snowy hydro

Snowy Hydro…

The Next 75 Years

Dennis Barnes

19 June 2024

Snowy Hydro **1949-1974**

Snowy Hydro and water

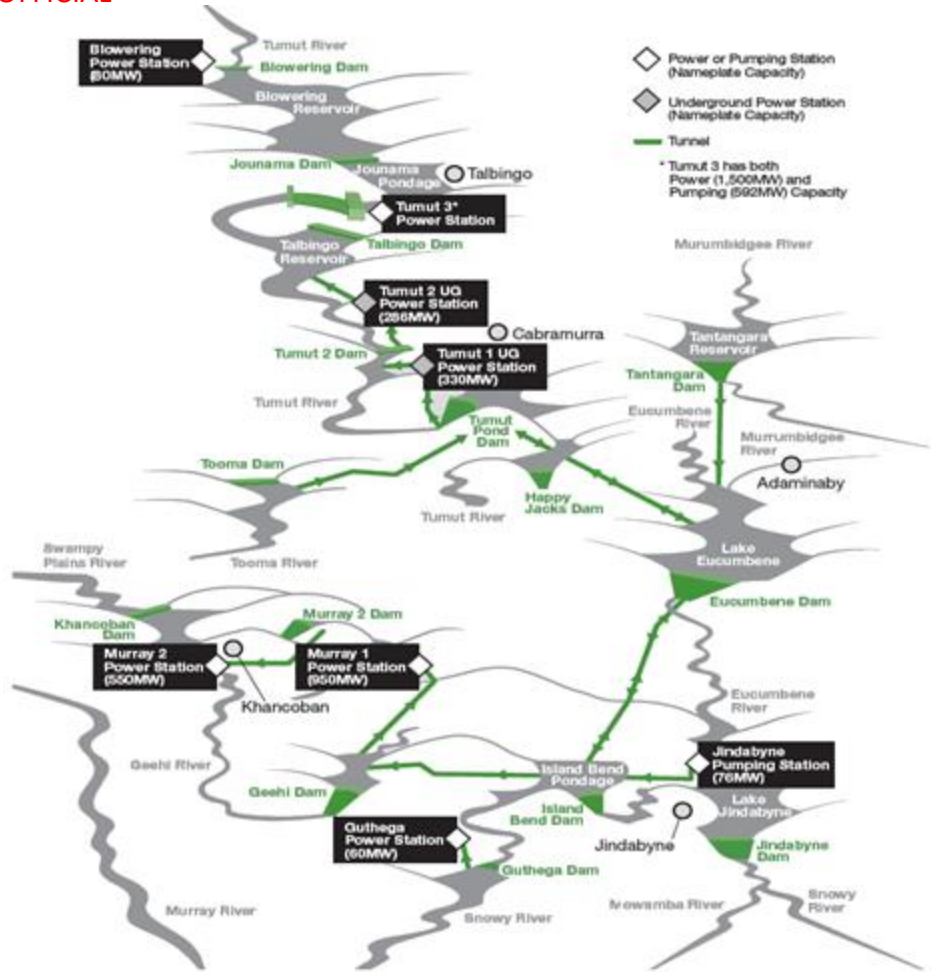
The Snowy Scheme diverts the headwaters of the Snowy, Eucumbene and Murrumbidgee Rivers westward through the Great Dividing Range.

- Snowy Hydro is the custodian of the water flowing through our complex network of dams, tunnels and aqueducts
- The Scheme releases water into the Murray and Murrumbidgee Rivers to support agriculture in NSW, Victoria and South Australia
- The diversion of water for irrigation is a key purpose of the Scheme. Electricity generation is a core by-product

Snowy Hydro does not own the water, we simply collect, divert, store and release it.

The Snowy Scheme

- 9 power stations (including T3 pumped hydro) in two major developments
- 1 pumping station (Jindabyne)
- 16 major dams with storage capacity of 7,000 GL, or 12 x Sydney Harbour
- 33 hydro-electric turbines, 4,100MW generating capacity
- 145km of interconnected tunnels and pipelines & 80km of aqueducts
- Catchment area 5,124km²



Overview

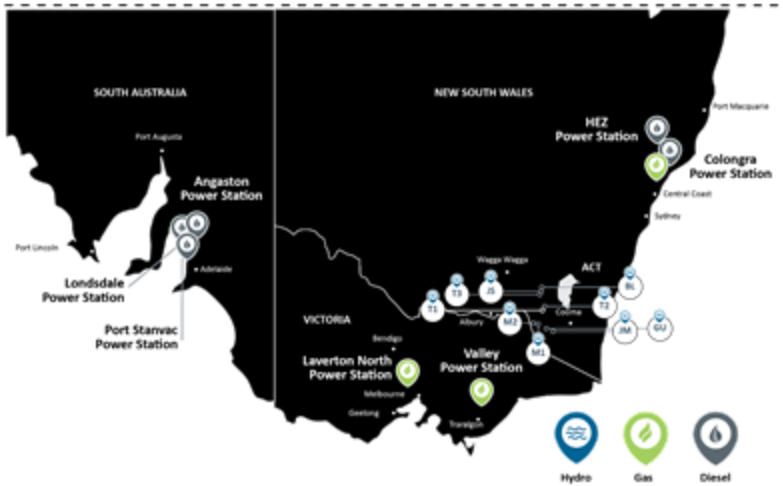
Our Customers

One of the NEM's largest renewable generators

Third largest generator by capacity

Fourth largest retailer in the NEM

Our Generating Assets



Snowy Hydro

Providing on-demand, reliable electricity to Australians

Generation capacity
5,500 MW growing to 8,400MW

- One of the largest renewable generators in the NEM
- Third largest generator by capacity
- 16 power stations - 9 hydro; 3 gas; 4 diesel / 4,250GWh generation per annum
- >5,000GWh Wind & Solar PPA to date

Retail accounts
~1.4M

- Fourth largest retailer in the NEM
- 100% carbon neutral certified Retail business

snowy 2.0

FAST **FACTS**

2,200 MW
GENERATING CAPACITY

160
HOURS

OR

350,000 MWh
ENERGY STORAGE

ROUND-TRIP EFFICIENCY: **UP TO 75%**

6 Reversible Francis pump/turbines

3 Fixed speed **3** Variable speed

Approximately 40km of tunnels including 27km power waterways

Powerhouse cavern complex will be one of the **largest and deepest in the world**

Elevation between Tantangara and Talbingo:
Approx 680m (static head difference)

Machine Hall to house the generators:
Approx 230m long x 30m wide x 50m high

STORAGE/WATER VOLUMES

Tantangara active storage:
238.8GL

Talbingo active storage:
160.4GL

Snowy 2.0 Overview

Enabling decarbonisation in the NEM

Through our assets and investments in dispatchable capacity, we are enabling more than 20% of additional wind, solar and hydr o generation in the NEM. The new wind and solar generation we are enabling is equivalent to displacing more than 33 million tonnes of CO2 per annum. This equates to a 28% reduction in NEM emissions from 2022 levels and approximately 13% of Australia's total emissions reduction target for 2030.

NOW

Snowy Hydro dispatchable capacity: ~5,500 MW

- Every 1 MW of dispatchable energy with storage or reliable fuel supply can enable 3 MW of variable renewable energy
- We have directly procured 1,674 MW of solar and wind through power purchase agreements which is equivalent to displacing ~4.8 million tonnes of CO2 per annum out of the electricity system
- As a foundation customer we have helped enable new wind and solar projects to develop a further ~1,300 MW capacity which is equivalent to displacing ~3.7 million tonnes of CO2 per annum

2024

Hunter Power Project dispatchable capacity: 660 MW

- HPP will enable 1,980 MW of new variable renewable generation which is equivalent to displacing ~5.8 million tonnes of CO2 per annum out of the electricity system

2028

Snowy 2.0 dispatchable capacity: 2,200 MW

- Snowy 2.0 will enable 6,600 MW of new variable renewable generation which is equivalent to displacing ~19.4 million tonnes of CO2 per annum out of the electricity system
- New hydro generation from Snowy 2.0 is equivalent to displacing ~4.7 million tonnes of CO2 per annum

Snowy Hydro - Why are we here?

We were acquired by the Commonwealth to support:

- the transition of Australia's energy system;
- the expansion of pumped-hydro in the Snowy Mountains Hydro-electric Scheme through Snowy 2.0; and
- to provide a return on investment by adding capital value and through a stable and growing stream of dividends.

Our *Statement of Expectations* (SOE) objectives are:

- Reliability and Security
- Promotion of Competition
- Enabling Renewables
- Shareholder returns
- Governance and Shareholder Engagement

Our Purpose - *"to deliver Australia's renewable energy future"*

Balancing water and electricity

Water

Longer term (2 year) security requirements

Electricity

Short term (5 minute) flexibility of timing of release

Snowy Water Licence

Longer term water security through Required Annual Releases.	Short term flexibility of timing of releases within years and some flexibility across years.	Free water storage and release to users, paid for by electricity customers.	Spill avoidance and drought rules	Imposes requirement to make releases for the Govt's environmental flows program (Snowy & Montane Rivers) - Equivalent to 500 GWh (20%) lost generation capacity

The Snowy Water Licence

- We comply with but do not decide the terms of the Snowy Water Licence
- Snowy Hydro does not 'own' any water (no extractive rights)
- Water licence has 'bite' and gives little effective discretion
- The licence strikes a grand bargain (trade off) between the value of electricity and the value to water users
- Water licence can be varied by mutual agreement or unilaterally by the NSW government
- The *"SWIOID"* is 'inter governmental boiler plate' that puts the water licence into effect

We will assist in the Review of the Snowy Water Inquiry Outcomes Implementation Deed in a pro-active and transparent manner

snowy hydro

Thank you