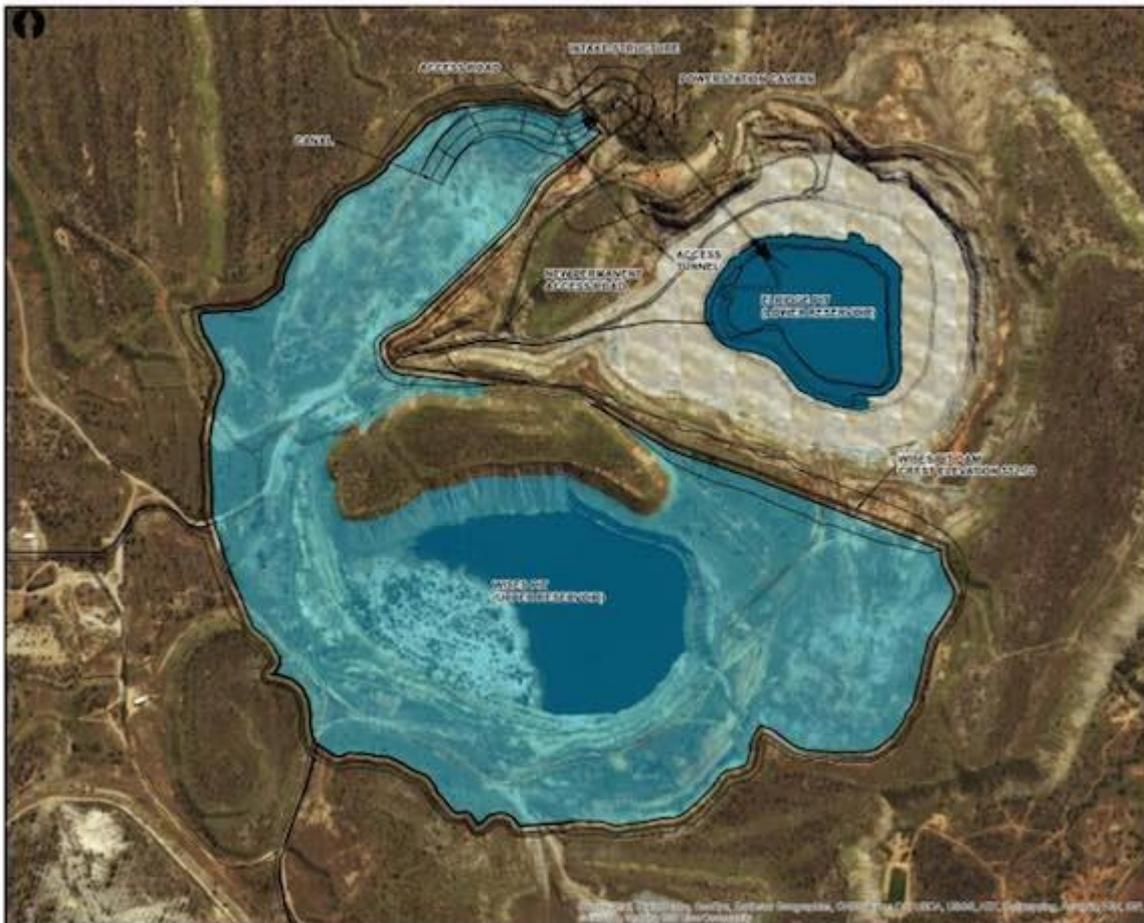


## Kidston pumped hydro storage capacity to be boosted by 25%

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**Figure 1:** K2-Hydro project proposed general arrangement plan (TFS Optimisation, October 2017)

Genex Power’s world-leading solar and pumped hydro project in northern Queensland looks set to provide 25 per cent more energy storage capacity than first thought, after an optimisation study showed the potential for the renewable energy hub to provide 8 hours of continuous generation, rather than six hours.

Genex Power’s \$330 million Kidston Stage 2 Pumped Hydro Storage project – which is said to be “shovel ready” at the site of a former gold mine, where it will be co-located alongside a 270MW solar PV array – was initially slated to provide 1,500MWh of pumped hydro energy storage capacity.

But in a statement on Friday, Genex said that new studies had shown that it could provide energy storage of 2000MWh, with optimal use of the site’s existing infrastructure and design of its turbine technology.

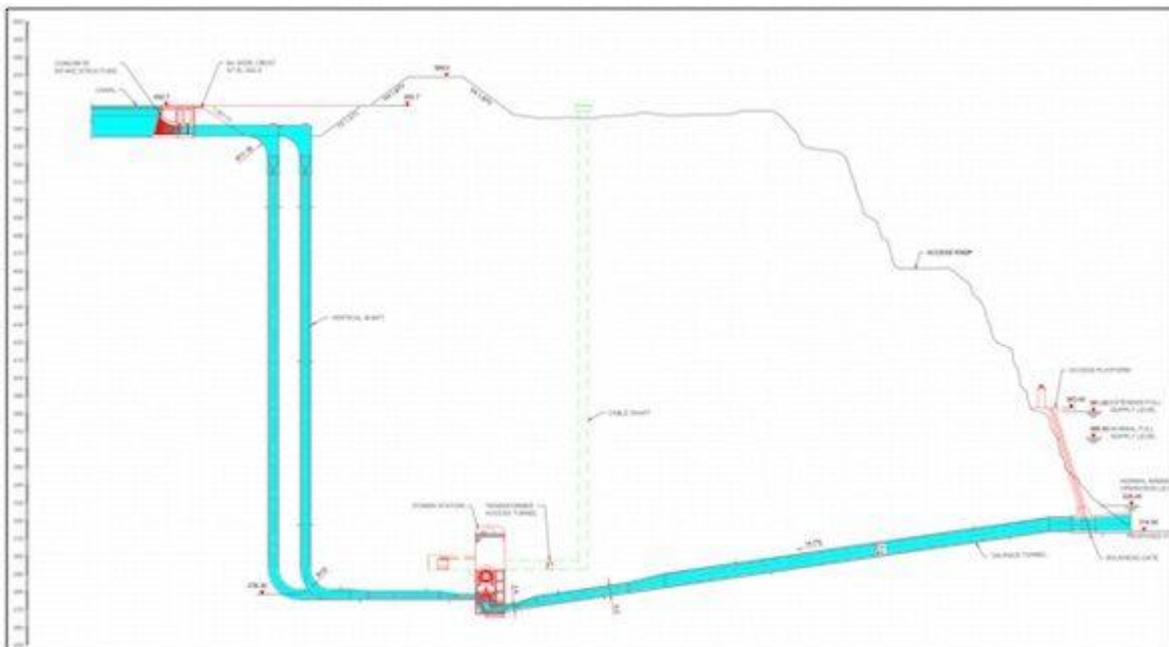
The company said its optimisation studies, conducted with global engineering firm Mott MacDonald, had also taken into account recent shifts in Australian energy market dynamics, as well as feedback from key market players – the company is said to be close to announcing which major energy retailer will be the energy off-take partner for Kidston, with financial close set for 2018.

“It is clear that the National Electricity Market is undergoing a rapid shift from a traditional baseload dominant market to a new dynamic where dispatchability and storage of renewable energy will underpin future generation,” Genex said in a statement on Friday.

“In such a system, the role of large-scale economic energy storage becomes increasingly relevant.

“The updated design (of Kidston) will enable energy off-takers to take full advantage of the flexibility offered by the integrated project and, in doing so, allow Genex to extract maximum value from the offtake arrangements.”

The optimisation study, says Genex, found that an augmented design using the two existing gold mine pits as the upper and lower reservoirs was the optimal choice for the 250MW of installed solar capacity.



**Figure 2:** K2-Hydro project proposed cross sectional plan (TFS Optimisation, October 2017)

This change was expected to increase upper reservoir volume from six hours to over eight hours of continuous generation, with the potential to use variable speed pump-generator turbines to provide significant operational flexibility, including the ability to “ramp up” to full generation capacity in less than 30 seconds.

The changes would also allow the pumped hydro facility to better match the generation from the co-located K2-Solar project, Genex said, as well as increasing its suitability to the ancillary service market with increased operation flexibility.

As a final bonus, the reduced excavation and civil works requirements that result from the optimisation means construction of the pumped hydro project could be reduced by up to six months, to less than three years, the company said.

“The optimisation study outcomes have been developed in response to direct feedback from potential energy partners amid the ongoing backdrop of the national debate on Energy Policy, and the importance of ensuring dispatchability of renewable energy via energy storage,” said Genex managing director Michael Addison in comments on Friday.

“The Kidston renewable energy hub is currently the most advanced, lowest cost, large-scale energy storage project in the country. Energy storage is likely to play a critical role in future energy development and Genex is well placed to benefit from these dynamics,” he said.