

# Walpole pumped-hydro microgrid project



The Western Australian Great Southern town of Walpole will be home to the State's first-ever pumped-hydro microgrid. A joint project between Western Power and WA-based engineering company Power Research and Development (PRD), the renewable microgrid solution will significantly improve power reliability for Walpole homes and businesses.

## Project overview

**This pumped-hydro facility will work by pumping water uphill from one dam to another during periods when renewables are abundant and energy is cheap.**

To achieve this, two dams are being built on a farming property near Walpole, one high and one low, to transfer and store the water. The dam area required is around only two hectares, smaller than many of the dams in the region. Solar panels and batteries will power the pumping action and shift the water, making it self-sufficient if required. The water is 'stored' in the higher dam, then during periods of high demand, the water is released downhill through a generator to produce electricity.

It's unique in that the scale is much smaller than typical pumped-hydroelectric energy storage schemes. The facility is referred to as 'mini-hydro' because it has a capacity of 1.5MW and only requires an incline or drop of 90 metres, the smallest installation of its kind in the world. The mini size makes the technology more environmentally friendly and will be able to be used in more locations.

Supported by Western Power, PRD will fund and operate the Walpole pumped-hydro facility.

## Benefits of the project

**Walpole is at the end of a 125km long feeder line from Albany that is exposed to the elements and impacted by storms, wind or falling branches.**

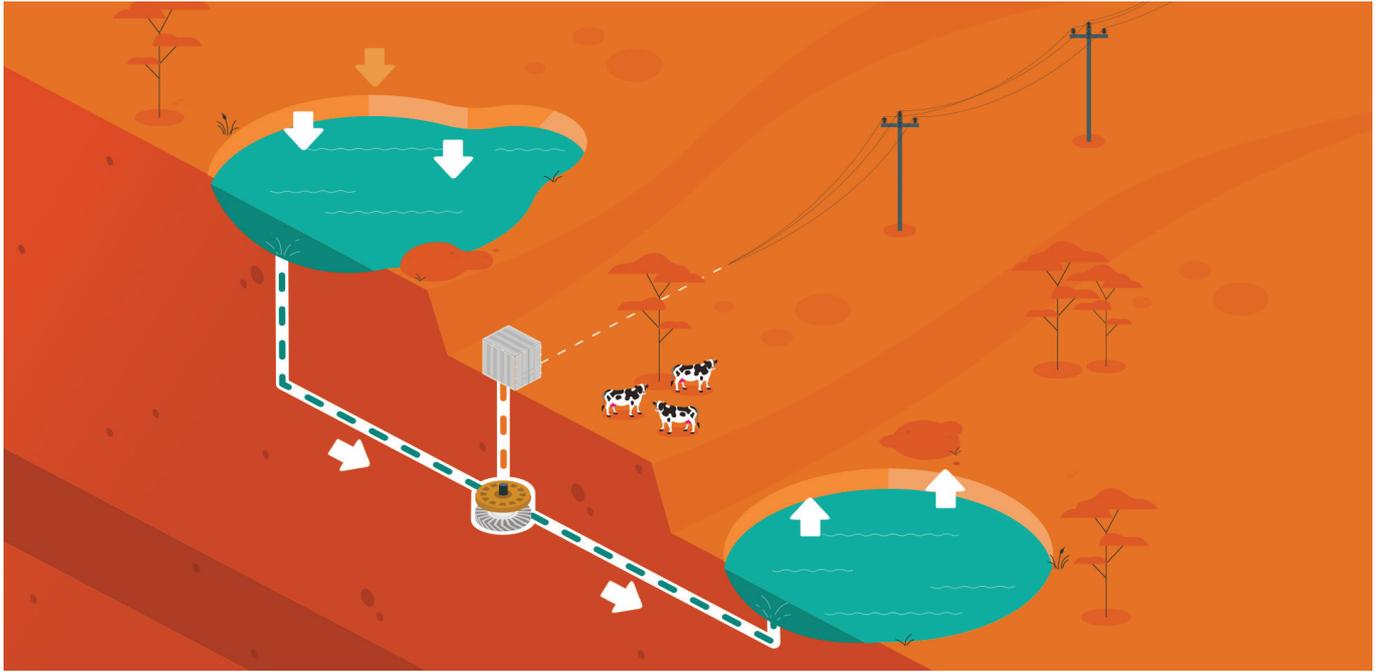
Power outages in the town can be frequent and improving reliability is a focus for Western Power and the State Government.

When there is an upstream fault on the feeder line the pumped-hydro facility will operate as a microgrid to supply Walpole, because it will be connected to the South West Interconnected System network and provide power to just over 500 local customers.



**For our Walpole customers, this new technology will result in a significant improvement in power reliability, with up to 80 per cent of outages expected to be mitigated by the pumped-hydro microgrid. The facility will be fully operational by the end of 2023.**

## How it works



- Maximum flow is **2500 litres** per second, that's equivalent to filling **25 bathtubs** per second
- Water velocity is **9km per hour**
- Elevation between the dams is **90m**
- Walpole average load is **400kW**
- Maximum output of hydro system is **1500kW**

## About Western Power

Western Power is a Western Australian State Government owned corporation responsible for building, maintaining and operating an electricity network which connects our 2.3 million residential, business and community customers to traditional and renewable energy sources, delivering a critical service to the community.

We're at the forefront of the energy industry in leveraging new technologies, including integrating microgrid, stand-alone power systems and battery storage solutions.

We're planning the modular grid of the future that's leading the way to a cleaner, brighter and more resilient energy supply for the next generation.

To find out more visit the Western Power website at [westernpower.com.au](http://westernpower.com.au), email [communityenquiries@westernpower.com.au](mailto:communityenquiries@westernpower.com.au) or scan the QR code below.



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