



Borumba Dam Pumped Hydro

The Queensland Government has committed to building a 2,000 megawatt (MW) pumped hydro energy storage (PHES) facility at Lake Borumba.

The Borumba Pumped Hydro Project is a cornerstone of the Queensland Energy and Jobs Plan and will underpin the decarbonisation of Queensland's energy system, providing the long duration energy storage needed to achieve our renewable energy targets of 70% by 2032 and 80% by 2035.

Comprehensive engineering, geotechnical, environmental, hydrological, social and commercial studies undertaken in 2022 confirmed the project's feasibility for further development.

Independent technical review of the project design by international and national experts and energy system modelling has confirmed the project will deliver the largest possible generation and storage capacity for the least cost, when compared to other storage technologies.

Site location

Lake Borumba is located near Imbil, 45 minutes from Gympie. Due to its proximity to the high voltage electricity transmission network, the government previously identified the site as a possible location for the development of a PHES facility. The government has held the site since the 1980s.

Technical parameters

Detailed analytical studies have confirmed that the Borumba PHES will generate 2 gigawatts (GW) of electricity. The PHES would store enough water to deliver this output for 24 hours continuously, making Lake Borumba one of the largest PHES facilities in the world in terms of storage capacity. A facility of this size would be capable of powering up to two million homes.

Development of a PHES at Lake Borumba requires the construction of two reservoirs. A new upper reservoir will be constructed in the nearby hills that lie to the south of Lake Borumba and the lower reservoir will be created by expanding the existing Lake Borumba. Tunnels will link the two reservoirs to enable water to be pumped from the lower reservoir to the upper reservoir, and for water released from the upper reservoir to drive turbines to generate electricity.

Indicative Metrics

Maximum generation	2GW
Storage duration	24 hours
Energy storage	<48 GWh
Height between dams	325 m
Tunnels	~3.5 km
Upper reservoir volume	70 GL
Lower reservoir volume	220 GL

Queensland Hydro

In September 2022, the government established a publicly owned entity, Queensland Hydro, to develop and deliver the long duration pumped hydro assets that will be the cornerstone of the state's energy system.

Detailed analytical studies

Long duration PHES are major infrastructure projects with expected asset lives of more than 50 years. PHES projects also have the potential to impact the local environment due to the need to build new dams, drill tunnels to connect dams and new transmission lines to connect the PHES to the electricity network.

Detailed analytical studies were undertaken by Queensland Hydro in 2022 to assess the site's suitability for pumped hydro development.

Studies will include:

Environmental — detailed environment studies including flora and fauna surveys, native title and cultural heritage assessments have been undertaken to investigate impacts of PHES development and identify options to avoid, minimise or offset any project impacts.

Geotechnical — initial geotechnical studies have provided information on the geology at the site and the engineering requirements for tunnels between dams.

Hydrological — hydrological studies have assessed sources of water for the initial filling of the PHES, impact on water users and impacts of climate change on PHES operation. PHES projects need to comply with the relevant Water Plans to ensure they are sustainably managed.

Engineering design — engineering studies have assessed dam construction, tunnel design, pump and turbine selection.

Financial and economic — estimates of the project cost have been developed and economic benefits to the state assessed, including local benefits from employment and local procurement.

What's next?

The Queensland Government has committed to delivering the Borumba Pumped Hydro Project. As with any other large-scale infrastructure project, delivery is subject to an environmental approval process, including relevant approvals from state and federal governments.

Funding will support the next phase of activity to develop the pumped hydro project. As a first step, an environmental impact assessment process and exploratory works will begin in the second half of 2023.

The environmental assessment process will further investigate the project's environmental, social and economic impacts and identify mitigation and offset measures.

In parallel with the environmental assessment process, Queensland Hydro will progress geotechnical testing and civil infrastructure upgrades at the project site.

Public consultation

The government is committed to continuing transparent and regular engagement with stakeholders on the Borumba Pumped Hydro Project.

The environmental assessment process involves further public consultation. In addition to this process, Queensland Hydro will continue to engage a wide range of stakeholders as the project progresses

The government welcomes community and stakeholder feedback at any stage of the project.

For more information visit www.qldhydro.com.au or email borumba@qldhydro.com.au

