Wayatinah Power Station

Derwent Catchment

Wayatinah Power Station is the sixth station on the Lower Derwent / Nive Scheme. The station was commissioned in 1957 and houses three machines comprised of English Electric generators, coupled to English Electric Francis turbines in concrete embedded spiral casings.

Discharge from Liapootah Power Station and spill from Liapootah Dam flows into Wayatinah Lagoon, a small storage created by a rock-fill dam on the Derwent River below its junction with the Nive River. The dam is fitted with a manually operated discharge valve for flow diversion or pond drainage. There is a natural rock spillway next to the dam.

Water in the lagoon is diverted by a 2 km long tunnel to two low pressure woodstave pipelines, each 1.3 km long. It then drops 56 m through three steel penstocks to Wayatinah Power Station. The woodstave pipelines have a single surge tower located near the power station, which is designed to dissipate pressure. There are fire extinguishers at regular intervals along the pipeline to protect the wood if there is a bushfire.

The tunnel intake structure has two vertical lift, gravity close intake gates to cut off full flow. Each of the three steel penstocks is fitted with a hilltop valve designed to close under full flow.

Starting in 2017 with one machine per year, each of the three machines has seen a major refurbishment and modernisation. This process includes a full runner replacement to a more efficient design, as well as new digital control systems and the removal of the main inlet valves.

The station output passes through 11 kV indoor switchgear to the switchyard where it feeds through a single, 3 phase 11/220 kV power transformer. The 220 kV then tees onto TasNetworks transmission line.

Fast facts	
Scheme:	Lower Derwent / Nive
Year commissioned:	1957
Power station structure:	• 53m long x 20m wide • Three generating sets with assembly bay. • A two storey service block is annexed to the assembly bay.
Static head:	62 m
Generating set:	Three vertical shaft generating sets each comprising a 15.3 MW Francis turbine directly coupled to a 3-phase, 50 Hz, 15 MVA synchronous generator.
Turbine manufacturer:	English Electric
Generator manufacturer:	English Electric
Rated head:	56 m
Rated output:	15 MVA
Rated discharge:	34 m3/s
Power factor:	0.85
Rated speed:	250 rev/min
Rated voltage:	11 kV

The 11 kV indoor switchgear system also supplies a TasNetworks distribution yard, next to the main transformer yard. This supplies power to the local area from Wayatinah village to Hamilton and includes the power stations of Liapootah, Wayatinah, Catagunya, Repulse and Cluny.

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