

Pioneering production of methanol vehicles

Shanxi New Energy Automobiles Corp making history in Jinzhong



By YUAN SHENGGAO

Methanol-powered heavy-duty trucks and methanol-electric hybrid passenger cars rolled off the production lines at Shanxi New Energy Automobiles Corp on June 22, marking the world's first mass production of such vehicles.

The manufacturer, based in the city of Jinzhong in Shanxi province, is wholly owned by renowned domestic automaker Geely.

Liu Hanru, chief scientist at Geely New Energy Commercial Vehicle Group, said the latest truck is its second generation of heavy trucks powered by the cleaner fuel of methanol. "Compared with its previous version, which was a model for trial operation, the new truck features stronger performance and lower energy consumption. Thus, it can further help owners substantially save operational costs."

The executive added that the new passenger vehicle is a methanol-electric hybrid sedan, belonging to the fourth generation of the company's methanol passenger cars.

"With a per-kilometer energy cost of 0.3 yuan (\$0.045), the sedan is among the most economical in its

class industrywide," Liu said. "As one of the most energy-conserving and lowest-emitting cars in its class, it can reduce 0.8 metric tons of carbon dioxide emission per 10,000 km, compared with its counterparts."

The executive said the first batch of methanol trucks were snapped up by clients from the Xinjiang Uygur autonomous region and Gansu province in Northwest China.

Liu said the maturity in methanol vehicle-making technologies and the availability of methanol are the two decisive factors in the sector.

He said Geely began to develop technologies for methanol vehicles in 2005 and have since made breakthroughs in the production of methanol engines and components.

"With our self-developed core technologies, Geely is the world's first volume producer of methanol-fueled vehicles and the first in China to get a license for methanol vehicle production," Liu said.

Geely established Shanxi New Energy Automobiles Corp in the city of Jinzhong in 2011. This facility began producing methanol and pure electric vehicles in 2017.

When talking about the availability of methanol, Liu said China's research and production of methanol as an automotive fuel began in the early 1980s.

"Large-scale trials on the fuel and vehicles, which have been organized by the Ministry of Industry and Information Technology and imple-

mented by a number of automakers over the years, show that methanol-fueled vehicles have great market potential because of their proven reliability, cost-effectiveness and environmental benefits.

"And with a great number of methanol production facilities in place, the ministry is now making efforts to promote methanol vehicles nationwide by incorporating this sector in its green industrial development plan for the 14th Five-Year Plan (2021-25)," Liu said.

The executive noted that there are a number of techniques for the production of methanol. The most popular ones are extraction from biomasses, like crop stalks, and the synthesis of carbon dioxide and hydrogen, which is made through water electrolysis.

"Shanxi has unique advantages in developing methanol fuel," said Liu Yudong, chairman of Shanxi New Energy Automobiles.

He explained that Shanxi is a coal-rich province and carbon dioxide as a key raw material for methanol production can be captured from the emissions of coal-fired power plants, coking plants and other industrial facilities that consume coal.

"While offering sufficient fuel to vehicles, the methanol production facilities based on carbon dioxide recycling can also play a significant role in emission reduction and carbon neutrality," Liu Yudong said.

Jinzhong, where the company is



The first batch of methanol-powered heavy-duty trucks roll off the production line at Shanxi New Energy Automobiles Corp on June 22. SHI XIAOBO / FOR CHINA DAILY

located, is one of the cities in China piloting the development of methanol fuel and methanol vehicle production.

It now boasts a complete methanol industry chain, ranging from research and development, equipment manufacturing, methanol production and transportation to filling stations.

A leading player in the local methanol production industry is Changsheng Coal Gasification. It recently signed a strategic partnership agreement with Geely by supplying methanol to Geely vehicles in Jinzhong and the rest of Shanxi.

Changsheng's future methanol plant, with a designed annual capacity of 250,000 tons, is scheduled to be operational by June 2023. The company's executives estimate that such output can meet the demand of 5,000 methanol-fueled heavy-duty trucks.

City officials predict that the total annual output of methanol by local producers could reach 1 million tons in 2025 — enough to satisfy the demand of 20,000 trucks. They also projected that the methanol fuel and vehicle production industries in Jinzhong could generate 20 billion yuan (\$2.98 billion) in output value in the same year.

A complete industrial chain has also taken shape in the methanol vehicle production sector.

"Jinzhong has gathered a great number of component producers and suppliers for methanol vehicles," Liu Yudong said. "Take the Geely facility as an example. We have benefited a lot from local suppliers of components and parts."

The executive explained that deliveries from local suppliers can be completed within a day, while those from the rest of the country would take four days at most.

"We estimated that local component supplies can help us reduce logistics costs by about 62.5 percent," Liu Yudong said. He predicted that more than 25 percent of the components and parts could be supplied by local manufacturers by 2024.

The new energy vehicle production sector is the most important of the eight emerging pillar industries in Jinzhong, according to Chen Yubin, an official at the city's industry and information technology bureau.

The sector is now home to five automakers that include Geely, as well as 60 component producers. Jinzhong New Energy Automobile Industrial Park, the major base for the sector, reported an output value of 15 billion yuan in 2021. Chen predicted the value is expected to surpass 50 billion yuan in 2025.

Guo Yanjie contributed to this story.

Renovations preserve heritage of ancient city

By YUAN SHENGGAO

It is rare nowadays for people in China to find a city encircled by walls, although some 100 years ago such walls were a common sight at every city, or even county seat, in the country.

But Datong in the north of Shanxi province is one of the few places that retains its city wall.

When visiting the city, tourists are amazed by the 7.2-kilometer-long, spectacular city wall, which encompasses the ancient urban center covering 3.45 square kilometers.

As it looks no different to those well-preserved ancient walls in cities like Xi'an in Shaanxi province, Pingyao in Shanxi province, Xiangyang in Hubei province and Ganzhou in Jiangxi province, few tourists would be aware that the wall in Datong was rebuilt during this century.

Historical records show that Datong began to build its earliest city wall in the Western Han Dynasty (206 BC-24 AD) with renovations taking place in the fol-

lowing dynasties.

The current wall was built on the basis of the Ming Dynasty (1368-1644) city wall, which was said to be completed in 1372.

The Ming Dynasty wall was built using rammed earth and covered by fired bricks. It suffered severe deterioration in the last century with most of its bricks falling down and sections of its rammed earth wall collapsing.

The city wall's repair and renovation project started in 2008, which involved the enhancement of the rammed earth wall and applying bricks to the wall's exterior. The project was fully completed in November 2016.

The renovated wall now adds a new attraction to the ancient city of Datong, which is renowned for the landmark Yungang Grottoes, one of the top three famous Buddhist cave art sites in China.

There are unique resources on the city wall that appeal to many people, which include about 40 sets of ancient devices for attack and defense in wartime, such as



The city wall and moat are new attractions in Datong, which is growing in appeal to tourists. LI YI / FOR CHINA DAILY

two ancient cannons called Hongyi, chariots, wooden beams and other weapons that people could only see on screen. "These weapons indicate the time-honored history of Datong's city wall," said a tourist.

Datong has not only restored the old city wall, but also constructed a city moat park. Stretching around 2,000 meters long and 210 meters wide outside the eastern wall, the park has a land area of about 400,000 square meters. Now covered by lush trees and grasses and featuring deliberately

designed landscapes incorporating both ancient and modern styles, the park is a popular destination for relaxing locals and sightseeing tourists.

Renovations have also taken place on historical sites inside the ancient city hub, including the old city government complex, the King of Dai's residence, and the Huayan and Kaihua Buddhist temples, as well as ancient streets and blocks.

Han Linfang contributed to this story.

Medics sharing wealth of expertise in Africa

By YUAN SHENGGAO

For Hou Wei, the leader of a Chinese medical assistance team in Djibouti, working in the African country is quite different from his experience in his home province.

The team he leads is the 21st medical assistance team that China's Shanxi province has dispatched to Djibouti. They left Shanxi on Jan 5.

Hou is a doctor from a hospital in the city of Jinzhong. He said when he was in Jinzhong he would stay in the hospital almost the entire day taking care of patients.

But in Djibouti, he has to carry out various missions, including traveling extensively to offer services to patients, training local medics and purchasing equipment for the hospital he works with, Hou told China News Service.

He recalled one of the long-distance trips he made in March. An executive at a Chinese-funded enterprise about 100 kilometers away from Djibouti-ville, the nation's capital, reported an emergent case of one of its local employees.

The patient, who was suspected of having contracted malaria, developed severe allergic reactions one day after taking oral medication, including dizziness, sweating and an accelerated heart rate.

Hou and his colleagues visited the patient on location and decided to transfer him immediately to the hospital he works with. On the return trip, which took about two hours, Hou tried to stabilize the patient with the use of an automatic external defibrillator.

Further treatment at the hospital helped to cure the patient, who expressed his deep gratitude to Hou and his colleagues upon his departure.

Tian Yuan, general chief of the

three medical assistance teams that Shanxi sent to the African countries of Djibouti, Cameroon and Togo, told China News Service that replenishing the local hospitals with new equipment and medicines is another important mission for the teams from Shanxi.

"We found a lack of medical equipment and medicines is the most common problem faced by African hospitals," Tian said. "To solve this problem, we have contacted Chinese suppliers to donate."

He said the response from Chinese suppliers has been swift and batches of equipment and medicines have already been sent to the hospitals in need.

Another mission of the Shanxi teams is to hold regular training classes for local medics.

"We taught them how to operate advanced medical devices, how to use digital technologies for diagnoses and how to conduct complicated surgery operations," Tian said. "We also shared with them our expertise from Shanxi and China, including acupuncture, moxibustion, cupping and other traditional Chinese therapies."

Since 1975, Shanxi has dispatched 64 teams and 1,356 medical workers to the African countries of Cameroon, Togo and Djibouti.

The teams have helped locals fight various diseases, including Ebola, malaria and hemorrhagic fever. The team members' professionalism and devotion have been widely recognized by locals and many of them have won various honorary titles from the governments of the three countries.

The Shanxi medical teams have been an important part of China's medical assistance to Africa since 1963, when the first medical teams were dispatched to the country.

Wu Jia contributed to this story.

Record wheat yields achieved with scientific help

By YUAN SHENGGAO

The monthlong summer harvest of wheat in Shanxi started on May 27 in the southern city of Yuncheng.

The most exciting news about the harvest is that per-unit output records had been broken and reset three times.

On June 6, a wheat demonstration farm in Yuebi village in the city of Linfen reported a per-hectare yield of 8.7 metric tons, a record for dry land wheat farming in Shanxi.

An official in the village said the performance was made in the context that sowing had been delayed for about 15 days due to the weather, which shows there is still room to increase output in the future.

The official noted that the use of new techniques, proposed by local agronomists, is the major reason behind the increase. The techniques include soil moisture improvement through deeper plowing and accurate spray irrigation.

On June 14, a farm in Dongcun village in the city of Yongji reported a per-hectare yield of 12.37 tons, breaking the record for water-rich wheat farming in Shanxi.

But the record was beaten four days later, as Dongcun village in



Modern combine harvesters work their way through a wheat field in Shanxi. LI LUJIAN / FOR CHINA DAILY

the county of Yicheng reported a per-unit output of 12.83 tons.

The record-breaking farm in Dongcun is supervised by a team of agronomists from Shanxi Agricultural University led by professor Gao Zhiqiang.

Gao said the team's proposal to improve output is a data-analysis-based solution which can accurately calculate the optimal amounts of water and fertilizers to be used.

"Water and fertilizers are crucial in farming," Gao said. "But it is not the more the better."

The scientist said the most effective way to increase output and improve quality is the proper use of water and fertilizers. This can be calculated according to the conditions of the farm, such as soil moisture, the level of nutrition in soil, as well as light and heat exposure.

Dongcun village's record was made after the sowing of seeds was delayed for about a month for weather-related reasons. "This shows that a scientific approach to farming can help to offset the negative influence of natural uncertain-

ties by working out remedies for farming delays caused by such natural disasters as flood, drought and cold weather," Gao said.

Wang Yuanrong, an official at the Shanxi Department of Agriculture and Rural Affairs, said farming modernization — featuring the use of new technologies, new techniques, new equipment and new operational models — is playing a key role in raising Shanxi's agriculture to a higher level of development.

He said that more than 3,900 farming experts and agronomists have been dispatched to various counties and townships in Shanxi to promote and guide farming modernization.

The governments at all levels in Shanxi have strengthened their support for modernized farming.

Wang said the governments plan to allocate 411 million yuan (\$61.16 million) this year to subsidize the purchase of farming machines.

During this summer, for instance, farmers in Shanxi have used nearly 400,000 machines for the harvest of wheat and other farming activities, according to Wang.

Wang Xujuan contributed to this story.



A Cameroonian woman who operates an orphanage gives her thanks to a Chinese doctor for his help. XUE LIN / FOR CHINA DAILY