



## Genex Power uses old gold mine for hydro storage plant

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Listed company Genex Power has been buoyed by a feasibility study which found its plans to convert a disused underground gold mine west of Townsville into a hydro storage plant or a "giant battery" was commercially viable, with plans to open the project in 2018.

The study lodged with the Australian Stock Exchange on Tuesday showed a \$300 million 250 megawatt hydro plant with 1500 megawatt hours storage capacity could work on the site, with the company saying there had been strong interest from investors in what would become the third largest hydro-electric storage project in Australia.

The Australian Renewable Energy Agency which has allocated \$4 million to the Kidston pumped storage project, 400 kilometres west of Townsville is hoping it will pave the way for a string of former underground mines being used to help bring more renewable energy on-line in northern Australia.

"This includes a 50 megawatt solar farm being developed by Genex at the Kidston site with potential to use solar to power the storage plant's water pumps," he said.

"If everything goes to plan, Genex should reach financial close and start construction in 2017, an achievement that would pave the way for more large pumped hydro storage projects at disused mines to support our energy grid."

The feasibility study by specialist power and water consulting firm Entura and their project partner HydroChina found the Kidston pumped storage project at the abandoned gold mine could provide six hours of continuous generation using two 125 megawatt fixed-speed turbines. The turbines would pump water into an upper-storage

reservoir during the day or overnight when prices are low and then release it into a lower reservoir to generate power during periods of high demand or need.

This approach - the same used for part of the Snowy Hydro scheme - can provide the same kind of grid support services as a gas or coal-fired power plant.

Unlike the intermittent capacity of wind or solar, the Kidston pumped storage project was expected to be able to ramp up to full generation capacity in about 30 seconds.

It is expected the Kidston project would be able to connect to the existing Powerlink transmission lines in North Queensland.

Genex Power executive director Simon Kidston said the pump storage hydro technology was more than 100 years old, but they have modernised it with their neighbouring solar plant to power the turbines.

"This is the right asset at the right time and we know it works. We just need to put in place the financial contracts to make it bankable," Mr Kidston told The Australian Financial Review.

Mr Kidston said they could have pushed for a 450 megawatt project, but decided to err on the side of caution with a 250 megawatt hydro plant which will require tunnels between the two former mine pits - which differ in height by about 250 metres - and the installation of turbines. The re-use of water between the pits would also make it virtually drought-proof.

It would become the fourth pump hydroelectric storage project in Australia after

Tumut 3 power station (1500 megawatts) in the Snowy Hydro scheme, CS Energy's Wivenhoe power station (500 megawatts) and Origin Energy's Shoalhaven pump storage system (240 megawatts) in Sydney the first time an old underground mine has been used.

Genex Power which listed on the ASX in July last year purchased the old gold mine from \$17 billion Canadian mining giant Barrick in 2014. The mine closed down in 2001.

Genex said the strong need for large-scale storage as more renewables made it onto the grid had made the project more commercially attractive to investors.

"There is a critical need for large scale energy storage, at an affordable cost, to balance the penetration of large scale renewable energy generation into the NEM," the feasibility study said.

"During the course of the TFS [technical feasibility study], Genex has received significant interest in the project from a range of funding and financing entities.

As a result of the high level of interest, once final costings are completed, Genex will immediately commence project financing activities in order to bring the project online as soon as possible."

The company which has drawn down \$2.7 million of the \$4 million in ARENA funding aims to reach financial close in the last quarter of 2017 with the project to open the following year.

It is currently negotiating with companies to buy power from the Kidston project which also has the potential to provide Frequency Control Ancillary Services, or FCAS, for the National Energy Market.