiency and cost-effectiveness by users. With such a successful collaboration made, both parties joined hands again in Phase II of Jiahuawan project. D

Shanghai Electric Wind Power Won Two Green Development Awards

Themed "Energy, Carbon Peaking and Carbon Neutrality and Development", the 2022 Taiyuan Energy Low-Carbon Development Forum opened in Shanxi Province on September 2nd. Shanghai Electric Wind Power Group Co., Ltd. (hereinafter as "Shanghai Electric Wind Power") won the "Company Excellence Award for Carbon Neutrality and Green Brand Influence", and ranked 52th in the "2022 Global Top 500 New Energy Enterprises" list. China Energy News and China Institute of Energy Economics Research aim to honor companies and organizations with excellent performance in areas of energy transformation and upgrading, green development, structure improvement, technological innovation and social responsibilities via both the award and list. D

INDUSTRY LEADER!

Shanghai Electric Wind Power Group's Turbines Awarded "2022 Advanced Clean Energy Equipment"

On August 27, the 2022 World Conference on Clean Energy Equipment was held in Deyang City, Sichuan Province. Shanghai Electric Wind Power Group Co., Ltd. (hereinafter referred to as "Shanghai Electric Wind Power") won the "2022 Leading Clean Energy Equipment" with its WG5.55F-172 turbine under the wind turbine category.

Chinese seas are characterized by a low average wind speed and hugely-different velocities between the north and south. The award-winning turbine is specifically developed for Chinese seas with low-to-medium wind speeds and can operate with higher efficiency and reliability by using the blade certified by both domestic and international organizations, an efficient cooling system with low energy consumption, a mature and reliable yaw system and a better electrical system. The turbine design is improved in an all-rounded manner through drive chain innovations which increases transmission efficiency and power generation profits and makes generator maintenance unnecessary.

Based on its largest archive of offshore wind turbines in China, Shanghai Electric Wind Power presents a panorama of China's development history in this regard. As China's offshore market matures, Shanghai Electric Wind Power has found its own product and technology path that places equal emphasis on product verification, secondary development, strategic cooperation and independent R&D, and created holistic solutions that suit China's offshore wind resources better.

China's wind power industry has evolved into a new era that advocates both large scale and high quality. More and more wind farm owners require farms established to yield a higher profitability, turbines to work with less failures and more fault-free farms to be built. Prioritizing customers' needs, Shanghai Electric Wind Power Group Co., Ltd. initiated the "Lead Goose" Program on August 18th, 2022, which aims at reproducing the successful story of the program on a larger scale by identifying necessary factors for the success through life-cycle tracking. D

230 METERS!

Shanghai Electric's First Wind Turbine with World's Biggest Rotor Hoisted

On September 8th, Shandong Energy Group Bozhong B offshore wind farm saw the successful hoisting of the first semi-direct drive EW8.5-230 turbine based on Shanghai Electric's Poseidon platform. So far, it has the world's largest rotor hoisted with a diameter of 230 meters.

Shanghai Electric Wind Power Group Co., Ltd. (hereinafter as "Shanghai Electric Wind Power"), a subsidiary of Shanghai Electric, develops the new EW8.5-230 turbine, a semi-direct drive product specifically made for Chinese seas with low-to-medium wind speeds, by exploiting the advanced know-how it has accumulated in decades on offshore wind power. The new turbine uses the highly-integrated semi-direct drive chain with goals of "high profitability and reliability", making it a "leading holistic resolution employing state-of-the-art technologies". Shanghai Electric Wind Power ensures the turbine's "high profitability and reliability" from the perspective of systemically-improved design thanks to its decades' mastery of and penetration into technologies of both key components and the whole turbine.

The swept area of the rotor is about 5.8 times of a standard football field. The turbine's power output stands at 28 million kWhs per year at an annually average wind speed of 7.5 m/s, which is enough for 14,500 households for the same time span, and can cut coal consumption by nearly 10,000 tons and CO_2 emission 24,000 tons. With many first-of-its-kind projects accomplished, Shanghai Electric Wind Power has created breakthroughs and milestones one after another in the cause of Chinese offshore wind power industry, which include the deployment of turbines with an installed capacity of 3.6MW, the project in line with the "double ten" criteria (an offshore wind farm shall be more than 10 kilometers from shore and in water deeper than 10 meters), the wind farm in an intertidal zone in far seas, the project honored the National Quality Engineering Gold Award, and the wind farm with a 7MW capacity. D

SHANGHAI ELECTRIC: A JOURNEY OF 120 YEARS

USHERS IN A NEW ERA OF PROSPERITY AND DEVELOPMENT

The year 2022 marks the 120th anniversary of the founding of Shanghai Electric. 120 years is shorter than a flash in the timeline of the universe, but is enough for an ambitious enterprise to move forward amid adversities and become an industrial leader who has created inspiring achievements with its generations of employees along this heroic journey. Shanghai Electric, an enterprise of national importance, started from scratch and pursues the ultimate goal of revitalizing Chinese industry with unwavering efforts despite difficulties and challenges. Looking ahead, the 120-year-old enterprise is as dynamic as a startup, ready to create our future together.

Follow the splendid chronicle of Shanghai Electric and re-discover those exciting moments.

COVER TOPICS

01 ORIGIN

In the early 20th century, a number of industrial companies were established in China by patriotic people who aimed at "saving the country by developing local industry". On September 26, 1902, Chinese entrepreneur Yan Yutang founded the Shanghai Dalong Machinery Works with Chu Xiaomao, which opened the chapters of machinery and electrical industries in Shanghai.

Under the direction of the Communist Party of China, workers at machinery factories in Shanghai actively participated in labor movements in pursuit of a decent life and revolution, and finally, the People's Republic of China was founded.

1902

SHANGHAI DALONG MACHINERY FACTORY

he origin of Shanghai Electric can be traced back to 1902, when Shanghai Dalong Machinery Factory, the earliest large firm under Shanghai Electric, was founded, representing the dawn of modern machinery industry in Shanghai.

When Yan Yutang, a Chinese entrepreneur, founded the factory, he rented two single-storey houses in Meijia Lane, Taihe Street, Yangshupu as workshops, and hired only seven workers to repair and replace small parts for foreign merchant ships. The following year, the factory moved to 25 Pingliang Road, occupying 12 single-storey tin house, and the number of workers were increased to 50. In 1914, the World War I broke out to involve all Western powers, and the long strangled domestic industry was revived with the textile sector seeing particularly rapid growth. Aware that the Dalong factory should be divorced from foreign enterprises, Yan began to cooperate with domestic manufacturers. He gathered technical staff to produce textile machines, laying a foundation for China's independent manufacture of machines.

Yan aspired to establish a first-class machine manufacturing enterprise in China in terms of both technology and management. In 1922, Dalong launched its first weaving machine. The low price and maintenance cost of the machine enabled lower production costs than that of other textile factories, yielding good profits for Dalong year after year. As a result, other textile factories began to purchase machines produced by Dalong.

In 1925, the owner purchased 70 mu of land at 5 Guangfu West Road to establish the new plant of Dalong. By 1937, Dalong boasted total assets of 500,000 yuan (in fiat currency of the Republic of China), over 500 machine tools, over 1,300 workers, and an annual net profit of more than 200,000 yuan. A Shanghai newspaper commented: "In China, only Dalong Machinery Factory is capable of manufacturing textile machines on a large scale."

The history of Dalong has deeply inspired Shanghai Electric in its development.

1953

REVIVE THE GENERATORS THAT SERVED THE WAR OF RESISTANCE AGAINST JAPAN

The May 16, 2015 issue of the Xinmin Evening News published an article titled "A Power Plant That Served the War of Resistance Against Japan", which tells the story of two U.S. made hydroelectric generators at the Tianmen River Power Plant in Tongzi County, Zunyi City, Guizhou Province. Manufactured by GE, they have been providing power locally for more than 70 years. During the War of Resistance Against Japan, the two generators were airlifted to China through the Hump and became the power source of a local arsenal. In February 1953, the two generators received a major overhaul. Shanghai Electric Machinery provided coils to one of them and assisted in the overhaul. Both generators have been operating properly to date.

The story shows Shanghai Electric's corporate responsibility as a stated-owned enterprise and the superb skills of older-generation technicians that inspire us every day.

COVER TOPICS

D DEVELOPMENT

The People's Republic of China mobilized all resources available for socialist economic development. Shanghai workers in machinery factories who had contributed to the revolution leveraged their industrial expertise to develop Chinese industry with a strong resolution to make China prosperous and an industrial powerhouse. Although there was little foreign aid, we worked hard to achieve technological breakthroughs one after another and made miracles happen in real life, fulfilling our historic duties. Chinese equipment manufacturing industry progresses in step with our nation, from a barren land to forests, acting as the backbone for the national economic growth.

1955

CHINA'S FIRST 6,000 KW STEAM TURBINE GENERATOR

After the founding of the PRC, the rapid development of the country has put forward a high demand for power supply. In 1953, when China launched its first five-year plan, the first domestic 6,000 kW steam turbine generator was independently developed to satisfy the power needs of production and construction. The state decided to install the unit in the then domestic-leading Huainan Tianjia'an Power Plant, which had more than ten years of experience in power generation, to guarantee the production and operation of the unit and to bring out the full potential of coal mines in Huainan.

In 1954, the plant was upgraded to boast four 6,000 kW units in its Phase-I expansion project. The new generators and boilers were produced by Shanghai Turbine Works, Shanghai Electric Machinery and Shanghai Boiler Works as the first equipment of its kind designed and manufactured by China independently.

Shanghai Electric pioneered in the domestic manufacture of generator units, eliminating China's complete dependence on imported generators.

1958
World's first 12,000kW double water inter cooling turbo-generator was created

1961
China's first 10,000t hydraulic machinery produced

COVER TOPICS

1958

THE WORLD'S FIRST TURBO-GENERATOR WITH DOUBLE INTERNAL WATER-COOLED SYSTEMS WAS BORN

On October 27, 1958, the world's first 12,000-kW 3,000-rpm turbo-generator with double internal water-cooled systems was born in Shanghai Electric Machinery.

In December of the same year, the Soviet Union held a meeting at the Leningrad Power Plant to discuss issues concerning the cooling of large turbine generators. Besides representatives of major generator manufacturers and research institutes of the Soviet Union and related organizations from Poland and Hungary, Wu Tianlin, then deputy chief engineer of Harbin Electric Machinery and Wang Keng of Shanghai Electric Machinery were also present. Under the instruction of state leaders, Wu Tianlin announced at the meeting that China had successfully made the world's first 12,000-kW 3,000-rpm turbo-generator with double internal water-cooled systems, which surprised all the attendees. Alekseev, president of the USSR Electrical Engineering Society and corresponding academician of the USSR Academy of Sciences, congratulated the Chinese delegates and included the news into the proceedings and minutes of the meeting.

It was the first international report on China's production of a turbo-generator with double internal water-cooled systems. The major innovation greatly advanced China's manufacturing technology for turbine generators, outperforming the then world-leading manufacturers. It also gave birth to Shanghai Electric's "Spirit of Initiative".

1961

CHINA'S FIRST 10,000-TON HYDRAULIC PRESS WAS CREATED

In February 1959, the groundbreaking ceremony of the 10,000-ton hydraulic press was held, kicking off a fight to achieve major industrial breakthroughs.

The main parts of the hydraulic press need to be made of extra-large forgings and cast steel. But at that time, China was not able to produce large steel parts. They could only try to weld castings and steel plates together. There were four large steel columns, each 18 meters long and 1 meter thick, weighing 80 tons, and the classic arc welding techniques were not up to the task. Then the team learned that a new technology from abroad could solve the problem. The R&D staff sought advice from the Soviet expert who worked as a consultant, but he said, "It is far beyond your capabilities." The team members were not discouraged. After numerous attempts, they mastered the then cutting-edge technology. Learning of their achievements, the Soviet expert exclaimed, "It's unbelievable."

In December 1961, the installation of the 10,000-ton hydraulic press commenced, and more than 40,000 parts were transported into the spacious workshop of Shanghai Heavy Machinery Plant. On June 22, 1962, China's first 12,000-ton free forging hydraulic press was completed, which was 16.7 meters high, like a "steel giant".

In 1962, Edgar Snow, the renowned author of "Red Star Over China", came to Shanghai to see the hydraulic press. When he walked into the workshop, he saw the door of the huge furnace open and the big red hot steel ingots forged like dough. In sight of this, Snow probably would like to write another book for the workers of the PRC.

The successful installation of the 10,000-ton hydraulic press in one single run reflected Shanghai's leading position in the then machinery manufacturing industry, and manifested Shanghai Electric's "Spirit of Accountability".

1984

CHINA'S FIRST NUCLEAR POWER GENERATOR WAS BORN

The Phase I project of the Qinshan Nuclear Power Plant (project code 728) was commenced in 1984 and completed in 1991. Qinshan Nuclear Power Plant enabled mainland China to produce nuclear power from scratch. Phase I 300MW nuclear turbine of Qinshan Nuclear Power Plant, supplied by Shanghai Electric, is the first turbine with PWR to put into commercial operation in China. The design service life of the generator unit is 30 years. According to foreign practices, most nuclear power plants can extend their service life by 20 years with renovations. Qinshan Nuclear Power Plant and Shanghai Electric collaborated again to complete the renovation and capacity expansion milestone project of the nuclear power plant.

The successful operation of Qinshan Nuclear Power Plant marked the start of nuclear power generation in China. It is an important achievement for the country. The successful renovation of the nuclear power plant demonstrated Shanghai Electric's advanced technical capability.

R I

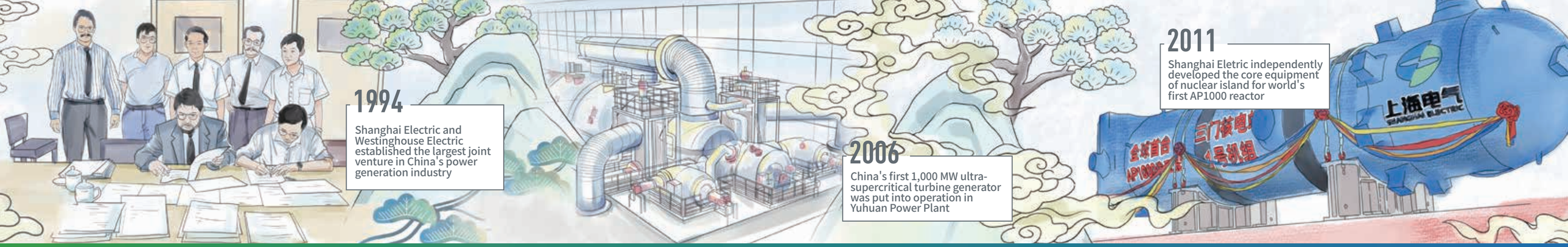
REFORM

In line with the reform and opening up policy, Shanghai Electric put established ideas and methods aside, and took pioneering and bold actions in state-owned enterprise reform and system restructuring. By deeply reshaping the industry structure and importing cutting-edge technologies and equipment from other countries, Shanghai Electric realized skyrocketing business growth and tremendous accomplishments and found the path of reform, development and innovation defined by characteristics of China, Shanghai, and Shanghai Electric.

SHANGHAI MITSUBISHI ELEVATOR

Shanghai Mitsubishi Elevator was established in November 1987 by four companies including Shanghai Mechanical & Electrical Industry and Mitsubishi Electric of Japan. As a large elevator manufacturer, Shanghai Mitsubishi Elevator has maintained a leading position in the domestic market since 1941. It is also one of the largest 500 foreign-invested enterprises in China.

Over the past 30 years, Shanghai Mitsubishi Elevator has produced more than 1 million elevators as the biggest elevator manufacturer in the world.



SHANGHAI ELECTRIC POWER GENERATION EQUIPMENT

Shanghai Electric Power Generation Equipment's Turbine Plant, Generator Plant and Auxiliary Equipment Plant are all subsidiaries of the Shanghai Electric Power Generation Group, a joint venture established in the 1990s by Shanghai Electric and Siemens. As an industry leader, the Power Generation Equipment company has brought together Shanghai Electric's 40-year experience in power generator manufacturing and Siemens' advanced technology and management capabilities.

Over the past 20 years , Shanghai Electric Power Generation Equipment has produced coal-fired power generators with an accumulated installed capacity of over 300 million kilowatts, making it one of the world-leading suppliers in the sector.

SHANGHAI HIGHLY (GROUP) CO., LTD.

Shanghai Highly Group, formerly known as Shanghai Refrigerator Compressor Company, was restructured into a joint stock company in 1992. The company's Class A and Class B shares were listed on the Shanghai Stock Exchange in November 1992 and January 1993, respectively. Highly Group has invested its funds raised in the manufacture of refrigeration compressors. Over the past decades, Highly has maintained a leading position in the domestic market. At present, Highly boasts a strong global presence with many factories and R&D centers in several countries and regions, forming a multi-faceted business landscape of refrigeration compressors, motors, drive control and heating-cooling integration.

As a listed company, it has become a leading compressor manufacturer after years of efforts. The company will move towards a Zero Carbon future in big strides and contribute to the achievement of China's carbon neutrality goal through energy-efficient and low-carbon products.

2014

Shanghai Electric successfully acquired 40% equity of Ansaldo Energia

2018

In 2018, the world's first Hualong One Reactor internals for Fuqing 5 were delivered

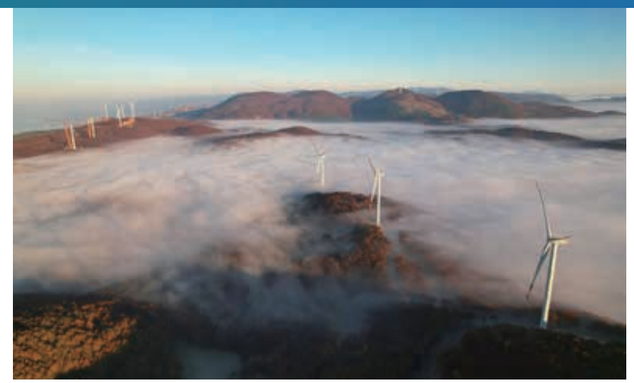
COVER TOPICS

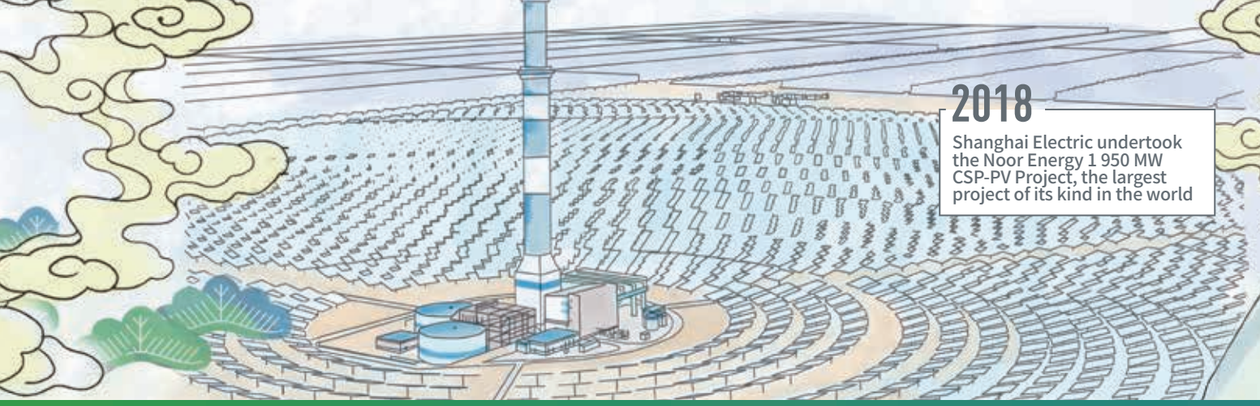
INNOVATION

Shanghai Electric has endeavored to create new milestones in the 21st century, and accelerated its progress after the 18th CPC National Congress for the new era. As a new round of technological and industrial competition arises in the world, Shanghai Electric addresses new industrial trends and changes with a high sense of responsibility, that is, to thoroughly implement and reinforce national strategies. Driven by the principle of pursuing excellence, Shanghai Electric opens up more actively in more areas, and transforms into an influential innovator with the goal of promoting the brand “Shanghai Manufacturing” and high-quality development.

ACCOMPLISHMENT

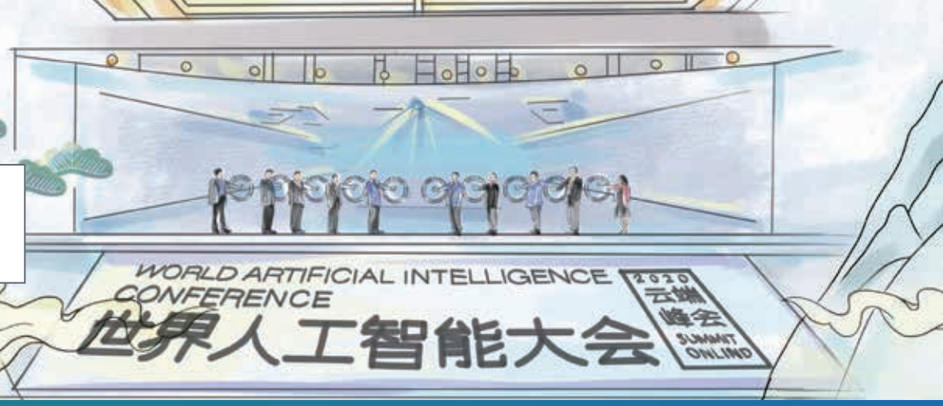
Following the principle of “win-win cooperation and collaborated development”, Shanghai Electric moves forward with strategic partners in an open and mutually-beneficial manner. From 1993 when the company started its first overseas project till now, Shanghai Electric has participated in 85 projects in 19 countries that total 130 billion yuan in contract value and 42 gigawatts in installed capacity. With many overseas projects finished and effective networks for marketing, sales and project support established, Shanghai Electric is able to support the project operation throughout its life cycle, and is rated 40th in the latest edition of ENR's Top 250 International Contractors.





2018

Shanghai Electric undertook the Noor Energy 1 950 MW CSP-PV Project, the largest project of its kind in the world



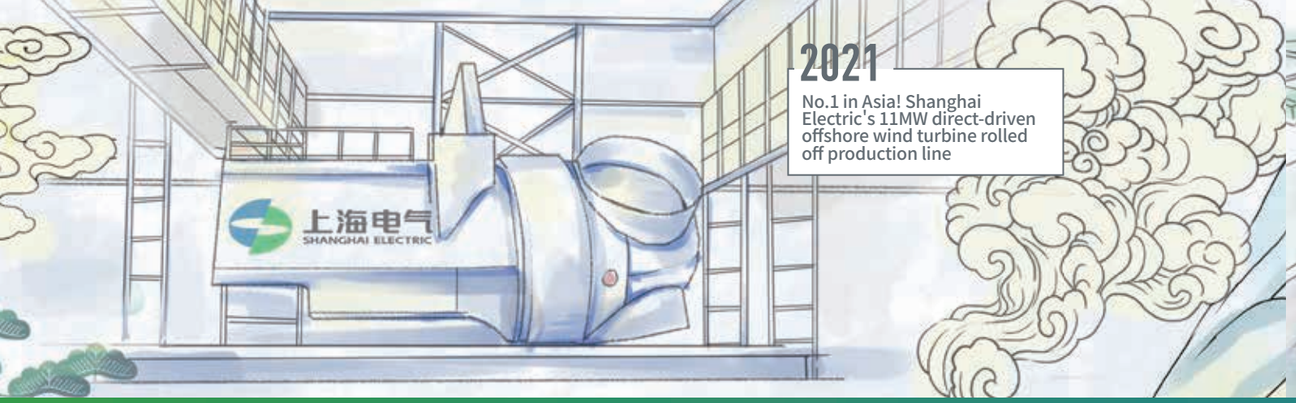
2020

Shanghai Electric received the world's first award for industrial intelligence, "Zhanlu Award" for Growth Drivers

COVER TOPICS

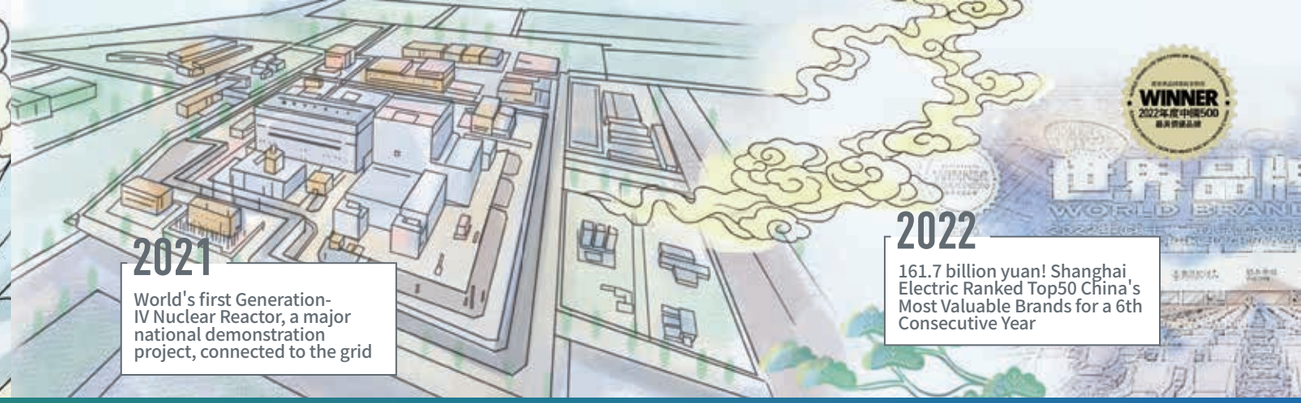
INDUSTRIAL DEVELOPMENT

As a world-class high-end equipment manufacturer, Shanghai Electric has established a product and service portfolio covering most categories with a strong capability to deliver multi-industrial solutions, which makes it the provider of leading solutions on smart energy, intelligent manufacturing and smart infrastructure for partners from energy, industry and urban development sectors. Seizing opportunities brought forth by the "Dual Carbon Goals", Shanghai Electric expands its business in new markets, develops state-of-the-art technologies, and reinforces the transformation of its major businesses towards a high-end, green, digital, service-based and globalized direction by taking advantage of its edges on energy equipment and technologies. As for new energy and intelligent manufacturing, it boosts the forming of industrial chain and enhances technologies, products, projects and services related with wind and solar power, energy storage and hydrogen in the aim of improving its capability to offer better holistic solutions on intelligent manufacturing and becoming a world leader in this regard.



2021

No.1 in Asia! Shanghai Electric's 11MW direct-driven offshore wind turbine rolled off production line



2021

World's first Generation-IV Nuclear Reactor, a major national demonstration project, connected to the grid

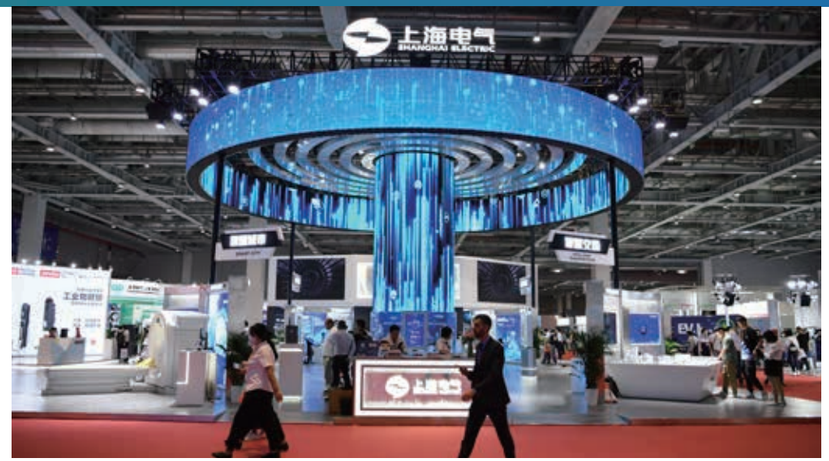
2022

161.7 billion yuan! Shanghai Electric Ranked Top50 China's Most Valuable Brands for a 6th Consecutive Year

COVER TOPICS

BRAND BUILDING

Building on confidence in equipment manufacturing and corporate culture, Shanghai Electric presses ahead with the attainment of three goals: a pioneer in achieving carbon peaking and carbon neutrality, a leader in new energy equipment, and the main player in localizing high-end equipment. As its business landscape becomes more and more internationalized, Shanghai Electric regards brand building as a mission of equal importance and hence initiates a global campaign program to enhance its brand influence with more proactive and continuous measures. By increasing the voice of Shanghai Electric on the international platform, the company minimizes negative impacts caused by external uncertainties with unwavering efforts for high-quality development, making "China Intelligent Manufacturing" known around the world.



Shanghai Electric is an enterprise established 120 years ago but is still as dynamic as a startup. Having grown from challenges and thrived against adversities, how will it make bigger successes in the new era of innovation? Shanghai Electric, a major high-end equipment manufacturer in China, answers the question via effective actions with an open and modern mindset after reviewing its 120-year history.

Placing national strategies high on the agenda from a new historical starting point, we will leverage competitive edges on energy equipment and technology while accelerating penetration into new segments in order to fuel existing and new drivers at the same time and make the blueprint of being "high-end, green, digital, service-based and globalized" come true.

Good honing gives a sharp edge to a sword; bitter cold adds fragrance to plum blossoms. Accomplishments made over the past 120 years serve only as the backdrop, and the true protagonist is Shanghai Electric's staff.

Holding expectations of the Party and state dear, we will embark on new chapters of "China Intelligent Manufacturing" with higher aspirations and greater successes and fulfill our historic missions.