

New Action for Energy Conservation, Carbon Reduction

Policy

By YU Haoyuan

China's State Council recently released a two-year action plan aimed at energy conservation and carbon reduction to support the carbon peaking and carbon neutrality goals.

According to the plan, China is expected to achieve approximately a 2.5 percent reduction in energy consumption and a 3.9 percent reduction in carbon dioxide emissions per unit of GDP in 2024. The energy consumption per unit of added value of industrial enterprises above designated size will decrease by about 3.5 percent.

In 2024, the proportion of non-fossil energy consumption is targeted to be 18.9 percent. About 50 million standard coal will be saved and 130 million tons of carbon dioxide emissions will be reduced from energy-saving and carbon-reduction transformations in key areas and industries. In 2025, the proportion of non-fossil energy consumption is aimed to be 20 percent. This reflects China's efforts to meet the mandatory targets for energy conservation and carbon reduction in the 14th Five-Year Plan (2021-25) period.

The two-year plan (2024-25) clarifies 10 key tasks, such as controlling fossil energy consumption and strengthening carbon emission intensity management. The four fundamental aspects are ensuring low carbon in industries, housing, transportation and social infrastructure.

For industries

Fossil energy substitution and consumption reduction will be a priority. The government has called for strengthening efficient use of coal, promoting low-carbon transformation, and enhancing the energy conservation and carbon reduction capabilities of coal-fired power



An aerial view of a low (zero) carbon-dioxide emission industrial park in Sheyang, Yancheng, east China's Jiangsu province. (PHOTO: XINHUA)

plants.

Efforts will be made to improve the flexibility of coal-fired power plants and their capacity for heat supply. It is expected that the scattered coal in key air pollution prevention areas will be eliminated by the end of 2025. China will also regulate oil consumption and promote the use of advanced bio-liquid fuels and sustainable aviation fuels.

The plan encourages developing non-fossil energy. China will increase its renewable energy consumption capacity and promote the consumption of non-fossil energy. Wind power, photovoltaic power, pumped storage and other forms of clean energy will be utilized to replace fossil fuels. The plan indicates that non-fossil energy will account for about 39 percent of the country's electricity generation by the end of 2025.

Moreover, measures such as output control and production capacity layout will be implemented in steel, petrochemical, non-ferrous metal, and

other industries to achieve the ultimate goals of energy conservation and carbon reduction.

For housing

Efforts will be made to control the national cement clinker capacity, maintaining it at around 1.8 billion tons by the end of 2025. The government will develop green building materials and promote the use of energy-saving technology and equipment. Moreover, the energy-saving and carbon-reduction transformations in the building materials industry are expected to save about 10 million tons of standard coal and reduce carbon dioxide emissions by approximately 26 million tons.

China will accelerate the transformation of construction methods by developing prefabricated buildings and promoting intelligent construction. For example, the construction of building-integrated photovoltaics is encouraged. By the end of 2025, solar coverage of new public institution buildings and factories

is expected to increase to 50 percent, and the renewable energy substitution rate for urban buildings will be raised to eight percent. China will also push for energy retrofit of existing buildings to enhance energy efficiency and reduce heat loss in urban heating networks.

For transportation

The construction of low-carbon transportation infrastructure and the transition to low-carbon transportation equipment will be promoted. By the end of 2025, carbon dioxide emission intensity in the transportation sector is expected to be reduced by 5 percent compared to 2020. Additionally, it will optimize the transportation structure, aiming to increase rail and waterway freight volumes by 10 percent and 12 percent respectively, while reducing comprehensive energy consumption per unit of converted turnover in rail transport by 4.5 percent compared to 2020.

For social infrastructure

Public institutions should lead by example in energy-saving and carbon reduction management. By the end of 2025, energy consumption per unit building area, carbon emissions per unit building area, and per capita comprehensive energy consumption in public institutions are expected to decrease by five percent, seven percent and six percent respectively compared to 2020. Energy-saving renovations will reduce coal consumption to below 13 percent and ensure that 80 percent of new key energy-consuming equipment meets advanced efficiency levels.

Additionally, upgrading and renovation of energy-using products and equipment will be accelerated. By 2025, the proportion of high-efficiency energy-saving products in industrial boilers, power station boilers, refrigeration equipment, and general lighting equipment is expected to significantly increase. Efforts will also be strengthened to recycle outdated products and equipment.

Tech+Culture

Tech Lights Up Cultural and Natural Heritage Day

By YU Haoyuan

Under the aegis of the National Cultural Heritage Administration, China's cultural institutions organized over 3,000 events and more than 7,000 related activities to celebrate Cultural and Natural Heritage Day and showcase the nation's rich cultural heritage as well as science and technology prowess.

This year, the theme was "Protecting Cultural Heritage, Passing on Civilization."

Each region's activities displayed regional characteristics, emphasizing education, prioritizing public welfare, innovating communication methods, and promoting the shared use of cultural relics.

China has stepped up excavation, preservation and showcasing its historical and cultural significance. Museums across the country are keeping pace with the times with enhanced technological capabilities, innovation and creativity.

Hunan province in central China used a fusion of "culture + technology" to hold activities related to local intangible cultural heritage. A variety of intangible cultural heritage digital creative products gave visitors a technology-infused feast of intangible cultural heritage. For example, through augmented reality technology, visitors interacted with adorable "Xiang embroidery" pandas, and viewed artifacts like Baoqing bamboo carvings, a renowned traditional handicraft, in 360 degrees, and 3D-printed ceramic vases.

In Sichuan province in southwest China, the fourth "national cultural relics census" is currently underway. Researchers are using a newly developed census system to collect sub-meter resolution satellite remote sensing images, integrating GPS and big data from the internet, and combining aerial photography via

drones for the most accurate coordinates and spatial positions of cultural relics. At the Guanyin Temple in the province's Xinjin city, infrared imaging technology is being used so that researchers can see the carved words on the roofs of century-old wooden houses more clearly, while high-definition digital technology restores the details in photos. Thanks to this high-definition imaging, the famous "Twelve Enlightenment Buddha" mural can be viewed in remarkable detail, down to the three layers of transparent gauze sheathing the body of Guanyin, the deity of compassion.

On June 8, the Shaanxi History Museum hosted a special exhibition using advanced mixed reality (MR) technology in their front courtyard. The exhibition displayed nine exquisite cultural relics from the museum's collection, including bronze artifacts from the Shang dynasty (about 1600 BC to 1046 BC) and Zhou dynasty (1046 BC to about 256 BC), and gold and silver vessels from the Tang Dynasty (618 to 906 AD) to promote knowledge and awareness of cultural relics. Brought out of their showcases, these carefully selected artifacts created an immersive viewing experience through sound, light, shadow and other elements of MR technology. Visitors wearing intelligent MR glasses could adjust the viewing angles and even interact with the artifacts through gestures.

Since 2006 China began to celebrate Cultural and Natural Heritage Day on the second Saturday of June every year. Currently, China boasts 57 world heritage sites, ranking second globally. Among these, there are 14 natural heritage sites and four cultural heritage sites, covering a total area of 70,600 square kilometers.



Artists perform a dragon dance at the Tianmen Mountain in Zhangjiajie, Hunan province. (PHOTO: XINHUA)

Developing Digital Villages Prioritized

By ZHONG Jianli

China has unveiled version 2.0 of its guideline for building digital villages, a move aimed at tackling emerging challenges while driving rural revitalization

through information technology.

The original guideline, released in 2021, laid the groundwork for various digital applications in rural settings. However, such problems as a lack of data integration and sharing mechanism,

and sustainable development models, still need to be tackled.

The updated version 2.0 marks enhancements composed of five aspects, such as emphasizing optimized data utilization, carving out a separate section for "smart agriculture" to advance its progress, and showcasing exemplary cases and innovative practices crucial for digital village construction.

Furthermore, to steer digital rural development effectively in 2024, a set of key focal points has been outlined in a separate document.

By the end of 2024, substantial strides are anticipated in fostering digital village infrastructure. The target includes surpassing 200 million rural broadband users, increasing rural internet penetration by two percentage points, and witnessing agricultural e-commerce sales reaching 630 billion RMB.

The roadmap ahead will include upgrading informatization of agricultural production, and the introduction of experts who understand both agriculture, rural areas, farmers and digital technologies.

To realize these aims, pivotal tasks entail upgrading rural network infrastructure, expediting the integration and sharing of rural data resources, promoting the development of smart agriculture, revitalizing rural digital economies, strengthening inclusive digital services for farmers, and accelerating the realization of smart and beautiful villages.

Through all these efforts, China is bridging the digital gap between its rural and urban areas, allowing people from all walks of life to enjoy the benefits brought from its booming digital economy.



A man controls the height of plant beds through a mobile phone app at a digital agricultural science and technology industrial park in Inner Mongolia autonomous region. (PHOTO: XINHUA)

Zhejiang Embarks on Data IPR Trials

Case Study

By YU Haoyuan

In late May, Zhejiang province issued a guideline on deepening the reform of data intellectual property rights (IPRs) to promote high-quality development. This is China's first provincial-level policy specifically focused on data intellectual property.

Prime focus on three aspects

The document is expected to amplify the advantages of reform and empower high-quality development of the digi-

tal economy. Data, as a significant new production factor, is receiving attention across the country.

Zhejiang is at the forefront of the data IPR revolution in China. Before the policy was released, the central government issued two documents to support data IPR development in Zhejiang. Over the years, through testing and development, the province has accumulated rich experience in promoting IPRs, activating data element kinetic energy and accelerating the digital economy. The new policy will set an example for other cities.

It focuses on three aspects: improving the top-level design and consol-

idating the pilot experience by defining the guiding ideology, main objectives, key tasks and safeguard measures; expanding the width and depth of reform, promoting reform not only in data IPR but also in other digital fields; creating a healthy ecosystem and ensuring sustainability to realize the value of data elements.

Fostering a robust IPR ecosystem

The guideline is also meant to advance the establishment of a closed-loop system for data IPRs, widespread application of regulations, the formation of an ecological system, and reform assurance. It has 20 specific measures on areas such as value evaluation, income

distribution, and financial services.

In accordance with the principle of "those who invest and contribute will benefit," Zhejiang will clarify the proportion of income distribution and the extent of rights and interests, and innovate the income distribution mechanism. Major data platforms such as China Data Valley and China (Wenzhou) Data Port will be utilized to build data intellectual property ecological pilot areas.

The goal is to have over 10,000 registered data IPRs by the end of 2024, with the value of data IPR applications surpassing five billion RMB. By the end of 2027, the first number should be 30,000 and the second 20 billion RMB.

Industry Standards for Service-oriented Manufacturing

By ZHONG Jianli

To better integrate advanced manufacturing with modern service industries, the Ministry of Industry and Information Technology recently issued a guideline to establish standards for service-oriented manufacturing.

Service-oriented manufacturing is a new industrial sector that integrates manufacturing and service, and is an important direction taken for the transformation and upgrading of the manufacturing industry.

Through the use of innovation to increase the proportion of service factors in input and output, manufacturing enterprises will extend and upgrade the industrial value chain, and increase total factor productivity and product-added value.

In recent years, China's service-oriented manufacturing has seen accelerated development, and new formats and models continue to emerge, which makes it urgent to establish a sound standard system to consolidate the basis for the development of service-oriented manufacturing.

The guideline proposes that by 2025, a standard system that can support

the innovation and development of service-oriented manufacturing will be basically formed, and more than 20 standards will be revised.

It encourages industry associations, research institutions, industry alliances and manufacturing enterprises to participate in the formulation of standards, and jointly promote the application and implementation of standards.

The setup of technical standards and application standards covering key scenarios and modes in multiple industries and fields will be guided and facilitated.

Considering the development status and trends of service-oriented manufacturing, the document calls for exploring the mechanism of translating advanced and applicable sci-tech achievements into standards, gradually forming an applicable, scientific and advanced service-oriented manufacturing standard system.

The guideline encourages active participation in international standardization exchanges and cooperation in service-oriented manufacturing, thus facilitating Chinese manufacturing and services to go global.