

Shanxi's clean coal fuels nation's growth

Province's energy producers turn to intelligent, green technologies



By YUAN SHENGGAO

As an important coal-mining and energy industry hub in China, Shanxi province has been a major contributor to ensuring the country's energy safety over the past decades, according to local officials and industry insiders.

Miao Huanli, deputy chief of the Shanxi Provincial Energy Administration, said the North China province, based on its rich reserves, has produced a total of 21.7 billion metric tons of coal since the founding of the People's Republic of China in 1949. More than 14 billion tons have been shipped to 28 provinces, municipalities and autonomous regions in China to meet their demands for power, industrial raw materials and fuel for households.

Over the past four decades since the reform and opening-up initiatives began in the late 1970s, Shanxi has generated one-fourth of China's total coal output and more than 70 percent of the country's total exports of coal, according to Miao.

"If we used all the coal to build a wall with a cross-section area of 49

square meters, it would be equal to 35 Great Walls of China," Miao said proudly.

"As the province has supplied a large proportion of its coal output to the rest of country — more than 60 percent in the past seven decades and more than 70 percent in the past four decades — to meet the nation's demands for energy supply, it's no exaggeration to say that Shanxi has been one of the leading contributors to our national economy," Miao added.

Miao noted that behind such a remarkable contribution is a strong sense of corporate social responsibility among local coal and other energy producers.

This is especially true in recent years, Miao said, in the context that corporate interests and CSR are equally addressed.

Since the third quarter of last year, some regions in China have suffered power shortages due to a short supply and rising prices of coal and other energy resources.

Shanxi's energy companies, especially coal producers, recognize power shortages pose a challenge to national economic development and people's lives. So they have renewed their efforts to increase output to meet the country's increasing demand for coal and electricity.

According to the provincial energy administration, Shanxi's daily output of coal has been maintained at 3.3 mil-

lion tons since October. Its total output during the first 11 months of 2021 amounted to 1.1 billion tons, increasing 12.4 percent or 120 million tons from the same period of 2020. Full-year output reached 1.19 billion tons in 2021.

The administration also said that the province supplied 110.76 billion kilowatt-hours of electricity to other regions during the first 11 months of 2021, which surpassed the total volume of the whole of 2020.

Generally speaking, Miao said the short supply of coal in China has been eased in recent years, and it has been made possible for Shanxi's coal and energy producers to shift their CSR focus to other areas rather than merely ensuring supply.

Industry players in Shanxi are making more efforts in setting themselves up as role models in the fields of energy industry transformation, sustainability and safe production, according to Miao.

One recent initiative among local players is to improve operational efficiency, enhance production safety and lower emissions through the use of intelligent, digitalized as well as other advanced technologies, techniques and solutions.

According to Miao, Shanxi plans to develop 10 pilot smart mines and 50 pilot smart mining shafts in the next three years, with all the coal mines in the province to go smart by 2030.

The Shaqu No 2 Coal Mine, a sub-



With photovoltaic panels installed on rooftops, a solar farm in Yuanqu county supplies clean power to local grids. XUE JUN / FOR CHINA DAILY

sidary of Shanxi Coking Coal Group, is one of the pioneers in smart mining.

The coal mine's operations are now controlled by its smart coordinating center. At the center, a huge display shows all the data and images of all mining shafts underground.

"We have only a few inspection workers in the shafts," said Chen Pengfei, a Shaqu No 2 executive responsible for smart production. "Automation has been used in most of the operations, including coal cutting and conveying."

"As we have all the smart equipment and devices in place, we can launch almost all the operations by merely pressing a button."

The executive noted that the use of digital and other advanced equipment will eventually free all manpower in underground operations, and even the inspection and monitoring work will be done by 5G-connected sensors in the near future. "Such a level of automation can greatly improve workplace safety and efficiency."

Shanxi's power enterprises are also

contributing their efforts to addressing the industry's sustainability by promoting their own clean production solutions.

These solutions include building more near-mine power plants featuring cleaner production and installing more high-capacity electricity transmission grids to reach the rest of the country.

Changzhi Power Generation, a subsidiary of local coal-mining and electricity giant Jinneng Holding Group, is one of the companies that is developing more near-mine generation facilities with high-performance and high-efficiency generators.

In a recent development, the company announced the operation of two generators with a capacity of 1 million kilowatts in February 2021.

Li Jinzhong, general manager of Changzhi Power Generation, said the two supercritical and air-cooled generators can reduce 10 grams of coal consumption for every kilowatt-hour of electricity. "That can translate into 100,000 tons of coal a year, which

means a substantial reduction in emissions," Li said.

He noted that other environmentally friendly technologies, including recycled use of water, desulfurization, denitration and dust removal, have been used in the new facility, which can further economize the use of resources and reduce pollution.

According to the provincial energy administration, the province's power generation companies launched renovations on their 16 large power generation sets last year for clean and high-efficiency production.

Shanxi-produced electricity is now transmitted to the rest of the country via nine routes and 18 superhigh-voltage grids, according to Wang Zhengtao, board chairman of Shanxi Electricity.

"The capacity of our grids to other regions of the country currently stands at 38.3 million kW," Wang said. "That's equal to one-third of the power generation capacity in Shanxi."

Guo Yanjie contributed to this story.

Investment projects boon for industries

By YUAN SHENGGAO

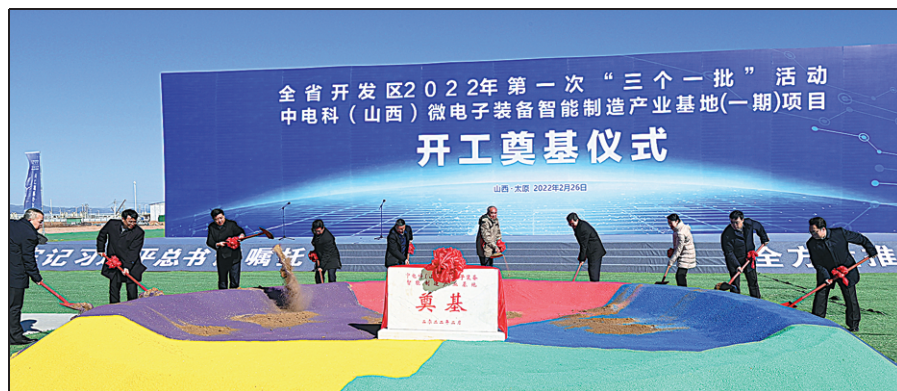
The North China province of Shanxi has embraced a boom in investment as it recently saw the signing of agreements, construction and operations of a great number of projects funded by domestic and overseas businesses.

On Feb 26, ceremonies were held in various development zones and industrial parks in Shanxi, for the collective signing of 347 investment projects. The ceremonies also marked the construction of 323 projects and the operation of 315 ones.

Such projects have covered a wide range of industries, including coal-based chemicals, equipment manufacturing, new energy, new materials, environmental protection, big data, medicine, modern services, modern agriculture and cultural tourism.

The development zones in the city of Jinzhong are among the pinnacles of attracting investments.

According to Wu Junqing, Party secretary of Jinzhong, the city's development zones signed agreements with investors on 27 projects, with



Shanxi's officials and business representatives break ground for a microelectronic equipment manufacturing project funded by China Electronics Technology Group. SHI XIAOBO / FOR CHINA DAILY

funding totaling 10.69 billion yuan (\$1.69 billion).

"I was told that these projects can generate a combined annual output value of 13.2 billion yuan, once they are operational," Wu said.

That day also witnessed the construction of 24 projects with combined investment of 4.15 billion yuan and the operation of 28 projects with total investment of 2.68 billion yuan.

"We are glad to see that 46 of these 79 projects mentioned, or 58.2 percent, are related to strategic emerging industries such as new materials, new energy, modern logistics, biomedicine, advanced equipment manufacturing and digital economy, which are expected to grow into new drivers of our economic growth," Wu said.

Another eye-catching city is Yuncheng in the south of Shanxi. Its devel-

opment zones and industrial parks secured 67 projects, with investment totaling 9.2 billion yuan. The city also saw the groundbreaking of 71 projects and the operation of 69 projects.

Changzhi, a city in the southeast of Shanxi, which ranked first in Shanxi by the number of investment project launches last year, is still in a leading position in attracting investors.

Changzhi saw the launch of 1,807 investment projects last year and this time it secured 34 new investment projects with funding totaling 12.47 billion yuan.

Yang Qinrong, Party secretary of Changzhi, said he is happy to see that the city has attracted a number of projects in some cutting-edge areas, including an electric vehicle battery project, a hydrogen production plant and a big data project.

Lin Wu, Party secretary of Shanxi, who presided over the project signing ceremony in the Shanxi Transformation and Comprehensive Reform Demonstration Zone in Taiyuan, required all the development zones and industrial parks to try their best to attract investors.

"Development zones and industrial parks are the main drivers for Shanxi's growth," Lin said. "Their performance in investment promotion and project launches will be crucial for the province to fulfill its economic growth targets."

He encouraged the zones' and parks' officials to further innovate and improve their services, creating a favorable business environment for entrepreneurs.

Wu Jia contributed to this story.

Modern farming tools sow seeds of success

By YUAN SHENGGAO

After finishing the monthlong Spring Festival celebrations, farmers in Shanxi are now back focusing on their farming activities, hoping to compensate for the losses they suffered due to a severe flood last October.

In addition to hard work, what boosts their hopes for this year's harvest is deepening agricultural modernization — the wider use of farming machines and digital technologies, as well as the introduction of new operational models.

In the warming days, Li Yaping, a farmer in the village of Qiaotou in Ruicheng county, drives a tractor to water his farm.

"This is not a conventional tractor as you saw in the past," Li said. "It can be turned into a multipurpose farming machine with modifications."

Currently, the tractor is being used as a spraying machine after a water tank and a spray nozzle mast were mounted, according to Li, who added that it can be turned into a machine for plowing, sowing or harvesting depending on the need.

"We used flood irrigation in the past, which consumed a lot of water," Li said. "Now we are using the more economical way of spray irrigation."

"If there was a big flood last year, there may be a drought somewhere in the future. So we need to economize."

The farmer estimated that spray irrigation can save more than 600 yuan (\$95) for each hectare of farmland compared with the traditional flood irrigation.

Li added that the tractor will also be used to spray fertilizers and pesticides after irrigation.

In addition to multipurpose

tractors, Li said there are a wide variety of farming machines for farmers to choose from.

However, the farmer admitted that owning a full range of machines and equipment is out of an individual farmer's affordability.

Fortunately, this concern is addressed by the fledgling farming cooperatives throughout rural Shanxi, which lease machines and offer other farming-related services.

Dongheng Farming Machines Cooperative in Ruicheng county, for instance, is one such entity.

"We now have dozens of machines for lease, including four automatic-driving multipurpose tractors," said Zhang Dongdong, head of the cooperative.

The automatic-driving tractor can work 24 hours a day and it has an efficiency equal to the manual work of hundreds of laborers, Zhang said. "Such an efficiency is especially crucial when we are racing with time for spring farming."

But this is not the ceiling of efficiency in the farming industry in Shanxi.

Hu Tianni is the operator of a large smart farm in the city of Yuncheng.

"Many farming machines and devices in the farm are 5G-connected," Hu said. "Operations can be controlled through a smartphone app."

For instance, the spraying of water or fertilizers on his 1,000 mu, or 67 hectares, of farmland, can be finished in hours with the help of the intelligent system.

"We estimate smart farming can help to save 3,000 yuan in costs and increase profits by 9,000 yuan for each hectare," Hu said.

Wu Jia contributed to this story.

Construction companies develop at pace in Africa

By YUAN SHENGGAO

Amid the COVID-19 pandemic that has spread across the entire world for more than two years, construction companies from Shanxi have never slowed their pace in expanding in Africa, devoting their efforts to boosting local development and showing the industrial strength of Shanxi.

One example is Shanxi International Economic and Technological Cooperation, or SIETC, a subsidiary of Shanxi Construction Investment Group. SIETC dispatched more than 300 staff members to various construction sites in African countries including Cameroon, Djibouti, Zambia, Benin, Ethiopia, Tanzania and Central Africa, in 2021.

One of the company's major construction projects is the Levy Mwanawasa Hospital in the Zambian capital of Lusaka.

Named after Zambia's former president Levy Patrick Mwanawasa, the hospital was formerly known as Lusaka Comprehensive Hospital.



Addis Ababa Bole International Airport is one of the projects SIETC built in Africa. YUAN XING / FOR CHINA DAILY

SIETC launched a renovation and expansion project for the hospital in 2017. The renovated hospital, covering 35,000 square meters in floor space and boasting 2,000 sets of medical equipment donated from China, is one of the most advanced medical facilities in Africa.

Wang Bin, an SIETC engineer responsible for the hospital's equipment installation and user training, recalled that construction was completed and equipment installation

started in March 2020, at a critical time when the pandemic spread to this African country.

"We were racing against time," Wang said. "To make it a major hospital to treat COVID patients, we launched training courses while equipment installation was still going on."

During the training, Wang and his colleagues explained to trainees every detail relating to the operation of equipment and devices, especially

those for contagion prevention.

"Our focus was on the negative-pressure ward, as we were informed the hospital would be used to treat COVID-19 patients in the critical stage," Wang said. "We were happy that trainees were able to get familiar with all the operations very quickly."

The hospital began to receive COVID-19 patients only two days after installations were completed, according to Wang.

Another major project that SIETC built in Africa is the Kagera Vocational School in Tanzania. The school, which can offer long or short-term training to nearly 3,000 students and can offer accommodation to 350 people, is among the largest vocational schools in the country.

Other projects the company has built also include the Mabanda Hospital in Burundi and Addis Ababa Bole International Airport in Ethiopia.

Wang Pei contributed to this story.



Multipurpose tractors are used to irrigate farms in the county of Ruicheng. XIAO YONGJIE / FOR CHINA DAILY