

Shanxi pushes ahead with green energy

Province also looking into new technology to reduce emissions from coal



By YUAN SHENGGAO

A 100,000-kilowatt wind power plant funded by a clean energy branch of Shanxi's power giant Jinneng Holding is under construction in the county of Wutai in the northeast of Shanxi province.

The project marks the latest move of Jinneng Holding's transformation from coal mining and coal-fired power generation to clean energy production, company executives said.

Upon completion, they said the project can generate 229.42 million kilowatt-hours a year, which is the same as burning 7.06 million metric tons of coal.

Executives said the company is implementing a new operational plan to raise its ratio of new energy in its power generation and upgrade its traditional energy production with high-efficiency and emission-reduction technologies, to meet the nation's strategy to reach carbon peak in 2030 and carbon neutrality in 2060.

Shanxi used to be a leading coal producer in China, with its coal out-

put accounting for about half of the country's total during its peak.

However, local officials said, the heavy reliance on coal had hindered Shanxi's economic growth and posed a big challenge to Shanxi's environment and sustainable development.

To address the challenge, Shanxi has implemented an economic transformation plan over the past decade, aiming to reduce its reliance on coal and heavy industries and foster emerging, high-tech and environmentally friendly industries as new growth drivers.

Shanxi was approved by the State Council to become the first province to pilot a revolutionized energy industry transformation in May 2019.

According to Wang Maosheng, deputy chief of the Shanxi Energy Bureau, the province's energy revolution program includes initiatives to reduce the number of coal mines and increase clean energy resources in power generation.

By phasing out small and outdated capacity, the official said about 68 percent of Shanxi's coal mines are modernized facilities that are capable of producing coal in more efficient and cleaner manner.

"As the remaining coal-mining facilities, 890 in total, are larger in scale and more efficient, the total output of coal is expected to be sta-

bilized at 1 billion metric tons this year," Wang said.

The efficient and clean production of Shanxi's modernized coal mines is made possible with the application of high-tech, digital and internet-connected technologies.

At the Tashan Mine of Jinneng Holding, for instance, a 5G-linked, smart operational center is used to control the whole process of production, including mining, coal conveying and safety monitoring.

As smart mining can lead to substantial improvements in efficiency and safety, Shanxi's officials said the province plans to develop 10 demonstration smart coal mines in the next three years and all the coal mines in the province are expected to become smart by 2030.

For coal mines, the efforts in emissions reduction are not limited to carbon dioxide, but other hazardous gases as well.

Mingshi Coalbed Gas, a subsidiary of Huaxin Natural Gas Group based in the city of Jincheng, is now focusing on the emissions reduction of coalbed gas.

"Coalbed gas, mainly methane, is the major emission in coal mining," said Shi Zhongqiang, chairman of Mingshi. "The toxic gas has a greenhouse effect 21 times higher than carbon dioxide."

The company has developed more than 170 technologies to turn coal-



The 10-megawatt Youwei Solar Power Plant in Youyu county established by Jinneng Holding is the first solar power station in Shanxi province. TIAN ZHONG / FOR CHINA DAILY

bed gas into an environmentally friendly fuel in recent years.

Building power plants near coal mines also contributes to clean energy production in Shanxi.

Tashan Power Generation is another branch of Jinneng Holding. It uses coal from the nearby Tashan Mine to generate electricity.

"Building power plants near coal mines can help electricity companies save logistical costs and avoid pollution from coal transportation," said Yuan Guosheng, an executive of Tashan Power Generation.

However, there is still room to further improve by cutting emissions.

Statistics show that generating 1 kWh of electricity demands 315 grams of coal in Shanxi on average, compared with 270 g in developed countries.

To solve this problem, Jinneng Holding is developing new technologies to help to increase efficiency.

For instance, highly efficient ultra-supercritical turbo generators and direct air-cooling generators are currently used in a number of coal-fired power plants of Jinneng Holding. Such facilities can save 10 g in coal consumption for each kWh of electricity, according to Li Qinghua, an executive of Jinneng Holding.

In addition, the company is promoting the construction of smart power plants with such technologies as 5G, big data, cloud computing, the internet of things and artificial intelligence.

"Such technologies can lead to a further saving of 1.5 g of coal for every kWh of electricity according to our practice," Li said.

While coal-fired power plants are endeavoring to reduce emissions through technological upgrades, Shanxi's energy companies have stepped up their pace in developing power-generation facilities using clean energies.

Statistics show that Shanxi's wind power generation capacity grew 24.16 percent annually during the 13th Five-Year Plan (2016-20).

The solar power sector had an even better performance. Its power generation capacity increased 63.21 percent annually on average during the same period. Shanxi's total solar power generation capacity has reached 4 million kW, the largest among all provinces, autonomous regions and municipalities in China.

Guo Yanjie contributed to this story.

Overseas Chinese jump at chance to learn about traditional culture online

By YUAN SHENGGAO

Students in Southeast Asian countries like Laos and Cambodia, and especially those with ancestral roots in China, are being offered the opportunity to learn Chinese culture, thanks to online classes provided by scholars in Shanxi province.

One such class, which started on Aug 23, is taught by Geng Yue, a renowned calligrapher in Shanxi.

The class is part of Chinese Culture Land, an annual event launched by the China Overseas Friendship Association. It is designed to enhance the understanding of overseas Chinese teenagers and people from all walks of life concerning Chinese culture, which has been welcomed by participants.

The 2021 Online Chinese Culture Land — Laos and Cambodia was organized by the Shanxi Overseas Friendship Association and the Taiyuan Overseas Friendship Association. The event began on Aug 16. Organizers expect it will increase

the interest of overseas Chinese in Chinese culture and, in particular, Shanxi's.

In his class, Geng talked about the history of Chinese calligraphy and the stories of famous calligraphers. He also demonstrated his own skills to students.

A Cambodian student, whose Chinese name is Jin Lishan, said she has been an enthusiast of calligraphy since she was a little girl, influenced by her parents.

"This is the first time for me to listen to a Chinese master calligrapher in a class," Jin said. "It's very inspiring and enlightening."

Jin said she wanted to study in Shanxi in the future and learn calligraphy from Geng.

Geng said he is happy to teach a class for overseas students.

"This is a good opportunity to promote Chinese calligraphy to the world," he said. "Chinese calligraphy is an expression that conveys the unique cultural quality and elegance of the Chinese culture."

While offering the students a



Calligraphers from Shanxi show their works at the 2021 Chinese Culture Land — Laos and Cambodia event. KOU NING / FOR CHINA DAILY

chance to get acquainted with Chinese culture, the artist noted that there are additional benefits that calligraphy can bring them.

"It makes learners more concentrative in study, helps them improve their aesthetic taste and fosters a fondness in traditional culture," Geng said.

The earlier sessions of the Chinese Culture Land event had once all been held offline. Since 2020, they have been held online because of the COVID-19 pandemic.

"We found there are many advantages to holding online events," said Teng Degang, deputy

chief of the Shanxi Overseas Friendship Association. "It can reach a larger audience and engage more people in studying Chinese culture."

This year's Chinese Culture Land — Laos and Cambodia will last for 12 days, ending on Saturday.

In addition to traditional Chinese cultural mediums like calligraphy, painting, music and literature, promoting the cultural and natural attractions of Shanxi is an important part of the event, according to organizers.

Wu Jia contributed to this story.

Uzbek student feeds his passion for history visiting historical sites

Many overseas students in Shanxi province have gained a better understanding of the province and China. This section, named *Shanxi in the Eyes of Foreign Students*, will tell their stories in the province and share what Shanxi looks like from their perspectives, giving accounts of the local environment, customs and culture, as well as their personal experiences.

By MIRZAEV TEMURJON

I came to Taiyuan, capital of Shanxi province, in October 2018, when I was admitted to Shanxi University as an international student from Uzbekistan.

There are a number of reasons why I chose China to pursue my higher education, including China's status as an emerging powerhouse of the world economy, a leader in trade and e-commerce, its globally recognized quality in education, incentives to international students and its internationally accepted diplomas.

As China is one of the major trading partners of Uzbekistan, I believe my study in China will offer me huge opportunities for career development.

I personally have a strong interest in Chinese culture and history. That's why I chose Shanxi as my destination to stay.

With a recorded history of more than 3,000 years, Shanxi is one of the cradles of ancient Chinese civilization.

Called "a museum of ancient Chinese culture", the province is home to a large number of relics and remains of former times, which give us sufficient material evidence to study ancient cultures.

Such historical sites have also become major tourist attractions in Shanxi, including the former residences of the famed Shanxi merchants, the Buddhist holy land of Wutai Mountains, the Buddhist cave art treasure house of Yungang Grottoes, the wooden pagoda in Yingxian county and the ancient streets in Pingyao county.

In Taiyuan, there is a nationally renowned museum that hosts a great number of historical relics, with some that can be traced to prehistoric periods.

So my stay in Shanxi and my trips in Taiyuan and throughout the province have helped me develop a stronger fondness of ancient Chinese culture.



I am also proud of my university because of its history and its open, international vision in education.

This year marks the 119th anniversary of the founding of Shanxi University. In its early years, the university was among the three earliest State-run universities in offering modern Chinese education.

Today's Shanxi University has developed into a modern higher-learning institution with a global vision, which is reflected in its great number of international students, and a curriculum system and research capability up to international standards.

When I came here in 2018, I thought it might be hard to adapt to local life and culture, and learning Chinese might be a major challenge to my academic development.

But I found I was able to solve all those problems quickly because of the help of my teachers and friends.

I must give my special thanks to my Chinese friend Wang Xinyue. It was Wang that suggested I go beyond the campus to experience local life. She has arranged a number of tours for international students to see what the life, culture and nature look like in Shanxi.

I think the heartfelt help from my friends and teachers is a major reason for my growing fondness of China.

The author is a student from Uzbekistan, who studies at the School of International Education and Exchange at Shanxi University.

Tang Dynasty temple reveals ancient treasures

By YUAN SHENGGAO

The Wutai Mountains in Wutai county are a renowned Buddhist holy land and top tourist destination in Shanxi province. They are said to be the venue where Bodhisattva Manjusri preached his teachings and are home to a great number of Buddhist temples.

One of the most ancient temples that is still well preserved to this day in the region, is Foguang Temple, some 30 kilometers from the county seat of Wutai.

This temple is not only one of the oldest in the region, but also one of the oldest temples found in China, according to researchers.

Inscriptions found in the temple show that it was originally built in the Northern Wei Dynasty (386-534) and was rebuilt in the late Tang Dynasty (618-907).

The preserved Grand Eastern Hall, the main hall of the temple, was built in 857, and has a history that rivals Nanchan Temple, which was built in 782 and is also in Wutai county.

Foguang Temple's wooden structure, statues, murals and inscriptions are regarded as the four treasures of Tang Dynasty Buddhist arts.

However, if it were not for a dis-



The 34 colored statues in the Grand Eastern Hall of Foguang Temple are regarded as one of the four treasures of Tang Dynasty Buddhist arts. FAN WENZHEN / FOR CHINA DAILY

covery by renowned architecture researchers Liang Sicheng and Lin Huiyin, who were also a couple, in the 1930s, the historical and cultural value of the temple could still be unknown to the world.

Before the 1930s, many researchers, especially those in Japan, asserted that there were no preserved Tang Dynasty wooden structures in China.

When examining photographs of the murals of Mogao Grottoes in

Gansu province, Liang and Lin noticed there were complete maps of temples in Wutai including Foguang.

The couple then started a search for several months for Foguang Temple and they finally found it in June 1937.

Their intensive research, including studying the architectural style, structural details and inscriptions, proved that the Grand Eastern Hall in Foguang is the largest among the

very few preserved Tang Dynasty structures in China.

In one report written by Liang, the researcher said he was shocked by the great number of Tang Dynasty statues in the hall.

The 34 statues, including the Three Buddhas of Past, Present and Future, two Bodhisattvas and their followers, constitute China's largest group of colored statues created in the Tang Dynasty.

Decades after Liang and Lin's discovery, there are still new findings to prove the temple's long history.

In the 1980s, archaeologists discovered Tang Dynasty tourists' inscriptions on the rear of the wooden gate of the grand hall, showing even the gate was more than 1,100 years old.

Despite its great historical significance, the temple in the remote area of Wutai is still not commonly frequented by tourists nowadays.

"This is a quiet holy land for true cultural enthusiasts," said Li Rui, a photographer. "Its serenity allows us to have a close and careful study of a grand Tang Dynasty architectural masterpiece and examine every detail of what is known as 'the light of Asian Buddhism'"

Peng Ke'er contributed to this story.