Australia is grappling with the shape of a future energy market, and the role of renewables, as we move to a low-emissions energy future.

Hydro Tasmania is Australia’s largest generator of renewable energy and we are well placed to play a significant role in identifying and delivering solutions that will support the country’s future energy needs.

The Battery of the Nation is about setting up a blueprint for how Tasmania’s renewable resources are developed over coming decades.

Through ARENA funding, Hydro Tasmania is investigating future development opportunities for Tasmania to make a greater contribution to the national energy market (NEM).

With further interconnection, favourable market settings and a sound development plan, Tasmania could produce significantly more renewable energy and realise the full value of Tasmania’s hydropower system.

This initiative, if realised, would lock-in full energy security for Tasmania, help give Tasmanians access to the lowest possible power prices and deliver reliable, cost effective clean energy as the Battery of the Nation.

The initiative explained

‘Future state’ national electricity market analysis that incorporates a much bigger role for Tasmania.

Pumped hydro energy storage\(^1\) – understanding how pumped hydro will support this bigger role. See over leaflet for more detail.

Tarraleah Power Scheme\(^1\) – redeveloping the current, ageing scheme.

Gordon Power Station\(^1\) upgrade – adding a 4\(^{th}\) (smaller) turbine to increase efficiency.

Figure 1: Gordon Power Station.
Pumped hydro energy storage

Energy storage devices like batteries and pumped hydro energy storage will become much more important in the future as Australia seeks to replace coal-fired power and get more energy from other sources, including solar and wind. This is because energy storage systems help balance energy from variable sources.

When it comes to clean energy storage on a very big scale, the opportunity is in pumped hydro.

Conventional hydropower systems collect water in a lake or reservoir on higher ground. The water is run downhill to spin a turbine in the station below, generating electricity.

Pumped hydro energy storage systems have an upper reservoir and a lower reservoir. The water is stored in an upper reservoir and run through a turbine to a lower reservoir when electricity is needed – such as when the sun is not shining or the wind is not blowing.

The water can then be pumped back uphill when there is excess electricity in the system (which often happens with wind and solar).

The Hydro Tasmania pumped hydro energy storage project

If Tasmania was to provide a greater contribution to the electricity system in the future, we would need to utilise pumped hydro opportunities for optimal use of our water resources.

We are completing an assessment of pumped hydro opportunities in Tasmania, including potential conversion of existing hydro generators and new installations.

The assessment will provide a map of state-wide opportunities and a shortlist of sites recommended for further study.

Through this process, we are encouraging perspectives to be voiced. Information, feedback and advice gained will be used to identify priority issues and opportunities requiring further consideration.

Questions?
Please contact us at batteryofthenation@hydro.com.au

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