

Great Green Hydrogen Progress in China

Voice of the World

Edited by GONG Qian

A recent study revealed that China has overtaken Japan as the most competitive nation in hydrogen-related patents, strengthening its role as a frontrunner in zero-carbon energy, according to Nikkei News.

The study, by Tokyo-based research company Astamuse, showed that China ranked first in hydrogen-related patents in the fields of production, storage, shipment and supply, and safety management.

In recent years, China has positioned itself as a leader in clean energy innovation, especially in hydrogen development.

A previous report by China's National Energy Administration indicated that by 2024, China's hydrogen energy production and consumption surpassed 36.5 million tons, solidifying the country's global leadership in the sector. By the end of 2024, the total annual capacity of renewable hydrogen production projects worldwide exceeded 250,000 tons, with China contributing more than 50 percent.

This progress largely highlights the country's strong edge in hydrogen technology driven by government policies aimed at carbon neutrality and long-term



Hydrogen-powered heavy-duty trucks await departure from the dry port of the New International Land-Sea Trade Corridor in southwest China's Chongqing. (PHOTO: XINHUA)

development plans. For example, in 2022, China released a plan on the development of hydrogen energy for the 2021-2035 period.

Electrolyser technology is central to green hydrogen production. With its well-developed production capacity for alkaline electrolyzers, China has solidified its position as a leading player in the global electrolyser market. According to

a report by leading global analytics solutions provider for green energy, Wood Mackenzie, China currently accounts for approximately 60 percent of the world's electrolyser manufacturing capacity and is projected to maintain this lead by constructing the majority of new facilities in the coming years.

This April, BloombergNEF revealed the top 10 electrolyser makers in the

world in 2024 in its 1H 2025 Hydrogen Market Outlook report. Among them, six are Chinese.

With a more advanced level of manufacturing automation than any other country, China's GW-scale alkaline production capacity is built on nearly four decades of expertise in the chloral-kali electrolyser industry. "It's this experience and longevity that has allowed China to build a vertically integrated supply chain, resulting in cost savings few other countries can match," Wood Mackenzie said.

Nikkei News analyzed that the speed at which China is outpacing Japan hydrogen-related patents is driven by the large number of companies entering the field. An increasing number of electrolytic cell manufacturers began entering the market in 2021, driven by the rising investment in green hydrogen. By 2024, the number had grown to between 100 and 200 companies. In contrast, only a limited number of companies in Japan are making similar investments.

With abundant renewable resources and established manufacturing capabilities, China is well-positioned to become a major exporter of green hydrogen. "Looking ahead, China's proactive policies could stimulate further advancements, driving down the cost of green hydrogen and making it accessible globally," according to hydrogen-fuelnews.com.

Rising Chinese Brands Redefine Value

Comment

By YU Haoyuan

On June 26, *The Economist* published an article, "Chinese brands are sweeping the world. Good" on its website. It was a rare acknowledgement of the enhanced competitiveness of Chinese products in the global market, with high praise for Chinese brands for their innovation, cultural confidence, and global influence.

More than a decade ago, it would have been hard to imagine the Western media covering China with such a glowing headline. For years, the West largely viewed China as the "world factory" — known for mass production, low-cost contract manufacturing, and lack of

originality. Today, *The Economist's* observation is that "Innovative Chinese brands are popping up everywhere. Consumers and investors around the world stand to benefit."

This transformation reflects a shift from "manufacturing thinking" to "brand thinking." Manufacturing is just one aspect of the production chain, whereas branding involves much more — product quality, innovation, cultural depth, and service excellence.

The article notes that unlike in the old days, Chinese companies now "more happily advertise their roots." The logo of Chagee tea drinks brand shows Peking Opera, the blockbuster AAA game *Black Myth: Wukong* features the famous Chinese classic character the Monkey King. Products like Huawei's phones and Insta360 camera have also taken the world by storm. These brands have not

only broken the stereotype of "low price and low quality," but also won international recognition with their cultural depth and design aesthetics.

This success did not happen overnight. It was built with decades of independent innovation and the accumulation of intellectual property. Take transportation as an example. Chinese society has always supported green and digitized ventures and while the concept of electric vehicles (EV) originated in the West, six Chinese companies now rank among the top 10 in the global EV battery market, with CATL and BYD leading in market share.

By the end of 2022, the number of registered shared bike users in China had crossed one billion, with an average of more than 44 million daily trips. These innovations offer consumers convenient, cost-effective, and eco-friendly transportation options.

The Economist article also highlighted that the era in which Western brands relied on the "foreign halo effect" to command premium pricing in the Chinese market is ending. Domestic brands not only dominate in terms of cost-performance ratio but are also reshaping global trends by deeply understanding consumer needs. A notable case is that Chinese tea and coffee brands, such as Heytea and Luckin Coffee, are gaining strong traction in Europe and Southeast Asia, marking a

sharp contrast to Starbucks' first major price adjustment in its 25-year history in China.

Data from Brand Finance's annual brand perception survey of 100,000 people globally shows that China ranked eighth in 2021 but has now risen to second place globally, trailing only the U.S. The rise of Chinese brands is closely tied to the strengthening of the country's global image.

On climate change, China is steadfast in its commitment to achieving carbon peaking and carbon neutrality. For AI governance, it has launched the Shanghai Declaration on Global AI Governance. These initiatives underscore China's role as a responsible global leader, enhancing international goodwill and trust.

Further evidence comes from Morning Consult's exclusive longitudinal polling data, shared with Axios. It shows that China's global favorability score increased to +8.8 in the latest reading in May this year.

This growing influence is accompanied by a transformation in the national mindset. As the world's second-largest economy, China is now setting trends across multiple global sectors. There is less emphasis on external perceptions as the Chinese increasingly recognize that their own lived experiences offer the most authentic reflection of reality.

In 2023, the Digital Deep-sea Typical Habitats Programme (Digital DEPTH), initiated by the CDOAA under the framework of the UN's "Ocean Decade," was launched.

It focuses on deep-sea habitats including seamounts, mid-ocean ridges, abyssal plains and continental slopes, and improves human observation, simulation, and mapping capabilities of these typical habitats of the deep-sea, thus helping humankind to find the best solutions to achieve a balance between deep-sea conservation and sustainable development.

AI System to Map Deep-sea Seamounts

AI Ripples

By Staff Reporters

An Intelligent Seamount Digital Twin System was recently launched during a side event of the United Nations Ocean Conference (UNOC) held in France.

The system, jointly developed by China Deep Ocean Affairs Administration (CDOAA) and institutions including Zhejiang Lab, integrates AI tools

and high-resolution multi-source data to enable 3D mapping of deep-sea habitats and digital twin system of seamounts.

Themed "Approaching an intelligent and inspiring ocean: new science-based actions for sustainable futures," the UNOC event sought to promote the open sharing of global ocean data, enhance ocean early warning and service capabilities, advance deep-sea digital simulation, and foster the innovation and application of marine science and technology.

It marks China's first publicly

available digital sci-tech product in the field of deep-sea exploration. As the global oceans face unprecedented challenges, including climate change, biodiversity loss, and escalating pollution, the system will fill the gap in application of AI technology in deep-sea exploration, marking a shift toward a new era of digital and intelligent deep-sea development.

This system also demonstrates China's concrete actions in contributing to the vision of the UN's "Ocean Decade" and its active role in participating in global ocean governance.

Opinion

China's Cross-border E-commerce Surge

By GONG Qian

China's cross-border e-commerce sector reached a historic breakthrough in 2024. The sector's exports grew 16.9 percent year-on-year to reach 2.15 trillion RMB in 2024, while the total cross-border trade volume hit 2.71 trillion RMB, according to official data.

In recent years, cross-border e-commerce companies have mushroomed across China, and the industry's development expertise has continuously improved, making it a strong growth driver in the country's foreign trade.

The strong momentum is largely driven by innovative policies, complete industrial systems and flexible supply chains, and emerging technology.

The Chinese government has introduced a series of forward looking policies in response to the development trends of cross-border e-commerce. These measures aim to create a more favorable environment for the sector's growth and provide robust support for upgrading the industry.

The year 2025 marks the 10th anniversary of China's Cross-Border E-Commerce Comprehensive Pilot Zones, a move that involves new regulatory approaches in areas such as Customs clearance, taxation, foreign exchange and data flow. Currently, the number of such pilot zones has been expanded to 178.

The policy has brought more opportunities for industry growth and achieved remarkable outcomes. A notable case is Hangzhou, a city in east China's Zhejiang province. It has seen tremendous growth in e-commerce in the past 10 years, with its cumulative import and export volume exceeding 200 billion RMB, an average annual growth rate of over 30 percent, according to statistics from Hangzhou Customs.

A strong supply chain system and manufacturing base serve as a key pillar for the rapid growth of cross-border e-commerce, enhancing the com-

petitiveness of Chinese companies. An established supply chain system ensures seamless end-to-end product flow from production to delivery, reducing logistics costs and transit times while improving consumer experience.

As the world's manufacturing powerhouse, China boasts 41 major industrial categories, making it the only country in the world that has all the industrial categories listed in the United Nations industrial classification system. This provides cross-border e-commerce with a vast selection of high-quality and competitively priced goods, allowing businesses to precisely match the diverse consumption needs of different countries and regions. Meanwhile, large-scale production further reduces costs, giving China the edge in global markets.

The application of emerging technologies has injected strong momentum into the supply chain and logistics. Big data helps companies accurately predict market demand by analyzing consumption trends and sales data. For example, historical sales data can optimize overseas warehouse inventory layouts. IoT connects all aspects of the supply chain. Sensors monitor storage conditions, inventory levels, and item locations in real time, facilitating smart replenishment and precise inventory management in the warehouse. Technologies like GPS provide real-time tracking of cargo location and status, allowing rapid response to any anomalies.

AI enhances the sector's efficiency in customer service and communication, targeted marketing and advertising, content creation and product presentation, data analysis and decision-making, as well as lowering labor costs. For example, Alibaba International's "AI Business Assistant" can respond to overseas customers 24/7, significantly improving the secondary response rate by about 40 percent.

China's cross-border e-commerce is expected to maintain its strong performance in goods trade.

Police Robots on Patrol in Chengdu

Hi-Tech

By GONG Qian

Robot police have officially started patrolling in Chengdu, a mega-city in southwest China's Sichuan province. This marks an important innovation ahead of the 2025 World Games set to take place in the city from August 7 to 17.

In Tianfu Square — one of the city's busiest areas with daily foot traffic reaching up to 100,000 — five robot police officers have begun routine patrols alongside policemen. Usually grouped in pairs, these robots rotate every two to three hours. They upload real-time footage and alerts to assist the nearby officers.

The robots including quadruped robots, wheeled robots and humanoid robots officially started practical testing on June 16. The main goal is to optimize their operational algorithms in real urban environments, making them more intelligent and flexible to adapt to

complex scenarios. For example, a humanoid robot waves its arms in sync with traffic signals to guide vehicles and pedestrians.

Equipped with functions such as autonomous navigation, intelligent obstacle avoidance, real-time audio-video transmission, and remote communication capabilities, the robots can assist in implementing police duties, serving tourists, and managing traffic. They can also autonomously return to charging piles so as to work around the clock.

Robot police can offer great help as they can work overnight, access high-risk or confined spaces difficult for humans, and carry up to 20 kg of gear, according to a police officer from the Chengdu Public Security Bureau. In addition, if a tourist suffers an ailment on the street, they can also detect it in a timely manner and call for rescue services.

The R&D team will continue to refine algorithms through practical operations to improve the robots' environmental perception and motion control, according to a co-developer of the team.



Robot police officers begin routine patrols in Tianfu Square in Chengdu, southwest China's Sichuan province, June 16, 2025. (PHOTO: XINHUA)