
Snowy 2.0
Kynning á fundi JGFÍ
Björn Stefánsson, LVP
24. nóvember 2022
snowyhydro
snowy2.0

Agenda

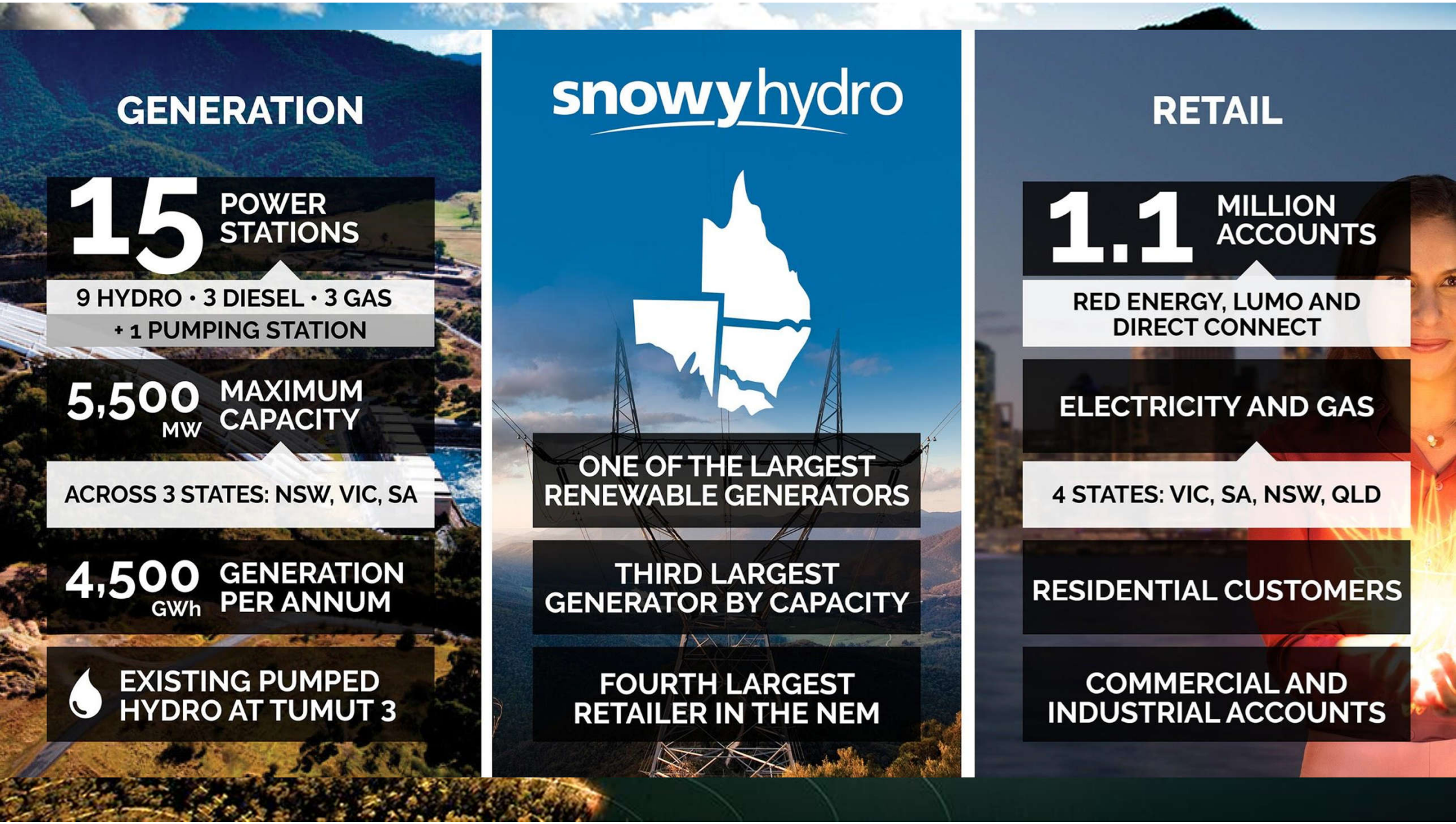
THE SNOWY SCHEME

What is it?

OVERVIEW

Snowy 2.0

PROJECT STATUS


GENERATION
15 POWER STATIONS
9 HYDRO • 3 DIESEL • 3 GAS
+ 1 PUMPING STATION
5,500 MW MAXIMUM CAPACITY
ACROSS 3 STATES: NSW, VIC, SA
4,500 GWh GENERATION PER ANNUM
EXISTING PUMPED HYDRO AT TUMUT 3
snowyhydro
ONE OF THE LARGEST RENEWABLE GENERATORS
THIRD LARGEST GENERATOR BY CAPACITY
FOURTH LARGEST RETAILER IN THE NEM
RETAIL
1.1 MILLION ACCOUNTS
RED ENERGY, LUMO AND DIRECT CONNECT
ELECTRICITY AND GAS
4 STATES: VIC, SA, NSW, QLD
RESIDENTIAL CUSTOMERS
COMMERCIAL AND INDUSTRIAL ACCOUNTS

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FAST FACTS
SNOWY SCHEME

9 POWER STATIONS

NAME	CAPACITY (MW)	NO. OF UNITS
Tumut 3	1800	6
Murray 1	950	10
Murray 2	550	4
Tumut 1	330	4
Tumut 2	287	4
Blowering	80	1
Guthega	60	2
Jindabyne MIni Hydro	1	1
Jounama Small Hydro	14	1
	4100 MW	

1 PUMPING STATION
at Jindabyne and a pump storage capability at Tumut 3

16 MAJOR DAMS

[APPROX. **4800 GL** AT LAKE EUCUMBENE]

TOTAL STORAGE

7,000 GL

OR

12 X Sydney Harbour Volume

145 km INTER-CONNECTED TUNNELS

80 km AQUEDUCTS

33 HYDRO ELECTRIC TURBINES

4100 MW GENERATING CAPACITY

RETAIL BUSINESSES
1 MILLION+ CUSTOMERS

OTHER SNOWY ASSETS

GAS

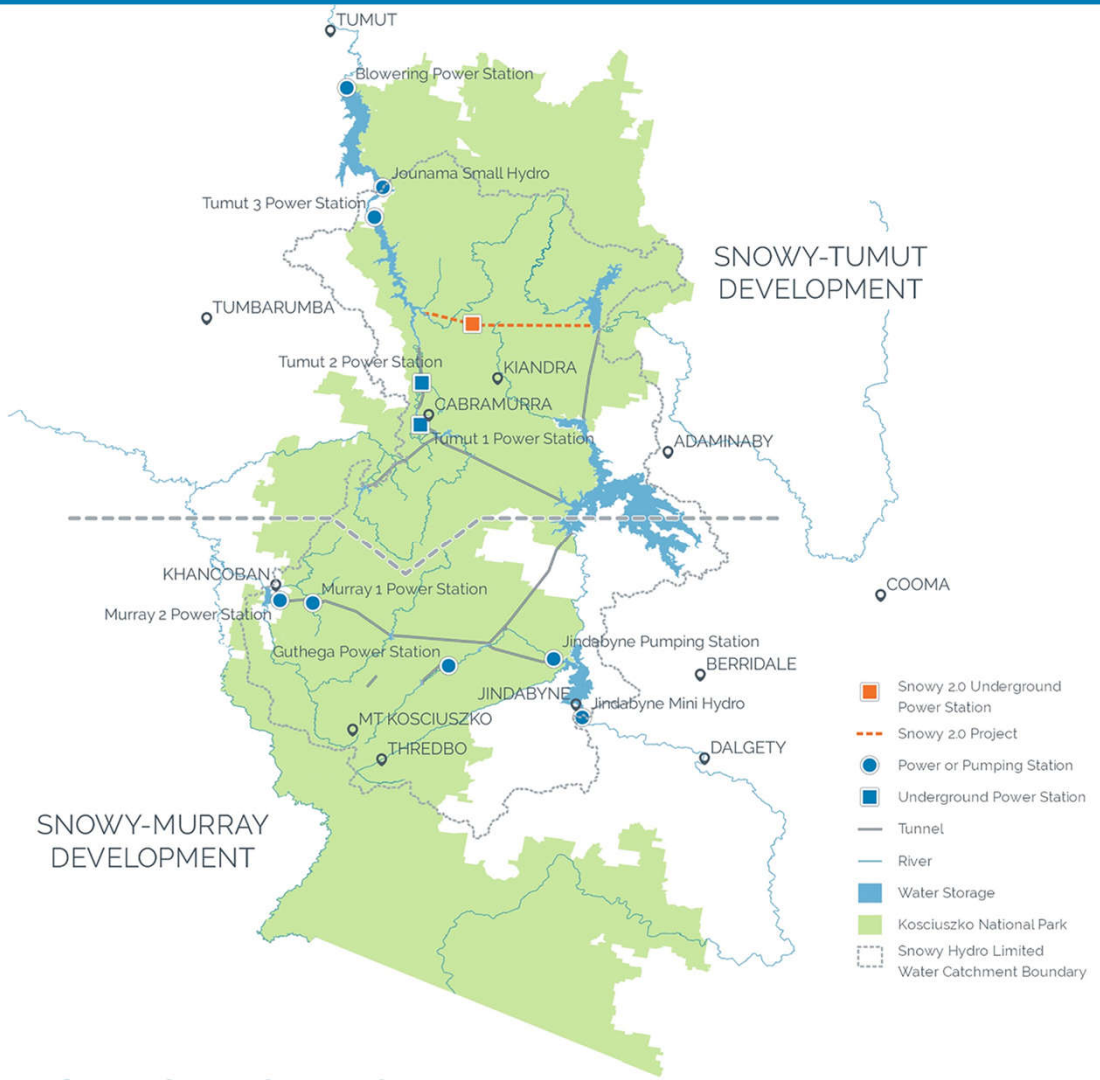
VALLEY POWER	> 300 MW
LAVERTON NORTH	> 320 MW
COLONGRA POWER	> 667 MW
TOTAL	1287 MW

DIESEL

SA DIESEL PEAKING GENERATION > 136 MW

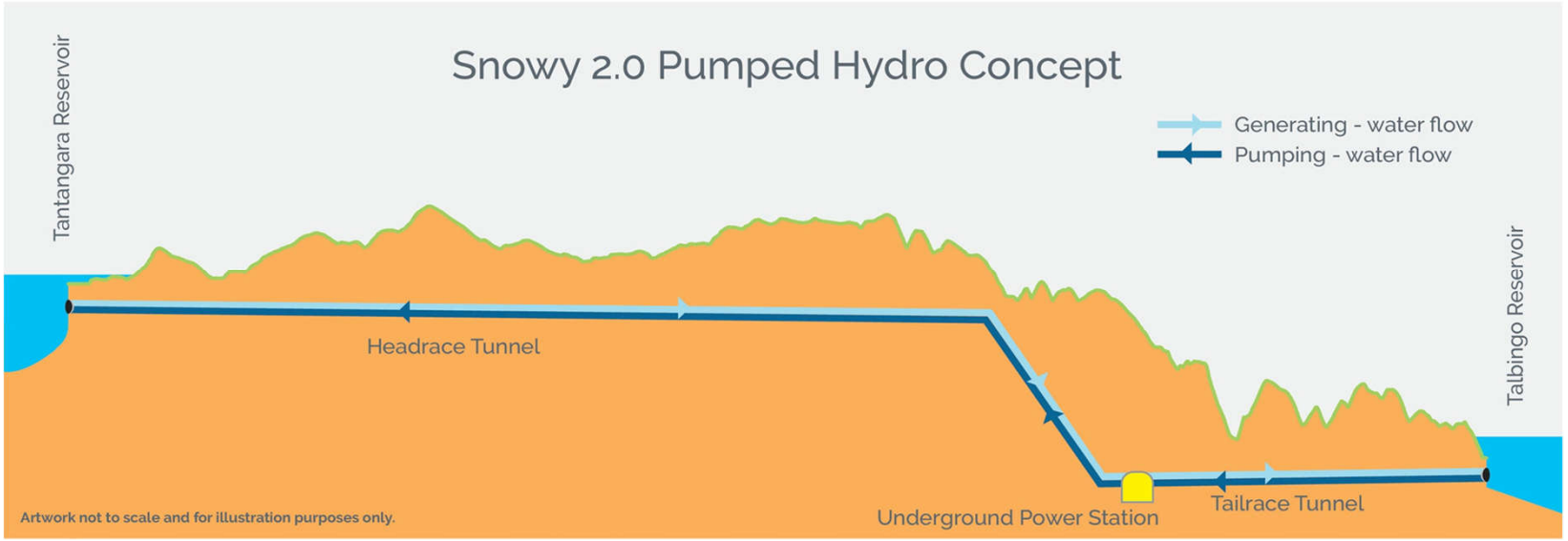
SNOWY 2.0 > **2000 MW** GENERATION CAPACITY > **350,000 MWh** (175 HOURS) OF STORAGE AT FULL CAPACITY

Snowy Hydro Scheme today



Snowy 2.0 | What are we actually building?

Snowy 2.0 involves significant engineering challenges:



> 27 km of underground waterway tunnels between two reservoirs, with a total of 40 km of new tunnels

> Main Cavern 800m underground and 2 football fields long

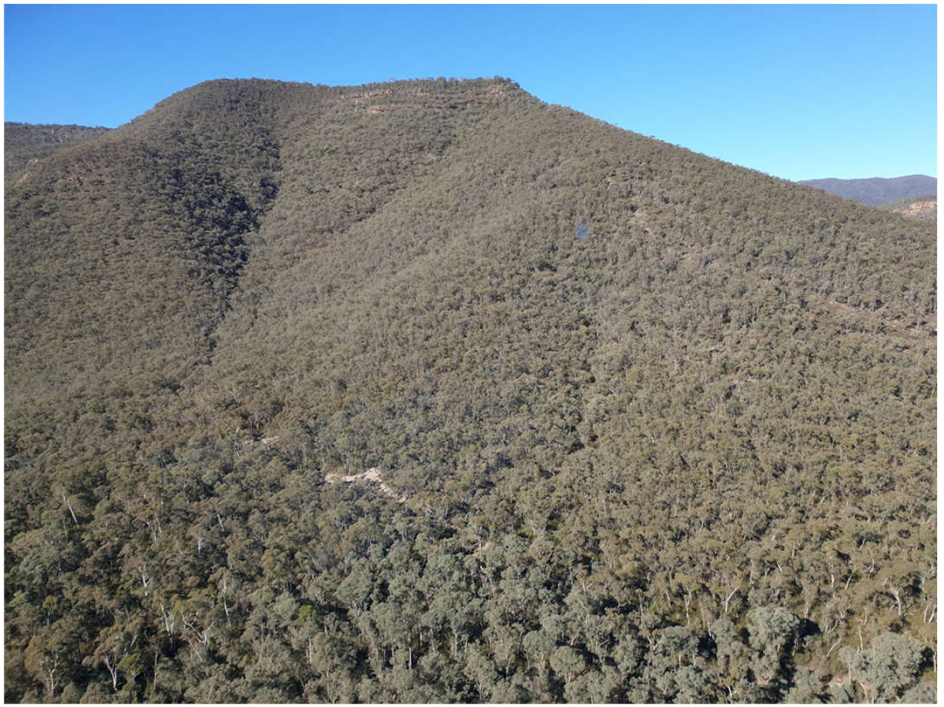
> Numerous and complex geological condition to be encountered

> Pushing the limits of Francis pump-turbines, with an elevation (head) difference of over 700m

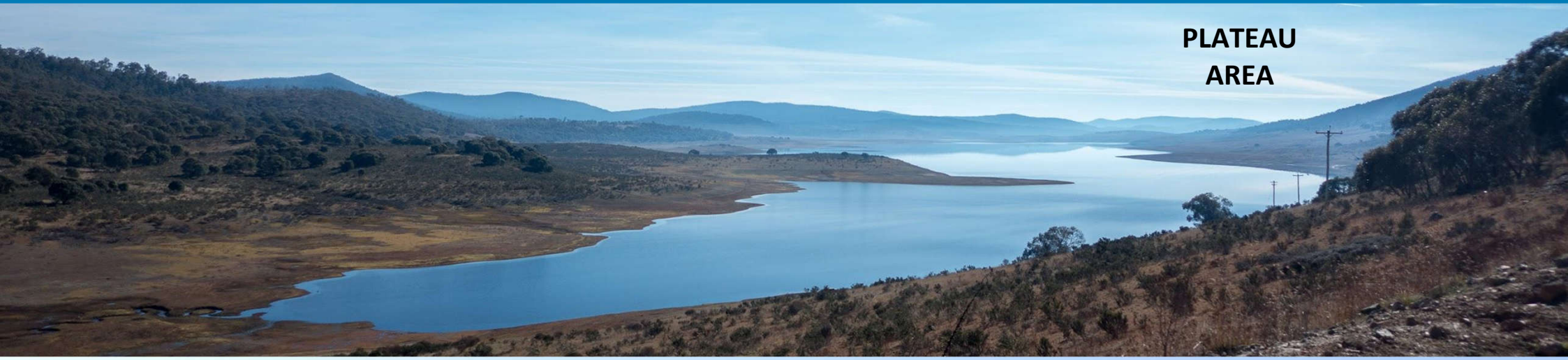
Maybe we can build it over there?

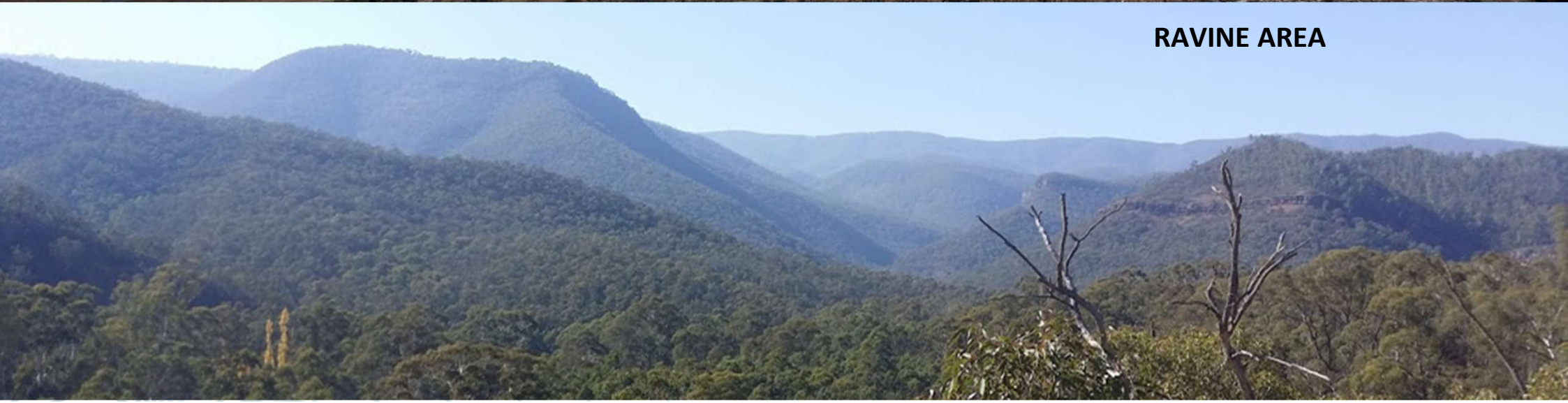
Searching for a suitable location for the Upstream Surge Shaft and Power Station Complex

Where to put the Tunnel Portal?



Location Overview





Main Works overview

Key Technical Challenges - Site Investigation

The Snowy 2.0 has now undertaken three years of geotechnical investigations with GHD and SMEC.

Here are the stats!

Borehole drilling:

> 30,000 m of borehole drilling

63 boreholes

13 boreholes deeper than 800 m

Longest hole - BHIPS 2001.38m

Geophysics:

~15000 m (electrical resistivity, seismic refraction, seismic reflection)

Laboratory tests:

3500+ geotechnical tests, including:

- 800+ UCS
- 115 single and multi-stage rock triaxial tests
- 335 NOA, 166 petrography, 360 AMD

In situ stress tests:

270+ attempted in situ stress tests

179 successful tests:

- 92 cover coring (IST) tests
- 44 hydro-fracturing/hydro-jacking tests
- 19 ANZI-cell tests
- 24 Dilatometer tests

Groundwater testing and monitoring:

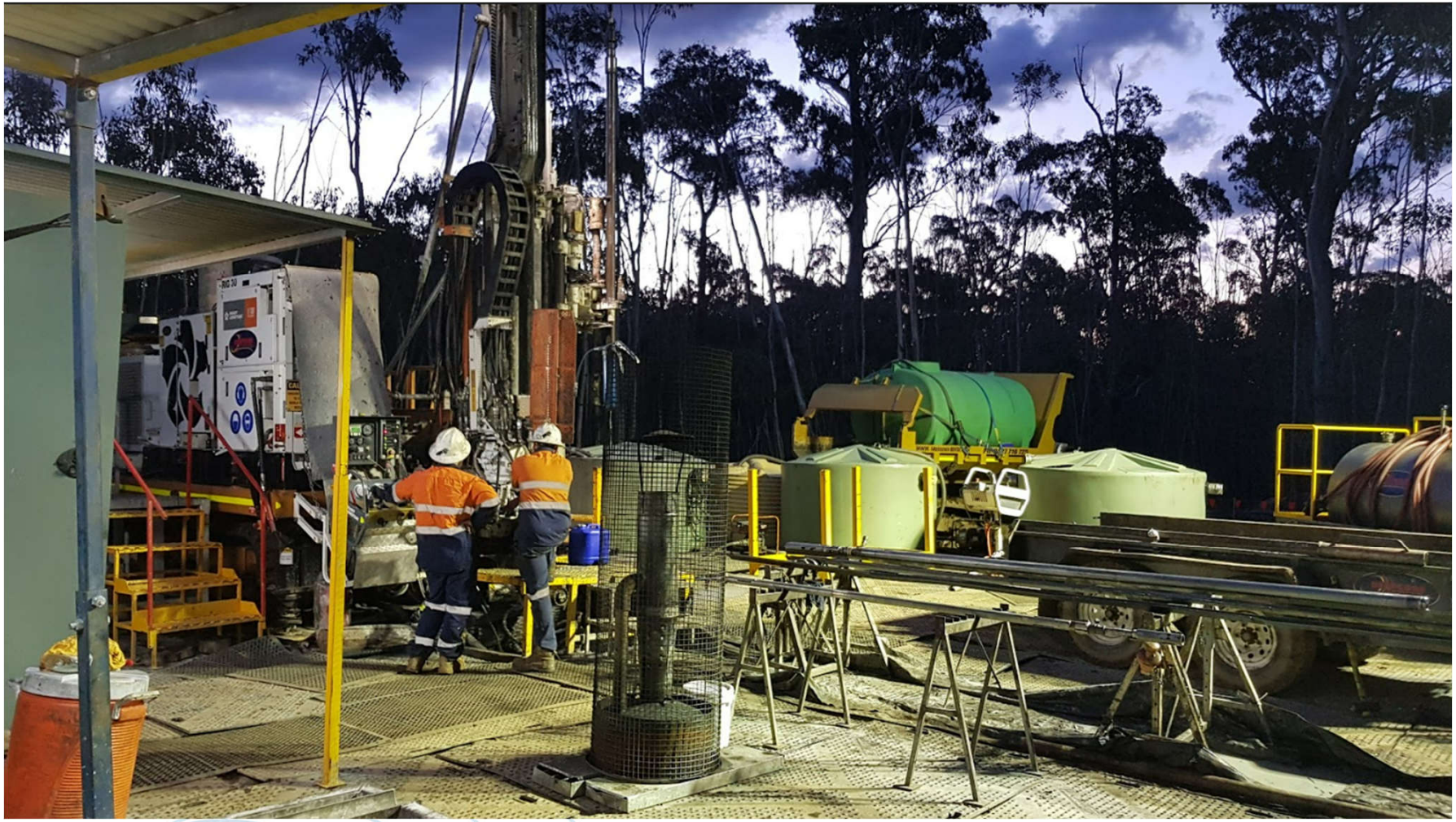
141 packer tests

50 drill stem tests

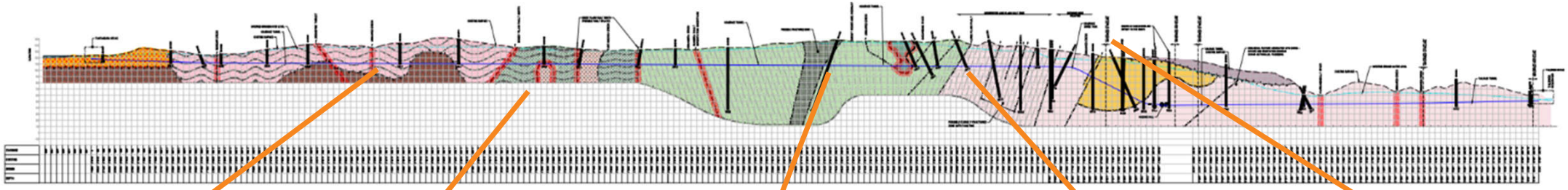
+24000 m vibrating wire piezometer cable

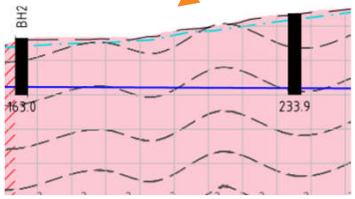
1538 m of standpipe monitoring well

Geotechnical drilling

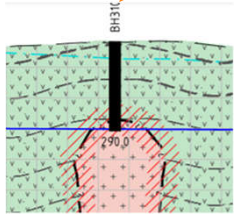


Key Geotechnical Hazards

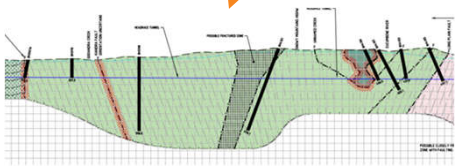




Squeezing ground

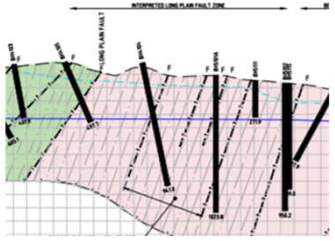


Granite intrusions with very high strength and abrasivity. Mixed face conditions and high groundwater ingress at contact.

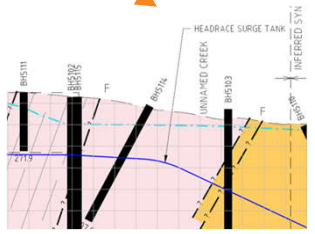


Potential for naturally occurring asbestos and groundwater ingress

Groundwater ingress expected to be high for shorter periods
Slurry machine for NOA

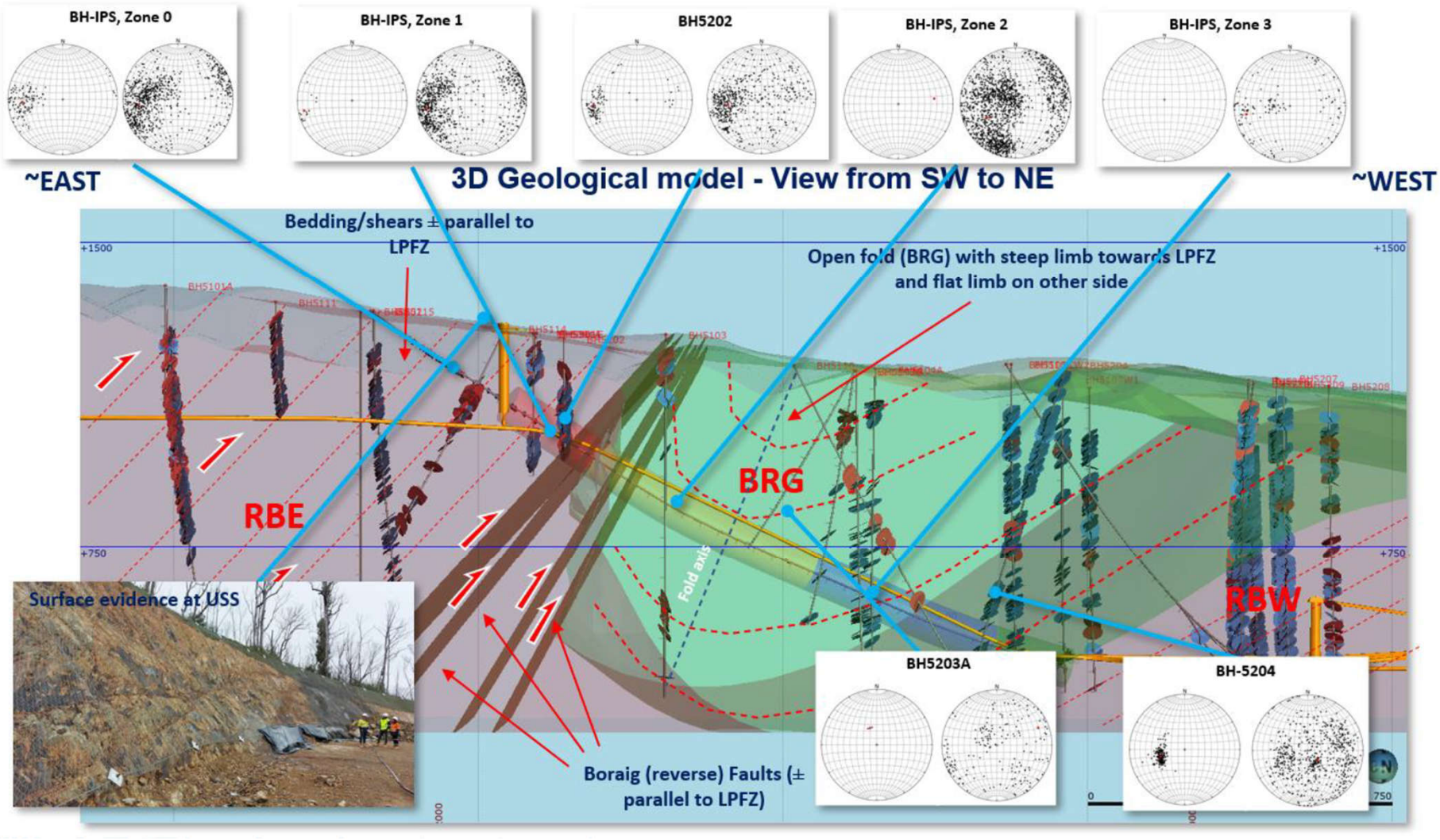


Large fault. (approx 250m in length)
Wide disturbed zone, highly fractured, possible squeezing ground.
High groundwater flows and volume.



Low confinement

Some of the boreholes completed to date



Construction Works Update - Roads

- Main access to site

Ravine Road - Making sure it will fit...

Snowy 2.0 | development timeline

Mar-17	Dec-17	Dec-18	April-19	Oct-20	2026
Feasibility Study	Final Investment Decision	Execution	Exploratory Works	Snowy 2.0 construction	
Feasibility Study	Final Investment Decision	EPC contract execution	Exploratory Works begin	Main Works to begin	Completion

Landsvirkjun Power

Snowy 2.0 contractors | Future Generation and Voith

Future Generation
SALINI IMPREGILO • CLOUGH • LANE

Design and Engineering Consultants (DJV)

Lombardi

coffey

TRACTEBEL

ENGIE

Electrical and Mechanical Subcontractor

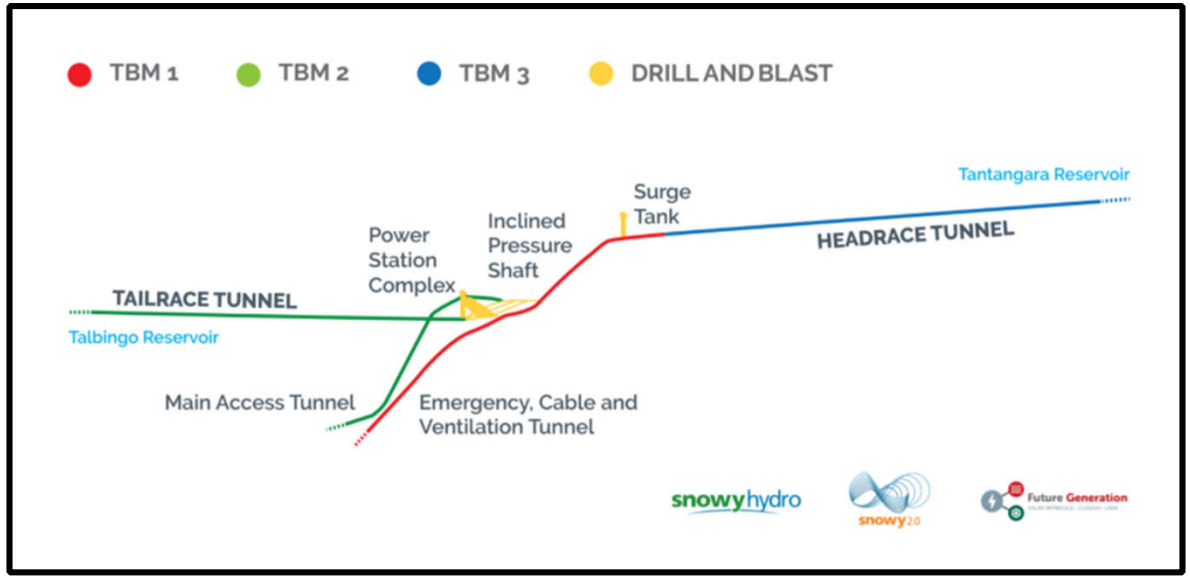
VOITH

TBM delivery from Port Kembla to Lobs Hole

Power Waterway and Access Tunnels

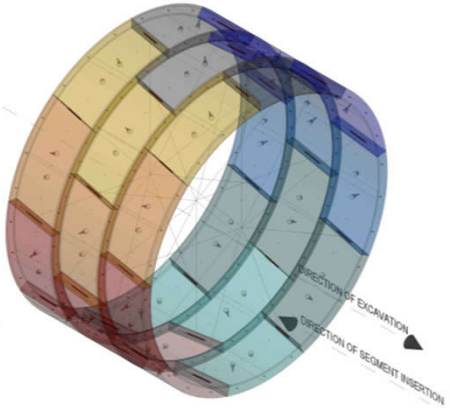
Tunnel boring machines will be used for the excavation and construction of the following tunnels:

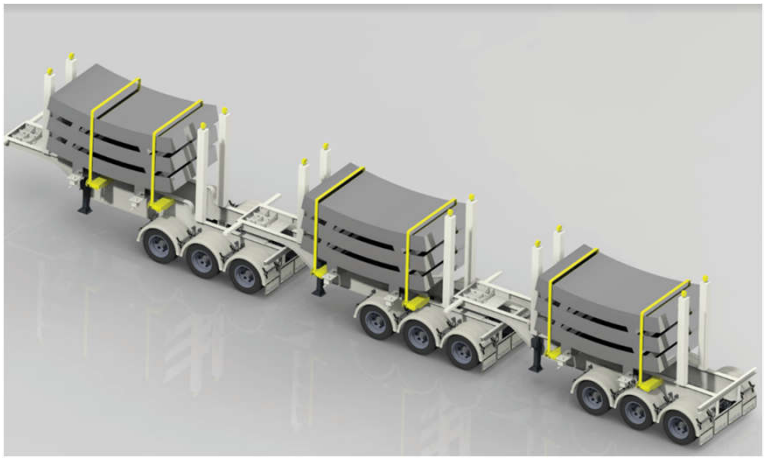
- **TBM02** will bore the Main Access Tunnel (MAT), and then the Tailrace Tunnel (TRT) from the Talbingo Portal to the TRT Surge Chamber.
- **TBM01** will bore the Emergency, Cable and Ventilation Tunnel (ECVT) and, after the necessary technical adjustments, the Inclined Pressure Shaft and 2km of Headrace Tunnel (HRT).
- **TBM03** will bore the upstream portion of HRT from Tantangara Adit to CH 15+400.



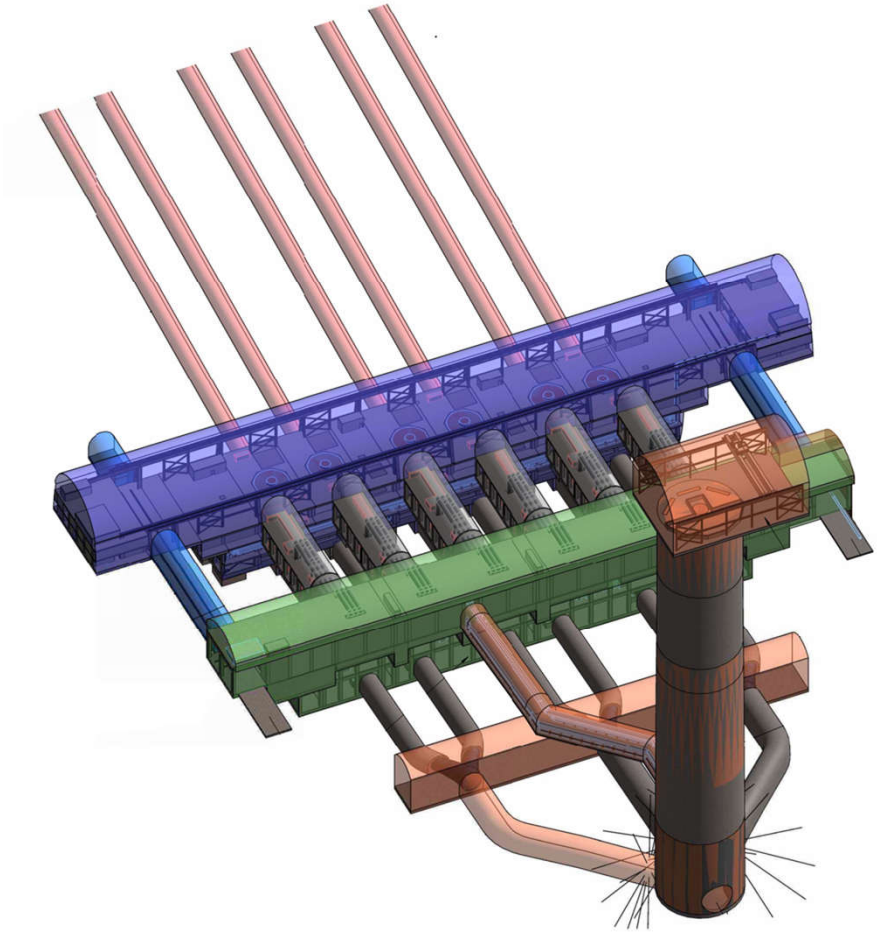
Polo Flat Segment Factory

- Polo Flat segment factory in Cooma to produce **130,500 segments**, making 14,500 concrete rings
- Each segment is **6.5 tonnes** - **380mm thick**, 2.6 cubic metres of concrete
- Each ring is 9 individual segments, **9.9m internal diameter**.
- 125 operational jobs - including many unskilled positions
- Construction is now underway and expected to take about five months so segments will be in production by the end of the year

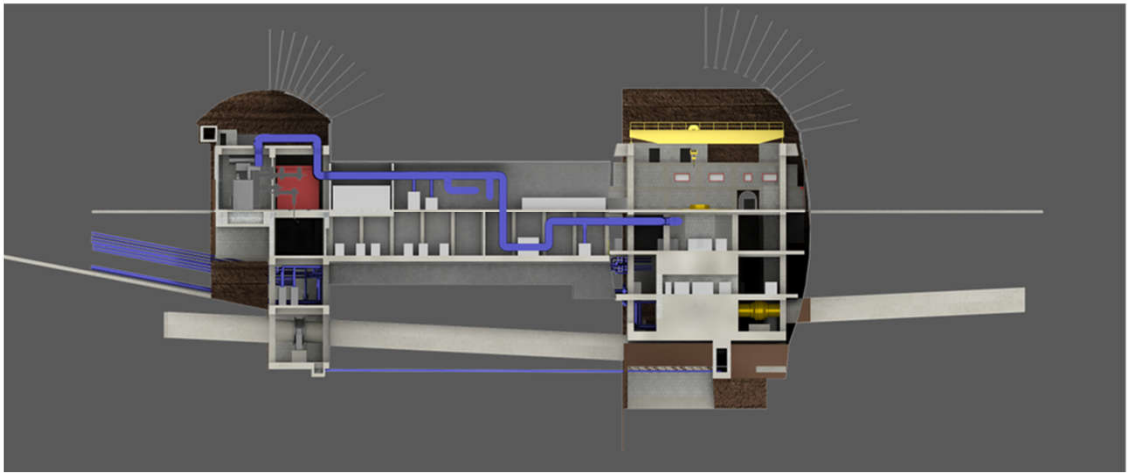




Power station complex

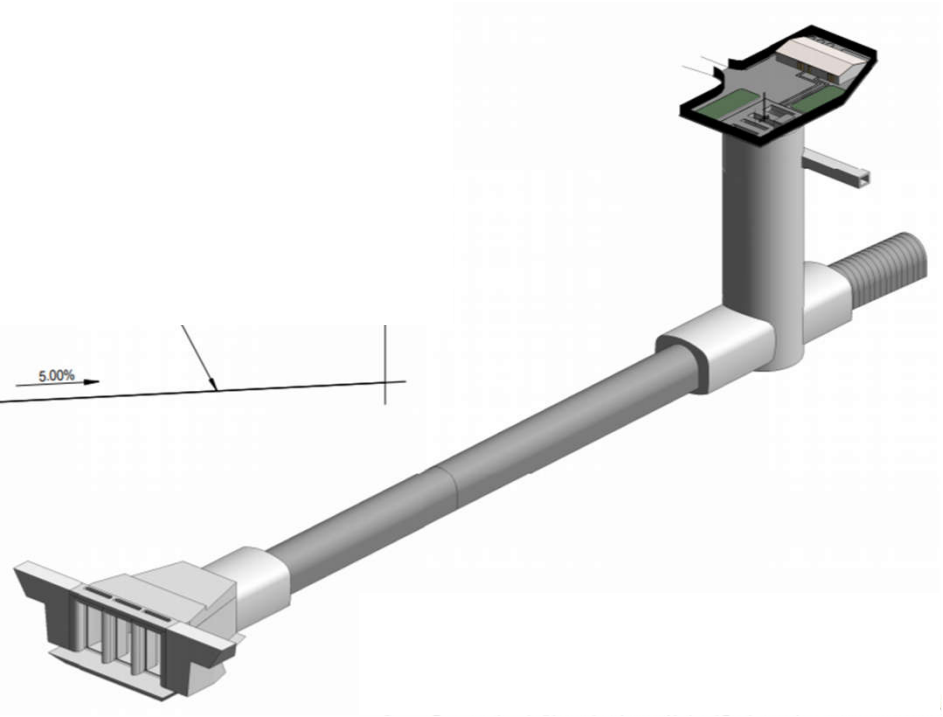


Machine Hall - longitudinal section



Machine Hall - cross-section

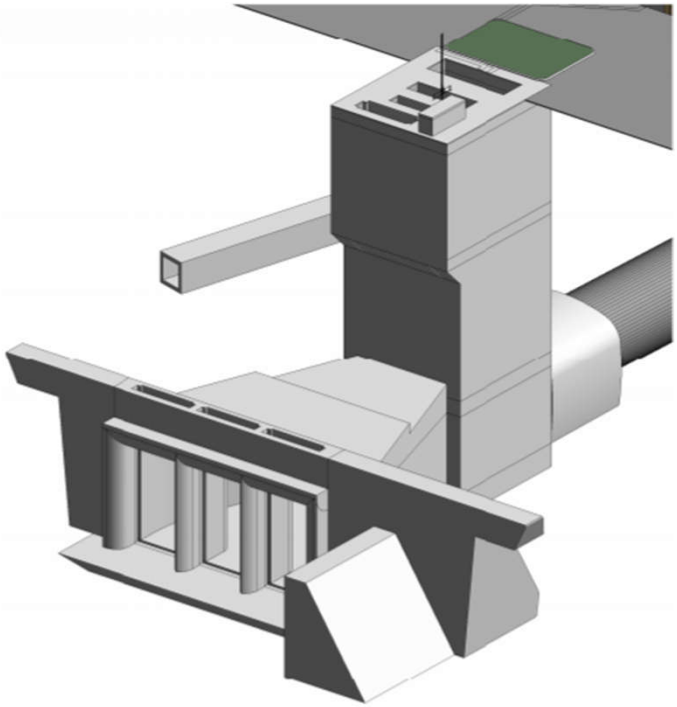
Intakes - Tantangara Reservoir



Intakes - Tantangara Reservoir

Status of surface works late October 2022

Intakes - Talbingo Reservoir



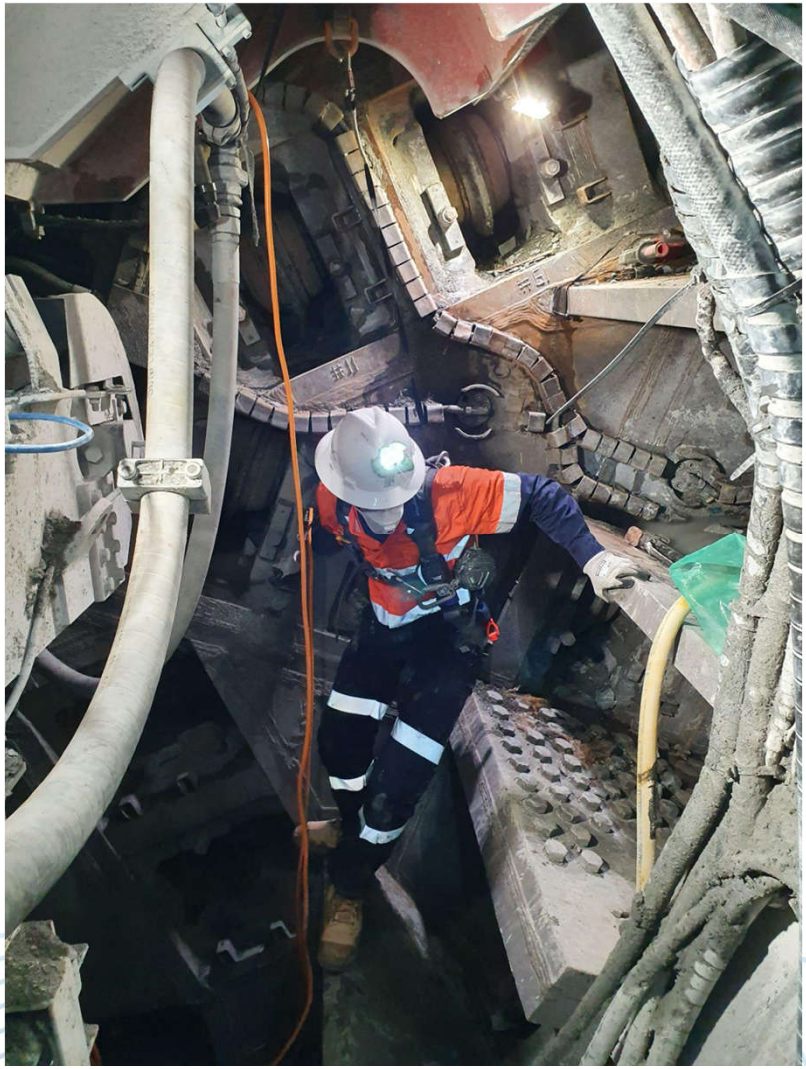
Main Access Tunnel Portal 20 Jul 2020

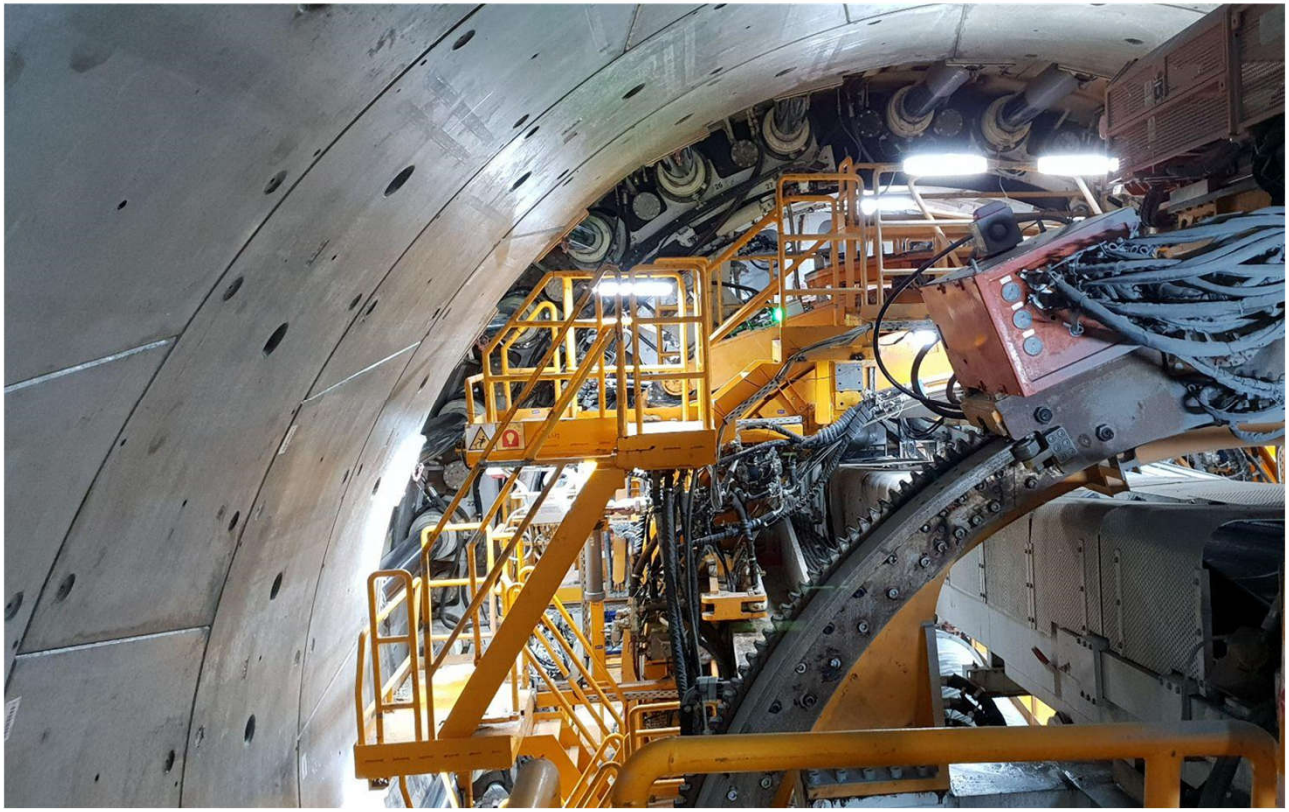
TBM official launch - March 2021

Breaking Ground - 23 Jun 2021

MAT Tunnelling

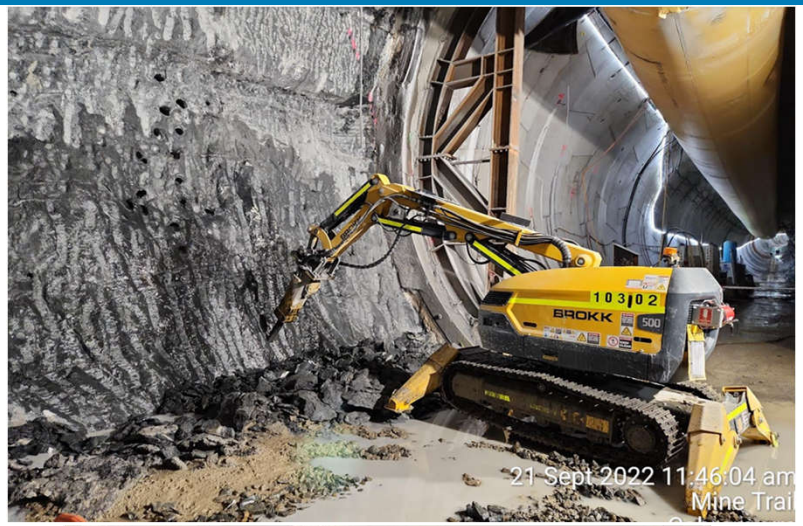
Geotechnical face mapping and probe drilling

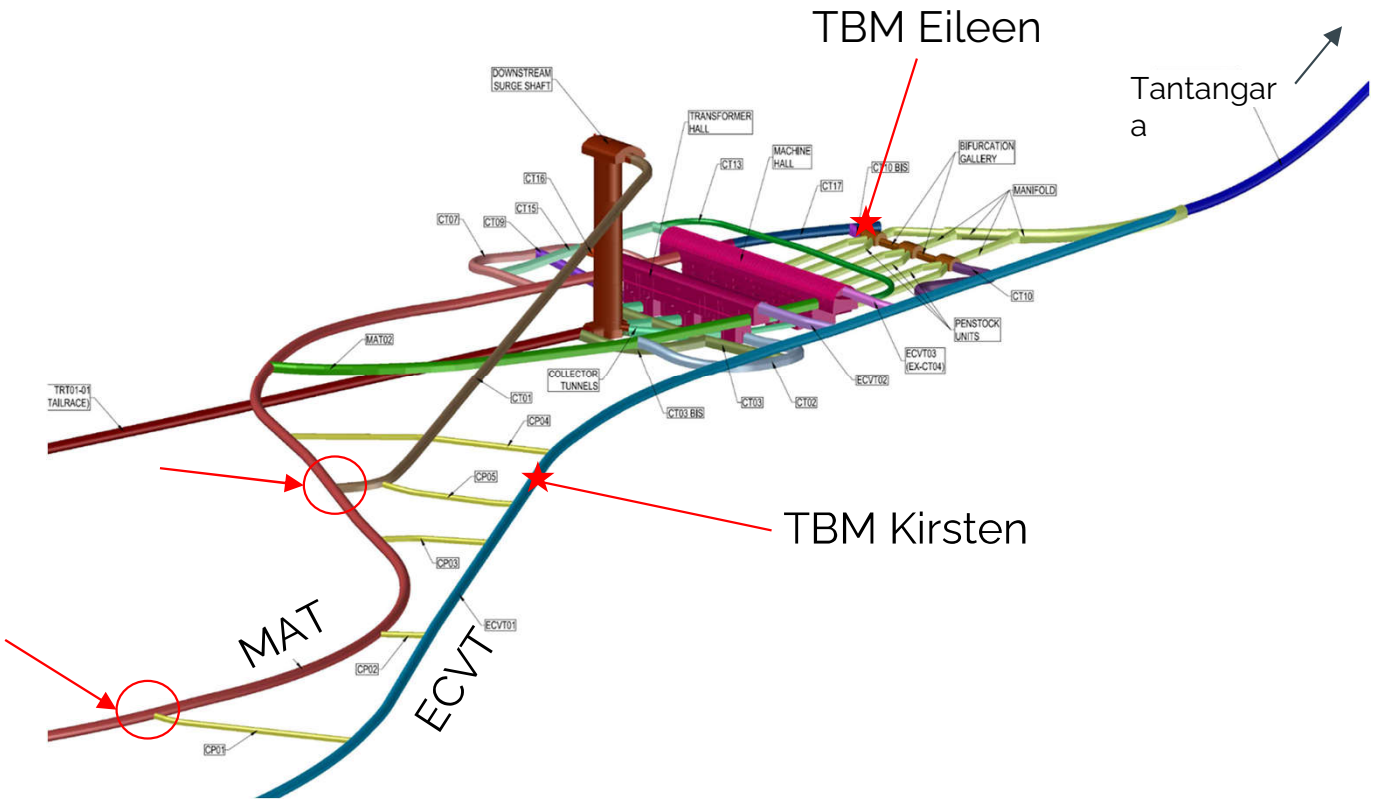




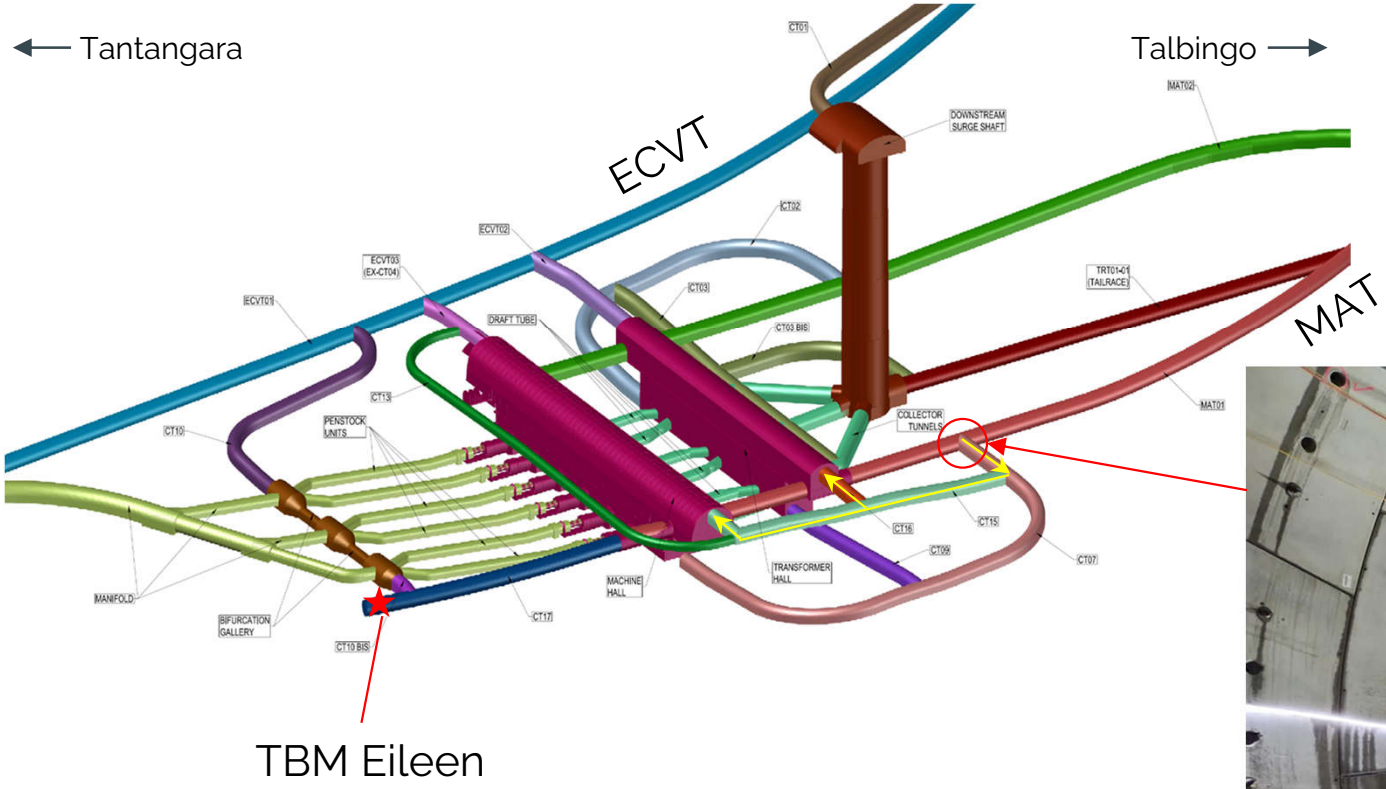
Tunnelling

What comes next????
Cross Passages & Construction Tunnels





Construction Tunnels - Access to the Cavern

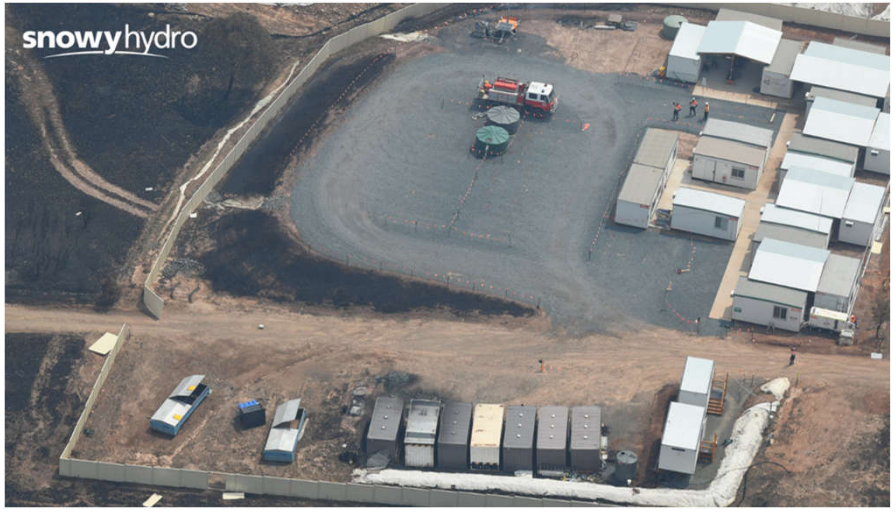


TBM Eileen

CT07 - Jumbo Install 6m rock bolts

Bushfires Summer 2019/2020; Covid-19 2020-2021

A significant bushfire past through the Kosciuszko National Park impacting the Project site from 4 January 2020



ANY QUESTIONS?