



From left: Wind power is a pillar of the new energy industry in Fanshi county, Shanxi province. LI ZHAOMIN / FOR CHINA DAILY A picturesque mountain view in Shanxi. LIU LIANGLIANG / FOR CHINA DAILY Flamingos wade through the water in Yuncheng Salt Lake, Shanxi province. XUE JUN / FOR CHINA DAILY



Shanxi's remarkable 10-year transformation



GDP nearly doubled between 2012-21 as energy production and innovation skyrocketed

By YUAN SHENGGAO

Shanxi's economic transformation has proven to be a great success over the past decade, especially in ensuring a stable energy supply to the country, promoting high-quality and sustainable local growth and improving the local environment and people's livelihoods, according to Lin Wu, secretary of the Shanxi Provincial Committee of the Communist Party of China.

Lin made the remarks during a news conference held on Aug 10 in the Shanxi provincial capital of Taiyuan, which introduced the North China province's remarkable achievements during the past 10 years since the opening of the 18th National Congress of the CPC in 2012.

Lin started his address to the media by sharing impressive numbers.

"Shanxi saw its annual GDP nearly double from 1.17 trillion yuan (\$172.34 billion) to 2.26 trillion yuan during the 2012-21 period," Lin said.

He added that the per capita annual disposable income of urban residents increased from 20,232 yuan to 37,433 yuan, while that of rural residents grew from 7,064 yuan to 15,308 yuan during the same period.

Lin said he is proud that Shanxi announced the elimination of absolute poverty in 2021.



Provincial officials attend a news conference of the CPC Shanxi Provincial Committee in Taiyuan on Aug 10. LI LIANJUN / FOR CHINA DAILY

Shanxi is among the most important suppliers of energy to the country. Over the past decade, the province produced a total of 10 billion metric tons of coal, accounting for about one-fourth of the country's total output, according to Lin. As a majority of the output had been delivered to the rest of the country, Shanxi has played an irreplaceable role in safeguarding the nation's energy security.

The senior provincial official noted that Shanxi's coal output neared 1.2 billion tons in 2021, accounting for about one-third of the country's total. It produced 641 million tons in the first half of this year and numbers for the entire year are likely to surpass 1.3 billion tons.

"We have signed medium and long-term agreements with major

power plants in the rest of the country, ensuring they are provided with at least 620 million tons of coal a year in total, with rational prices agreed to," Lin said.

The official noted that the steady growth of coal supply was made as Shanxi has implemented an economic transformation that aims to achieve sustainable, high-quality development by reducing its reliance on coal and fostering emerging industries as new growth engines.

"Our economic transformation targets will not be achieved by simply reducing the output of coal," Lin said. "The process involves strengthening emerging industries to increase their ratio in the overall economy and upgrading traditional industries toward high efficiency, digitalized operations and low-carbon, environ-

mentally friendly development." The province is steadily diversifying and upgrading its coal industry by integrating coal mining with power generation, developing coal-based chemicals and new materials, as well as digitalizing its industrial chain, according to Lin.

He said making coal cleaner and turning it into new materials represent a new direction in its use. The new solutions in this aspect include coal liquefaction, and developing methanol, hydrogen, graphene and other new materials.

Shanxi is one of the nation's leaders in coal-mining digitalization. It is now upgrading 42 coal mines and 1,500 mining shafts into 5G-connected, intelligent operations.

"While stabilizing and upgrading the coal industry, Shanxi has been

putting more emphasis on fostering new growth engines by developing emerging industries," Lin told the media.

The official said the high-tech industry is viewed as one of most important drivers.

"In 2021 alone Shanxi saw the establishment of 365 high-tech enterprises and entities, including three national-level laboratories," Lin said. "More than 1,400 high-tech professionals have been attracted to the province." One of the important bases for high-tech development is the fledgling Taiyuan-Xinzhou Integrated Economic Zone in the center of Shanxi, which was founded in December 2021.

In March, the integrated economic zone held a groundbreaking ceremony for 183 large projects. Funded by

businesses from across the country, most of the industrial projects there are related to such high-tech industries as advanced equipment manufacturing, integrated circuits and semiconductors.

"The Taiyuan-Xinzhou Integrated Economic Zone, which links the provincial capital of Taiyuan and its northern neighbor of Xinzhou, will serve as another economic powerhouse in central Shanxi along with the Shanxi Transformation and Comprehensive Reform Demonstration Zone," Lin said.

The Shanxi Transformation and Comprehensive Reform Demonstration Zone, founded in 2016, is an earlier development area between Taiyuan and Jinzhong in its south. With a planned area of 600 square kilometers, this is the largest and the leading development zone in Shanxi province.

"Now the two zones will become twin engines to support the high-quality development of city cluster in central Shanxi," Lin said.

In the process of economic transformation, Shanxi is becoming an inland hub of opening-up in China. This ambition is materializing with the operation of nine international cargo train routes linking to Europe, Central Asia and Southeast Asia. "Shanxi's higher level of opening-up is also evidenced by the increasing number of enterprises funded by overseas businesses," Lin said. "Among the global top 500 companies, 137 now have operations in the province."

Shanxi's increasing economic strength as a result of its transformation makes it possible to invest heavily in undertakings including environmental protection and livelihood improvement for its people, according to Lan Fo'an, governor of Shanxi, who was at the news conference.

Guo Yanjie contributed to this story.

Coal companies make strides in green growth

By YUAN SHENGGAO

Shanxi's energy industry players, especially coal-mining companies, have been given a new lease of life thanks to upgrades driven by digital, intelligent and automated technologies.

The upgrades, targeted to promote clean production and improve efficiency, have brought about both environmental and economic benefits.

Tunlan Coal Mine, a coal mining and coal-fired power-generation company in the city of Gujiao, for instance, is contributing to sustainable development by establishing innovative coal-refuse recycling and reuse projects.

The coal ash from its near-mine power plant is no longer dumped in the vicinity, instead, it is now transported via conveyor belts to its depleted mining shafts for refilling, reaching a depth of up to 400 meters underground.

A company executive said such a practice has multiple benefits in both environmental and economic terms.

He said the project can effectively

solve the problem of solid waste discharge and avoid the risk of geological disasters and this is also a practical solution to save on the costs of waste disposal and shaft refilling.

Gengyang New Energy Group, a coking company in the county of Qingxu, is another example of how its upgrades are contributing to environmental improvement.

In March, it pulled down a 55-meter coke wet-quenching tower and replaced it with a more efficient and environmentally friendly facility.

Wet quenching is a traditional cooling technique in coke production, featuring a higher level of carbon dioxide emissions and other pollutants and dust, according to an executive of the company.

He said construction of a more advanced dry-quenching facility will start right away and is scheduled to be completed in April 2023. The new facility is expected to save 120,000 metric tons of water and 21,000 tons of coal a year when it is operational, while reducing 18 tons of hydrogen sulfide and 116 tons of dust.

The coking unit of Jinnan Steel Group, based in the city of Linfen, is

another example of upgrading the coking industry with smart technologies.

With the application of digital technologies, the group's coking production is now controlled by an integrated control center.

With such a center, a company executive said the laborious coking process, including coal loading, coking, coke quenching and coke unloading, can be virtually controlled by one person with the push of a button.

Mining and production workers are the ones most pleased with the improvements in efficiency and safety in their workplaces.

Guo Jinchao, a worker in Jinxinda Coal Industry, a branch company of Shanxi Coking Coal Group, had been working in underground mine shafts for many years.

But now he is working in a control center above the ground, skillfully controlling various mining equipment via a remote operational system.

"The system makes automation possible for coal cutting and conveying," Guo said. "The number of laborers for one shift has been reduced from eight to four and the production efficiency has also increased by 50 percent."

The upgrades have brought fundamental changes to Shanxi's energy industry. According to the Shanxi Energy Administration, the province is now home to 22 smart coal mines with 548 smart mining shafts. The majority of Shanxi's coal output, or 75 percent, is now produced by mines with advanced, efficient and clean-production facilities.

While upgrading its coal-mining sector, Shanxi is diversifying its energy industry by developing more clean energy resources like wind and solar power.

The capacity of power-generation plants based on clean and renewable energy resources now accounts for 34.3 percent of Shanxi's total, local statistics show.

Wu Jia contributed to this story.

Emerging industries fostered as new driving force for sustainability

By YUAN SHENGGAO

While upgrading and diversifying its energy industry, the North China province of Shanxi is fostering emerging industries as its new growth engines.

These include advanced manufacturing, new energy vehicles, new materials, high technology, modern services and the digital economy.

One example of local manufacturers gearing up to an advanced level of operation is Taiyuan Iron and Steel, one of the largest State-owned enterprises in Shanxi province.

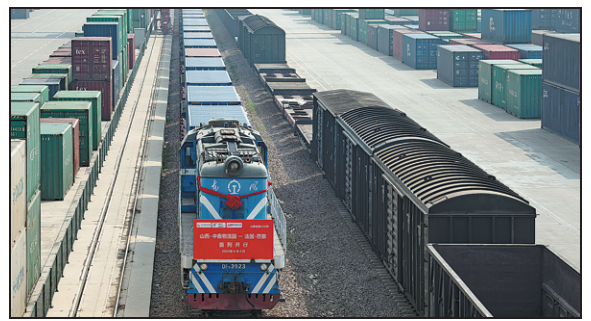
The company's latest cutting-edge product is a superthin broadsheet stainless steel foil with a thickness of less than 0.02 millimeters, equal to one-third the diameter of human hair.

The company's executives said Taiyuan Iron and Steel is among very few manufacturers in the world that can produce steel foil with such specifications.

With high strength and flexibility properties, the product can take the place of aluminum foil in industries like aerospace, electronics, petrochemicals and automobiles. It also performs better in erosion, moisture and heat resistance than aluminum products.

Since Taiyuan Iron and Steel launched the product in 2018, it has broken the monopoly of foreign suppliers and brought tangible benefits to domestic users through lower prices.

In addition to the superthin steel foil, the company has developed a range of high-end, advanced products. These include 18 products belonging to the category of "national firsts"; 26 products ranking first in domestic market share and 40 products that substitute for traditional imports.



The first Shanxi-Paris China-Europe freight train operated by Huayuan International Land Port Group is ready for departure on June 2, 2021. REN HUAJIE / FOR CHINA DAILY

With advanced products accounting for more than 85 percent of its portfolio, Taiyuan Iron and Steel reported a business revenue of 141.4 billion yuan (\$20.84 billion) and total profit of 15.2 billion yuan in 2021. Both figures have set records.

In the new energy vehicle sector, domestic automaker Geely's new-energy unit in the Shanxi city of Jinzhong announced the launch of its methanol-powered heavy-duty trucks to the market on June 22.

This marked the latest move in Jinzhong city's ambitious plan to develop one of the largest methanol vehicle chains in China, from the production of methanol fuel, vehicles, auto parts and methanol-filling facilities.

Geely established the Shanxi New Energy Automobiles Corp in Jinzhong in 2011 and began producing methanol vehicles in 2017.

In the upper stream of the industrial chain, Jinzhong is home to large methanol producers such as Changsheng Coal Gasification, which extracts methanol from coking gas. There are also 60 compo-

nent producers that supply Geely and other automakers.

Jinzhong officials predict the entire methanol vehicle chain will generate 20 billion yuan in annual output value by 2025.

The industries are set to grow into a 100-billion-yuan cluster in the longer term.

With the application of the internet and other information technologies, Shanxi's service industries are on track to achieve rapid and healthy development. Local statistics show the added value in Shanxi's service industries surpassed 1 billion yuan in 2021 for the first time.

Modern logistics is a service sector in Shanxi which has seen the most impressive development. As an example, Taiyuan-based Huayuan Land Port Group has developed into a multifunctional logistics company with operations both at home and abroad that use various internet and e-commerce platforms.

Han Linfang contributed to this story.



A green production base of a coal company helps to boost the clean energy innovation in Shanxi. CUI KAI / FOR CHINA DAILY