The Queensland Government has committed to developing a detailed design and cost analysis for a potential pumped hydro energy storage (PHES) located at Borumba Dam. Incorporated within the analysis will be a range of studies including geotechnical investigation, engineering design and environmental assessments. The outcomes of the analysis will be delivered to government to enable the necessary decisions to be made regarding construction of the project.

**Site location**

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

**Technical parameters**

Preliminary assessment suggests that a PHES at Borumba could generate between 1.5GW - 2GW. The PHES would store enough water to be able to deliver this output for 24 hours continuously, making Borumba Dam 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. Creation of a PHES at Borumba requires a new dam to be constructed above the existing Borumba Dam, and expansion of the existing lower reservoir. Tunnels would link the two dams, 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.

<table>
<thead>
<tr>
<th>Indicative Metrics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum generation</td>
<td>1.5 - 2GW</td>
</tr>
<tr>
<td>Storage duration</td>
<td>24 hours</td>
</tr>
<tr>
<td>Energy storage</td>
<td>24 GWh</td>
</tr>
<tr>
<td>Height between dams</td>
<td>325 m</td>
</tr>
<tr>
<td>Tunnel length</td>
<td>2.6 km</td>
</tr>
<tr>
<td>Upper dam volume</td>
<td>31.5 GL</td>
</tr>
</tbody>
</table>
Why are further studies needed?

While Borumba Dam has been identified as a potential site for a new large-scale PHES, further studies are required in order to fully address the feasibility of a project on the site.

Large PHES projects are major investments with expected lives of over 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.

A number of detailed studies will be conducted into Borumba Dam to enable the government to decide whether or not to proceed with a PHES at the site.

Studies will include:

**Environmental** — a decision to proceed with a PHES at Borumba Dam will only be taken once detailed studies such as environmental and social impact studies have occurred. Detailed studies will assess the proposed PHES and address potential options to minimise or offset any impact of the project.

**Geotechnical** — geotechnical studies provide certainty on the engineering requirements for tunnels between dams by providing detailed information on the geology at the site along the length of alternative tunnel routes.

**Hydrological** — hydrological studies provide detailed assessment of sources of water, for initial filling of the PHES, impact on water users and the impact of climate change. A decision to proceed with a PHES will only be made if studies show that water can be sustainably managed at the facility.

**Engineering design** — engineering studies provide information on dam construction, tunnel design, pump and turbine selection and connection to the electricity network.

**Financial** — once all the various studies have been compiled, more accurate estimates of the expected total cost of the project will be developed. Financial assessment will enable the Queensland Government to maximise the economic benefits to the state if it decides to proceed with a project at Borumba Dam.

**Implementation partner**

The government has selected Powerlink to manage the next phase of work to complete the additional studies. Powerlink is well placed as implementation partner due to their understanding of the electricity system and market, and their experience with developing large infrastructure projects.

**Public consultation**

The government is committed to transparent and regular engagement with stakeholders when assessing potential PHES projects.

Powerlink will engage formally with stakeholders in the process of undertaking detailed design and cost analysis at Borumba Dam.

More broadly, the government welcomes community and stakeholder feedback at any stage of the project. Email borumba@powerlink.com.au in the first instance.