

Birdsville To Become A Geothermal Power House Off The Beaten Track

Ergon Energy is conducting a feasibility study into expanding and improving Australia's only geothermal power station at Birdsville in far southwest Queensland.

Energy Minister, John Mickel, said the company would investigate the Great Artesian Basin hot water resource at Birdsville to determine its electricity generation capabilities.

"Ergon Energy already runs a small geothermal power plant in Birdsville supplying about one quarter of the town's electricity needs", Mickel said. "Ergon Energy will now investigate supplying 100% of the township's power from this sustainable underground resource, located in one of the most isolated places on the continent."

He said geothermal energy was considered one of the most exciting potential sources of clean energy. "So far, Ergon's geothermal power station in Birdsville is the only one of its kind in the country to tap this resource, albeit on a small scale. With the current equipment coming to the end of its working life, we believe it is well worth investigating an upgrade to a greater capacity utilising newer technology equipment."

The existing plant, known as an Organic Rankine Cycle engine, was commissioned in 1992 and operated until the end of 1994. It was upgraded and recommissioned by Ergon Energy in 2001 and ran until late 2004 when it was shut down for a major refit to meet Australian safety and compliance standards. It again began producing electricity in December 2005.

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out of the town's total average demand of 300 kW, using water from the Great Artesian Basin which is naturally heated by the earth. The water comes from 1.28 km below the

surface at a temperature of 98° C via a free-flowing bore drilled more than 75 years ago.

The water is run through a gas-filled heat exchanger which heats and pressurises the gas. This in turn drives a turbine and alternator to produce electricity. The partly-cooled water is then channelled into a pond for further cooling and reticulation into the town's water supply and lagoon.

Mickel said the first step in the feasibility study would be talking to the Birdsville community to identify their needs in terms of power demand and water use. "Ergon Energy will be looking at the location and depth of a new bore, potential artesian water flow rate and temperature, electricity generating potential, possible impacts on the artesian basin, and the most appropriate and effective type of geothermal power station technology", he said.

"If the underground hot water resource is found to be adequate, we propose building a new, larger geothermal power station capable of generating more than 300kW. This would be sufficient to supply the whole town with electricity. After the heat is extracted for power generation, the water would continue to supply the town and the lagoon, and the remainder would be used to replenish the aquifer by reinjecting it into the existing bore.

"We believe new technology equipment would efficiently extract more heat out of the water and increase its electricity generation potential. The proposed new plant would also be a more sustainable use of the artesian resource, as the majority of water used by the power station would be pumped back into the aquifer, recharging it for future use." ■