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## New Quality Productive Forces

# Low-altitude Economy Takes Off

By WANG Xiaoxia

The low-altitude economy is considered globally as an important strategic emerging industry with vast potential. China's annual Central Economic Work Conference held last December and the 2024 Government Work Report both identified the low-altitude economy as one of China's strategic emerging sectors.

In recent years, China's central government has continuously improved the relevant policies, and local governments have also carried out pilot projects in this sector. The technology and supporting industrial chains have become increasingly mature, laying a solid foundation for the explosive growth of the low-altitude economy going forward. Also, the diverse application scenarios of a low-altitude economy will drive the development of related industries and facilitate new quality productive forces.

### Supportive policies trigger potential

The low-altitude economy is a comprehensive economic form that refers to a wide range of industries centered around manned and unmanned vehicles, usually operating below an altitude of 1,000 meters. This includes electric Vertical Take-off and Landing (eVTOL), Unmanned Aerial Vehicle (UAV), helicopter and traditional fixed wing aircraft. Allied economic activities include low-altitude flight, air tourism, passenger transportation, general aviation services, scientific research and education.

Low-altitude airspace has more diverse application prospects than ground traffic, and has huge development potential. By the end of 2023, the size of China's low-altitude economy was estimated to be in excess of 500 billion RMB (about 70 billion USD), with its scale expected to rise to two trillion RMB by 2030, according to the Civil Aviation Administration of China (CAAC).

To seize the opportunity, in recent years, the CAAC has promoted the construction of a low-altitude flight service system, simplified the application and approval procedure of low-altitude flights, and improved the operating environment.

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China's first domestically made polar icebreaker Xuelong 2, or Snow Dragon 2, arrived in Hong Kong for the very first time on April 8, 2024 for a five-day visit. The visit is hoped to promote Hong Kong people's understanding of polar expedition, especially young people's interest and enthusiasm for polar scientific research. (PHOTO: Ministry of Natural Resources)

## Editor's Pick

# Photovoltaic Industry Has a Sunny Future

By LIN Yuchen

In 2023, China's exports of electric vehicles, lithium-ion batteries, and photovoltaic (PV) products, also known as the "new three items," increased by nearly 30 percent.

Of this illustrious trio, PV products saw a remarkable surge in exports, growing by an accelerated rate of 65.5 percent in 2023. This reflects China's strong competitiveness in the international market, thanks to its outstanding technological advancements and quality in PV products. The country's PV manufacturing sector has become a benchmark industry in the global transition to renewable energy and addressing climate change.

Today, the country is leading the world in both PV installed capacity and electricity generation, widely applied in the solar energy industry, setting the standard for efficient and sustainable energy production.

### Seeds of change

This story began in the late 20th

century when China, facing rapid industrialization and soaring energy demands, turned its focus towards renewable energy. The PV industry, still in its infancy globally, caught the attention of Chinese visionaries. They regarded it not just as a technology, but as a pathway to energy independence and environmental stewardship.

One of the key milestones in China's solar energy journey is the development of advanced PV technologies. A notable example is the N-type PV technology, which has revolutionized solar panel efficiency and durability. By employing N-type PV cells, Chinese manufacturers have achieved higher conversion rates, lower degradation rates, and improved performance under challenging environmental conditions. This technological leap has not only enhanced the overall efficiency of solar panels, but has also contributed significantly to reducing the cost of solar energy production, making it more competitive in the global market.

China's commitment to innovation

is further exemplified by its investment in large-scale solar projects. The country has strategically deployed solar farms across vast areas, harnessing the power of sunlight to generate clean electricity on a massive scale. One prominent project is the Longyangxia Dam Solar Park in Qinghai province that began operating in 2013. The park boasts over four million solar panels spread across 27 square kilometers. This mega-project not only demonstrates China's capacity for large-scale renewable energy deployment, but also serves as a model for sustainable energy infrastructure development worldwide.

### Exploring new partnerships

Another notable aspect of China's solar energy journey is its emphasis on global collaboration and partnerships. Chinese companies have engaged in strategic alliances with international counterparts, sharing expertise, resources, and best practices to accelerate the development and adoption of solar energy technologies worldwide.

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# Healthy China's Outstanding Contribution to the World

By QI Liming

April 7 is the World Health Day. Health is the most crucial indicator of a happy life. Chinese from all walks of life have realized the importance of staying healthy and that they themselves have the primary responsibility of looking after their own health.

Li Bin, deputy director of China's National Health Commission, said, "The level of health literacy of the Chinese is steadily improving at a rate of about two percent every year, and a healthy lifestyle has become the trend."

In June 2021, the World Health Organization (WHO) officially declared China had eliminated malaria. After eradicating smallpox, filariasis, polio and neonatal tetanus, China has exterminated another major epidemic. WHO hailed the reduction of malaria infections in China from 30 million per year to zero as a remarkable achievement.

China's success in eliminating malaria has been widely recognized by the international community. More and more countries are learning from China's experience in malaria prevention and control. Chinese medical aid teams have been

sent to 76 countries and regions.

From eliminating malaria, polio and other major infectious diseases to building the world's largest medical and health service system, China's road to health involves the well-being of about 18 percent of the world's population, providing a "China solution" for improving global health governance.

Qiao Jianrong, WHO's representative in China, said, "The health service system based on primary health care ensures the accessibility of health services and can respond to public health emergencies in a timely and effective manner."

# China, Indonesia Open New Chapter in Marine Research

## International Cooperation

By Staff Reporters

The first China-Indonesia joint scientific expedition in the Java Trench, the deepest point in the Indian Ocean, wind-up successfully on March 28 with the research vessel, Tansuo-1 (Discovery One), returning to Sanya city in Hainan province, south China.

It was the first expedition in the world to carry out large-scale and systematic manned deep diving research in this area.

The expedition team, consisting of experts from 11 universities and institutions from both countries, set sail from Sanya on February 8 for a 50-day deep-sea diving mission in the Java Trench.

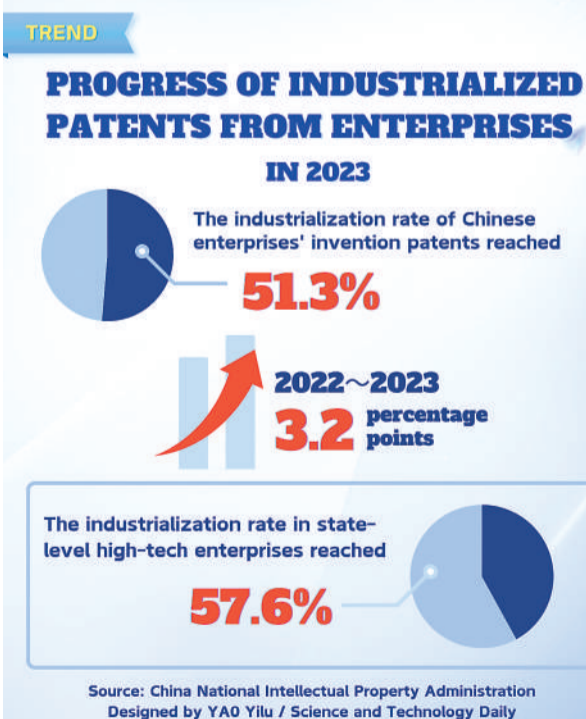
The Fendouzhe (Striver), the deep-sea manned submersible carried by Tansuo-1, completed 22 diving missions, 14 of which were at a depth of more than 6,000 meters. Six were joint diving missions, creating the deepest dive record for Indonesia.

The expedition obtained valuable samples of macrobenthos, including several new abyssal species, and rocks and sediments from the Java Trench, as well as high-definition videos and photographs. It also found two active low-temperature hydrothermal regions in the forearc basin, which provided important support for further understanding geological tectonic activities, biodiversity and co-evolution of geological life in the Java Trench.

At the welcome ceremony for the joint expedition held on March 22, the Chinese ambassador to Indonesia Lu Kang said, "China and Indonesia have been deepening research collaboration in marine sciences in recent years. I hope scientists from our two countries can achieve more high-quality research results in the future and contribute to the blue economy and sustainable development."

Luhut Binsar Pandjaitan, Indonesia's coordinating minister for maritime affairs and investment, said the joint expedition has opened a new chapter for the two countries to strengthen maritime cooperation. He hoped the two countries would expand scientific cooperation and cultivate more scientists and engineers for Indonesia.

## New Graphic



WECHAT ACCOUNT



E-PAPER



# China to Expand Foreign Investment Access to More Industries

## Policy

By CHEN Chunyou

The General Office of the State Council recently issued an action plan for advancing high-level opening-up and making greater efforts to attract and utilize foreign investment. The action plan has pragmatic measures to attract foreign investment by expanding market access and facilitating the flow of innovative elements, Wu Hao, secretary general of the National Development and Reform Commission (NDRC), said at a State Council policy briefing on March 20.

To enhance the level of foreign investment liberalization, the action plan proposes to completely remove restrictions on foreign investment in the manufacturing sector and continue to promote opening-up in telecommunications, healthcare and other service industries.

Notably, it specifies the initiation of pilot programs to relax foreign investment access to sci-tech innovation. Eligible foreign-invested enterprises in pilot free trade zones such as Beijing, Shanghai and Guangdong are allowed to expand in areas like the development and application of genetic diagnosis and treatment technologies. It also supports opening-up measures in fields like information services (limited to app stores) to ensure better results in the pilot free trade zones.



The China (Shanghai) Pilot Free Trade Zone. (PHOTO: XINHUA)

For the smooth flow of innovative elements and promoting innovation cooperation between domestic and foreign-invested enterprises, the action plan suggests supporting data flow between foreign-invested enterprises and their headquarters. Measures will be taken to regulate cross-border data security management, organize data exit security assessments, standardize personal information exit contract filings and other related

tasks to facilitate secure and orderly cross-border flow of data related to R&D, production, and sales of foreign-invested enterprises.

Boosting foreign investment was also mentioned as an important task in this year's Government Work Report, which proposed expanding the list of industries encouraging foreign investment, and encouraging foreign enterprises to invest more in China. The action plan re-

iterates expanding the list of industries for foreign investment and the list of major foreign investment projects.

"Following the 2024 Government Work Report, the NDRC, in conjunction with relevant departments, has already worked on the revision of the Catalog for the Guidance of Foreign Investment Industries," said Hua Zhong, an official in charge of the department of foreign capital and overseas investment at the NDRC.

# First Batch of Enterprises Chosen to Foster New Quality Productive Forces

By CHEN Chunyou

The State-owned Assets Supervision and Administration Commission (SASAC) of the State Council recently chose the first batch of leading enterprises to accelerate the layout in new domains, and spearhead the development of new quality productive forces.

The selected enterprises, mostly established within three years, are from strategic emerging and future industries, including artificial intelligence, quantum information and biomedicine. The average age of their core technical staff is around 35 years, reflecting a vibrant and innovative workforce.

This selection is the follow-up to a leading enterprise cultivation project launched by SASAC in 2023 to accelerate the cultivation of innovative state-owned enterprises. Under this mecha-

nism, startups with strong development potential were chosen and granted autonomy, backed by preferential policies and incentives tailored to enhance their development potential.

One example is the China Telecom Quantum Information Technology Group Co., Ltd., which is accelerating the construction of a novel quantum-resistant security infrastructure, while promoting the industrialization of quantum communication and the practical application of quantum computing.

Another example is the Xi'an Coal Transparent Geological Technology Co., Ltd. It is seeking to revolutionize the traditional geological survey business with new-generation information technology, and develop large-scale model products in the vertical field of geology, to empower intelligent and eco-friendly development of the coal mining industry.

## Case Study

# Global R&D Resources Help Shape Hunan's Growth Drivers

By CHEN Chunyou & YU Huiyou

In recent years, the traditional advantageous industries in Hunan province, such as construction machinery, rail transit equipment and aerospace equipment, have maintained robust export growth. Solar cells, lithium batteries and electric passenger vehicles from Hunan have also become favorite products in overseas markets.

This is attributed to Hunan's efforts to foster new quality productive forces. In 2023, the southern province decided to build its capital city Changsha into a global R&D center. The goal is to align its functions and R&D with global needs, attract R&D resources worldwide, and produce cutting-edge achievements that benefit the globe. This, in turn, supports the province's development of new quality productive forces.

One notable collaboration is the BASF Shanshan Battery Materials Co., Ltd. (BSBM), a joint venture between Germany's leading chemical company BASF and Shanshan Corporation, one of China's top 500 enterprises. This was Hunan's largest foreign investment project in 2021.

BASF brought global resources from its Asia-Pacific R&D headquarters for cathode materials and the Chinese administrative headquarters of its battery materials division to the BSBM's Changsha base.

To date, the BSBM has achieved many feats, including developing high-nickel and ultra-high-nickel cathode materials for power batteries, which are widely used for high-end power vehicle models.

To enhance the intelligence and production capacity of the BSBM's Changsha base, a 110 kV external line project was built with government support and put into use this February.

Wang Wenjia, general manager of

Continental Hope Investment Development Co., Ltd., spoke highly of Changsha's business environment.

"The governments at all levels in Changsha try their best to meet enterprise development needs, which can be seen from attracting industrial chain enterprises, improving the surrounding market system, to providing consultative services for company registration," Wang said.

The BSBM said it will grasp the strategic opportunity presented by Changsha's thriving open economy, and focus on the fast-growing electric vehicle sector. It is committed to the R&D and sustainable development of high-performance cathode materials.

High-level opening up is not only manifested in attracting foreign investment, but also in the swiftness of local enterprises in expanding in the global market.

In 2023, Hunan issued a policy to promote the integrated development of industry and trade and encourage enterprises to explore international markets. This has instilled confidence in enterprises to expand their overseas operations.

Zoomlion Heavy Industry Science & Technology Co., Ltd., a global leader in the construction machinery industry based in Changsha city, reported overseas revenue of 13 billion RMB in the first three quarters of 2023. Its products and services cover more than 140 countries and regions.

The Tebian Electric Apparatus Hengyang Transformer Co., Ltd. in Hunan's Hengyang city is a backbone power transmission equipment manufacturing provider. It has established 34 permanent overseas offices in Southeast Asia, Central Asia, the Middle East, Africa, Latin America and other regions, exporting its products to more than 70 Belt and Road Initiative partner countries.

# Plan to Uplift Innovative Application of General Aviation Equipment

By LI Linxu

In its latest move to build an aviation powerhouse, China released an implementation plan on innovative application of general aviation equipment on March 27.

The plan was jointly released by four government bodies, including the Civil Aviation Administration of China (CAAC) and the Ministry of Science and Technology.

It laid out a series of time-bound major goals for the development of gen-

eral aviation equipment sector.

By 2027, the sector's supply capacity and innovation capability will be significantly improved, with a highly effective integrated industrial ecology taking shape.

Commercial application of new-type general aviation equipment is expected to be achieved in fields such as urban air transportation, logistics distribution and emergency relief.

A batch of joint labs, sci-tech innovation centers and sci-tech innovation service platforms will be established.

By 2030, a new development model for the general aviation sector will be basically established, characterized by high-end, intelligent and green transformation.

By then, the sector's market size is expected to cross one trillion RMB, injecting new momentum into the growth of low-altitude economy.

To achieve such goals, the plan put forward an array of key tasks, including building industrial collaborative innovation platforms, cultivating advanced manufacturing clusters, expanding dem-

onstration applications in key fields, and improving regulations and standards.

Enterprises are urged to take part in the formulation and revision of relevant international rules and standards.

In recent years, China has made significant achievements in developing its general aviation industry.

As of the end of last year, it had 690 registered general aviation enterprises, possessed a fleet of 2,900 aircraft, and logged an average of 114,000 flight hours per month, according to CAAC.

# New Regulations on Cross-border Data Flows Issued

The Cyberspace Administration of China on Friday issued a set of regulations on promoting and standardizing cross-border flows of data, and clarifying declaration standards for the assessment of cross-border data security and scenarios that are exempt from relevant security appraisals.

The regulations stipulate that data processors should identify and declare important data in accordance with relevant provisions. If a data processor has not been notified by relevant government departments or local authorities, or if data has not been publicly released as important data, the data processor

does not need to declare its data for security assessment as important data to exit the country.

Critical information infrastructure operators must declare data when providing personal information or important data overseas, according to the regulations.

Data processors who provide impor-

tant data overseas or have transferred the non-sensitive personal information of over 1 million individuals overseas or the sensitive personal information of over 10,000 individuals since the beginning of a given year must declare the data for security assessment.

Source: XINHUA

# Photovoltaic Industry Has a Sunny Future

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For instance, collaborations between Chinese and European firms have led to the exchange of knowledge in solar panel manufacturing techniques, quality standards, and market strategies, fostering a robust ecosystem for solar energy innovation on a global scale.

Today, China has established the most comprehensive PV industry chain system globally, with production capacities for polysilicon, silicon wafers, cells, and modules accounting for over 80 percent of the global share, and in certain segments, reaching as high as around 97 percent.

In 2023, the price of PV modules decreased by nearly 50 percent compared to 2022, leading to a significant reduction in PV installation costs. Additionally, N-type modules offer a 3-8 percent increase in electricity generation. In most regions of China, the cost of PV electricity has already fallen below 0.2

RMB/kWh, highlighting its sustained economic viability over traditional energy sources and demonstrating new productive characteristics that can change development patterns.

A report from the University of Exeter in the UK previously stated that solar energy will become the most competitive energy source in the coming years. The report predicts that by 2044, PV electricity will account for more than half of global electricity generation. The brilliance of "Chinese photovoltaics" is shining in multiple countries and regions internationally.

For instance, the Francisco Pizarro Solar Power Plant in Spain, one of the largest operational PV power stations in Europe, began operation in 2022 and uses solar panels entirely made in China. In Garissa County, Kenya, the Garissa PV Power Station constructed by Chinese enterprises has effectively addressed local electricity shortages, con-

tinuously providing clean electricity to local residents.

## Shaping renewable energy landscape

China's leadership in solar energy innovation is also reflected in its ambitious environmental goals and policy frameworks. The country has set aggressive targets for renewable energy capacity expansion, aiming to achieve carbon neutrality by 2060. To support these goals, the country has implemented incentives and subsidies to encourage investments in solar energy infrastructure and R&D initiatives.

Additionally, stringent environmental regulations and standards have been put in place to promote sustainable practices and mitigate the environmental impact of solar energy production and deployment.

The impact of Chinese innovation in solar energy extends beyond technological advancements to economic

growth and job creation. The rapid expansion of the solar energy sector has spurred the growth of related industries, such as manufacturing, construction, and renewable energy services. This has led to the creation of millions of jobs domestically and has positioned China as a global hub for solar energy production and innovation.

The country's journey of innovation in solar energy is a testament to its vision, strategic planning, and relentless pursuit of sustainability. Through technological advancements, large-scale deployment, research collaborations, and supportive policies, it has emerged as a frontrunner in the global transition towards clean and renewable energy sources. The lessons learned from China's experience can serve as valuable insights for countries and industries seeking to accelerate their renewable energy transitions and address the challenges of climate change.



The Xiang River, a significant tributary of the Yangtze River, flows through Changsha city in Hunan province. (PHOTO: VCG)

## INSIGHTS

## Investing in China, Investing in the Future

## Voice of the World

Edited by QI Liming

China will further expand its high-level opening up, offering more opportunities for foreign investors to engage in deeper operations in the country. In early March, to better meet the diverse payment needs of foreigners, the People's Bank of China released a guideline to optimize the payment services of bank cards, promoting cash use and facilitating mobile payment.

This endeavor shows the country's determination to further open up, deepen multilateral and bilateral cooperation, and work for more practical outcomes, providing more convenience for foreigners to work and live in China. These efforts were welcomed broadly.

Kristalina Georgieva, managing director of the International Monetary Fund (IMF), said during the China Development Forum (CDF) 2024 that the IMF is willing to deepen cooperation with China for the country's economic transformation and upgrading, reform and opening up. "We are seeing China embarking on necessary reforms, so China's strong performance from the past can continue," she said.

Tim Cook, CEO of Apple, said the company will continue to ramp up R&D investment in China. He mentioned that Apple's China-based suppliers had



A growing China benefits the world, and an open China brings more potential. (PHOTO: VCG)

helped deliver gains in more sustainable manufacturing, including lowering water use and recycling metals like aluminum and cobalt.

Stephen von Schuckmann, a board member and executive at the ZF Group who oversees the auto supplier's battery-drive operations, said the company was committed to China, which leads the world in electric car sales and production. "Any wording and hype about an exodus in the supply chain is not what we follow," he said. "We're invested. We're here to stay."

Amin H. Nasser, Aramco president

& CEO, said, "China has a vitally important place in our global investment strategy. We are not mere investors, and China is not just a market to us. We want to be a partner of first resort in China's economic development journey, as new opportunities clearly come into focus." "It is equally clear to us that with China's emphasis on high quality development, even greater investment and cooperation opportunities are emerging," he added.

"L'Oreal will continue to invest in China as we believe investing in China is investing in the future," said Nicolas Hi-

eronimus, CEO of the France-based cosmetic giant, adding that the CDF reflects China's determination to embrace a new era of high-quality development.

Kim Fausing, president and CEO of Danfoss, a leading Danish energy efficiency solution company, said China's reaffirmed pledge to further opening up and improvements to the business environment, especially the protection of intellectual property rights, gives them strong confidence to continue investing in the country.

Pascal Soriot, CEO of British biopharmaceutical giant AstraZeneca, said, "We are here because China is at the forefront of using artificial intelligence, biotechnology, and renewable energy to shape the future of healthcare, and we believe that Chinese-born innovation can help millions of patients worldwide."

In addition to the feedback from entrepreneurs from various industries, China's authorities have adopted a multi-channel survey to fully release the potential of opening up.

Minister of China's Ministry of Commerce (MOFCOM) met with leaders of foreign businesses in Beijing in February to learn the needs of foreign entrepreneurs. Attendees were encouraged to share specific challenges about doing business in China. "The impression that most of us were left with was there's a genuine desire by MOFCOM to deliver on these concrete examples," Jens Eskelund, president of the EU Chamber of Commerce in China, said.

## Comment

## Tech Innovation Ensures China's Edge in Global EV Market

By GONG Qian

Chinese electric vehicle (EV) automakers have recently faced mounting pressure when expanding their overseas markets. Currently, the UK and the U.S. are poised to launch an anti-subsidy probe into Chinese EVs, along with an investigation into the national security risks they pose. The coalition alleges that China has gained a competitive edge from so-called unfair subsidies, making the introduction of tariffs a distinct possibility.

However, the global popularity and competitive edge of Chinese EVs is based on technological innovation and superb quality, rather than government subsidies.

According to Mokter Hossain, an assistant professor at the College of Business and Economics, Qatar University, the competitive edge of Chinese EV companies is the result of a multifaceted strategy that combines governmental support, market scale, rapid innovation, and strategic global positioning.

In Hossain's article published in *California Management Review*, he summarizes several technological factors that explain why China holds an advantage. One is rapid innovation and product development. They've been quick to adopt new technologies, such as advanced battery technologies, autonomous driving features, and connected car services, which often bring new models and features to market faster than their international competitors.

Among those, advanced battery technology, regarded as the "heart" of EVs, cements China as the auto industry leader. China is dominant in the production of budget-friendly cobalt-free battery solutions. Lithium iron phosphate (LFP), for example, is currently a proven low-cost chemistry that adheres to many automotive like-to-haves such as low cost, high life cycle capability and good safety, and is primarily produced in China, Oliver Petschenyk, a powertrain expert analyst at GlobalData,

told Just Auto, an automotive industry news site and part of leading information service company GlobalData.

The focus on advancing battery technology has led to improvements in energy density, charging speed, and battery life, enhancing the performance and appeal of Chinese-made EVs, said Hossain.

More importantly, many Chinese companies have been focused from the beginning on EVs, unlike traditional automakers who are switching from internal combustion engines. This allows them to design and optimize their vehicles specifically for electric propulsion without being constrained by legacy systems.

On this point, Western car manufacturers are suffering from self-inflicted pain as they delayed the all-but-inevitable switch to EVs, having betted on massive gas-guzzlers for too long, according to an opinion article in Project Syndicate coauthored by Gernot Wagner, a climate economist, and Shang-Jin Wei, a professor at Columbia Business School.

What the Western countries should worry about is not China's threat to their domestic market but how to solve their internal problems. Take the EU as an example. It has been trapped by the "shackles" of higher buying prices due to the higher cost of battery manufacturing, rising cost of energy, unimproved charging infrastructure and insufficient expertise.

The fundamental solution to jump out of the trap and improve its global competitiveness is to enhance technology innovation rather than imposing tariffs. Tariffs, aimed at Chinese EVs or other products such as solar panels, which are crucial for the global green transition, are not justifiable, said Wagner and Wei.

The electric vehicle is a globalized industry. Only division of labor and cooperation can bring mutual benefits, and only fair competition can bring technological progress, said Lin Jian, spokesperson of the Foreign Ministry.

## Stunning Indicators Call for More Joint Climate Action

## Opinion

By GONG Qian

The World Meteorological Organization (WMO) is sounding a red alert to the world. A new report by the WMO in March showed that in 2023, records were broken, and in some cases smashed, for ocean heat, sea level rise, Antarctic sea ice loss and glacier retreat.

"Sirens are blaring across all major indicators... Some records aren't just chart-topping, they're chart-busting. And

changes are speeding up," United Nations Secretary-General António Guterres warned.

Facing a never-before-met challenge, joint efforts to reverse the trend should be strengthened.

The good news is that there is a glimmer of hope. Renewable energy generation has surged to the forefront of climate action for its potential to achieve decarbonization targets. In 2023, renewable capacity additions saw a steep rise, increasing by almost 50 percent to nearly 510 gigawatts from 2022, the highest rate observed in the past two decades, according to a report by the International Energy Agency

(IEA) in January.

This remarkable increase is due to the global consensus on green transition. More countries are taking action to tackle climate change as they realize its economic and environmental significance. The IEA said the increases in renewable capacity in Europe, the U.S. and Brazil hit all-time highs in 2023. By 2028, solar PV and onshore wind installations are expected to more than double in the U.S., EU, India and Brazil compared with the last five years.

China commissioned as much solar PV as the entire world did in 2022, while its wind additions also grew by 66 percent year-on-year, according to the IEA report. The country plays a critical role in reaching the global goal of tripling renewables. The IEA forecast that China will account for almost 60 percent of new renewable capacity expected to become operational globally by 2028.

"Renewable energy generation is increasing fast but not fast enough," Dean Cooper, World Wide Fund for Nature (WWF)'s global energy lead, said in response to the IEA report.

This highlights the importance of the agreement among countries at the UN COP28 in Dubai last year to shift away from fossil fuels and triple renew-

able energy generation.

The participating countries are delivering on their commitment. On March 21 to 22, leaders and ministers from around the world gathered at the Copenhagen Climate Ministerial, the first high-level meeting since COP28, to discuss how to turn the words of the agreement into global action.

At the Ministerial, COP28 President Dr. Sultan Al Jaber revealed a new historic initiative — the COP Presidencies Troika. It is a first-of-its-kind partnership that came out of COP28, uniting COP28 with the next two COP presidencies, Azerbaijan and Brazil. The Troika is aimed at enhancing continuity between the COPS and driving ambitious collaborative climate action.

"This Troika will help to ensure that the next crucial round of Nationally Determined Contributions [is] in line with keeping our collective North Star of 1.5° C within reach," Al Jaber was quoted as saying by Turkiye's Anadolu Agency.

As global energy emissions are expected to hit their peak by 2025, this is a critical year to ask all parties to dedicatedly perform their obligation to avoid the devastating impacts of climate change on the earth — the only home for humans.



Sheep are seen grazing in the Guadalteba reservoir, which is at the minimum water level, as a result of the severe drought in Spain in recent years. (PHOTO: VCG)

## Low-altitude Economy Takes Off

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It has also supported the establishment of 20 UAV pilot zones and helped enterprises to carry out drone logistic pilots in Jiangxi, Guangdong, Shaanxi, Sichuan and other provinces.

## Mature technology and industrial chain

China has made rapid progress in low-altitude economy related technologies. In recent years, the patent applications and authorizations in China's UAV industry have shown a significant increase, with patent applications accounting for nearly 80 percent of the global total.

Small aviation engines, high-energy

density batteries, digital image transmission and other technologies related to low-altitude aircraft have all been domestically produced and reached international standards.

The domestic low-altitude economic industrial chain is also constantly improving. A group of global leading enterprises have emerged from upstream suppliers of raw materials and core components such as batteries and motors, midstream manufacturers of drone and aircraft, as well as downstream applications.

Meanwhile, the mature domestic new energy vehicle (NEV) and lithium

battery industrial chains support NEV manufacturers such as XPeng and GAC Aion in their entry into the field of eVTOL. The domestically produced autopilot aircraft EH216-S received an airworthiness certificate from the CAAC and has completed its commercial maiden flight, carrying human passengers.

## New driver for other industries

The low-altitude economy has a locomotive effect and its wide application scenarios will help drive the common development of downstream industries.

The development of low-altitude technology can solve the main difficulties in logistics distribution, emergency rescue, surveying and mapping, agricultural production, safety monitoring, urban management, cultural tourism, film

and television shooting and other application scenarios, breaking through the constraints that restrict the development of related industries, significantly improving production efficiency, and creating more jobs.

New driving forces have been formed for manufacturing and exports. In 2023, the volume of China's civil drone industry exceeded 120 billion RMB, ranking first in the world, and is expected to exceed 200 billion RMB by 2025.

Currently, China has become the world's largest exporter of UAVs, especially in the consumer drone field, occupying 74 percent of the global market share, and industrial drones also occupy over 55 percent of the global market share.

## Hi! Tech

## Seaweed Fiber Revolutionizes Garment Making

By QI Liming

Researchers at Qingdao University have succeeded in extracting algin from seaweed to make seaweed fibers. Following an innovative breakthrough in technology, the seaweed fiber has been found to have self-extinguishing and low smoke output in fire situations, making

it perfectly suitable for fireproof material.

Compared with the planting and extraction of traditional fiber materials such as cotton, flax, wool and silk, the extraction and processing of seaweed fiber can almost all be converted into various products, realizing the green, safe and environmentally friendly production concept.

At present, seaweed fiber can be used to spin yarn and weave cloth, and make a variety of colorful clothing after dyeing. The strength of seaweed fiber is 1.5 times that of traditional cotton, while the texture of the fiber is close to cashmere, which is very comfortable to the skin.

After nearly two decades' R&D, a mu (about 670m<sup>2</sup>) of sea area can produce four to eight tons of dry seaweed, which can be converted into one to two tons of seaweed fiber, and the fiber yield is three to six times that of a mu of cotton field.

To date, Qingdao already has the world's largest production line of seaweed fiber for textile and garment use, with an annual production capacity of 5,000 tons.



Qingdao University researchers show seaweed fibers. (PHOTO: Screenshot from CNR video)

# Building Bridge for China-EU Cooperation

## Dialogue

By BI Weizi & LONG Yun

Dr. Christoph Schrempf, chairman of the Tianjin Branch of the European Union Chamber of Commerce in China (EUCCC) and general manager of Airbus Tianjin Delivery Center, is both an entrepreneur and an envoy dedicated to promoting economic and trade cooperation between China and the EU. He sat down with *Science and Technology Daily* recently to share his perspectives on China's opening up and its contribution to world economic recovery, while also introducing EUCCC's efforts to build a bridge for EU-China economic and trade cooperation and promote Tianjin to European companies.

**Science and Technology Daily: What factors do EU companies consider when choosing investment destinations? What are Tianjin's advantages?**

**Dr. Christoph Schrempf:** There are some common factors, such as how much companies feel welcomed by the city, local preferential policies, local infrastructure and availability of skilled labor. This leads me directly to the advantages of Tianjin. First, Tianjin has very good infrastructure, with Tianjin Port ranking among the top 10 container seaports in the world, and an international airport at Binhai that handles commercial aircraft and air cargo. Second, high-speed trains and highways connect Tianjin to other major Chinese cities. Lastly,



Dr. Christoph Schrempf. (COURTESY PHOTO)

Nankai University and Tianjin University provide a highly educated and skilled workforce.

**In 2021, Tianjin set manufacturing as the foundation of the city's future development. What are your views on this?**

Tianjin has always had a strong manufacturing base. Considering the current situation of the city, it makes sense to strengthen the strong areas and make them even stronger. In fact, this is something that we at the EUCCC strongly promote in our Tianjin Local Position Paper 2023/2024, where we recommend focusing on Tianjin's manufacturing strength. The idea of developing into an intelligent manufacturing hub is very much supported by

the EUCCC.

**What opportunities can China's high-quality development offer to the world?**

Indeed, high-quality development provides opportunities for the world. China and its competitive ecosystem are now attractive to international companies. To quote our former president of EUCCC, "China is the fitness club for EUCCC member companies." On the other hand, the world can benefit from the results of high-quality development, such as environmental protection.

**What role does EUCCC play in promoting Tianjin to European companies and attracting more companies to invest in Tianjin?**

First of all, the people and compa-

nies involved in EUCCC see themselves as ambassadors to build bridges between China and their home countries. Companies based in Tianjin would not be here if their business was not profitable. Even during the worst of the COVID-19 pandemic, seven out of 10 member companies reported a positive EBIT (Earnings Before Interest and Tax), which sends a confidence-reinforcing signal to the world. In short, while we advocate for a better business environment in Tianjin Municipality, we pave the way for new investment to come in through our member companies in the form of their partners and suppliers.

**From 2008 to 2022, China has made significant progress in opening up to the outside world, with its openness index rising from 0.6789 to 0.7517. What do you think about China's achievements in this area?**

China has made visible efforts to open up, and remarkable changes have occurred with the first issuance of a negative list for foreign investment in China in 2018. This list replaced the previous government approval practice, which required any foreign investment into China to go through a government review process. It is also appreciated that the list of excluded sectors for foreign investment is getting shorter from one revision to the next. This is definitely a step in the right direction, and one can clearly see the continuous efforts the Chinese government has made and is making. We all know that for decades China has been and still is the powerhouse of the global economy.

## Letter to the Editor

# What China's Opening Up Brings to the World

By Francesco Faiola

The opening-up policy adopted by China has played a crucial role in promoting international cooperation within the science and technology sector. Its growing openness in this field has significantly contributed to global progress.

This openness has enabled greater collaboration between Chinese scientists and their international counterparts, leading to the exchange of ideas and the development of new technologies. Additionally, Chinese innovations in areas such as renewable energy and telecommunications have helped to drive progress around the world.

China has been actively working on attracting and embracing foreign talents in the field of science and technology. One of the main reasons is the country's focus on innovation and science and technology advancements.

The Chinese government has implemented various policies and programs to attract and retain foreign talents, which include providing funding for research projects, investing in infrastructure, and offering attractive salaries and benefits. Additionally, the government is refining its institutions and mechanisms for talent development, granting greater autonomy to researchers, and providing a stage for a range of talents to innovate and shine.

Meanwhile, China has made it easier for foreigners to work and live in the country by simplifying visa procedures and providing support services.

At the same time, as a result of China's opening up, Chinese companies have formed partnerships with their foreign counterparts and have collaborated on R&D projects. By opening up its markets and encouraging cultural exchanges, China has built stronger relationships with other countries, thereby becoming an increasingly important player on the world stage.

Based on my observation, China has gradually emerged as a global hub for open innovation, with Beijing being one of the most prominent cities for this type of innovation. In the past years, the Beijing municipal government has accelerated efforts to transform the city into

an international innovation center. A focus has been placed on attracting and developing top-tier scientists, particularly those from the younger generation.

Action plans have also been implemented to secure the city's leading position in basic research and achieve breakthroughs in core technologies in key fields. These plans have ensured that Beijing-based national laboratories operate at the highest standards and have supported new R&D institutes in their research endeavors. Additionally, business-led collaboration that bridges industries, universities, and research institutes has been promoted. The development of incubators for sci-tech startups is being encouraged, along with attracting international technology organizations and foreign-funded R&D centers to open branches in Beijing.

These efforts aim to create an open innovation ecosystem with global competitiveness. For example, Beijing has been making significant stride in the development of "science cities" and "demonstration areas." Zhongguancun Science City experiences rapid development, Huairou Science City intensifies its efforts to develop the Comprehensive National Science Center, and Beijing Future Science Park strengthens collaboration with enterprises and local universities. In addition, the Demonstration Area for Innovation-based Industrial Clusters has commercialized more than 270 research outcomes from the three science cities.

Overall, Beijing is becoming a global innovation hub. The city's commitment to increasing support for basic science research and promoting high-quality development of new R&D institutes will help to drive breakthroughs in core technologies.

The opening-up policy has brought many benefits to China and its partners, and is likely to continue playing an important role in the country's future growth and development.

*The author is an Italian professor at the Research Center for Eco-Environmental Science at the Chinese Academy of Sciences.*

# New Int'l Web Portal of Beijing Launched

## Service Info

By Staff Reporters

The upgraded version of the International Web Portal of Beijing (<https://english.beijing.gov.cn/>) was officially unveiled on March 28.

The website focuses on enhancing the development of a center for international exchanges in Beijing, offering information release, public services, consultation and communication channels. It is accessible in nine lan-

guages, including English, Korean, Japanese, German, French, Russian, Spanish, Arabic, and Portuguese. The website now offers complete online services for foreigners and foreign-funded enterprises.

**"Discover Beijing" presents you the charm**

The upgraded website emphasizes cultural tourism, sustainable practices, technological innovations, and other themes, showcasing Beijing's progress and blending ancient and modern aspects elegantly. The section "My Story in Beijing" tells engaging tales of entrepre-

neurship, company growth, and personal experiences of working, living, studying, and travelling here, which truly records everyone's unforgettable experiences in this dynamic city.

**"Opportunities of Beijing" brings you possibilities**

As an international metropolis, Beijing offers a first-class business environment with extensive growth avenues for all businesses. The upgraded website zeros in on Beijing's business environment, the construction of the "Two Zones" (i.e. the Integrated National Demonstration Zone for Opening up the Services Sector and the China (Beijing) Pilot Free Trade Zone), the coordinated development of the Beijing-Tianjin-Hebei region, industry exchanges, and other content, releasing information on economic development and advantages of investment, key industries and parks and launching guidance modules for foreign investment.

**Convenient services can all be accessed**

The new website is designed for scenario-based integrated services, enabling

you to benefit from more digital services with your passport information. Based on thematic services such as investing, working, living, studying, travelling and consuming, the website features two series of instructive videos entitled "How Beijing" and "Service Guide for Foreigners in Beijing", providing more than 300 friendly service guidelines and online reservation and handling channels for over 50 high-frequency foreign-related items including accommodation registration and visa application. Also, "Beijing-Service", as the English-language WeChat official account of the International Web Portal of Beijing, caters to the diverse needs of foreign-funded enterprises and foreigners in Beijing.

**"Policy Toolkit" offers services**

To enhance the accessibility and readability of policy-relevant information, the website newly launched the "Policy Interpretation" and "Investment Cases" sections with detailed interpretations of the essential points of policies and core provisions in hot fields such as the "Two Zones" and talent.



PHOTO: The International Web Portal of Beijing

# Oolong Tea: Green Leaves with Red Edges from Rocking

## Traditional Eastern Wisdom

By ZONG Shihan

Oolong tea or blue tea, one of the six main types of tea in China, is a semi-oxidized tea. The oxidation level of oolong tea is between green tea and black tea, combining the fresh aroma of green tea with the rich flavor of black tea. After brewing, the leaves of oolong tea show green in the middle and have distinct red edges.

In terms of appearance, representatives of oolong tea include the strip-shaped Wuyi rock tea, the spherical Tie Guan Yin tea, and the hemispherical Dong Ding tea.

Oolong tea undergoes the most intricate processing among all tea varieties. Typically, the processing involves withering, rocking, fixation, rolling and drying. Among these steps, rocking is

crucial in shaping the unique character of oolong tea. The physical friction generated by alternating rocking and standing promotes the enzymatic oxidation of polyphenols in tea leaves, resulting in green leaves with red edges. At the same time, the evaporation of water contributes to the development of aroma.

Furthermore, some oolong teas involve roasting at the end of their processing. For example, the heavy roasting of Wuyi rock tea, represented by Da Hong Pao, is a traditional step. The roasting temperature can reach over 150°C, and the process may last for more than 10 hours. The process gives the tea a distinct roasted flavor and a strong taste. Therefore, if people get used to the taste of rock tea, they may feel tasteless when drinking other teas.

Oolong tea is rich in vitamins, tea polyphenols, and plant alkaloids, which can assist in improving immunity, lowering blood pressure, and delaying aging.



A tea farmer rocks the tea leaves, which is a key process in the production of oolong tea. (PHOTO: VCG)

# Geomagnetic Storms: Threat or Visual Treat?

## Science Outreach

By Staff Reporters

The recent phenomenon of geomagnetic storms has raised public concern. What is a geomagnetic storm? How do geomagnetic storms affect people? Experts answer some of the major questions.

Geomagnetic storms are caused when the sun's coronal mass ejections with their embedded magnetic field strike Earth's magnetosphere at a high field, causing severe disturbances in the magnetic field.

Professor He Jiansen, deputy dean of the School of Earth and Space Sciences at Peking University, said, "Geomagnetic storms are essentially the effects of solar eruptions on Earth." Cyclical changes occur in the sun's magnetic field generally every 11 years. The year 2024 is in the 25th solar activity cycle. It is also the "big year" of sunspots, which will produce solar eruptions, or the release of the sun's energy.

The China Meteorological Administration (CMA) said that under the influence of geomagnetic activity, the orbital altitude of space stations may decrease due to the atmospheric drag, and positioning error of satellite navigation equipment may increase.

Cai Zheng, associate professor of

the Department of Astronomy at Tsinghua University, said geomagnetic storms can affect the propagation of radio waves, interfering with ground communications and satellite signals. This can affect the accuracy of satellite navigation systems and the signal quality of mobile phones and satellite TV.

Also, strong geomagnetic storms can affect the power transmission system, increasing the current load on transmission lines and sometimes even damaging transformers or other grid equipment, causing power outages.

But there is no reason for people to worry unduly. Experts say geomagnetic storms usually have no effect on human health and interfere very little with modern, commonly used electronic communications products, though

astronauts working in space stations may be more affected.

During geomagnetic storms, the charged, high-energy particles falling from space are guided into Earth's atmosphere by the geomagnetic field, and collide with the atoms in the upper atmosphere, releasing energy. This results in the phenomenon of luminescence.

Therefore, a geomagnetic storm would be a great opportunity to see the sky light up. "Although auroras are common in areas with high magnetic latitudes, if the geomagnetic storm is particularly strong, the range of aurora occurrence will also expand. Especially in 2024, which is the peak year of solar activity, it is a good opportunity to chase light," he said.