



A nearby ultra-high-voltage substation is ready to transmit electricity generated by the Yuanqu pumped-storage hydropower station to the nationwide grids. WU JIAN / FOR CHINA DAILY

Hydropower plant project gets underway in southern Shanxi

Province making strides in switching to renewable energy and protecting local environment



By CAO YINGYING

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North China's Shanxi province started construction on a pumped-storage hydropower station in Yuanqu county, Yuncheng city on Feb 18, a major step in the province carrying pilot comprehensive reform on energy production.

Jointly funded by State Grid Xinyuan and State Grid Shanxi Electric Power with a total investment of 7.96 billion yuan (\$1.13 billion), the power station will have a total capacity of 1.2 million kilowatts with four reversible pump turbine generators.

The station, located in the south of Shanxi province, is a major project in China's renewable energy and hydropower plan for the 13th Five-Year plan (2016-20) period, and a key project of Shanxi's energy reform, which aims to shift from the use of coal-fired power to that of multiple renewable energy resources.

According to the project's plan-

ners, the Yuanqu power station is expected to be put into operation by 2028.

The station will also use new energy sources such as wind power, and new power-transmission modes such as ultra-high-voltage direct current and ultra-high-voltage alternating current to reduce reliance on coal consumption in power generation and improve transmission efficiency.

It will help to reduce coal consumption by about 290,000 metric tons, emissions of carbon dioxide by about 540,000 tons, sulfur dioxide by some 1,800 tons and nitrogen oxide by 650 tons annually, according to project planners.

Shanxi is a major electricity producer in China. Its rich energy resources like coal made it the first province to deliver electricity nationwide.

In 2009, the world's first 1,000-kilovolt UHVAC power transmission project — the Jindongnan-Nanyang-Jingmen UHVAC transmission project — became operational in Shanxi province, showcasing China's manufacturing ability in long-distance, large-capacity and low-loss UHV power transmission.

As one of the northern channels of China's west-to-east electricity network, Shanxi transmits power to

Beijing and Tianjin, as well as Hebei, Jiangsu, Hubei and Shandong provinces.

The province has established nine transmitting channels and 18 return lines, which have a total delivery capacity of 38.3 million kW.

The Shanxi provincial government released new environmental improvement measures in 2017, requiring coal-to-electricity and gas-to-electricity transformation and use of new energy as the driving force of the province's energy reform.

According to Wang Jinhao, director of the grid technology center of State Grid Shanxi Electric Power Research Institute, Shanxi has worked on new energy development for 12 years. With a total installed capacity of 23 million kW, the new energy sector has become the second-largest power supplier in the province.

Wang said pumped hydroelectricity storage is an effective power storing tool that has become one of the largest and most widely used energy storage forms. It can store energy in the form of water in an upper reservoir, pumped from another reservoir at a lower elevation. During periods of high electricity demand, power is generated by releasing the stored water through turbines.

It is one of the most competitive and reliable ways of storing electricity, enabling the efficient use of surplus energy for the entire grid. A pumped-storage hydropower station has a service life of up to 80 or even 100 years, according to industry insiders.

In 2013, Yuanqu and Hunyuan county in Shanxi province were recommended as the sites for pumped-storage hydropower stations by the National Energy Administration.

The Yuanqu pumped-storage hydropower station was listed as a key project in China's 13th Five-Year Plan for hydropower development in 2016 and one of the key projects in Shanxi province in 2018 and 2019.

According to the project plan, land preparation, major tunnels and roads linking the upper and lower reservoirs will be completed this year.

Liu Sheyuan, head of the People's Congress of Yuanqu county, said, "The project will help improve local traffic conditions, increase local government revenue and provide jobs for about 3,500 people, as well as drive the development of other industries such as tourism in the county."

Li Yali contributed to this story.

The best of both worlds: patients prescribed TCM and Western medicines

By YUAN SHENGGAO

Medical institutions in North China's Shanxi province using therapies combining traditional Chinese medicine and Western medical sciences to treat novel coronavirus patients have made marked progress in recent weeks, local practitioners said.

Since the outbreak in December, TCM specialists from Shanxi Traditional Chinese Medicine Institute have cooperated with a number of hospitals in the province to create therapies and preventive measures for patients of various conditions.

As a result of the research, the specialist team at the institute developed five therapies for treating the novel coronavirus. The therapies were approved by the Shanxi Medical Products Administration and the Shanxi Health Commission on Feb 17, according to local media reports.

Shanxi became the fourth province after Guangdong, Sichuan and Shaanxi to use these approved TCM therapies to treat patients infected with the novel coronavirus.

By Feb 20, the therapies had been used in both Shanxi and Hubei — the province that was most severely hit by the epidemic — to help patients and medical workers boost their immunity.

According to the Shanxi Health Commission, the TCM therapies have been offered to more than 13,000 patients and medical workers.

It is reported that more than 90 percent of the confirmed coronavirus patients in Shanxi province have used the TCM products and therapies.

According to Li Tingquan, head of the hospital affiliated to Shanxi University of Chinese Medicine, the TCM therapies are used with Western medicines.

"Doctors drew on both TCM and Western medical experience in epidemic disease treatment to work out plans and therapies for treating patients, helping to relieve fever, coughing, shortness of breath, fatigue and poor appetite," Li said.

The first patient who received both TCM and Western medical



We used TCM therapies to help improve patients' lung conditions and Western medical therapies to increase patients' immunity to the virus."

Ding Aiguo, head of the TCM department at the No 1 People's Hospital in Shuozhou

therapies in Shanxi province was discharged on Feb 6 from the No 1 People's Hospital in Shuozhou city.

"We used TCM therapies to help improve patients' lung conditions and Western medical therapies to increase patients' immunity to the virus," said Ding Aiguo, head of the hospital's TCM department.

He said TCM quickly improves clinical symptoms, strengthens a patient's bodily resistance and eases defecation.

He added that patients who received TCM treatment held a relatively stable condition and appeared unlikely to decline into a more serious state.

Shanxi was among the earliest provinces to use both TCM and Western medical measures to treat novel coronavirus patients.

The Shanxi Health Commission and Shanxi Medical Products Administration established a TCM experts group on Jan 21. The team is led by Wang Xixing, a famed professor and researcher at Shanxi Traditional Chinese Medicine Institute.

The group, on behalf of the local health authority, approved the provincial TCM treatment plan for the epidemic on Feb 6.

As of midnight on Feb 26, a total of 133 confirmed cases of the novel coronavirus pneumonia were reported in Shanxi province. Of them, 104 were cured and discharged from the hospitals.

Guo Yanjie contributed to this story.



Pharmacists at Shanxi Provincial Hospital of Traditional Chinese Medicine prepare dosages for novel coronavirus pneumonia patients. ZHAO HUIFENG / FOR CHINA DAILY



From top: Members of the public examine Pingyao's lacquerware exhibits, which were displayed at the Fourth Shanxi Cultural Industry Expo in December. ZHAO HUIFENG / FOR CHINA DAILY An artist uses a brush to apply lacquer paints and create a still-life painting of flowers. ZHAO HUIFENG / FOR CHINA DAILY

Luxurious craft keeps its luster through the ages

By YUAN SHENGGAO

In the ancient city of Pingyao, Shanxi province, local lacquerware is among the most sought-after souvenirs by tourists.

"Varnished jewelry boxes are the most popular among tourists, especially those who are newlyweds," said a salesman at a local lacquerware shop.

The popularity of Pingyao's lacquerware comes from its unique place in the history of Chinese industry.

Lacquerware is one of the exquisite Chinese crafts, which is said to date back to the New Stone Age.

The original wares in China were those coated with black and red lacquers. From the Shang Dynasty (c. 16th century-11th century BC) to the Qing Dynasty (1644-1911), the Chinese lacquerware industry had developed steadily and exerted influence on the craft in Japan and the Korean Peninsula.

Renowned as one of the top four lacquerwares in China, Pingyao's lacquerware, especially the hand-polished variety, is a brilliant representative craft in China.

The hand-polished — or *tui-*



How to decorate the items with images of Chinese and local cultural connotations is the most difficult."

Liang Zhongxiu, a master inheritor of the intangible cultural heritage

guang in Chinese — lacquerwares in Pingyao, a county in the center of Shanxi province, can be traced back to ancient times.

It is said that they originated in the Shang and Zhou (c. 11th century-256 BC) dynasties, were developed in the Tang Dynasty (618-907) and peaked in the Ming (1368-1644) and Qing dynasties.

In the middle period of the Qing Dynasty, the *tuiguang* lacquerware began to be exported to Europe and Southeast Asia. During the 1912-49 period, a lacquerware craftsman named Qiao Quanyu adopted the style of glass painting in southern China with improved techniques for manu-

facturing varnished lacquerware. It led Pingyao lacquerware into a new stage.

The *tuiguang* lacquerware of Pingyao is made of a natural raw lacquer unique to China and varnished by hand using a special technique.

Through embedding, sculpting, carving and colored painting, the lacquerware is decorated with patterns of mountains and rivers, flowers and birds, figures and pavilions. Finally, ornaments made of copper and even gold are installed and the lacquerware is carefully finished.

The finished products are simple and elegant. The surface of the lacquerware is smooth and shiny. It is also resistant to high temperatures, acids and alkali.

Lacquerware items include tables, cabinets, screen walls, jewelry boxes and lacquer paintings.

In 2006, the technique for making Pingyao's *tuiguang* lacquerware was included in the national list of intangible cultural heritage.

The technique is complicated, involving more than 30 procedures. In terms of varnishing, at least five layers of lacquer is applied and polished each time.

"The delicate varnishing and polishing procedures can result in a surface as shiny as mirror," said Liang Zhongxiu, a master inheritor of the intangible cultural heritage.

However, he said the varnishing and polishing procedures are not the most difficult part of production.

"How to decorate the items with images of Chinese and local cultural connotations is the most difficult," Liang explained.

He added that the process requires the artist to have a high aesthetic taste when planning works of *tuiguang* lacquerware.

Elegant as it is, the *tuiguang* lacquerware is not a luxury out of common people's reach.

Li Xiao, a tourist from Changzhou, Jiangsu province, recently bought several *tuiguang* lacquerware items in Pingyao.

"When I found out the making of *tuiguang* lacquerware is a national intangible cultural asset, I figured it would be very expensive," Li said.

"However, when I was strolling down the street, I found I could buy several pieces at affordable prices."

Bai Jie contributed to this story.