Pumped hydro storage angola

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Regional cooperation is improving through power pools and shared grids, enhancing resource utilisation. Angola, currently a non-operating member of the Southern African Power Pool, plans to connect via the 600MW Baynes Dam project with Namibia, each sharing 300MW with Power Africa's support. Additionally, a northern connection with the Democratic Republic of the Congo via the Inga Dam is being considered. These projects highlight the mutual benefits and economic integration from such partnerships.

The power sector in Africa faces numerous barriers that are hindering its growth and sustainability. Regulatory issues impede private sector participation and investment. Despite efforts to establish independent regulators, enforcement capacity remains insufficient, leading to uncertainty and disputes. State-owned utilities struggle with revenue collection due to non-payment, theft and billing inefficiencies, deterring private investment, and hindering infrastructure expansion.

Off-taker creditworthiness presents another challenge, complicating project financing and causing delays. Limited access to finance, currency volatility and governance issues further inhibit infrastructure development. The escalating deployment of variable renewables like wind and solar requires innovative storage Africa and flexibility solutions for grid stability, which hydropower can play a unique role in fulfilling, but inadequate infrastructure and technological constraints are hampering progress.

Climate change exacerbates these challenges, increasing the frequency and severity of extreme weather events. Incorporating climate adaptation measures into energy planning is essential for infrastructure resilience. Additionally, energy security is jeopardised by heavy reliance on imported fossil fuels, exposing nations to global market volatility. Transitioning to sustainable, domestically sourced energy is vital for Africa"s long-term security and economic stability.

Norwegian energy giant Statkraft announced in September 2023 that it is evaluating the possibility of expanding the hydropower fleet on the Devoll river cascade, by adding a new PSH facility. The expected capacity of the plant will be around 1,200MW. The reservoir will exploit the natural flat morphology of the upper part of the valley, located around 8km east of the existing Moglic? Dam. The feasibility study phase is expected to end in 2024. The implementation phase could start as soon as 2025, with the plant reaching commercial operations by 2030

The 2,070MW La?ca hydropower station in Angola, constructed by ANDRITZ, is now fully operational, contributing to the country's energy supply and socioeconomic development, with plans for a green hydrogen project in partnership with German companies. Angola is also embarking on ambitious hydropower projects like the 2,172MW Caculo-Cabaca hydropower station in collaboration with China. It is also aiming to connect to the Southern African Power Pool to enhance regional power integration and meet growing demand.

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Argentina"s 750MW R?o Grande de C?rdoba plant, the largest PSH project in South America, is set for a major upgrade. Currently operating at only 50% efficiency due to ageing infrastructure, a US$100 million investment aims to modernise the facility, restoring its full operational potential. The 1,310MW hydropower development of the Santa Cruz River has reached 50% of construction progress.

The complex will include the 950MW Presidente N?stor Kirchner plant equipped with five Francis turbines, and the 360MW Governor Jorge Cepernic plant, featuring three Kaplan turbines. Together, they are expected to generate up to 5TWh annually. This large-scale investment, nearing US$5 billion, is 70% financed by the China Gezhouba Group Company Limited, in partnership with Argentine firms. It will supply electricity to over a million homes in the country.

Australia continues to promote clean energy and to phase out coal capacity, with energy storage playing a critical role in its push towards a renewable energy future in the country. The Queensland Premier has allocated another A$13m in the state budget to accelerate key technical studies to enable a final investment decision to advance the 1 GW/24 GWh Borumba PSH project near Gympie in the state"s south-east.

Queensland"s mid-coast is set to provide 5 GW of storage - enough to supply half of Queensland"s entire energy needs. Stage one of the Pioneer-Burdekin pumped hydro project, said to be part of the largest pumped hydro energy storage scheme in the world (according to Queensland"s premier), was announced in September 2022 and is estimated to be completed in 2032, with the final stage operational by 2035.

President Ilham Aliyev outlined in October 2023 that Azerbaijan is seeking to expand its hydropower capacity from 170MW to 500MW within two to three years. He said this progress will represent "another important contribution to the green energy transition

As of August 2023, the 1,020MW Punatsangchhu-II hydropower project was 95% complete. In February 2024, the successful reservoir filling was marked with a ceremony to coincide with the King"s birthday. The project is aiming to commission its generating units by the end of 2024. Meanwhile, the 118MW Nikachhu dam was commissioned in November 2023. Electricity was exported to India in late January 2024.