BEIJING ENERGY CONGRESS
国际能源大会(北京)暨展览会

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CHINA NATIONAL CONVENTION CENTER
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SPECIAL REPORT

The Energy **Superpower** in Focus

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China is ready to drive the global energy agenda

China is at the centre of a global energy transformation that the entire world is watching

"As governments and industries prioritise energy resilience amid competing pressures for resources … China stands as a centre of progress."

A manufacturing hub home to 1.4 billion people, China's approach to securing, producing, consuming, and distributing energy has implications for every territory. In a world where energy systems are evolving to meet rising demand while geopolitical uncertainty influences traditional production centres, what China does matters more than ever for decades to come.

Beijing Energy Congress 2027, taking place at the China National Convention Center from 13-15 January 2027, will provide a platform where global energy leaders, policymakers, investors, and technology innovators converge to collaborate, gain actionable insights, and access real-world solutions essential for shaping future energy systems.

Conflict in the Middle East has prompted some nations, including China, to re-examine where they secure reliable, affordable energy and how countries build robust systems for a future in which economic advancement drives demand growth and decarbonisation reshapes the way energy is produced, traded and deployed. Beijing Energy Congress 2027 will take place in an era of urgent change, offering compelling insight, enabling crucial dialogue, and hosting essential solution providers.

As governments and industries prioritise energy resilience amid competing pressures for resources and seek to develop, finance, and deploy next-generation energy systems that are secure, flexible, and capable of supporting long-term growth, China stands as a centre of progress.

Energy security

Energy supply security has become a critical issue in 2026 as the Israel-US conflict with Iran impacts global markets.

Recent conflicts have highlighted the vulnerability of key supply routes on which numerous Asian countries, including China, rely for power generation and economic development. Resilient supply chains will feature among the primary subjects explored in high-level strategic conference sessions and leadership roundtables across the three days, as well as in a world-class exhibition showcasing the latest technologies and scalable solutions across the energy value chain.

Sector focus

Beijing Energy Congress will highlight eight key sectors as China's 15th Five-Year Plan (2026–2030) shapes the nation's role in the next stage of the global energy transition.

The sectors — oil, natural gas and LNG, hydrogen, renewables and low-carbon solutions, energy manufacturing, nuclear energy, electrification, AI, digitalisation and technology, and shipping and logistics — will drive discussion as industry leaders assess how the policy direction of the Five-Year Plan will shape energy markets, investment priorities, and international partnerships.

Influential minds

Attendees will engage with exhibitors and industry visitors among the industry's most innovative and effective minds across every value chain segment. As the world tackles existing and evolving energy challenges, keeping cities and data centres powered requires innovative thinking and smart solutions.

Participants will connect with energy leaders, technical experts, policymakers, project developers, entrepreneurs, investors, financiers, traders, and offtakers.

Strategic conference

The Beijing Energy Congress will provide a vital forum for China and the global community to shape energy policy, innovation, and long-term growth. The conference will bring together CEOs, ministers, policy leaders, financiers, and technology innovators to address key challenges and opportunities in hydrocarbons, LNG, hydrogen, renewables, electrification, low-carbon solutions and more.

Discussions will examine the strategic forces shaping the future of energy in China, including scaling clean energy, ensuring the reliable role of hydrocarbons in system stability, and deepening international cooperation.

Participants will focus on policy, capital, technology, and global partnerships, addressing key issues such as diversifying oil and gas supply, expanding new energy sources while maintaining reliability, developing bankable projects, enhancing cross-border trade and investment, and aligning global and Chinese market expectations.

"As the world tackles existing and evolving energy challenges, keeping cities and data centres powered requires innovative thinking and smart solutions."

Spotlight on China's energy landscape

The 15th Five-Year Plan will accelerate new energy system construction and build an "energy superpower"

The four-year strategy, which ran from 2021 to 2025, outlined an overall objective to enhance new energy absorption and storage capabilities. This included:

- Accelerating development of next-generation information tech, biotechnology, new energy and materials, high-end equipment, new energy vehicles, green environmental protection, aerospace, marine equipment, and other industries.
- Driving down wind and photovoltaic power generation costs, and establishing a complete hydrogen energy value chain.
- Highlighting construction of large wind and photovoltaic power bases, and piloting photovoltaic and thermal power generation.
- Prioritising construction of energy security capabilities to ensure stable supply.

China's 15th Five-Year Plan also includes four key areas and cites accelerating new energy system construction and building an "energy superpower" as overall objectives:

- In the area of industry planning, the blueprint lists boosting the development of emerging strategic industry clusters in new energy and materials, aerospace, and low-airspace economy, along with other areas, as a key aim.
- In the technological innovation sphere, the plan lists developing 20MW+ of offshore wind turbines and 15MW+ of onshore wind turbines; commercialising flow batteries and compressed-air energy storage; and achieving breakthroughs in fusion research.

"China's plan lists embedding energy security into the nation's overall national security framework."

- Under industrial synergy, the latest five-year plan details establishing "centralised and distributed" systems among its aims, alongside building bases that integrate wind, solar, hydrogen, ammonia, and methanol power generation.

China's plan lists embedding energy security into the nation's overall national security framework and building a "three lines of defence" system. This covers supply chain resilience, systematic adjustment, and emergency response.

Energy mix development trends in numbers

20MW+

Of offshore wind turbines are planned in China's 15th Five-Year Plan.

18-29%

Increase in China's clean energy consumption over the past 10 years — consumption continues to transition to green and low-carbon energy.

80%+

Fossil fuels have exceeded this figure in the long term from the perspective of the world energy supply structure, but the growth rate and proportion of clean energy is increasing.

Enhancing China's international footprint

China's "go global" strategy promotes efforts to build production capacity around the world while internationalisation efforts shift from the exporting of products only to that of complete industry chains.

KPMG says Chinese wind power enterprises are constantly improving their "go global" business model and localising services. Export volumes of photovoltaic modules continue to rise alongside breakthroughs achieved through technological iteration. KPMG acknowledges challenges during this globalisation journey, including ambiguity of government policies, market entry barriers, supply instabilities, and difficulties in secure financing for technology-innovative entities.

Major markets for China's foreign orders for new energy storage in 2025

- 19.3% (EU)
- 18.6% (Australia)
- 15.1% (US)
- 12% (Middle East)

Key insights from China's energy sector outlook

This summary distils major developments across energy storage, fossil fuels, and power generation based on external industry analysis. The takeaways below are derived from KPMG's sector findings

POWER

China's clean energy generation capacity continues to grow at pace. While AI is driving global power demand growth, clean energy sources are advancing the transition.

Key takeaways

- Global electricity output rose by **3%+ to 32,200TWh** in 2025 (from 31,256TWh in 2024): China accounted for about **33%** of this, whilst the Asia Pacific region accounted for **50%+**.
- Data centre power demand could **more than double** by 2030: rapid AI development is driving this and is expected to reach about **945 terawatt-hours**.
- At least **40% of total power** output now stems from low-carbon and zero-carbon energy.
- China's clean energy generation capacity reached **4,248TWh in 2025**, a year-on-year **increase of 14.4%**: this included hydropower, nuclear power, wind power, and solar power and accounted for **60%+** of China's installed power generation capacity by the end of 2025.
- In a KPMG sector survey, **96% of respondents** believe clean energy can meet AI power needs: **33%** signal limited grid infrastructure as a main obstacle, and at least **half** of ultra-large enterprises plan to purpose-build power generation capacity within three years.

FOSSIL FUELS

The primary source of global energy continues to be fossil fuels, with oil the largest single source. It provides a third of total energy demand, while coal is still extensively used, but carbon goals are being pursued.

Key takeaways

- About **30% of global fossil fuel consumption** is natural gas: China, the US, Russia, and Iran were the largest producers in 2024, comprising **53% of global gas output**.
- Global coal demand hit a **record high (16EJ)** in 2024: the Asia Pacific region consumed as much as **83%**, including **67%** demand from China, primarily for power generation.
- Dual carbon goals are being addressed by methods including CCUS and AI-driven efficiencies.
- Geopolitical conflicts continue to be the most critical factor impacting fossil fuel price and supply.

ENERGY STORAGE

China will continue to play a significant role in the rapid growth of battery energy storage systems. New technologies and all-solid-state batteries can evolve storage from simply supporting power adjustment to becoming key in emerging power systems.

Key takeaways

- Global installed battery energy storage capacity for grids more than doubled — **up 113%** — in 2024 to reach **126GW**: China has **60% of total** installed capacity.
- China's 15th Five-Year Plan calls for the **"vigorous development of new energy storage capacity"**: this is in addition to pumped-storage capacity and marks a golden development period for new energy storage.
- Solid-state batteries will reshape the competitive landscape of multiple industries and are a focus of tech research: use in new energy vehicles, eVTOL low-altitude aircraft, and power batteries could bring **great market potential**.

HYDROGEN ENERGY

With hydrogen now formally recognised as an energy category under the 2025 Energy Law and backed by a comprehensive three tier energy policy system, China is accelerating deployment across the value chain. At the same time, advancements in electrolyser capacity and AI driven optimisation are reshaping global cost curves and positioning the country as a central force in the future green hydrogen economy.

Key takeaways

- China has established a three tier hydrogen policy system enabling industrial-scale rollout: **Top level design → mechanism foundation → local implementation.**
- China's hydrogen market is set for massive expansion, driven by:
  - A complete industrial supply chain
  - Annual production capacity of **50+ GW electrolysers**
  - Decreasing equipment costs, which profoundly influence the global cost curve.
- AI-optimised hydrogen systems are accelerating:
  - Electrolyser efficiency to exceed **90%** (up from 60–80%)
  - AI-driven cost reductions of **~15%** and energy-use cuts up to **10%** expected by 2030

CIRCULAR ECONOMY

Policy direction under the 15th Five-Year Plan elevates recycling, conservation, and green utilisation as fundamental pillars, while rapid expansion in the scale of the recycling industry and patent activity points to accelerating innovation. Strengthening leading enterprises and expanding full chain circular practices are increasingly viewed as central to meeting China's long term sustainability and supply chain resilience goals.

Key takeaways

- China's 15th Five-Year Plan emphasises a direction of "comprehensive conservation, circular utilisation, and green and low-carbon", with improved total resource management systems.
- The value of China's resource recycling industry is set to grow from **RMB 3.6 trillion (2022)** to **RMB 10 trillion by 2030**.

Patent applications in green/low carbon subsectors (2020–2024) demonstrate consistent year on year growth across:

- Fossil energy decarbonisation
- Energy efficiency and recovery
- Clean energy
- Energy storage
- CCUS

NUCLEAR ENERGY

China is entering a pivotal period for next generation nuclear technologies — particularly fusion — where rising investment, rapid technological breakthroughs, and policy prioritisation are accelerating progress from laboratory research toward early commercial pathways.

Key takeaways

- Global energy policies are shifting toward "affordability + supply stability", leading many countries to reassess nuclear, including SMRs and fusion.
- Since 2025, investment in fusion has surged, with primary market financing exceeding **RMB 10 bn**.
- Global nuclear fusion financing in 2025 totalled over **USD $9.7 bn**.

AI + ENERGY

AI is now widely seen by industry leaders as an enabler of net-zero progress, and under the 15th Five-Year Plan, AI + Energy has been elevated to a national strategic priority. This signals a move toward deeply integrated digital energy ecosystems in which intelligent optimisation, system wide coordination, and computing–power synergy become fundamental to China's energy transition.

Key takeaways

- China's data centre consumption surged from 2022 to 2024, reaching nearly **180 billion kWh**.
- **97% of energy executives** surveyed view AI as a positive force in accelerating net zero.
- During the 15th Five-Year Plan period, AI + Energy will be a national strategy that promotes deep system integration and an intelligent ecosystem for energy transformation.

Beijing Energy Congress 2027 Executive Committee sets out an event plan for progress

Members of the Executive Committee of the Beijing Energy Congress 2027 have convened in the Chinese capital to review the direction of the event in January

Taking place at the Beijing Energy Congress host venue, the China National Convention Center, the meeting examined a wide range of subjects, including the impact of market shifts on the nation and the global energy system beyond. The committee brought together influential figures from China's energy ecosystem to review strategic session themes and suggest priority speakers to deliver expertise as the world attends Beijing Energy Congress 2027. Following the release of China's 15th Five-Year Plan, the committee sought to ensure the global reach of the congress as a key fixture on the energy conference calendar.

Energy strategy and resilience

Amid the current unrest in the Middle East, the committee highlighted geopolitical insights and developments as a key component of the Beijing Energy Congress energy strategy and policy theme.

"A trend toward energy independence is gaining traction globally. In the future, more countries may turn to domestic resources, seeking to enhance energy self-sufficiency and transition from reliance on external supply to energy independence."

Major companies involved in bulk commodities such as coal and natural gas place great emphasis on geopolitical issues, viewing them as closely tied to energy security, bottom-line thinking, and supply chains.

"Both the industry and investors are highly attentive to policy forecasts and assessments in this area," the committee confirmed. China has institutions engaged in researching energy, geopolitics, and energy enterprises. As they

"The current global situation has drawn attention to which countries are the most resilient. China's long-term planning capabilities and systemic resilience demonstrated in crisis response have attracted widespread interest, with many viewing China as one of the most resilient countries and looking to learn from its experience."

examine energy resilience, members are looking to experts in international relations to speak at Beijing Energy Congress 2027.

"Countries and companies are rethinking how they plan for the future, and the connotation of energy security is evolving," the committee heard.

"This shift aligns with the thinking behind China's ongoing formulation of the 15th Five-Year Plan."

In the area of energy enterprises, members discussed placing a strong focus on corporate strategy, including sustainability and ESG. Discussions could be framed around the context of the energy transition, internal and external circumstances, and policy documents — such as requirements and goals within the 15th Five-Year Plan — while also embracing corporate strategy, development characteristics and trends, and future outlooks.

Enterprises are making large-scale investments in energy storage. These fulfil corporate responsibilities while they are also exploring commercial returns. The committee proposed inviting representatives from enterprises specialising in sustainability or investment strategy.

Cooperation for future China energy security

Among the threads Beijing Energy Congress 2027 will examine is domestic production and the supply lines that provide natural gas supply security. Committee executives are seeking added perspective on "how to further deepen medium- to long-term cooperation in the context of a buyer's market, taking shape under new circumstances, and the growth of China's future demand".

This could come from executives of gas divisions at major China-based companies and from senior executives of global LNG trading departments.

The current period of ample supply presents the best opportunity to build a more resilient cooperation framework, and building enduring partnerships between global sellers and Chinese buyers could ensure "success in China".

By inviting representatives of international NOCs, procurement leaders, and heads of international cooperation departments at Chinese companies, Beijing Energy Congress 2027 could focus on how to make commercial ties in crude oil trade more secure, and on better collaboration with international partners.

Foreign-invested oil companies operating in China are involved in trade, but also interested in

"Companies are interested in hearing discussions on how the selection of future maritime fuels can move beyond political factors and return to a focus on the inherent advantages and competitiveness of the fuels themselves"

investments, the committee was told. This makes discussions on upstream oil and gas exploration and development, including unconventional oil and gas, relevant with regard to the topic of international cooperation.

Enduring energy supply meets new sources

With hydrocarbon supplies thrust back into the global energy spotlight amid conflict in the Middle East, Beijing Energy Congress 2027 will feature additional discussions related to oil.

The committee suggested discussions should explore how to "shift oil security from emergency response toward more institutionalised arrangements". This could include options such as deepening long-term contract mechanisms, investment in alternative supply channels, and coordinated optimisation of strategic reserves.

Committee members suggested examining upstream oil E&P, including discussions of relevant technologies, such as those for integrating new energy sources.

Green energy progress with collaboration

With insights from a diverse mix of speakers from government, enterprises, and research institutions, the committee is driving Beijing Energy Congress 2027 to examine China's already significant green energy achievements and opportunities. These include scaling onshore and offshore wind, biofuels as an alternative energy pathway for transport and industry, and decarbonising the maritime economy for greener global trade.

Alongside power system resilience, members have called for the need to clarify how to achieve effective operation, and to explore how to further advance development in the context of renewable energy, which already accounts for a high proportion of China's power mix. This would cover areas such as investment and flexible peak-shaving power generation.

Battery storage systems, including their flexibility, stability, and role in

"China is actively promoting the development of green fuels, including biofuels … further improvements are needed in areas such as standards and the sustainability certification of green fuels, while the EU has extensive experience in sustainability certification"

renewable-driven operations, will also be in focus as China is proactive in promoting the development of green fuels — such as biofuels — but standards and sustainability certification need to be enhanced. Countries and regions with well-established green sustainability certification systems could share their experience at Beijing Energy Congress 2027.

Since China is relatively rich in geothermal resources at a time when geothermal energy accounts for about 5% of new energy supply, it could become one of the future directions for new energy development; however, there is a need to modernise the grid and globalise China's power infrastructure for a renewable future.

Demand spotlight

Beijing Energy Congress 2027 will look to domestic and international speakers to share perspectives on key demand-side application scenarios globally, including in China, such as future power generation, transportation applications, and the development of AI and data centres. Through dedicated LNG discussions, the committee hopes the event will explore how Chinese buyers can adjust their procurement logic in response to changes in the context of the new LNG trade landscape. Currently, many domestic buyers in China still follow the traditional mindset of "procurement based on demand". Discussions, from the buyer and seller perspectives, could examine why domestic companies have been reluctant to change and what constraints exist.

"Energy resilience today extends beyond energy security to include how to manage the surge in electricity demand driven by data centres, particularly those powered by AI. This unprecedented demand growth could become the next major growth area following the United States, bringing both opportunities and challenges."

High hopes for nuclear and fusion

While it currently accounts for only about 3% of primary energy consumption, nuclear energy input is expected to increase amid the hope that, through technological advancements, this share will rise to 10% by 2045. The next generation of this re-emerging energy source will be on the Beijing Energy Congress 2027 agenda, with insights from Chinese and international experts. Committee members have also recommended a spotlight on China's hydrogen journey, including green-led production, and how that could be of value to the world at scale.

The country is also making breakthroughs and innovations in nuclear fusion technology.

Carbon market connectivity

Opportunities are arising for cooperation between China and Asian and European carbon markets. These include the Paris Agreement, the implementation of carbon border adjustment mechanisms, and the International Civil Aviation Organisation's efforts to establish an international carbon offsetting scheme for aviation.

"Financial institutions are imposing increasingly stringent low-carbon requirements on investment portfolios. New energy enterprises face financing challenges in areas such as low-carbon transition, overseas investment, and technological innovation."

Active Asian countries include Singapore, which leads in mechanisms, institutions, and system development, and Vietnam, which is also building a national carbon market. China's ETS, the China National Emissions Trading System, is the world's largest carbon market by covered emissions (according to the International Carbon Action Partnership).

Currently, secondary market trading volume in China is relatively low, while in the primary market (allowance allocation), sectors such as power, steel, cement, and electrolytic aluminium have already reached 8 billion tons in coverage.

Beijing Energy Congress 2027 will examine this, as well as green and transition finance, as the industrial sector transforms.

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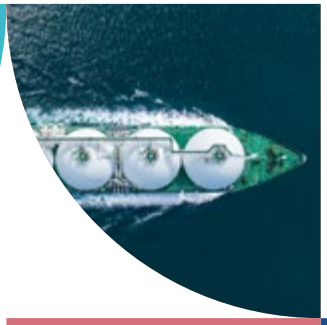

Contact the Beijing Energy Congress Team for more information about the event:

China: +86 139 1146 0043 | Singapore: +65 6360 9584 | Dubai: +971 50 412 6163

Exhibition & Sponsorship Enquiries:
sales@beijingenergycongress.com

Speaking Enquiries:
conferences@beijingenergycongress.com

Delegate Pass Enquiries:
delegates@beijingenergycongress.com

Marketing & Media Enquiries:
marketing@beijingenergycongress.com

Beijing Capital Group Exhibitions & Events Office: Beijing

北京市朝阳区天辰东路7号楼-2至8层101内北区4层416-425室

Room 416-425, 4th Floor, North Area, Building No.7, Floors 2 to 8, 101,. Tianchen East Road, Chaoyang District, Beijing, China

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