

Gordon Power

Station

Gordon Catchment

Gordon Power Station is the only station on the Gordon/Pedder Scheme. The station was commissioned in 1977 with two turbines. A third machine was commissioned in 1988. The underground station could house up to five turbines with two unused bays. All three installed machines are Fuji turbines coupled to Siemens alternators.

The station is located 183 metres underground and is supplied with water from Lake Gordon through a 137 metre-high vertical shaft. Water from the station is fed back into the Gordon River through a 1.6 kilometre-long tailrace tunnel.

Lake Gordon's major inflow is from Lake Pedder. A radial gate controls water flow on a canal between the lakes. A gate at Serpentine Dam controls water released into the Serpentine River.

Each turbine has a fully embedded spiral casing with spherical rotary inlet valve and is connected to a common power shaft intake with a hydraulic open, gravity-closed cylindrical intake gate designed to cut off full flow.

Machines 1 and 2 were partially upgraded with modern hardware around 2005, and all three machines are planned for further modernisation upgrades in the coming years. Unit 3 is capable of synchronous condenser operation, and has a turbine water blow down system to enable operation in this mode.

There is a standby 750 kVA house-set located in the basement floor of the station which is water turbine driven. There is also an emergency 585 kVA diesel generator located in the control building.

The station output is fed from each machine by 18 kV aluminium busbars to the surface switchyard which then, passes through three 18/220 kV power transformers and 220 kV outdoor switchgear to TasNetworks' transmission grid. The switchyard also houses 22 kV apparatus used for power supply to the station and to the local community.

Fast facts

Scheme:	Gordon/Pedder
Year commissioned:	1977/1988
Power station structure:	<ul style="list-style-type: none"> • Underground, 96m long x 22 m wide x 28 m high • Sized to house 5 generating sets with assembly and service bay • Vertical busbar/lift shaft to a surface control building
Static head:	198m
Generating set:	<ul style="list-style-type: none"> • Three vertical shaft generator sets • Each comprises 150 MW Francis turbine directly coupled to a 3-phase, 50 Hz, 160 MVA synchronous generator • No. 3 machine is designed for synchronous compensator operation.
Turbine manufacturer:	Fuji
Generator manufacturer:	Siemens
Rated head:	192m
Rated output:	160 MVA
Rated discharge:	85 m ³ /s
Power factor:	0.9
Rated speed:	273 rev/min
Rated voltage:	18 kV

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