

Pumped hydro storage beijing

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China has set a new global benchmark in the global hydropower sector with the completion of the Fengning Pumped Storage Power Station, the largest of its kind in the world. Located in Hebei province, this cutting-edge facility has a total installed capacity of 3.6 GW and is operated by the State Grid Corporation of China (SGCC). The project reached its completion on 11 August 2024 with the operation of the twelfth and final reversible turbine unit.

Construction of the Fengning station began in June 2013, with the Gezhouba Group securing the main contract to build the power station in April 2014. The project was constructed in two phases, each involving six 300 MW reversible pump-turbine units, together delivering the full 3.6 GW of installed capacity.

In 2017, ANDRITZ Hydro was awarded a contract to supply two variable speed generators for the second phase of the project. These generators have a nominal capacity of 330 MVA in generator mode and 345 MVA in pump mode, underscoring the advanced technology and innovation integrated into the Fengning station.

Designed initially to support the 2022 Beijing Winter Olympics, the Fengning plant now surpasses the Bath County project in the U.S. as the largest pumped hydro station worldwide in terms of capacity.

Pumped hydropower plants like Fengning are essential for stabilising energy grids, especially with increasing renewable energy use. According to the World Hydropower Outlook 2024, China continues to lead the world in new hydropower development, with 2023 alone seeing the country bring 6.7 GW of new capacity into service, including more than 6.2 GW of pumped storage hydropower. With the Fengning station now online, China is on track to expand its pumped storage capacity to 80 GW by 2027, with a broader goal of reaching a total hydropower capacity of 120 GW by 2030.

Pumped Storage Hydropower is the largest form of renewable energy storage, with nearly 200 GW installed capacity providing more than 90% of all long duration energy storage across the world with over 400 projects in operation. To recognise the immense opportunity for pumped storage hydropower development and its importance to achieve net zero, the International Hydropower Association (IHA) is highlighting a year-long campaign to drive pumped storage hydropower development. The campaign will culminate at the International Forum for Pumped Storage Hydropower 2.0 in Paris in 2025 with high-profile speakers, recommendations for policy and businesses, key announcements, targets, publications and activities designed to pump it up.

To further promote the message, IHA will send a delegation of members to China in September to connect with key stakeholders and understand best practices and discuss further opportunities for development.

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"It's inspiring to see how the first of the renewable energies continues to break new records, support new technologies and come up with new solutions. The hydropower industry is constantly innovating, and we look forward to bringing an international delegation to China to learn more about the latest developments there, says Pablo Valverde, Deputy CEO, IHA"

Read more on our upcoming year-long campaign to promote pumped storage hydropower: <https://>

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China has been urged to optimise pumped storage hydropower stations such as Huanggou in Heilongjiang Province, while also expanding battery storage (Image: Wang Jianwei / Xinhua / Alamy)

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