

Poatina Power

Station

yingina / Great Lake – South Esk Catchment

The Poatina Power Station is part of the Great Lake Power Scheme. It houses six Siemens generators coupled to Pelton turbines. When the station was commissioned in 1966 there were only five turbines. The sixth was added in 1977. Between 2007 and 2010 number 1, 4 and 5 machines were upgraded under a program to modernise the ageing plant. The station is underground on the northern side of the lake with its machine hall 150 metres below the surface.

Water from *yingina* / Great Lake travels through a 5.6 kilometre-long headrace tunnel to a single, hydraulically operated hilltop valve. A 105 metre-long, steel lined penstock tunnel leads to the penstock tunnel portal. Water is then carried via a 1.8 kilometre-long surface penstock to a 150 metre vertical shaft leading to the underground penstock distributor.

The penstock distributor has six branches, each feeds an isolating valve inside the power station which is bolted directly to the main turbine inlet valves. The rated head for the station is 758 metres.

Once it leaves the turbines the water is discharged along a 4 kilometre tailrace tunnel exiting at Palmers River. Poatina supplies irrigation water to the Cressy-Longford Irrigation Scheme and Macquarie Irrigation with minimum required flows set for the summer period.

The station output is fed to TasNetworks' transmission grid via underground circuit breakers to two 16 kV/110 kV and four 16 kV/220 kV generator transformers located in the switchyard above. Poatina's positioning in the network means it feeds into the Palmerston switchyard, which is on the main North-South transmission corridor.



Turbines inside the power station

Fast facts

Scheme:	Great Lake – South Esk
Year commissioned:	1966/1977
Power station structure:	Underground dimensions: <ul style="list-style-type: none"> 91 m long x 14 m wide and 26 m high excavation It houses generating sets with assembly bay and services bay and with a vertical busbar/lift shaft to a surface control building and transformer yard.
Static head:	835 m
Generating set:	Six vertical shaft generating sets: <ul style="list-style-type: none"> Five Boving 51.6 MW of which three are upgraded Andritz turbines One Fuji 54.5 MW four nozzle spear Pelton. All units are capable of operating at over 60 MW. Turbines directly coupled to a 3-phase, 50 Hz, 62.5 MVA synchronous generator and with provisions for synchronous compensator operation.
Turbine manufacturer:	2 Boving, 3 Andritz, 1 Fuji
Generator manufacturer:	Siemens
Rated head:	758 m
Rated output:	62.5 MVA
Rated discharge:	9 m ³ /s
Power factor:	0.8
Rated speed:	600 rev/min
Rated voltage:	16 kV

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