Tech Tools to Hike Consumption Patterns

By ZHONG Jianli

A set of measures aimed at encouraging new consumer scenarios and supporting new growth points were unveiled in a circular on June 24, through a joint effort led by the National Development and Reform Commission (NDRC) and four other related departments.

"Over the past two years, consumer demand in China has shown a continuous surge, with the consumer market steadily regaining its momentum. In 2023, the final consumption expenditure contributed a remarkable 82.5 percent to economic growth, standing as the primary driving force behind our economic prosperity," said a spokesperson from the NDRC.

"Unlocking the enormous potential for consumption is pivotal to sustaining growth," emphasized the official, discussing the backdrop against which the measures were introduced.

The current acceleration of technological revolution and industrial transformation, coupled with the emergence of new tech tools like big data, cloud computing, AI, the Internet of Things (IoT), and blockchain, is profoundly altering human production and consump-

A visitor experiences an XR movie through VR and AR devices during the 14th Beijing International Film Festival on April 17, 2024. (PHOTO: VCG)

tion. These digital advancements and data elements are poised to revolutionize consumer supply upgrades, presenting new opportunities for growth.

The creation of new consumer scenarios encompasses fresh formats, models, and products, embodying significant importance in enhancing consumption

quality and satisfying people's aspirations for an elevated lifestyle.

The circular concentrates on six focal areas: catering, cultural tourism and sports, shopping, bulk commodity, healthcare, and community service consumption.

In cultivating new scenarios for

cultural tourism and sports consumption, it underscores the necessity of advancing innovative integration within the tourism sector.

Initiatives include leveraging digital technologies to bolster scenic advancements, actively fostering new formats such as digital art and immersive experiences, and supporting virtual tourism showcases through livestreaming and short video platforms.

To bolster new shopping consumption proposals, the circular advocates harnessing novel technologies to enrich the shopping experience.

Strategies encompass exploring the use of AI models, virtual reality panoramic views, and digital avatars to expand e-commerce live scenarios, while promoting immersive consumption experiences through online services like virtual fitting rooms.

The measures also include expanding novel automotive consumption.

These include creating new settings for high-end intelligent driving, enhancing domestic decoration consumption, advancing indoor smart assemblies, smart home IoT systems, and innovating in electronic product consumption through developments in flexible screens, cutting-edge photography, and robust software and hardware functions tailored to smart wearable device applications.

Smart Megacities to Regulate Digital Grids

By Staff Reporters

At the end of June, China released its first group standard aimed at comprehensively assessing the construction level and effectiveness of digital grids in megacities like Shenzhen, in southern Guangdong province. This standard is designed to guide grid enterprises in exploring innovative approaches to devel-

oping and constructing digital grids within their service areas.

The standard explains and establishes the concept and connotation of the digital power grid for megacities, along with its evaluation system.

Representing the forefront of electric grid modernization, and effectively providing an energy ecosystem of the future, the digital grid integrates

embedded sensing technologies, advanced intelligence, data analytics, and cloud computing. This integration improves grid flexibility based on customer-sited distributed energy resources, ensuring reliable, safe, affordable, and sustainable electric service for customers.

Jointly developed by the Shenzhen power supply bureau of China Southern Power Grid Company Limited (SPSB) and several industry-related associations, the standard summarizes five primary indicators:

- Comprehensive equipment digitization
- Intelligent production and operation
- Integrated safety and control
- Collaborative ecological creation
- Agile urban empowerment

Additionally, the standard includes 15 secondary indicators and 44 tertiary indicators. It underwent expert review by the China National Institute of Standardization and 14 other units, with a focus on areas such as digital new infrastructure, convergence of business and technology, network security, green collaboration, and smart

city empowerment.

It also cites Shenzhen as an exemplary case.

As a leading entity in the industry, SPSB has substantially developed a major megacity digital grid, characterized by extensive connectivity, comprehensive sensing capabilities, intelligent driving, and open sharing. In the 2023 national digital transformation maturity standardization initiative, the bureau achieved the highest maturity rating, which laid a solid foundation for the establishment of this standard.

Data shows that in 2023, Shenzhen's GDP output per kilowatt-hour reached 30.66 RMB, marking a 1.66 percent year-on-year increase. The efficiency is driven by digital methods. SPSB has completed 3D modeling of 5,300 kilometers of transmission lines and 130 kilometers of corridors, fully digitalizing inspections and hazard detection. A high-speed intelligent network enables real-time monitoring of all substations, and a self-healing smart distribution network allows about 80 percent of users to quickly restore power during outages.

Shenzhen is using 5G robot technology for power grid monitoring and inspections. This has greatly improved efficiency compared to the past. (PHOTO: Science and Technology Daily)

Oil Refining Industry Rushes to Go Green

By Staff Reporters

After China released a two-year action plan for energy conservation and carbon reduction, five key departments, including the National Development and Reform Commission and the National Energy Administration, collaborated to issue a specific action plan for the oil refining industry this June. This plan aims to improve energy efficiency in the sector and reduce CO2 emissions.

The plan sets targets to be achieved by the end of 2025, and focuses on three key objectives:

- Keeping the country's primary refining capacity for crude oil below one billion mt/year.
- Increasing the proportion of production capacity in the refining industry above the energy efficiency benchmark to over 30 percent.
- Completing the technological

transformation or phase-out of production capacity below the energy efficiency benchmark.

Through energy-saving and carbon-reduction retrofits and equipment updates, it is expected that from 2024 to 2025, the plan will save two million tons of energy in standard coal equivalent and reduce CO2 emissions by around five million tons.

Moreover, China is striving to ensure energy efficiency of the refining industry reaches an international advanced level at the end of 2030, with significant progress being made in green and low-carbon development.

The plan emphasizes optimizing the industrial structure and layout, strictly controlling oil refining capacity, and ensuring that new and expanded projects meet energy efficiency benchmarks and A-level environmental performance. It also encourages renewable

energy, hydrogen production technology and supports green hydrogenrefining projects. Another key focus area is to accelerate the update of energy-using equipment by promoting high-efficiency devices and phasing out distillation units with capacities of two million tons per year or less.

In terms of clean and low-carbon energy substitution, the plan aims to promote the adoption of power generated from renewable sources, facilitate the transition from steam turbines to electric drives, and encourage enterprises to shift their energy use model by increasing the usage of diverse electricity sources and natural gas. It also seeks to improve cross-industry efficiency by linking the oil refining industry with steel, cement, new energy, and energy storage sectors. Digital empowerment is another focus, with the establishment of digital energy management centers

and the coordinated management of energy use and carbon emissions data.

Official support includes implementing policies that exclude raw material energy use and non-fossil energy from dual-controls over energy intensity and gross energy consumption, refining tiered electricity pricing for high-emission industries, increasing financial support, and developing green and transition financial products and services. The plan also emphasizes updating mandatory national standards for energy consumption limits in the oil refining industry and advancing the R&D of energy-saving and carbon-reduction technologies.

The implementation of this action plan will significantly promote energy conservation and carbon reduction in the oil refining industry, and contribute significantly to achieving China's energy and environmental goals.

Beijing Grassroot Tournament Spurs AI Application

By LI Linxu

As one of the important engines of new quality productive forces, AI is increasingly taking root in our society and transforming everyday lives.

To ignite enthusiasm in AI innovation and application, Yuquanying street, located in Beijing's Fengtai district, has initiated an AI+ tournament, calling for participation from universities, institutes and start-ups.

By now, more than 20 AI teams have registered to take part in the tournament, including teams from Tsinghua University, Peking University, Beihang University and the Chinese Academy of Sciences.

Fengtai is fostering an industrial ecology for AI development featuring openness, coordination, and sharing, said Gao Chongyao, the district's deputy mayor, adding that such an innovative tournament is expected to further spur entrepreneurship and investment in AI, advance the deep integration of AI with the real economy, and boost the transformation of traditional industries.

Beijing Volumetric Capture Technology, one of the participating teams, is pioneering AI-based algorithms to create digital humans. The technology has been applied in a number of sectors, Guo Songjie, the company's CEO, told *Science and Technology Daily (S&T Daily)*, citing the example of its AI-generated world champions being used in Taekwondo training.

Like the steam engine in the industrial revolution and personal computer in the information age, AI is transforming every sector of human society, creating both opportunities and challenges, Zhou Tianyi, deputy director of the A*STAR's Center for Frontier AI Research, Singapore, told *S&T Daily*, noting

that with its massive data and vast market, China possesses unique advantages in AI development.

Along with the tournament's launch ceremony, a roundtable dialogue was held to better seize the opportunities and address the challenges brought by AI.

Sun Jingwei, managing partner of Tengye Ventures, believes that as AI technologies become more mature, the development of AI has entered the fast lane, bringing changes to our work and life. He is looking forward to seeing more innovative AI applications targeting the urgent needs of consumers and industries.

Ma Lei, associated research professor of the College of Future Technology, Peking University, is also a strong believer in AI. He sees great potential in the application of AI in healthcare, particularly for medical imaging, diagnostic disease prediction, disease prevention and treatment.

Although there are uncertainties ahead, AI will progressively move towards general adoption, with each breakthrough uplifting productivity and democratizing intelligence, said Yu Fanghao, head of the investment and M&A team from Baichuan AI, noting that large language models have already been experimentally used to assist doctors in diagnosing diseases.

"We are all in AI," said Chui Wenwei, investor from Baidu Venture, adding that AI is changing the fundamental structure of information, generating productive forces in digital and physical spaces.

AI is one of the few general technologies that can bring revolutionary impact on economic and social development, said Chen Ping, CTO of Baizhi Embodied Robotics, forecasting that AI will become a major growth engine in the coming decades.

Zhengzhou: A Hub of Computing Power

By Staff Reporters

When the Zhongyuan Computing Valley was recently unveiled in Zhengdong New District, Zhengzhou, Henan province, the city took a crucial step forward in establishing itself as a hub for computing power in central China.

The AI industry has emerged as one of the key industrial chains being forged in Zhengzhou. The city's 2024 government work report explicitly emphasizes the focus on building the "hub of computing power" to speed up the development of Zhengzhou as an AI computing center.

It has now initiated the construction of the national supercomputing Internet core node, AI industry sci-tech parks, and numerical industrial parks. Notable industrial parks like Jinshui Science and Education Park, Baisha Big Data Industrial Park, Kunpeng Software Town, and Tianjianhu Big Data Industrial Park have already been completed.

In addition to expedited infrastructure development, Zhengzhou has issued supportive policies for innovative AI development, aimed to coordinate the supply of smart computing data resources, enhance AI technological innovation, and optimize the ecosystem of the AI industry.

The city encourages enterprises, universities, research institutions, and third-

party organizations to jointly establish efficient public computing power services tailored to the needs of the industry.

Furthermore, it has introduced an operating mechanism centered around "computing power vouchers," to facilitate coordinated settlements within computing centers. Efforts are underway to open up public data and industry data to AI enterprises and research institutions in a lawful and compliant manner.

In addition, financial support is given to qualified AI projects and enterprises. For example, a one-time bonus of five million RMB has been set up for AI enterprises that are identified as "unicorns" on international or domestic authoritative lists.

Currently, Zhengzhou has gathered a number of leading AI enterprises, signifying the burgeoning scale of the industry. Statistics reveal that more than 100 AI-related enterprises have been established in Zhengzhou, with 783 companies specialized in blockchain and around 200 engaged in the metaverse field, cultivating a dynamic future industrial ecosystem.

An official from the Zhengzhou Municipal Bureau of Industry and Information Technology said the scale of the AI industry in the city has exceeded 20 billion RMB, and the overall scale of related industries has surpassed 100 billion RMB.

The 7th national supercomputing center in Zhengzhou, central China's Henan province. (PHOTO: XINHUA)