

Engineering experts hope to spark change through wind power

Taiyuan Heavy Machinery Group dispenses advice nationwide to help provinces tap into clean energy source and improve environment



By YUAN SHENGGAO

On a wind farm in Sonid Right Banner in Xilin Gol League, Inner Mongolia autonomous region, huge turbines on 25 wind-power generation pylons spin rapidly in the strong wind of a late March day.

This is the first wind farm owned and operated by Taiyuan Heavy Machinery Group, a leading machine builder based in the capital city of North China's Shanxi province.

"Spring is the season featuring the strongest wind and it is the best time for power generation," said Liang Kaibiao, a Taiyuan Heavy Machinery manager in charge of the wind farm.

The first phase of the facility, which began operating in August 2021, has supplied 130 million kilowatt-hours of electricity to thousands of households in Xilin Gol, according to Liang.

Founded in the 1950s, Taiyuan Heavy Machinery was one of earliest homegrown heavy machinery builders in the People's Republic of China. It now has one of the most compre-

hensive product portfolios in the country's machinery industry. It covers machines and equipment relating to coal mining, metallurgy, energy, astronautics, construction and railways.

In recent decades, it has diversified into the new energy sector. Boasting wind-power equipment manufacturing facilities in Shanxi, Inner Mongolia and Tianjin, it offers all-around solutions to wind-power generating companies throughout China. It also operates a number of large-scale wind farms in Shanxi and neighboring regions.

With a rich product portfolio that covers power generation sets, gearboxes, shafts, flanges, other components and diversified operations, Taiyuan Heavy Machinery is an indisputable leader in Shanxi's wind-power equipment industry.

Shanxi's wind-power equipment industry chain, which is represented by such heavyweights as Taiyuan Heavy Machinery, CRRC Yongji, Fenxi Heavy Industries, Dingxiang Flange and Lishi Electrical Cables, is now capable of producing 5,000 wind-power generators annually and a corresponding amount of components.

Taiyuan Heavy Machinery alone can produce 1,500 wind-power generators a year. It can also turn out 6,000 gearboxes and 60,000 metric tons of wind-power pylons annually.

The output can satisfy the requirement for wind farms with a total annual capacity of 10 million kWh.

As a leader in the industry, Taiyuan Heavy Machinery will play a bigger role in helping to extend the industry chain in Shanxi province and making it stronger, said Zhu Shaohui, a senior engineer in charge of the company's wind-power equipment research and development.

He said his company will collaborate with upstream and downstream entities in the R&D of generators, turbine blades, pylons and other components.

One of the company's latest moves to promote cooperation in the industry was a promotional fair it hosted on Feb 16. Gathering 14 enterprises in the industry chain, the event showcased products and offered a venue for business representatives to discuss collaborations. Eleven agreements between the supply and demand sides and two contracts for investment cooperation were signed during the fair.

Business representatives at the fair also had the opportunity to visit the company's advanced production facilities.

Xu Bo, an executive responsible for Taiyuan Heavy Machinery's wind-power equipment production, showed visitors the company's state-of-the-art R&D and manufacturing equipment. This included a leading



A wind farm in the Inner Mongolia autonomous region equipped with wind-power turbines produced by Taiyuan Heavy Machinery Group. PROVIDED TO CHINA DAILY

test lab for wind-power gearboxes and its cutting-edge flexible production lines for multiple products.

Xu also showed how smart, efficient production is made possible with such equipment. He said computer-aided manufacturing allows the production process to be automatic, only requiring workers to set parameters on a computer.

Executives at Taiyuan Heavy Machinery told the visitors that the company will collaborate more with upstream and downstream entities as part of the process of its rapid growth.

The company's upstream entities include R&D institutions and suppliers of raw materials and components. Its downstream players include construction enterprises and the operators of wind farms.

Through its cooperation with higher-learning and research institutions such as the Institute of Elec-

trical Engineering of the Chinese Academy of Sciences, Zhejiang University and Dalian University of Technology, executives said the company is planning to build a technological innovation platform for wind-power equipment.

Taiyuan Heavy Machinery has launched downstream collaborations with such wind farm operators as CHN Energy, Huaneng, Huadian, Datang and Three Gorges. They have jointly built more than 20 wind farms throughout China.

The company recently signed an agreement with the northern Shanxi city of Datong to develop a wind-power industrial base. It is planned to form an industry chain by using the company's local production facility for wind-power equipment and facilities established by upstream suppliers and downstream operators.

Taiyuan Heavy Machinery's execu-

tives said the company is willing to help Datong build a complete wind-power industry chain through in-depth cooperation with local enterprises. The company will use its resources in technology, talent and finance to assist local companies.

The development of the wind-power industry is an important part of Shanxi's energy revolution campaign. This features its traditional coal mining industry being upgraded toward cleaner and more efficient operations and strengthening the development of new energy resources like wind and solar power. The provincial authorities of Shanxi are aiming for the wind-power equipment manufacturing industry to become a large cluster with annual output worth more than 100 billion yuan (\$14.52 billion) in the future.

Du Juan contributed to this story.

Flowery buns showcase folk culture in Huozhou

By YUAN SHENGGAO

Masters of flowery buns from nine provinces and autonomous regions gathered in Shanxi's Huozhou city on March 16, to showcase how this ancient folk art converges and diversifies in various regions of China.

Flowery buns are a type of dough snack. They have been popular for many centuries in the Yellow River drainage basin, which includes regions such as Shanxi, Qinghai, Sichuan, Gansu, Ningxia, Inner Mongolia, Shaanxi, Henan and Shandong.

The special dough buns are called "flowery buns" due to their rich shapes and colors. Featuring auspicious decorations, the buns are mainly made and served during traditional Chinese festivals and family celebrations such as weddings and birthdays. They aim to bring fortune and good luck to the families.

In the Yellow River drainage basin, flowery buns are made with centuries-old techniques and the process is now on China's intangible cultural heritage list.

Despite their many similarities in origin and cultural connotations, flowery buns from different regions vary in style and content.

At the gathering, Su Xu, an inherit-

or of the Shanxi flowery bun, crafted his snacks in the shapes of Puju figures. Puju is a local opera popular in the southern Shanxi cities of Linfen and Yuncheng.

Han Xiang, an artist from Qinghai, showcased the snack's evolution as it spread westward to Qinghai. The buns he made are the most like cakes, wrapped with layers of fragrant condiments.

Zhang Kexin, acting mayor of Huozhou, attended the show. He told participants that Huozhou is a city renowned for its flowery buns.

He said the local Spring Festival bun, a variety of flowery buns, has been included in the intangible cultural heritage list in the city of Yuncheng. Huozhou, a part of Yuncheng, was also recognized as the "hometown of Spring Festival bun" by the China National Association of the Grain Sector in October 2022.

Zhang added that Huozhou's Spring Festival bun features the mixing of multiple ingredients, like doughs of wheat, corn, rice, soybean and other coarse cereals. Employing the techniques of steaming, fermenting and sun-drying makes it possible for the buns to be preserved for a very long period.

"The longest preservation period



From top: A huge flowery bun on display in Huozhou. Women staff members don traditional dress to present flowery buns at a fair in Huozhou. PHOTOS BY LIU JIANG / FOR CHINA DAILY

can last several decades," he said.

In Huozhou, the Spring Festival buns have developed into an industry with a considerable scale.

Zhang said there are more than

120 factories and mills engaged in the sector, offering more than 5,000 jobs to local residents.

Liu Jiang contributed to this story.

Best in class: scenic spots win national accolades

By YUAN SHENGGAO

Shanxi province witnessed a substantial improvement in the quality of its tourism industry in 2022, with 68 scenic areas added to the class-A resorts list.

Class-A scenic areas demonstrate national recognition by the State's tourism authority, with five categories from A up to 5A.

To date, Shanxi has a total of 312 class-A scenic areas, including 10 in 5A; 128 in 4A; 155 in 3A; 17 in 2A and two in 1A.

Of the new additions, the Hukou Water Falls by the Yellow River is the most notable as the only to be ranked 5A last year.

Located in an area bordering Jixian county in Shanxi province and Yichuan county in Shaanxi province, it is the second-biggest waterfall in China. It is also among the most spectacular waterfalls in the world. This is a site where people can feel the force of the mighty Yellow River.



The ancient town of Qinglong in Taiyuan city is a newly added 4A-class scenic area. ZHAO LINA / FOR CHINA DAILY

When the Yellow River flows through the gorges that serve as the border of Shanxi and Shaanxi provinces, it becomes a torrent as its course is restricted by the gorges and narrows to about 300 meters.

In Hukou, the water course narrows to about 50 meters, falling 30

meters into a deep riverbed. The tremendous mass of water strikes the rocks, creating piles of foam, a shroud of mist and a thundering noise that can be heard miles away.

Once a 4A scenic area, Hukou in Shanxi was promoted because of improvements in facilities and envi-

ronment, according to local officials.

Among the eight scenic areas that were lifted to 4A, the Mausoleum of Emperor Yao in Linfen city is of great cultural significance.

Emperor Yao, a leader of China some 4,000 years ago, is regarded as one of the common ancestors of the Chinese people alongside such figures as the Yellow Emperor and the Red Emperor.

History books said Emperor Yao made Pingyang the capital after he was selected as the head of the country. Pingyang is the ancient name of Linfen.

The mausoleum and a neighboring temple were the major sites for ceremonies to pay tribute to the ancient Chinese leader.

Other new 4A sites with cultural significance include an underground section of the Great Wall in Pianguan county and the Caijiaya revolutionary base in Xinxian county.

Zhao Lina contributed to this story.

Number of locally listed companies surpasses 1,000 for the first time

By YUAN SHENGGAO

Jinxing Board, an equity exchange platform established by the Shanxi Equity Exchange Center, saw the addition of 282 new companies in 2022, bringing the total number of listed companies to 1,048 and breaking the benchmark of 1,000 for the first time.

The local equity exchange platform in Shanxi province was launched in 2016 to serve the fundraising demands for the growth of local companies. The board is also designed to offer coaching for locally listed companies that plan to be listed on China's national equity exchanges.

Officials at the Shanxi Equity Exchange Center said the rapid growth in the number of Jinxing Board-listed companies corresponds to the strong momentum of entrepreneurship in Shanxi. Local statistics show that the total number of market entities in the province exceeded 1 million in 2022, despite the negative influence of the three-year COVID-19 pandemic on the economy.

The officials said the growth of Jinxing Board-listed companies can be attributed to a number of stimulative measures taken by the Shanxi Equity Exchange Center.

For instance, the center optimized and streamlined its approval procedures for the listing. Officials said the addition of 282 companies to the Jinxing Board

last year marked its highest growth rate over the past seven years.

The demonstration board, another equity exchange platform at the center, saw the addition of 534 listed companies in 2022, pushing the total number to 2,317.

The demonstration board focuses on serving small and medium-sized enterprises engaged in emerging industries with distinctive characteristics and growth potential. Through coaching and other support services provided by the center, companies meeting certain criteria on the board can be qualified for Jinxing Board listing.

The center has used various intelligent platforms to better serve enterprises that have applied to be listed.

The center's smart financial service platform, for instance, is supported by 237 financial institutions. A total of 3,348 companies, mostly SMEs, have applied for financial services through this platform.

The center has enhanced collaborations with national equity exchanges. As a result of these connections and its successful coaching, a total of 26 companies have been listed on China's New Third Board, or the National Equities Exchange and Quotations.

Zhang Jufeng contributed to this story.



The Shanxi Equity Exchange Center holds a ceremony to mark the listing of a new company on the Jinxing Board.

ZHANG JUFENG / FOR CHINA DAILY