

Press release

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Hydropower generation surges to a decade high as Europe hits new renewable milestones

Volatile markets, rising renewables, and energy security concerns, sharpen policy focus on hydropower's stabilising role

- Hydropower generation reached a decade-high of 680TWh in 2024, driven by exceptional rainfall across Europe
- Hydropower, wind and solar dominate as Europe sees breakthrough year for renewable generation
- EU and national-level policy measures are driving momentum for pumped storage, as the Europe pipeline reaches 52.9GW
- Total installed hydropower capacity in Europe rose to 262.7GW

The 2025 World Hydropower Outlook, released today by the International Hydropower Association, shows that Europe's energy system is shifting toward a more flexible, renewable-based future, with hydropower playing a growing role in balancing wind and solar and reducing peak-time reliance on fossil fuels.

Europe saw a landmark year for renewables in 2024, with frequent monthly peaks where hydropower, wind, and solar led the EU power mix. Driven by exceptional rainfall, hydropower output surged to 13% higher than average production between 2014 and 2017, reaching a decade-high of 680TWh. This underscores hydropower's critical role alongside wind and solar.

Pumped storage hydropower (PSH), the world's most proven technology for storing electricity at scale, is gaining political and investor attention amid market volatility and system stress. With major policy reforms underway and over 60GW of PSH projects in development, Europe has a clear opportunity to turn momentum into delivery.

Policy shifts across Europe are starting to recognise this need. The EU's 2024 market design reform requires member states to assess flexibility needs over five- to ten-year horizons, while national mechanisms such as the UK's Cap & Floor regime and capacity markets in Italy and Spain are attracting developer interest and financial backing.

All eyes will turn to Paris on 9–10 September 2025, when the International Forum on Pumped Storage Hydropower will bring together European and global leaders to unlock barriers and accelerate progress.

Malcolm Turnbull, IHA President, says: "Encouragingly, this year's World Hydropower Outlook shows that global new capacity is accelerating after several years of stagnation.

Press release

Hydropower is playing an increasingly vital role in the global energy transition. Continued momentum will require bold policy action, including reforms to reward hydropower's multiple benefits, and faster permitting. The only resource we lack is time."

Eddie Rich, IHA CEO, says: "As the renewable energy market continues to grow, the story of this year's Outlook is clearly that pumped storage hydropower is at the forefront as the world looks to more energy storage. It also reaffirms that all forms of hydropower remain essential to achieving global climate and development goals."

There is also growing momentum on the ground:

- **United Kingdom:** Over 13GW of PSH projects are announced and at various stages of development.
- **Austria:** Approximately 1.3GW of PSH capacity is under construction and a further 2.8GW is in early development.
- **Italy:** The country's PSH pipeline is nearing 4GW capacity.
- **Greece:** More than 3GW of PSH projects are in development.
- **Türkiye:** Nearly 600MW of conventional hydropower capacity is under construction.

European Hydropower in numbers:

- Generation by hydropower in 2024: 680TWh
- Total installed capacity: 262.7GW
- Capacity added in 2024 (including pumped storage): 557MW
- Total pumped storage installed capacity: 56GW
- Pumped storage capacity added in 2024: 201MW

Global highlights of the 2025 World Hydropower Outlook include:

- Global hydropower capacity grew by 24.6GW in 2024, including 16.2GW of conventional hydropower and 8.4GW of pumped storage hydropower
- The global hydropower development pipeline now exceeds 1,075GW, including 600GW of pumped storage and 475GW of conventional projects.
- China continues to dominate global hydropower development, with 14.4GW of new capacity added in 2024, including 7.75GW of PSH.
- Africa more than doubles the previous three years' development, commissioning 4.5GW of new hydropower capacity in 2024.
- Europe saw a decade-high 680TWh in hydropower generation supported by strong rainfall, while EU and national policy measures drive momentum for pumped storage.

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More information:

Press release

- The 2025 World Hydropower Outlook will launch during London Climate Action Week at a high-level global event hosted by EBRD in Canary Wharf, in partnership with EBRD, the British Hydropower Association, and the Global Renewables Alliance.

About IHA:

The International Hydropower Association (IHA) is the global voice of sustainable hydropower. It is a non-profit membership organisation committed to sustainable hydropower. Its mission is to advance sustainable hydropower by building and sharing knowledge on its role in renewable energy systems, responsible freshwater management and climate change solutions. IHA seeks to achieve this through monitoring the hydropower sector, building an open, innovative and trusted platform for knowledge, and advancing strategies that strengthen performance.

Learn more: www.hydropower.org.

The International Forum on Pumped Storage Hydropower, held at UNESCO Headquarters in Paris from 9-10 September is expected to gather 400 Heads of State, government ministers, CEOs, and leaders to unlock the full potential of pumped storage. Building on the momentum of the 2021 Forum — which featured leaders like Mark Carney, Canada's Prime Minister, and former US Energy Secretary Jennifer Granholm — this year's event will turn global ambition into high-impact action. Learn more:

www.pumpedstorageforum.com

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