

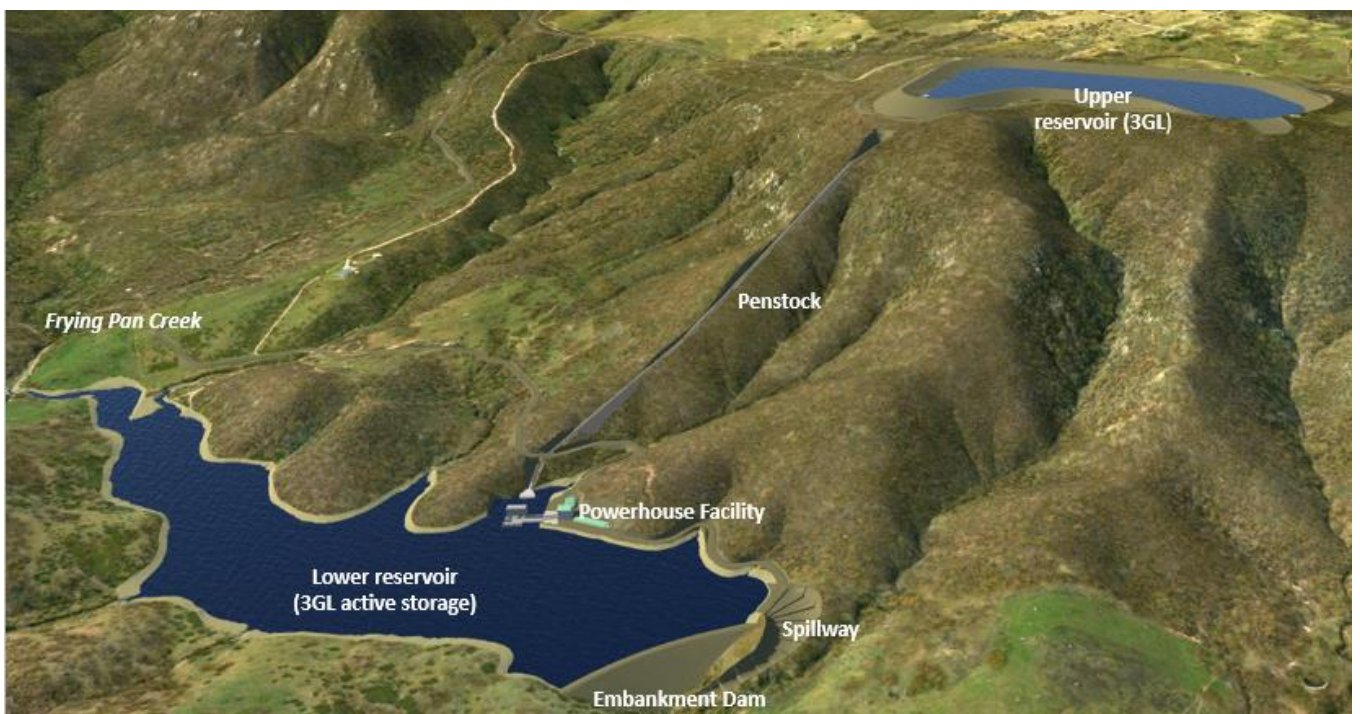
## Central West Pumped Hydro

### PROJECT SNAPSHOT

The Central West Pumped Hydro Project (the project) is a nominal 325MW pumped hydro facility with approximately eight hours of storage capacity.

The key elements of the permanent project infrastructure comprise of:

- “Turkey’s nest” embankment dam forming an upper reservoir;
- A rock-filled embankment dam forming a lower reservoir;
- Penstock (or pipeline) connecting the upper and lower reservoir;
- Sub-surface powerhouse enclosing two pump-turbine units; and
- Transmission connection infrastructure with the preferred option being an underground transmission cable connecting to the nearby Transgrid 330kV system.



Project visualisation

The **Upper Reservoir** of approximately 30ha will be constructed by excavating material obtained from the site to create an earthen embankment dam around the perimeter. The reservoir will include an engineered liner to prevent seepage.

The **Lower Reservoir** of approximately 30ha will be constructed via a rock fill embankment dam. The dam will be operated as a 'through-flow/transparent' structure, allowing flows to pass through the reservoir and continue downstream.

The reservoirs have an elevation difference of approximately 360m and are connected by a 1,400m primarily surface **penstock** of approximately 5m diameter.

The **powerhouse** (approximately 70m deep) will be constructed from concrete and contain two pump-turbine units. The final structure will sit adjacent to the lower reservoir.

The project will connect into an existing Transgrid 330kv transmission line about 6.5km to the north of the project site. The preferred connection infrastructure option is an **underground 330kV transmission cable**, rather than an overhead 330kV transmission line.

The adoption of the low impact buried transmission infrastructure aims to alleviate bush fire risk, minimises the impact on the local ecology by significantly reducing easement widths, and addresses concerns about visual aesthetics.

A new **switchyard** will be built at the point of connection to the electricity grid.

### **Why is pumped hydro needed?**

The national electricity system is transitioning. Rooftop solar, wind and solar farms are the cheapest form of new generation and are already delivering cost savings for Australian energy consumers. As our coal-fired power stations age and retire, the energy system will need new firming resources to complement wind and solar generation.

The primary role of the project will be to store energy during periods of surplus electricity generation in the electricity network and generate electricity during periods of high demand using the stored energy. Building this capability will further enable the expansion of low-cost renewable energy generation.

The project is consistent with the Commonwealth and State Government's climate change initiatives, and the energy, employment, regional development, and infrastructure strategies being implemented to deliver them.

[The New South Wales Government's 2020 Electricity Infrastructure Roadmap](#) states we will need about 2.3 Gigawatts (GW) of energy storage with 4 -12 hours of duration to keep the system reliable and secure. This new capacity is in addition to the Commonwealth-lead 2GW Snowy 2.0 project currently in development.

This need, in part, is driven by the progressive retirement of four of the five coal-fired power stations in NSW over the next 10 years, beginning with Liddell in 2023, closely followed by the Eraring Power Station in 2025 at the earliest.

The NSW Government, through its 2020 Electricity Infrastructure Roadmap, will facilitate investment in more pumped hydro infrastructure to electricity supply remains reliable. The Central West Pumped Hydro Project is one of a number of projects across the state which will deliver this reliability.

This project is also well placed to support the State's new [Central West Orana Renewable Energy Zone \(REZ\)](#); a key element in the NSW Government's Electricity Strategy, building on the NSW Transmission Infrastructure Strategy and supporting the implementation of the Australian Energy Market Operator's Integrated System Plan.

### **Where does the water come from?**

The project requires an *initial once-off fill* of about 3 gigalitres (GL) of water. Ongoing, the project may need small amounts of additional annual water over the life of the project, for any evaporation or seepage from the reservoirs.

The most appropriate water source for the project is from the Fish River. This would be delivered via an underground pipeline to the project area and can be staged to access water during higher flow events, or associated with dedicated releases from upstream water storages, and is expected to use only a small percentage of total flow.