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The bright future of
"IOT HEALTHCARE"



上海电气
SHANGHAI ELECTRIC

EMBRACE A BRIGHTER OF BELIEF AND COURAGE 2020

Even at the moment when I tried to find a good title for this article, I still could not get rid of the noise of “COVID-19” or “Wuhan” – all those keywords dominating global headlines over last two months. From an unexpected outbreak in Wuhan to a nationwide nightmare, COVID-19 caught so many people and businesses off their guard. However, there always are opportunities hidden in crisis. In 2003, when SARS went rampant, Jack Ma founded Taobao, which later grew into Alibaba Group, the 3.8-trillion-yuan E-Commerce giant overtaking Tencent and topping the list of Hurun China 500 Most Valuable Private Companies of 2019. As witness to the boom of EC vendors during the SARS period, what opportunities shall we expect of the upcoming decade, which, despite the epidemic, seems so promising? If a database covering the entire population in Wuhan had been established and every outflow had been tracked at an individual level, we could have responded to the outbreak in a more efficient and economical way. That is where smart city could play its part. After this fight against COVID-19, measures to build a smart city will be high on the agenda. Those critical elements of the initiative such as traffic control, logistics and supply chain, emergency response and disaster recovery, information tracing call for digitization and AI-based disaster prediction. Smart medical care is one of the most remarkable topics. Recently, Shanghai Electric Group donated to Wuhan Red Cross Society seven CT devices worth more than ¥24.75 million in support of local disease diagnosis and treatment. The donation reflects a strong sense of responsibility of Shanghai Electric as well as its capabilities for smart medical care. As China and the whole world place a lot of emphasis on the concept of smart manufacturing, **Shanghai Electric** is committed to creating a future of smart manufacturing with its expertise in production and automation as well as innovative ideas. For all of us, 2020 will be the starting point for an inspiring journey of love and courage.

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Shanghai Electric



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Shanghai Electric Ranks 40th in the Chinese Brand Development Index

Lu Le

Shanghai Electric Group ranked 40th with a comprehensive score of 784.34 points in the list of top 100 enterprises in the Chinese Brand Development Index released by People's Daily for the first time at the end of last year. This development index evaluation is a special research project led by People's Daily to carry out President Xi Jinping's instructions of "promote the transformation from 'made in China' to 'created in China', from Chinese speed to Chinese quality, and from Chinese product to Chinese brand". The "Chinese Brand Development Index" adopts quantitative methods to evaluate the competitive advantages on a corporate and state level in order to facilitate brand economy and boost the high-quality development of China's economy.

A Research Project Participated by Shanghai Electric Wins the National Science and Technology Award

Lu Le

A few days ago, the National Science and Technology Awards Ceremony was convened in Beijing, where the project Key Technologies on Energy Efficiency of Wood-based Panel Continuous Press Line won the Second Prize of the State Scientific and Technological Progress Award. Shanghai Wood-based Panel Machinery, one of whose shareholders is Shanghai Electric, participated in the project. As a project concerning wood processing and wood-based panel technology, it focuses on generic technologies curbing the industrial development, and makes innovations in technologies of wood-based panel adhesives, hot-pressing consolidation, complementary technologies and assembly by upgrading the batch production to continuous press, achieving breakthroughs in crucial areas of reducing industrial energy consumption and improving production efficiency in the wood-based panel industry. To this end, this project generates remarkable economic and social benefits. Both technologies in a general sense and economic indicators reach a leading position in the world.

Sow Seeds of "Hope" in Poor Villages in Yunnan

Xue Ling

On December 27th, 2019, Shanghai Electric Wind Power Group went to Fatu Village in Mohong Town of Qujing City, Yunnan Province, which is the target of the company's poverty alleviation task, to teach basic wind power knowledge among local elementary students. The impressive promotional video immediately caught the eyeballs of all students, and then the instructor talked about the working principles of wind turbines and the story of "wind chasers" in a vivid way. It is one of the company's distinctive public service activities to bring wind power knowledge into schools, aiming to provide students with opportunities to know about green energy and wind power stories.



Shanghai Electric's Double Reheat Power Generation 1000MW Sets in Laizhou City Reported by CCTV

Guan Wanjin

A few days ago, Morning News, a news program of China Central Television, reported Huadian Laizhou Power Plant Co., Ltd. introducing a new-generation of efficient and ecologically-friendly power plant featuring intelligence, ecology and beauty to audiences nationwide. It is worth mentioning that the second phase of the plant sets a new national record in coal consumption of double reheat power generation sets, which is 253.48g/kWh. Shanghai Electric Power Generation Group provides all the three major equipments for the two sets of 1000MW generating units. This project fills the domestic gap of the intelligent double reheat power generation sets, making a leap in the direction of smart power plant and promoting further upgrade of the global thermal power industry.

Shanghai Electric Participate the World Future Energy Summit Again

Tan Qihao

Shanghai Electric Power Generation Group participated the 13th edition of the World Future Energy Summit inaugurated in the National Exhibition Center in Abu Dhabi, the capital of UAE, as the main exhibitor on behalf of Shanghai Electric for a second time. As the highlight in the global energy spectrum, this summit was committed to realizing sustainable development by promoting renewable energy and clean technologies for not only UAE, but more importantly, the whole word, making a statement in revolutionizing the energy landscape. The Power Generation Group received many inquiries at the summit on its energy solutions displayed in terms of solar power, sea water desalination, renewable thermal power generation, integrated photothermal generation and sea water desalination, engineering industry, gas turbine, energy storage and distributed energy.

Shanghai Electric Power T&D Group Facilitates Pudong New Area in Building "the First Village of Intelligent Energy"

Wu Jie

At the end of last year, the groundbreaking ceremony of the new-energy-themed vacation rental project was launched in Lianmin Village in Chuanshaxin Town of Pudong New Area, which is a part of the model project of "Lianmin Village-the First Village of Intelligent Energy" co-built by many parties including Shanghai Electric Power T&D Group. Lianmin Village, whose northern part is only 5km away from the South Gate of Shanghai Disney Resort, features a beautiful landscape, and is selected by the Commission of Commerce of Pudong New Area as a pilot village for vacation rental development. This model project is jointly built by many parties including Shanghai Electric with State Grid Shanghai Municipal Electric Power Company as the leader. The project's new energy system employs three modules. Among them, the microgrid is supplied by the Technology Center of the Power T&D Group and Electricity and Electronics Co., Ltd., consisting of components of intelligent prefabricated substation, intelligent distribution terminal, distributed generation, energy storage device, charging pile, and comprehensive intelligent energy management platform.



Shanghai Electric Environmental Protection Group Lands the Phase One Service Project of Whyalla, Australia

Zhang Xufeng

A few days ago, Shanghai Electric Environmental Protection Group signed the operation and maintenance service agreement for the Phase-1 6 MW PV power plant in Whyalla, Australia, a project of Beijing Enterprises Group Company (BG). It shows that the Company is developing both vertically and towards the international high-end new energy market. This project is 10km to the north of Whyalla, a southern city of Australia, and 5km away from the Company's Kutana Project . With BG as the investor and a private Chinese company as the constructor, it started to operate in 2018. The agreement will accumulate expertise and attract talents for the Kutana Project in future, and facilitate its entry into the blue sea of new energy in Australia.

Shanghai Electric Power Generation Group Signed the Long-time Service Agreement on Thermoelectric Gas Turbines with Sihui Power Plant

Liu Jianyuan

On January 14th, the signing ceremony of the long-time service agreement on thermoelectric gas turbines of Sihui Power Plant between Shanghai Electric Power Generation Group and Guangdong Branch of State Power Investment Corporation was held. This agreement marked the first big order concerning gas turbine for the Power Generation Group this year, laying a solid foundation for futher progress within this year, which would also brought the partnership to a higher level. The Power Generation Group will leverage this project and strive to land more projects in Guangdong Province. The gas turbines of Sihui Power Plant is the first AE94.3A-type project for Shanghai Electric in China. Its successful operation, which is made possible by the huge support from the client, sets up a positive example for the Shanghai Electric's AE series of gas turbines, laying a sound foundation for the gas turbine development of the Group.



Domestic Thermal Desalination Market Volume Exceeds 100,000 tons scale

Guan Wanjin and Zhou Bin

A few days ago, the 7 sets of thermal desalination units in the Phase-1 105,000-ton project of Zhejiang Petroleum and Chemical (ZPC), undertaken by Shanghai Electric Water Engineering Co., Ltd. started to produce water. What's more, the Company has signed the agreement on the Phase-2 200,000-ton project with ZPC, which means that Shanghai Electric has occupied 80% of the domestic thermal desalination market by an accumulative volume of 445,000 tons. After 10 years' research, the Company has managed to develop the low grade heated water flash evaporation-low temperature multi-effect distillation (MED) sea water desalination technology solely on its own. This technology not only greatly reduces the desalination cost, but broadens the segment market. The first application of this technology is the 375,000-ton project of Hengyi Petrochemical in Brunei, and the cooperation with ZPC realizes the first successful practice of the thermal desalination technology in China.

Shanghai Electric Lands A 2-billion Order in Guangdong Province

Zhu Quansheng

A few days ago, Shanghai Electric Wind Power Group won the tender of wind turbine procurement in the Nan'ao Island Wind Power Project of China Three Gorges Corporation located in the East China Sea. The agreement is worth 2.044 billion RMB, and the project will employ 43 sets of Shanghai Electric 7MW offshore wind turbines. This is the 4th offshore wind power project landed by Shanghai Electric in Guangdong. Nan'ao Island is under the jurisdiction of Shantou City, Guangdong. The offshore wind power market in China has seen price competition since 2019. Shanghai Electric has shown its muscles in this arena by winning orders successively due to its market leadership and highly reliable and mature products and solutions. After completed, the project is estimated to generate 850 million kWh with remarkable economic and environmental benefits.



Zhong Ke Printing Introduces the First Rotary Press Intelligent Production Line in China

Hu Ji

A few days ago, Goss Graphic Systems (China) and Zhong Ke Printing announced their strategic partnership in Beijing and signed the purchase agreement, which indicated that the M-700 rotary press intelligent production line which is developed by Goss China was introduced to Zhong Ke as the first line solely dedicated to book and periodical printing in China. According to professionals, this project might change the landscape of traditional book and periodical printing. The agreement will not only enhance the strategic cooperation, but also accelerate the development of the cultural industry in Beijing-Tianjin-Hebei Region and nationwide.

Shanghai Electric Achieves Excellent Emission Reduction Results in Sanxing County's Intelligent Energy Project

Fang Yuan



A few days ago, the "internet+" intelligent energy model project in Sanxing County of Chongming District, which is designed by Shanghai Electric Power Generation Group in a targeted way to cater for the specific environment and villagers' needs, has smoothly operated for 356 days and accumulatively generated 220 MWh with zero CO₂ emission, reducing CO₂ emission by 218 tons that is equivalent to planting 120 trees. It symbolizes the early success of "source-network-load-storage" integrated solution for microgrid for park which is the first of its kind independently developed in China. This model is based on intelligently-distributed renewable energy and realizes the complementation of different kinds of energy like solar and wind power and energy stored.

Shanghai Electric’s Lignite-based Generation Technology Wins An Industrial Innovation Award

Yan Qianwen

The 2019 Annual Conference of China Energy Research Society opened in Beijing a few days ago. After the joint assessment, the organizing committee awarded the First Prize of 2019 Energy Innovation Award to the "Integrated Innovative Application of Lignite-based Efficient and Clean Generating Technology" out of 271 projects, which was participated by Shanghai Electric Power Generation Group. Shanghai Electric Power Generation Group makes effort to ensure high performance and energy conservation and environment protection, delivering economic and social benefits for the power plant. This award acknowledges the high-quality products supplied by the Group to Beijing Jingneng Power’s Wujianfang Project, and more importantly, it recognizes the Group’s technological innovation strength. China Energy Research Society is affiliated to China Association for Science and Technology. As the only academic society listed in the first 16 research and consultation centers designated by National Energy Administration, it provides active support to the government on decision making and work arrangement on energy. The Energy Innovation Award is given to companies and individuals who have made remarkable innovations and contributions to academic research, management and technology in the energy field.

The First PV Project of Shanghai Electric Environmental Protection Group in Guangdong is Paralleled

Deng Chuang

On December 26th, 2019, the 75MWp PV Project in Yangchun City, Guangdong Province, with Shanghai Electric Environmental Protection Group as the general contractor was paralleled in the grid. It is one of the major provincial PV poverty alleviation projects. The 75-MWp installed capacity is deployed in 5 areas because Guangdong is in lack of land resources and regions that are suitable for PV plants are scattered. The project broke ground on November 1st, 2019 and took 56 days to finish. As the Company’s first new energy project in Guangdong, it has paved way for the Company’s further development in the local market.

Two Units of Shanghai Electric’s First Indirect Air Cooling 1000MW Project Starts Operation within One Year

Liu Dianlong

The No.1 unit of China Guodian Corporation’s Fangjiazhuang 2X1000MW Project implemented by Shanghai Electric Power Generation Group started commercial operation at the end of last year after successfully operating for 168 hours continuously at full load. In addition, the No.2 unit began its operation in July, 2019. Both of the units use the steam turbine, generator and auxiliaries manufactured by Shanghai Electric. During the trial operation, the shafting vibration and temperature display of the steam turbine and all auxiliaries worked in a perfect and reliable way, meeting all the sophisticated debugging targets set by the China Energy Investment Corporation for the units.

Shanghai Electric Becomes the Official Partner of China Pavilion in Expo 2020 Dubai

Zhang Cheng

On January 17th, Shang Electric was awarded the official badge in the first road show (Jiangsu stop) of Expo 2020 Dubai in China and announced as the official partner of China Pavilion in the Expo, marking its 4th participation in this grand event since Expo 2017 Astana. In recent years, Shanghai Electric has been speeding up its overseas development and implementing a number of mega projects in countries under the framework of "Belt and Road" Initiative, attracting enormous attention at home and abroad. One of its successful and influential cases is the Dubai 950MW concentrated solar power and photovoltaic power generation project, which is the largest in the world. Becoming the official partner of China Pavilion

in Expo 2020 Dubai will bring Shanghai Electric the expo-based advantages, and amplify and consolidate Shanghai Electric’s influence in Middle East and regions around. What’s more, it will boost Shanghai Electric’s expansion in domestic and international new energy markets, improve the brand image in the global arena and contribute to the implementation of the "Three Steps" Strategy. The Expo 2020 Dubai will open in UAE on October 20th with the theme "Connecting Minds, Creating the future". Shanghai Electric, on behalf of Chinese energy enterprises, will demonstrate its overall strength in new energy, international energy cooperation and other fields, and communicate and cooperate with UAE and other countries, displaying the competitiveness of Chinese enterprise and brands. 



CHINA PAVILION EXPO
2020 DUBAI UAE OFFICIAL PARTNER



Jointly Build the Model City of Industrial Internet Innovation

Lu Le

On December 21th, 2019, at the first general assembly of the first session of Shanghai Municipal Industrial Internet Association, Mr. Huang Ou, Vice Party Secretary of the CPC Committee of Shanghai Electric Group and Shanghai Electric President, was elected chairman of the Association. After its establishment, the Association will optimize the industrial internet ecosystem in Shanghai. For the next step, it will, following the guidance of Shanghai Municipal Commission of Economy and Information Technology, as well as principles of “enabling transformation, integrating ecology convergence and demonstrating value”, facilitate two-way communication between its members and the government, create platforms for integrated innovation and converged application among members, and develop a targeted ecosystem for industrial internet companies inside and outside Shanghai with a focus on multiple areas of electronic information, equipment manufacturing and automobile, aerospace, steel and chemical industry. At the same time, it will actively make contributions to the initiative of

building up Shanghai into a national model city of industrial internet innovation, to the construction of the digital “Yangtze River Delta” and to the improvement of national manufacturing and internet strength. In his address, Mr. Huang Ou first expressed his gratitude for Shanghai Electric being elect chairman organization for the first session, and then summarized the milestones in Shanghai Electric’s efforts to develop industrial internet. He said that the industrial internet had become an effective method to accomplish

industrial digitalization. A new round of technological and industrial revolution is sweeping across the globe, which creates new drivers for countries’ economic development via an array of breakthroughs in industrial internet technologies. However, experts from both traditional industries and internet industries have not reached a consensus on industrial internet’s format and its sustainable profit model. What’s more, major industrial powers in the world are also exploring in this direction and a relatively stable landscape is yet to come. The Association is established to answer the question, and it is also committed to doing so. Huang Ou pointed out that since Shanghai Electric carried out the “Three Steps” Strategy, it has been committed to building itself into the “new aircraft carrier of high-end equipment” and speeding up the digitalization centering on service-oriented product and product-oriented service based on its advantages in equipment manufacturing, which enables Shanghai Electric to play an active role in industrial internet. In the future, Shanghai Electric will diligently fulfill its responsibilities as the chairman organization, and provide practical support for every member including high-end think tank, training on innovative technologies and industrial exchanges and conferences. Shanghai Electric will advance together with all members and open the access to Shanghai Electric unicloud, its own industrial internet platform, to provide solutions for more industrial scenarios and develop healthy interactions involving the innovation chain, industry chain and value chain. Representatives from Shanghai Municipal Commission of Economy and Information Technology and the first 217 member organizations as well as personal members were also present. **D**

Shanghai Electric Group State Owned Huanqiu Engineering Co., Ltd. Is Established

Liu Lu



On January 14th, the inauguration ceremony of Shanghai Electric Group State Owned Huanqiu Engineering Co., Ltd. was held in Yingze Hotel in Taiyuan, Shanxi Province, in the presence of Mr. Lou Yangsheng, Party Secretary of the CPC Shanxi Provincial Committee. Mr. Wang Yixin, Vice Governor of Shanxi, and Mr. Zheng Jianhua, Party Secretary of the CPC Committee of Shanghai Electric and Shanghai Electric Chairman, unveiled the plaque for the new company. To broaden and strengthen its energy and chemical industry segments, Shanghai Electric has been looking for partnerships. After rounds of communication and exchanges, Shanghai Electric and Shanxi State-controlled Group found many common grounds on strategic planning. Therefore, with its chemical engineering licenses, Shanghai Electric plans to become the controlling shareholder of

State-controlled Globe by capital increase in order to develop into a chemical industrial solution provider with integrated capacities of “technology, design, equipment, service and finance” by coordinating existing equipment and technology resources, which will have a remarkable industrial influence and a higher level of globalization. It will enhance the comprehensive strength of Shanghai Electric in areas of high-end energy and modern chemical industry. So far, the two parties have formulated the near-term development rules for State-controlled Globe. Once the mixed-ownership reform is completed, the reform on shareholding incentives for management and core technical talents will follow. In the coming 3 to 5 years, Shanghai Electric will ensure an annual investment of no less than 1 billion RMB and strive to earn a revenue of over 10 billion within 3 years so that State-controlled Globe could grow into a leading player on behalf of Shanghai Electric in the high-end energy and modern chemical industry segments and a service-oriented high tech company that is among the domestic top companies and renowned in the world. Zheng Jianhua said that this cooperation embodied strategic importance by marking the first partnership between Shanxi companies and Shanghai counterparties. He hoped that the new company could make new blueprints to combine Shanghai Electric’s advantages in management, capital, technology and equipment, with policy and reform opportunities in Shanxi’s energy development transformation in the new era to establish agile and efficient management and operation systems centering on core technology strengths. It shall grow into a leading engineering company within 3 to 5 years with a revenue of more than 10 billion RMB, making it an influential company at home and abroad. **D**



first tank of concrete on the main workshop. Zhang Jianming, Vice Commissioner of Shanghai Municipal Commission of Economy and Information Technology, Gan Pin, Vice Director of Shanghai Science and Technology Committee, Wang Yundan, Chairman of Shanghai

Shanghai Electric's First H-level Turbine Demonstration Project Breaks Ground

Yang Dan

On December 28th, 2019, the groundbreaking ceremony of the gas-steam combined cycle generating unit demonstration project of Shanghai Electric Minhang Power Plant was held in Minhang District, which also served as the ceremony of casting the

Electric Power, and Huang Ou, Vice Party Secretary of the CPC Committee of Shanghai Electric Group and Shanghai Electric President, participated in the inauguration. It is a clean energy project strongly endorsed by the state, which is designed to set up 2 F-level gas turbine sets and 3 H-level sets. As for this phase, it plans to set up 1 F-level and 1 H-level gas turbine set respectively with reserved areas for extension. Shanghai Electric is responsible for providing equipment like gas turbines, steam turbines, generators, waste heat boilers, steam condenser and auxiliary systems, and installation and debugging. To be more specific, the F-level combined cycle unit is installed one to one on split-shaft using Shanghai Electric's new F-level gas turbine that is designed to meet higher

power and efficiency requirements. The H-level set uses the first H-level heavy-duty gas turbine produced by Shanghai Electric, which is a national demonstration project. It is a one-to-one split-shaft gas turbine whose maximum unit power output is 489 MW and the combined-cycle power output 745 MW. It takes less than 30 minutes to start up, and boasts high performance, low emission, flexible operation model and long repair cycle, endorsing Shanghai Electric Power's efforts to increase the economic return throughout the project's full life cycle and to build a world-leading power plant that is environmentally friendly and energy efficient. Huang Ou said that Shanghai Electric Power and Shanghai Electric are strategic partners. From the project in Pancevo of Serbia, to the local project of Shanghai Electric Power's Minhang Branch, the cooperation footprints had crossed a considerable distance between the Danube River and the Huangpu River. This project of Minhang Power Plant was the first H-level turbine demonstration project in China, and also the new benchmark in Shanghai Electric's grand journey towards the brand of "Made in Shanghai". Shanghai Electric would always progress in the customer-oriented direction and continue to improve product quality to facilitate the construction of Minhang Power Plant's project. **D**

COAL-FIRED THERMAL POWER

Set with the Largest Uniaxial Capacity in the World Begins to Operate in Yangxi

Deng Haiqiang



The No.5 and No.6 sets in Phase 2 of the Yangxi-based project are the ultra-supercritical coal-fired thermal power sets with the largest uniaxial capacity and the longest shaft in the world. Through independent R&D efforts, Shanghai Electric Power Generation Group has made breakthroughs in areas of parameter, capacity, module and power, and innovations in key components, tackling technological problems including the combustion stability of large-scale tower-type boilers, shafting stability of sets and cooling of large-capacity generators. This set features excellent wide-width adjustment and low energy consumption. Moreover, by adopting many leading design concepts, its performance on energy conservation and emission reduction can meet the strictest requirements for thermal power sets in the world. This project started construction on April 20th, 2015, as Shanghai Electric Power Generation Engineering Company acted as the general contractor. During the construction, the company maintained close cooperation with all participating parties and ensured on-time completion despite a lot of difficulties. **D**



New Landmark

Dubai's Mega Project Solar Tower Celebrates Its Roof Sealing Ceremony

Guo Liming

On January 9th (local time), the Dubai 950MW concentrated solar power and photovoltaic power generation project in Dubai with Shanghai Electric as the general contractor, reached a milestone in its construction. The 222-meter high solar tower, the highest in the world, sealed its roof, creating a new landmark in Dubai. It is the key component of the 700MW solar thermal power generation construction.

Several days later, key equipment including 3X200 MW trough-type heat transfer oil expansion tanks and overflow tanks were delivered, which were produced by Zhanghuaji (Suzhou) Heavy Equipment Co., Ltd. affiliated to THVOW held by Shanghai Electric. It meant that the first batch of large equipment for the Dubai 950MW concentrated solar power and photovoltaic power generation project in Dubai began to be delivered. The 700 MW solar thermal

and photovoltaic power project in Dubai, the largest in the world, is the Phase 4 solar power generation project in the Mohammed bin Rashid Al Maktoum Solar Park implemented by Dubai Electricity and Water Authority. This project uses world leading "tower + trough" concentrated solar thermal power generation technologies, whose installation includes 1 set of 100 MW tower-type generator using molten salt to store energy and 3 sets of 200MW trough-type generator using molten salt to store energy. The tower type is equipped with a 15-hour heat storage system and trough type 13.5-hour. The solar thermal generating capacity reaches a maximum of 700MW.

As the center construction of this project, the solar tower features a round-shaped top and a square-shaped bottom, and has a total height of 267 meters, of which the construction structure accounts for 222 meters and the collector for the rest. Once completed, it will break many international records in terms of the number of cutting-edge technologies used and tower height. Leaders from Dubai Electricity and Water Authority, ACWA Power, Shanghai Electric and China Construction Third Engineering Bureau and representatives of participating enterprises were all present at the roof-sealing

A few days ago, the loan agreement on the Area-1 open-pit coal mine in Thar coal field was officially signed, whose annual output is 7.8 million tons, indicating all funds required were made ready. A ceremony was held afterwards to celebrate it in the official residence of Mr. Syed Murad Ali Shah, Chief Minister of Sindh Province,

Pakistan, who also witnessed the ceremony. Murad said that it was the best gift for Pakistanis, especially people in Sindh. He added that except terrorism, energy crisis was the biggest challenge for Pakistan. They should concentrate on developing electricity industry and change the status quo of power shortage. At the same time, he spoke highly of the economic benefits that

China-Pakistan Economic Corridor had delivered to the Thar energy project. On the ceremony, leaders from companies in charge of the project expressed gratitude to governments of both the state and province,

Thar Coal Mine's Loan Agreement Signed

Huang Jinting

and all related parties that had given support, and promised that they would endeavor to ease electricity shortages faced by Pakistan, and to promote Sindh's development, the "Belt and Road" Initiative and the project's construction. The signing of this loan agreement is of great significance in that it ensures 20% of return on equity capital for 30 years and all the

funds required for the project construction. While meeting the preconditions set by the Government of Pakistan on waiving infrastructure and sales taxes, it facilitates both the construction and operation process.

The "coal-electricity-integrated" project in Area 1 in Thar coal field contains an open-pit coal mine whose annual output is 7.8 million tons and two 660 MW supercritical lignite-based power plants, which is a prioritized project in the China-Pakistan Economic Corridor under the framework of the "Belt and Road" initiative, and Shanghai Electric's the largest overseas investment project. Shanghai Electric is the controlling shareholder, biggest investor and also the general contractor of this project. **D**

SPTDE Signed As the General Contractor of Djibouti Microgrid Project

Shen Xuan

In December, 2019, Shanghai Electric Power Transmission and Distribution Engineering Co., Ltd. (hereinafter "SPTDE") managed to sign as the general contractor the Djibouti microgrid project, making a great leap in expanding overseas electricity market under the "Belt and Road" Initiative. What's more, it serves as a successful case in enhancing independent innovation capacity, adjusting industrial structure and diversifying growth methods in the international competition.

Djibouti sits between the Indian Ocean and the Red Sea. As a country of great strategic importance, it is where the US and France set up their largest military bases in Africa, and also an important partner of China under the framework of the "Belt and Road" Initiative. In addition to scarce natural resources and bad climate conditions, it has a weak economy and vulnerable infrastructure, short of power supply for a long time. At the end of 2019, after extensive and in-depth communication and discussion, SPTDE and EDD agreed to set up intelligent microgrids

in Moucha Island, a renowned resort, and Obock a major port town in the north. Due to weak infrastructure in Moucha Island and Obock, the trio of SPTDE, the Power Transmission and Distribution Technology Center and Central Institute worked closely to proposed a holistic intelligent stand-alone microgrid solution encompassing PV, energy storage and synergetic energy management products. By utilizing different characteristics of distributed energy, this solution has different forms of energy synergized and complemented each other to provide local residents with stable, safe and environmentally-friendly energy. After completed, this project will supply clean energy and water to Moucha Island and Obok via wind power, solar power, diesel, stored energy and sea water desalination, enabling the better well-being of local people and economic and tourism development. SPTDE has been carrying out grid-related work in Djibouti for years, which allows it to know well about local environment and grid situation, and to work in close cooperation with EDD. **D**

The First 8.0 Offshore Wind Turbine Installed in Shantou

Zhu Quansheng



At the very beginning of 2020, Shanghai Electric's 8.0 offshore wind turbine was hoisted in Shantou Intelligent Energy Demonstration Park, which was a intelligent energy system complex integrating wind power, solar power, energy storage, charging and adjustment. As the first in Guangdong Province and the largest of its kind in China, it marks another milestone in the development of Chinese offshore wind power industry. It is the first offshore 8.0 wind turbine that has been hoisted in China, whose rotor diameter is 167 meters and blade is 81.4 meters long. Using the 66kV high-voltage cable, the highest transmission voltage, inside the tower, it has the largest capacity under Shanghai Electric's direct drive wind turbine category, which can meet the needs of special environmental conditions like typhoons, earthquakes, high temperature and high humidity. It features high reliability because it adopts full-power variable frequency technology and has passed high-voltage and low-voltage transverse tests. The interior layout is optimized, ensuring excellent maintainability and security. The streamlined arrangement, following ergonomic rules, creates spacious room as well as easy and safe access to all key parts. Fast debugging and

maintenance is made possible because all electric systems are deployed inside. The program of Guangdong offshore intelligent production is located inside the Guang Ao Logistic Park in Haojiang District, encompassing around 9.07 hectors, which is launched by Shanghai Electric Wind Power Group. It aims to develop into a leading offshore wind power industrial zone in China, and a world-class offshore wind power digital production base. As part of the program, the project of Shanghai Electric Shantou intelligent energy system will leverage Shantou's rich wind and solar energy to set up a holistic energy system that integrates distributed wind

power and PV, new-type energy storage, charging pile, intelligent building management, microgrid controller, and intelligent energy dispatch and management. It is the first "energy internet+" model project on an industrial park level for Shanghai Electric, which will explore the high-proportion penetration of renewable energy, while ensuring that rigid requirements on power supply stability and quality are met via "grid-source-load-storage" dynamic management.

What's more, this project will work together with China Mobile and Huawei to facilitate "5G+Intelligent" wind power application to promote the connection between industrial manufacturers from design, production to supply chain, and to propel the intelligent transformation of offshore wind power industry in the backdrop of industrial internet. It is worth mentioning that Shantou, where the project is carried out, is the cradle of Chaoshan Culture in China. Shanghai Electric places great emphasis on the combination with local environment and culture. Take the tower for example, the pattern of "water of three Rivers" painted on the bottom indicates that Shantou is where the Rong River, Han River and Lian River meet together before flowing into the sea. The red-colored sailboats, an icon of Chaoshan Culture, painted on the middle part show local people's ambition to explore the world across oceans and their deep bond with the hometown. On the top of the tower, there is the pattern of blessing clouds. By pioneering in combining painting with wind turbines, Shanghai Electric opens a new chapter for the integration and harmonious co-existence between wind power industry and local environment and culture in China. **D**

Three Sets of 1000MW-level Coal-fired Generators Exported by Shanghai Electric Will Operate Soon

Hao Jiaxi



A few days ago, the Java No.2 set of generators of the Java No. 7 2x1050MW coal-fired power plant was to start a 168-hour trial operation, whose electrical and mechanical equipment are supplied by Shanghai Electric Power Generation Group. Moreover, the No. 1 set of the same plant was put to operation at the end of last year, and the Cilacap Phase 3 1x1000MW

project began operation on last November 8th. Therefore, the 3 sets of 1000MW-level coal-fired ultra-supercritical turbogenerators exported by Shanghai Electric to Indonesia are about to start operating, which is of great significance to amplify Shanghai Electric's influence in overseas markets. Under the guidance of the Shanghai Electric "Three Steps" Strategy, the Power Generation Group is enhancing industrial transformation and speeding up globalization and the "going out" implementation. Although it has achieved excellent performance

through its 81 sets of 1000MW-level ultra-supercritical coal-fired equipment currently in smooth operation in China, its export projects are hugely different from domestic ones due to differences in regions, climates and national standards. Once the order management department of the Power Generation Group was formed, an overseas project execution team was established instantly. A leader group comprising the management of the Power Generation Group and directors of major manufacturing plants and working groups will be set up for every project to break down and formulate contracts, and make special plans and evaluation measures. Overseas projects' quality and quantity are considered equally important, and make sure all problems are solved at the production side. Synchronize software with hard evidences so that all documents and records are traceable, which lives up to the international practices. In addition, it has made steady progress in technology reserve, which improves the Power Generation Group's capacity in controlling, managing, delivering and supporting capacities in implementing overseas projects, and gains high recognition for Shanghai Electric brand, equipment quality and on-site services from overseas project owners. **D**


Shanghai Electric Donates 24.75 million RMB Worth of CT Equipment to Wuhan

Wang Jun

All Chinese people has been concerned about the COVID-19 outbreak in Wuhan, and all employees of Shanghai Electric were no different. On January 29th, Shanghai Electric decided to donate 7 sets of CT equipment with a total worth of 24.75 million RMB to Red Cross Society of China Wuhan Branch to support Wuhan-based hospitals in diagnosis and treatment after confirming the donation with the Society. On January 31th, logistical vehicles loaded with CT equipment headed towards 7 hospitals in Wuhan, several Shanghai Electric installation engineers on board. Encountering the emergency, Shanghai Electric reacted instantly by establishing an emergency working group in its affiliate Shanghai Kangda Medical Equipment Group Corporation Ltd. to provide reliable medical equipment and 24-hour services to medical institutions and workers nationwide, especially in Wuhan. The equipment donated, which are 7 sets of multi-slice X-ray CT and 7 sets of regulated power supply, could improve the image examination effectiveness of COVID-19. A large patient aperture makes it easy to examine patients wearing protective suits or vital sign devices. It can accurately deliver high-resolution images by fast ultra-low-dose scanning and iterative technologies, saving more time for treatment. In front of the coronavirus outbreak, Kangda set up the "24-hour emergency group" immediately, and all engineers voluntarily stood by instead



of enjoying the Spring Festival at home. While debugging and examining manufacturing equipment at a faster speed, factories delivered medical supplies to those in need. To ease the diagnosis and treatment pressure in many regions, Kangda supplied nearly 100 sets of mobile DR devices, which support wireless remote control, exposure and remote diagnosis, to fever clinics and isolation wards in hospitals in Shanghai, Hubei, Jiangsu, Zhejiang, Shandong


and Gansu, reducing the contact infection risk for medical workers. Guo Yongyang, General Manager of Kangda, said in a telephone interview that by now Wuhan was main battlefield in combating COVID-19, and it was Shanghai Electric's due social responsibility as a state-owned enterprise to provide high-quality and efficient medical equipment and stronger support to medical workers in a timely and effective manner. 

Innovation Demonstration Shanghai Electric Will Build Shared Energy Storage Power Station in Golmud

Guan Wanjin and Wang Qi

The cornerstone ceremony of Shanghai Electric and Qinghai's Golmud shared energy storage power station demonstration project was held in Golmud City, Qinghai Province. This is the first grid-side energy storage power station in China that has been invested and constructed by an independent market entity and operated in a market-oriented manner. It is regarded as a milestone for Qinghai's development in the shared energy storage sector. In recent years, Shanghai Electric has always focused on national strategies and endeavored to ensure

people's well-being and national security via efficient energy services. It has launched a number of projects in key areas of new energy and renewable energy. The new model of shared energy storage introduced in this project features integrated resource investment and maximum overall efficiency, while being friendly to grid operation. Meanwhile, it fits the development model of hub-type, platform-type and shared-type, or "three types and two grids", proposed by State Grid. Qinghai boasts remarkable potential in the development of renewable energy like solar and wind power, but is highly in need of technologies and

innovative market mechanism to tackle related problems. This project combines energy storage with PV to resolve problems of wind and solar curtailment. Shanghai Electric Power Generation Group will learn from this model project and actively create more advantages for the "shared energy storage" model, providing a successful case for Shanghai Electric's further development in the energy storage sector. By stronger engagement in energy storage projects in northwestern China, Shanghai Electric will grow into an innovation pioneer in the accommodation of new energy. 

Shanghai Electric's TAYAN Energy Opens in Madrid

Chen Zhengyue

A few days ago, Shanghai Electric Investment Company and Eland Private Equity, a Spanish solar power developer and operator, set up a joint venture TAYAN Energy. Both parties will invest and develop in the European new energy market by way of this cooperation. This represents another impactful step of the Investment Company in advocating its entry into the European market after opening an office in Britain. TAYAN Energy is based in Madrid, Spain, and its project development team has rich experiences in areas of solar power and biomass renewable energy. So far, the joint venture has purchased its first solar power project which has been registered and approved in all required manners. In addition, there are a number of projects under development with a total capacity of 2GW as a reserve of projects, many of which are in Spain. For the coming 3 years, it will focus on PV and energy storage. To better implement the Shanghai Electric "Three

Steps" Strategy and promote the "going out" process, the Investment Company has seen overseas development as top priority in the past few years. To promote the Group's overseas development, it integrates international resources and works with established project development organizations or professionals to build overseas project development platform. As a leader in Chinese advanced manufacturing industry, Shanghai Electric responds actively to the state's call for cleaner and more sustainable energy structure, and expects to make bigger contributions to the development of PV market. In the future, the Investment Company will develop more high-quality energy and environmental protection projects for the Group concerning PV, wind power, solid waste and biomass by making the utmost of the abundant European agents and project development companies, as well as relatively low cost of capital. 

AI AT THE FRONT LINE OF HEALTHCARE

THE BRIGHT
FUTURE OF

“IOT
+
”
HEALTHCARE

Planner | Shen jin Tu min

Innovative mobile Internet ideas have been increasingly translated from the laboratory to products in the marketplace. A new temperature measurement system that combines artificial intelligence and infrared technology can be seen everywhere from transportation hubs to supermarkets and building entrances. In the hospital, the perfect integration of AI and CT imaging has dramatically improved the identification of suspected cases of novel coronavirus. In the operating room, the robots that operate skillfully have relieved the demand for expert consultation service, while rehabilitation robots allow patients to conduct rehabilitation training at home. The epidemic monitoring systems installed on the streets in the community ensure that everything is under control. These amazing innovative technologies are penetrating into all aspects of people's life, bringing convenience and support.

How to improve the efficiency of medical management and the quality and safety of medical services with the help of information technology has become a top business focus of the industry. Many businesses are actively making plans to adapt to the changes in the medical industry ecosystem. To empower the smart healthcare industry, Shanghai Electric has had a smart healthcare plan in place by increasing investment in healthcare and upgrading technologies in the fields of hospital equipment, rehabilitation medicine and surgical robots.

AI FOR SMART MEDICAL SOLUTIONS

The novel coronavirus outbreak that occurred at the beginning of the year and soon spread across China has severely challenged the public health system. With the epidemic gradually under control, the smart healthcare industry has begun to play an active role. The healthcare industry has become one of the industries that eagerly embrace cutting-edge technologies such as 5G and big data. In response to this epidemic battle, Shanghai Electric has launched a large number of new technologies, products and applications with a strong sense of resilience and social responsibility, which have been quickly used on the front line to strengthen the technology-based safety system.

WHAT IS SMART HEALTHCARE?

1 Smart healthcare incorporates a new generation of technologies including mobile Internet, cloud computing, Internet of Things and AI, and can be defined by the empowerment or application of AI in the healthcare industry. In fact, technology has always played a supportive role—auxiliary diagnosis or treatment—in the healthcare industry. In the early days, the application of science and technology in the healthcare field was mainly to alleviate the unbalanced distribution of medical resources, and the high work intensity of doctors. As the technology advances, AI has become a new breakthrough technology in improving diagnostic efficiency and accuracy, and optimizing hospital management, early disease screening, patient health management and drug research and development.

Thus, AI has truly moved from auxiliary diagnosis and treatment to more medical scenarios, emerging gradually from behind the scenes to the spotlight. The era of smart healthcare has arrived. By emphasizing "sense, knowledge and action", smart healthcare is an intelligent remote disease prevention and care platform that requires the integration of many technologies such as Internet of Things, cloud computing and big data processing. It is created to solve such pain points as fragmentation of the traditional healthcare system, isolation of medical information, and shortage of medical resources. Thanks to the development of frontier technologies such as big data, Internet plus, AI, blockchain and 5G, the healthcare industry is progressing steadily on the path towards smart healthcare.



COVER
TOPICS

MOBILE CT SHELTER: A NEW WEAPON FOR THE EPIDEMIC BATTLE

2 CT is an important diagnostic tool for novel coronavirus pneumonia, especially after CT imaging results become the basis for clinical diagnosis as specified in the Diagnostic and Therapeutic Plan for Novel Coronavirus Pneumonia (Trial Implementation Version V) issued by the National Health Commission. How to scan patients outside the clinic or radiology department, and help hospitals without sufficient diagnostic resources to obtain accurate scanning results has become a priority of the epidemic battle because a suspected patient needs to wait in line for a scan at the radiology department, which increases the infection risk of all contacts if he or she is indeed infected with the novel coronavirus. Therefore, to ensure safer treatment and

isolation, Shanghai Kangda Medical Equipment Group Corporation Ltd. ("Electric Kangda") in which Shanghai Electric holds a controlling share has launched a mobile CT shelter. As an independent unit, Electric Kangda's mobile CT shelter offers mobility, flexibility, effectiveness, low dose, intelligence and network access. It consists of an independent CT scanning room, compartment operation room, X-ray shielding device, power supply and distribution system, air conditioning system, temperature and humidity control system, and hydraulic leveling system. It also features automatic power supply, air conditioning, balancing and lifting systems. It is worth mentioning that this product, equipped with the most advanced CT equipment, enables the realization of a complete range of clinical examinations rather than simply head scanning that other mobile CT shelters are limited to. The product is arguably a "mobile physical examination center". More importantly, the equipment can avoid cross-infection caused by the gathering of patients. It is fast and non-invasive, providing valuable guidance on emergency treatment. It can not only alleviate the shortage of local lung CT screening equipment, but allow patients in the isolation area to promptly undergo lung CT examinations, and help medical staff to identify any possible infection as early as possible. In addition, unlike general mobile CT shelters, this product features a well-guarded carriage that ensures the safety of patients, medical staff and venues.

ULTRASOUND I-M20: THE THIRD EYE FOR DOCTORS

3 Due to the severity of the novel coronavirus epidemic and its highly contagious, medical staff must wear multiple layers of protective clothing before checking and treating patients, making stethoscopes unusable. This is where ultrasound comes in handy: It helps doctors to directly observe the heart, lung and other organs for any damage. As the "third eye" for intensive care doctors, the compact i-M20 with a waterproof touch screen launched by Electric Kangda offers easy operability, compact size, mobility, fast startup and the waterproof touch screen can be disinfected. Fast, Simple, comprehensive and non-invasive, the product can assist ICU doctors with observation, diagnosis, treatment and comprehensive evaluation through convenient, fast and intelligent image processing technologies that ensure the best image presentations.

Apart from observing and evaluating the patients' lung condition at ICUs, ultrasound can scan them from head to foot, such as a quick scan for effusion, a quick assessment of the heart, a scan of the abdomen, an examination of inferior vena cava, and the screening of venous thrombus. If the critically ill patients need to be punctured or intubated, ultrasound can guide the process as it can accurately locate the intended area.

In addition, as the i-M20 with a 13.3-inch display is about the same size as iPad and weighs only 2.7kg, doctors can use it to perform faster ultrasound examinations on patients at anytime and anywhere. The i-M20 enables real-time dynamic and repeated observations of lung changes, observation of the life cycle of pneumonia, examination of heart, liver, abdominal cavity and blood vessels, minimizing the patients' movement and cross-infection. The equipment also supports remote consultation, making full use of top medical resources and allowing patients in grass-roots, remote hospitals to be timely diagnosed by authoritative experts.

In addition to the black technologies such as the Mobile CT Shelter and Ultrasonic i-M20, a growing number of Shanghai Electric's new technologies have become known to the public, making body management more "intelligent".

SURGICAL ROBOTS, THE "SURGEONS" IN THE MEDICAL FIELD

4

With the rapid development of technology, the emergence of surgical robots brings unlimited possibilities for clinical practice. While solving the pain points such as poor accuracy of traditional surgery, long operation time, fatigue of doctors and lack of three-dimensional precision vision, they offer better clinical outcomes for patients and shorten doctors' learning curve of complex surgery. Some insiders have pointed out that the surgical robot is one of the hotspots in the medical equipment

industry. In the finals of the 2019 Global Medical Robot Innovation Design Competition, "the precise acetabular osteotomy robot system for hip dysplasia", jointly developed by the surgical robot team of Shanghai Electric Central Research Institute, Shanghai Sixth People's Hospital and Shanghai Jiao Tong University, stood out from the projects of 53 domestic and international teams and won the only gold award of the competition. In the field of orthopedics, the treatment of hip dysplasia has always been in a dilemma. According to incomplete statistics, China currently has 3-5 million people with this disease. The traditional hip osteotomy surgery, which involves sectioning key bones in the pelvis, poses many problems, such as major trauma, high risk of operation, long learning curve. Based on the actual clinical needs

of hip dysplasia, this award-winning project has developed the first spherical osteotomy with a unique spherical pendulum saw and a precision mechanical arm that matches the cup-shaped acetabulum, which enables easy, accurate adjustment and fixing, effectively reduces the interference of the extensive pelvic osteotomy with the bone structure, and greatly reduces surgical trauma. Furthermore, the robot system is equipped with the world's first acetabulum calculation method and software evaluation system for hip dysplasia, providing a theoretical basis for the scientific and standardized operation of acetabular surgery. The project has been highly recognized by medical experts for its clinical application value as it will fundamentally improve the surgical treatment of hip-related diseases.

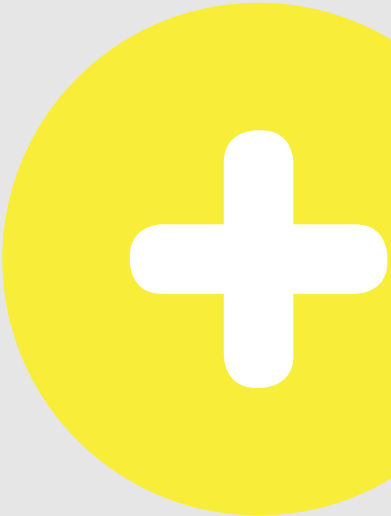
As AI and engineering technology continue to develop in China, domestic surgical robot systems are being increasingly industrialized. As population aging continues and people's demand for medical quality grows, surgical robots using 5G, augmented reality and other high technologies will be increasingly applied in clinical practice, providing high quality medical services for the patients.



REHABILITATION
ROBOTS MAY
HELP YOU STAND
UP AGAIN

5 With the rapid development of healthcare and robotics, the rehabilitation robots have entered a high-speed growth period. Rehabilitation robots are designed not to replace the therapists. Instead, they should be defined as an assistant system that performs part of the therapist's work, especially repetitive, labor-intensive, high-intensity work. In June 2018, Shanghai Electric GeniKIT Medical Science and Technology Co., Ltd. ("GeniKIT") was established. As an important part of Shanghai Electric in the smart healthcare industry, the team is tasked with the research of frontier rehabilitation technologies and market development. From an experimental project to company established, GeniKIT has experienced a long transformation from technology-based to market-based, and gradually established a strategy that covers four areas: smart nerve rehabilitation, muscle and bone rehabilitation, cognitive and perceptual rehabilitation, and intelligent medical information solutions. In line with its corporate strategy, GeniKIT has developed a variety of products and solutions such as upper limb rehabilitation robots, lower limb rehabilitation robots, mobile lower limb rehabilitation robots, perceptual rehabilitation training equipment, and isokinetic muscle strength training and evaluation systems. GeniKIT's lower limb rehabilitation robot uses a platform-type mechanical structure and is designed based on the patient experience with the philosophy of "providing more freedom and more humanized rehabilitation training for patients". Its unique pelvis weight-loss

structure frees the patients' upper limbs from the shackles of the equipment and bandages during their lower limb rehabilitation training. The product offers greater freedom to patients compared with the majority of imported rehabilitation equipment that reduces weight through a suspension structure. Featuring a loop driven structure, GeniKIT's upper limb rehabilitation robot offers multiple training modes including active and passive, and meets the patient's rehabilitation needs in different stages. The product enjoys a competitive edge over similar products of foreign brands which are expensive and bulky. GeniKIT's perceptual rehabilitation training equipment is designed to help patients continuously correct their perceptual results, and realize closed-loop rehabilitation training of perceptual response and cognitive feedback through innovative visual shielding and feedback. It can also assist therapists with standard rehabilitation evaluation and training. Since its official launch in April 2019, the product has been recognized by many well-known hospitals in China. Additionally, it has



been included as one of the six innovative technologies in the national key research and development plan, "Research on the Technology System and Information Management of Full Cycle Rehabilitation for the Elderly". Last year, GeniKIT took a new step forward in smart healthcare. In order to explore the new applications of technology, it entered into a cooperation agreement with Hopefull Medical Equipment Co., Ltd. ("Hopefull") in November 2019, under which Hopefull entrusts GeniKIT with technological development. The developed products will be used in professional medical institutions, elderly care facilities and rehabilitation institutions to improve the efficiency of intelligent management through the monitoring and management of data on the users' vital signs. This cooperation delivers complementary advantages for both parties. At present, all GeniKIT products are equipped with an intelligent rehabilitation system that can

including automatic management, optimized operation, improved customer experience, and innovative products and services. It is foreseeable that smart healthcare will become increasingly popular, driving the growth of not only the medical industry, but the entire intelligence field. With regard to environmental protection, we have developed a comprehensive solution of environmental industry with focus on solid waste treatment, water treatment, new energy and industrial undertakings. In response to the government's requirement for building a new, beautiful countryside, we've provided an integrated, distributed intelligent domestic sewage treatment system with independent intellectual property rights to create a better living environment. We are striving to contribute to the construction of ecological civilization and the realization of a beautiful China. 

transmit patients' rehabilitation data to the cloud in real-time, allowing doctors to conveniently track and evaluate the long-term rehabilitation outcomes of patients through big data storage and analysis techniques. The accumulation of data over time will enable GeniKIT to better serve the patients. The novel coronavirus outbreak is a wake-up call for us all. People from all walks of life have seen the benefits of smart healthcare,

NEWS OF DUBAI SUPER PROJECT

By | Lin Shan



The Dubai 950MW concentrated solar power and photovoltaic power generation project contracted by Shanghai Electric has been tested by severe weather, high-tech standards and international procurement requirements in one year since it started in December 2018. At present, the project has entered the peak period of construction. The total duration of the project is four years, with an additional performance improvement period of three-year. The project was officially launched on December 21, 2018. The tower concentrated solar power station and the first trough concentrated solar power station have been put into operation simultaneously as planned on August 21, 2021. The concentrated solar power of the project is 700MW in total and consists of a 100MW tower concentrated solar power generator and three 200MW trough concentrated solar power generators. The 250MW Photovoltaic is distributed in spare positions of each area to maximize site application. The completed project will be finally handed over on December 21, 2025.

HAND IN HAND: PROJECT “PARTY” FACILITATES COMMUNICATION

With the largest installed capacity, highest technical standard and investment amount in the world, the concentrated solar power and photovoltaic new energy project in Dubai contracted by Shanghai Electric has attracted much attention of its peers around the world. At present, the project is in full swing. Apart from daily work, the spare-time life of Dubai's on-site employees is also colorful. For example, there is a special language learning class, where the employees from China and Dubai can learn Chinese or English from each other. Therefore, both sides have strengthened their mutual friendship, improved their language skills and enriched their spare time life. Marco , tall and strong, is employed as a planning manager from Spain. He has two children and likes football. He once participated in the solar energy projects in Morocco and other countries, having rich experience in practice. Now he lives in Dubai with his wife and children. He can say “Wu Lei” in Chinese, that is, the Chinese football player who plays in Spain. Faika Marchi is the project construction manager from Morocco, who really likes eating Chinese food. He said Chinese food was quite delicious, and he couldn't forget it once he ate it. He wants to learn Chinese, but he can only say some simple words since it is too difficult. If you ask him to show

the Chinese he has learned, he shrugs his shoulders and opens his mouth: “你好” (which means hello), “谢谢” (which means thank you), “再见” (which means goodbye). Saying such simple words in a relaxing way reveals his longing for China. Lina, a beautiful girl from India, works as a project data manager. Her English is really poor with strong accent and it is not easy for her to communicate with others. It seems that she should make great efforts to learn both Chinese and English. However, no matter how difficult it is, she can overcome it. Being smart and diligent, Lina has complied some small programs to improve her work efficiency. What foreign employees admire most is the fighting spirit of Chinese people. They commend that Shanghai Electric is a big company with a comprehensive system, open-minded attitude and perfect working team, and they are very pleased to join the big family. The small size language class has facilitated the cultural exchanges and enhanced mutual understanding, promoting the cooperation between both sides. With more and more participants in the class, it has become a “Party” after work.

FENCE AND WINDBREAK

It can be seen from a distance that there are a LOGO of Shanghai Electric and a banner of “Shanghai Electric, Build the Future with Creators” written in English and Chinese on the windbreak of the Shanghai Electric Dubai Project. It seems to be the call of family members, which is warm and cordial. The park of Shanghai Electric Dubai Project is 9 kilometers long and 5 kilometers wide, which covers an area of 44 square kilometers without including the area of a bevel angle. For such a large area, it is necessary to distinguish it from other project parks by using fences. With a circumference of nearly 30 kilometers, the cost of the fences is also a big expense.

After repeated calculations, engineers of Shanghai Electric finally adopted an economical and convenient fence. The fence is convenient to install, has the advantages of time-saving and labor-saving, and can prevent wild animals such as Arabian antelope from entering by mistake. Before that, the project department had already relocated these wild animals and more than 180 large trees. While doing a good job in the project, we should also protect the local ecology. Instead of being installed in a straight line, the fences are arranged in a “straight line-triangle-straight line” manner, where the

triangular broken lines are arranged at certain distance. Such a design is mainly to prevent the fences from being blown down by the wind. Security personnel also make frequent inspections to check if the fences have been damaged. Their duty is to ensure the safety of the 44 square kilometer park and the orderly progress of the project. The project department is good at putting money to good use. With the upper, middle and lower rows of 7 meters high, the windbreak here is made of special materials, which can effectively resist some sandstorms and protect the parabolic trough membrane from erosion by sandstorms.



FROM SMALL TO LARGE: START WITH GARBAGE CLASSIFICATION

The implementation of garbage classification is related to everyone's living environment and the recycling of resources. It is also an important manifestation of social civilization and peace.

In Dubai's project department, various garbage classifications can also be seen. For example, in the staff restaurant, there are garbage cans of different sizes, which are divided into kitchen waste, household waste, etc. The same is true in the office of the project department, where Garbage cans are placed in every corner, and relevant staffs take them away on

time for centralized treatment. It is noted that on the 44 square kilometer project site, especially in the core construction area, large garbage cans of various colors can be seen everywhere. Industrial garbage, construction garbage and harmful waste should be sorted into separate bins. Shanghai Electric has also brought good practices to the construction site, in full conformity with local environmental protection requirements. The employees of the project are also very conscious and strictly follow the requirements for classification and placement. In fact, as a high-end market, Dubai has extremely high requirements for environmental protection and conducts a set of standardized systems. Shanghai Electric strictly abides by local laws and regulations. Before the project started at the end of last year, local legal experts were invited to train the project staff, telling them the regulation “list” of what can and cannot be done. The project department fully conducted active cooperation in all aspects with the biggest goal of completing the Dubai project with high quality according to the contract requirements and setting a new benchmark for Shanghai Electric in the high-end green energy market.



TAKE A LOOK AT DUBAI

Due to time constraints, a cursory look may not help people take an in-depth understanding of Dubai. However, there are still several points that have left a deep impression. The first aspect is that local people cherish green plants, which are perhaps rare in the world. Dubai is located on the edge of the desert in the eastern part of Arab. Its area is about 2/3 of Shanghai and its population is only over 3.3 million. The largest natural resources here are desert and oil. Of course, there are magnificent buildings constructed by human beings, such as Khalifa Tower, Sailing Hotel and World Trade Center. Dubai's super construction gives people a feeling of prosperity. The landmark buildings are famous in the world, so the word "local tyrant" is the world's impression of Dubai. But in fact, most of Dubai's land is desert, with poor climatic conditions, poor air quality, high temperatures, sandstorms, and severe water shortages ... Originally, Dubai was not suitable for human habitation. Thanks to the oil supply, Emiratis have turned the barren land into a bustling metropolis. This environment lets Emiratis cherish every tree and every clump of grass. On both sides of the road, the newly planted trees are well managed. There are thin water pipes for drip irrigation, which is

performed about once an hour. These trees will survive in this desert city at a very high cost. The annual maintenance cost of a tree is about 3000 US dollars. These big trees are neatly trimmed and designed in various shapes, such as strings and umbrellas, which are exotic to tourists. However, on the plank road by the sea, don't be fooled by the lush green on both sides, because these green plants are made of plastic and fall down when the wind blows. If the real plants are planted in pots, it is difficult to feed without water, and the maintenance cost is too high. It is no wonder that the local people are eager for green plants. The second aspect is the use of water. It is well known water is scarce in the desert, and Dubai's water is basically desalinated from seawater. There are more than 30 desalination plants, which will need to be expanded and built later. The water cost is very high. A 500 ml bottle of mineral water is sold here for about 10 RMB, and the hotel for 40 RMB. In addition, the local people also rely on rainwater collection. Although the rainy season in Dubai is very short and the rainfall is very small, usually only about 100 milliliters a year, the Dubai government has installed many rainwater collection devices that can be used for irrigation and greening. Of course, due to its huge wealth, Dubai can buy bottled water and barrelled water from other countries, which become an important source of drinking water. Of course, in order to understand a country or region, one must have in-depth contact. In just a few days, one can only look at it from the surface. Moreover, one thousand people have one thousand impressions of Dubai because of different perspectives, cultures and points of view. At present, in the process of internationalization, Shanghai Electric has increasing exchanges with foreign enterprises, and China's door will open wider. Therefore, only through more communications and exchanges, win-win cooperation can be achieved among different people, enterprises and countries **D**

A

long with the great changes to enterprises brought by the digital network, the acceleration of knowledge

updating and the rapid development of science and technology, the development of enterprises is influenced by

LEARNING IS THE SPRINGHEAD

By | Song Ding

a number of factors, and the increasingly fierce competition brings new challenges and opportunities to enterprises. Although Shanghai Electric has maintained steady growth, there is still a larger space for economic growth. The group should drive the high-quality development of enterprises through such innovation concepts as advanced manufacturing, artificial intelligence (AI), industrial internet of things (IIOT) and green environmental protection, so as to release new kinetic energy for economic growth. In this way, the requirements on the quality of personnel will be higher,

and human resources as core resources should be put in the first place.

Learning is the key to adapting to changing circumstances. An enterprise does not only need learning-oriented talents, but also need a learning-oriented organizational pattern. The enterprises of Shanghai Electric conduct explorations and reforms in terms of creating learning-oriented enterprises, promote development by learning, carry out the construction of learning-oriented enterprises, vigorously implement their talent strategies, and actively look for various approaches to learning. To promote scientific and technological innovation through learning is an essential weapon for enterprises to cope with market competition, because it does not only improve the innovation strength and market competitiveness of enterprises, but also improve the high-quality development of enterprises. "National prosperity depends on a country's economy, economic prosperity depends on enterprises, and enterprise development depends on talents," Yu Guangyuan, a well-known economist, said. The key of the competition among enterprises is talent competition. The one who possesses more talents and richer knowledge reserves will gain more initiative. Looking at many advanced



enterprises in China and abroad, all of them have been insisting on improving the quality of employees through vocational trainings, so as to drive the development of core technologies. One of the primary reasons that products made in Germany are favored in the world due to high quality is that Germany possesses learning-oriented employee teams that are created through highly professional vocational trainings. For example, the on-the-job training for the Siemens workforce contains two main forms, i.e. the plan for new staff training and in-service staff

training and the plan for in-service staff training regarding Siemens management program. The most striking staff management training of Siemens contains five levels. The training participants are the staffs with management potential, and the training purpose is to improve the self-management skills and team building skills of these participants. Huawei recruits a large number of fresh graduates from universities every year, and it has developed a new staff training system. Through the three-month training during the probation period, most of the staffs could grasp the basic knowledge required by software development and form good programming and learning habits, accordingly laying a solid foundation for future software development. The training practice has proved that this is an effective training system. In terms of in-service staff training, the company guides the staffs to build learning awareness and sense of competition, set their own growth vision and achieve self-worth furthest at the work and study. Besides, Huawei has built a trainer resource pool, which consists of the staffs with strong technical capacity. The trainings include online courses and training seminars. Through on-the-job training, the staffs could see promotion opportunities

and work with the greatest enthusiasm. Through building learning-oriented enterprises, it can provide human resources and intellectual support for Huawei. From what has mentioned above, it can be seen that the modern vocational training is different from the traditional training. Nowadays, enterprise learning is more focused on active knowledge acquisition and absorption, other than passive concept infusion. That is to say, it aims at helping the staff form the habit of active learning, improving the process of passive learning through reasonable curriculum design and favorable learning experience, stimulating the interest of the staff in active learning, and improving the staff's knowledge absorption efficiency. It helps the enterprise enhance the staff's learning and innovation abilities, combines the construction of learning-oriented enterprises with the construction of high-quality projects, focuses on the improvement of the staff team's quality, and fully mobilizes the staff's learning enthusiasm. Furthermore, it helps the enterprise realize the integration with the international leading technologies in the same industry and fully improves the enterprise's quality. Why is the water so clear? The fresh water comes from the springhead. Building a learning-oriented enterprise is an objective requirement of the development of the times and aims at improving the staff's comprehensive quality and enhancing the enterprise's core competitiveness. To build a learning-oriented enterprise is the change of the idea and the system. Under the guidance of the strategic objective of "Electric Dream" and Electric "Three-step Development", Shanghai Electric is actively building a learning-oriented enterprise, in order to make the staff's knowledge level meet the needs of the trend and to build a high-quality staff team with strong technical capacity and innovation capacity as well as core knowledge to help Shanghai Electric drive high-quality development through innovation. **D**



CHINA PAVILION EXPO 2020 DUBAI UAE OFFICIAL PARTNER



W

ith the recent COVID-19, I've experienced three major epidemic outbreaks. In my opinion, as long as we could help each other, there are no such setbacks that we cannot overcome.

In 1983, the large-scale hepatitis A outbreak in Shanghai also furious. It's the second year after I was married. My daughter was only four months old, and my wife had a fever for several days and was finally diagnosed with hepatitis A, a terrible infectious disease sweeping over the whole city. At that time, just like today's Wuhan, the number of newly increased hepatitis A patients increased dramatically

and the hospitals were overwhelmed by patients, so that there was no bed available. Although my wife's GPT and icteric index stayed at a high level, the hospitals had no vacant beds. For that reason, I was very anxious. Besides, my daughter was forced to be weaned and sent

to the home of my mother-in-law. Quite out of my expectation, a few days later, one of the members in the family of my mother-in-law was diagnosed with hepatitis A too. I had no alternative but to bring my daughter back and arranged her to live with my parents in a tiny attic. During that time, since hospital beds were badly needed, my wife couldn't be hospitalized. Luckily, after the leaders of the plant knew my difficulty, they helped me find a bed for my wife at Yangpu Workers' Hospital. After that, in order to visit my wife, I went to the isolation hospital in the northeast from Minhang in the southwest after work every day. Across an iron fence, although we're so close, we couldn't hold hands or embrace each other. Nevertheless, the suffering was short, because my wife soon recovered under the hospital's intensive treatment.

In 2003, the SARS virus broke out in China. Guangdong and Beijing are severely affected areas. In Shanghai, everyone felt in danger too, and in order to relieve such panic, the "Disinfected Today" signs were hung in all public places. When going out, all of us wore masks and some of us even wore gloves. At work, we rarely talked to each other. At that time, I worked at the company's Iranian project department and took charge of the coordination of equipment schedules. Since the project was a foreign-related project, I had

GET UNITED TO FIGHT AGAINST THE EPIDEMIC DISEASE

By | Hou Baoliang

to travel frequently for business needs, so that my family members were very worried about me, though they didn't say so. Nevertheless, due to the leader's care for my family members, I didn't delay any of my work.

In 2020, COVID-19, a deadly infectious virus, broke out suddenly. At the beginning, I didn't realize the seriousness of the problem. My friend living in Wuhan, after learning that I published a new book called "I Have an Appointment with Feiyan", told me that he would take the book in person because he planned to come to Shanghai to call on his relatives during the Spring Festival. Before the Spring Festival, I learnt that the first COVID-19 fatal case in Beijing used to attend a meeting in Shanghai Electric Power Generation Group, and I also paid a visit to the company at that time, which got all of my family members in a panic. According to the requirements of the municipal government, I have stayed at home in voluntary isolation and took various disinfection and prevention measures. During that time, I got a call from the friend living in Wuhan, and he told me that he wouldn't come to Shanghai because Wuhan had been sealed off. From his words, I could clearly feel his panic. So, I consoled him from my own experiences and said, "the epidemic outbreak is temporary, and I believe that our party has full power to overcome the epidemic disease." I believe that the epidemic disease is ruthless, but getting united to fight against the epidemic disease is the only belief of the tough times. In the new era, the masses have unprecedentedly high quality and can consciously relate their behaviors to national interests. I've experienced three major epidemic outbreaks so far. I believe that unity is strength and I am full of confidence for the battle against the epidemic disease.

Wuhan, stay strong! China, stay strong! 



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