

Upgrading Energy-saving Standards

Policy
By LI Linxu

In its latest push to green and low-carbon transition, China has stepped up efforts to advance the update, upgrade, application, and implementation of energy-saving standards.

A batch of national standards on energy efficiency in key fields, such as petrochemical, chemical, steel, nonferrous metals, building materials, and machinery sectors, will be set up or revised, according to a plan jointly released by the National Development and Reform Commission (NDRC) and the State Administration of Market Regulation (SAMR).

The requirements on energy consumption limits in key energy-consuming sectors will be steadily raised, and the energy efficiency levels of key energy-consuming products will be continuously uplifted.

Meanwhile, the scope of energy-sav-



Photovoltaic panels installed on rooftops of the Riyue Square in Haikou city, Hainan province. (PHOTO: VCG)

ing standards will be further expanded, to cover new infrastructure such as data centers and telecommunication base stations, and new-type home appliances.

Energy-saving standards are the foundation of a country's energy-sav-

ing systems, said an official from SAMR, adding that the application and implementation of these standards will be strengthened.

Over the years, China has made great strides in establishing and improv-

ing the standards system on energy-saving. Statistics show that to date, China has issued and implemented 108 mandatory national standards on energy consumption limits, 66 mandatory national standards on energy efficiency, and 190 recommended national standards on energy conservation.

These standards play an important role in promoting technological innovation, industrial upgrades, and green and low-carbon development.

The plan is a follow-up to the 20th CPC National Congress report, which vowed to accelerate the R&D, promotion, and application of advanced energy-saving and carbon emission reduction technologies, encourage green consumption, and promote green and low-carbon ways of production and life.

A series of target measures, including preferential procurement, tax incentives, or financial support, will be rolled out later, for the products, projects, or enterprises with outstanding performance in energy efficiency levels, according to the plan.

Sci-tech Commissioners Empower Rural Revitalization

By LI Linxu

As an important initiative to implement the rural revitalization strategy, sci-tech commissioners are leveraging their expertise to empower agriculture, farmers and rural areas.

The key to the modernization of agriculture and rural areas lies in sci-tech and talent, said an official from the Ministry of Science and Technology, adding that sci-tech commissioners have become an important force in seeding agricultural know-how in rural areas and among farmers.

Statistics show that since the 18th CPC National Congress in 2012, there have been about 290,000 sci-tech commissioners actively involving in the first line of rural areas across the country.

Wuzhishan city in Hainan province is one of the beneficiaries of such a policy. Now, there are more than one hundred sci-tech commissioners in the city, covering all of its 59 administrative villages. With the help of the commissioners, the city has transformed from a backward and impoverished city

to one of the first batch of national innovative counties.

Zhou Zhaoxi, associate research fellow from the Chinese Academy of Tropical Agricultural Sciences, is one of sci-tech commissioners in the city. He and his teammates are focusing on the introduction and effective cultivation of new varieties of rare-premium fruits and vegetables in light of local conditions.

Since this January, Hainan provincial government has implemented a policy aiming to better serve agricultural sci-tech commissioners in the province, including financial support.

Local governments are also rolling out targeted policies to facilitate the work and daily life of sci-tech commissioners.

The major content of these policies is to guide and encourage sci-tech personnel to go to the first line of agricultural production, provide sci-tech services, and advance the transformation of sci-tech achievements, so as to boost farmers' income, drive the high-quality development of rural areas, and lay a solid foundation for rural revitalization.

Closer Mainland-HK Ties Lead to Reciprocal Success

By CHEN Chunyou

Hong Kong serves as a bridge linking China's mainland and the world. In recent years, the central government has actively supported Hong Kong's integration into the country's overall development, and its connection with the mainland becomes increasingly closer.

During this year's Two Sessions, Hong Kong's Chief Executive John Lee Ka-chiu attended the first session of the 14th National People's Congress, after which he led a delegation to visit central

ministries and some provinces, to explore more cooperative opportunities.

Of note is the agreement signed by the Ministry of Science and Technology and Hong Kong this March, to promote talent flow and technology transfer, sharing of technology resources and the common growth between the mainland and Hong Kong.

Minister of Science and Technology Wang Zhigang said this will help Hong Kong accelerate the building of an international innovation and technology hub, and allow it to better play its role in ad-

vancing the country's efforts to achieve greater self-reliance on the tech front.

Also, this March, the first academician workstation called Technovation Center was launched in Hong Kong. It was co-founded by Chinese Academy of Engineering (CAE) and the China State Construction International Holdings Limited, and led by Chen Xiangsheng, a CAE academician.

The workstation will introduce mainland's cutting-edge research achievements to Hong Kong's construction industry, seek to make technological

breakthroughs in the fields of infrastructure and smart construction, and advance the green upgrading of its traditional construction sector.

The establishment of the center is in line with the future development direction of Hong Kong in innovation and technology, said Hong Kong's Acting Chief Executive Eric Chan Kwok-ki, who looked forward to future collaborations of local industries with Technovation Center, to help bring construction technologies of Hong Kong and the mainland to a higher level.

Improved Facilities Boost Basic Research in China

Case Study
By LONG Yuemei & CHEN Chunyou

More and more young researchers are heading for Songshanhu Science City (hereinafter referred to as Songshanhu) in Guangdong's Dongguan city, to realize their dreams. In fact, it's such a drawcard that to date, of the 204,600

employed people in Songshanhu, 92 percent are aged under 45.

In Dongguan, a core zone of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), it's the improved research infrastructure that is the major attraction.

One of the stellar large-scale facilities at Songshanhu is China Spallation Neutron Source (CSNS), dubbed "super microscope", used for studying the microstructure of matter.

Its construction began in 2011 and was put into operation in 2018. It offers an experimental platform for basic and applied research in materials science, physics, chemical engineering, life science, new energy and other fields.

CSNS has supported research teams, including many from China and other countries, in addressing significant global challenges that range from healthcare and security, to ecology and fuel technology.

Dams play a crucial role in the water project. It is very important to have a clear understanding of their internal structure, so as to ensure and improve safety, according to Hou Jingming, executive vice director of a laboratory of ecohydraulics at Xi'an University of Technology.

In the past, the internal structure of many materials could not be discovered due to a lack of such facilities, or these materials had to be sent abroad to be tested, which is time-consuming. Now, the CSNS will greatly reduce detection costs and improve research efficiency, said Hou.

In November 2022, the construction of CSNS project II was approved by

the National Development and Reform Commission. It is expected to play a bigger role in upgrading GBA into a comprehensive national science center.

"In Songshanhu, I saw the latest research directions and achievements in basic physics, chemistry and other fields, which opened new ideas for clinical treatment and medical research," said Xu Miao, a doctor at Qilu Hospital of Shandong University.

Xu said the R&D of new drugs is closely connected with the progress of materials science, noting that the hospital will explore drug testing with the help of CSNS in the future.

In February, 2023, the establishment of a service center for commercialization of research results in GBA was approved by Dongguan municipal government and the Chinese Associations of Young Scientists and Technologists.

With its convenient location in Songshanhu, the center will provide supportive services, covering business startups, employment, industrial cooperation, financial consulting, and academic exchanges, aiming to promote the commercialization of research results and their industrialized development.



A sci-tech commissioner shares cultivation technologies of Chinese herbal medicines with a local villager in Jianou city, Fujian province. (PHOTO: XINHUA)

New Cyberspace Governance White Paper Released

By MIAO Qing

The Information Office of the State Council released a white paper titled *China's Law-based Cyberspace Governance in the New Era* on March 16, which highlights China's cyberspace law-based governance since 1994, and demonstrates its intellectual contributions to global cyber governance.

The white paper emphasizes the importance of developing a complete system of cyber laws and regulations, effective enforcement, supervision and infrastructure, to ensure a healthy and orderly cyberspace.

More than 140 laws and regulations regarding cyberspace have been pub-

lished, providing legal protection, while prioritizing minors' cyberspace environment. The progress in the field of legislation, law enforcement, justice and legal education in cyberspace over the past few years is meaningful for minors' cyberspace environment.

The white paper also highlights China's efforts to promote innovations in relevant laws, to adapt to new challenges brought by big data, blockchain, algorithms, and data security, and strengthen the cultivation of cyber legal talents in the future.

Finally, the white paper states that China is ready to partner with all other countries to build a community with a shared future in cyberspace and create a better world.



An aerial view of the China Spallation Neutron Source, the country's first research facility to provide the most intense pulsed neutron beams for scientific research, at Dalang town in Dongguan, Guangdong province. (PHOTO: XINHUA)

Muography: Cosmic Rays Revolutionize Relic Investigations

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The data processing was also a challenge. One issue was the amount of data acquired was much smaller than that of unknown quantity to be solved. Liu Guorui, postgraduate student at LZU said that this required her and her coworkers to pick out the most reasonable model that could satisfy several equations at the same time.

In addition, calculations became difficult when there was density anomaly, as the result could be affected by sys-

tematic deviation, according to Liu Guorui. The calculation result showed that there was a hollow in the northern part of the rampart, but the researchers had to exclude technical reasons like improper measurement or data processing, before confirming the result.

Archaeological application

After the result was verified, it was found that there were indeed some apparent density anomalies inside the rampart.

Surprisingly, the result also identified an area of low density and clearly pre-

sented its location, shape and size. The area turned out to be the power distribution room, which researchers were not told about in advance. This is an effective verification of muography via blind testing.

Wu Chun, deputy director of the management committee of the Xi'an City Wall, hoped that further cooperation with the research group could prove that the technology is safer and more accurate, thus making it possible to have more forward planning in preventive conservation, by providing reliable refer-

ences for repairing the wall with the assistance of geological surveys.

As early as November 2020, the research group developed China's first cosmic ray muons tomography system, with triangular bar plastic scintillator detectors. Now the system has been taken out of the lab and applied in the field. The localization rate of this technology reached 95 percent, according to Liu Juntao.

"This technology would definitely play a role in investigating large-scale archaeological sites," said Liu, adding that Dunhuang Academy is now communicating with the research group, planning for future cooperation in detecting the inner structures of the famous grottoes.

Innovation Drives China-Russia Practical Cooperation

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In June 2022, the Heilongjiang Bridge, the first cross-border highway bridge between China and Russia, with a length of 1,284 meters, was officially opened to traffic, marking the opening of a new international transport corridor between northeast China and far east Russia.

Meanwhile, the two countries have delivered fruitful outcomes of cooperation in such fields as pandemic prevention and control, nuclear energy and digital economy. In addition, the China-Russia joint science and technology innova-

tion fund has been successfully launched and significant cooperation progress has been made in major strategic projects.

Principal results from bilateral cooperation include China's participation in the construction of the Nuclotron-based Ion Collider Facility (NICA), a large-scale scientific facility, and the establishment of the Russian-China Mathematical Center by both sides. Practices have proven that there are great potential and broad prospects for China-Russia cooperation in sci-tech innovation.