

MICROGRIDS, SMART GRIDS AND ENERGY STORAGE SOLUTIONS



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Genex transforms a disused mine into a cutting-edge energy project

Case study

Genex Power has developed an innovative design to respond to peak periods of electricity demand through combined renewable energy production and storage, using the mine pit of a former goldmine as the site of a huge pumped hydroelectric power station located underneath a 270MW solar farm.

In Australia there is a significant gap between low and high-energy demand periods, which is exacerbated by intermittent renewable energy production. Solar and wind resources without storage cannot provide a consistent and reliable supply of electricity, particularly during periods of high consumer demand (typically early morning, and late afternoon to evening). To address this challenge, Genex has proposed an integrated energy hub, located in Kidston, Queensland. The hub will consist of a 250MW Pumped Storage Hydro Project, a 50MW Solar Project (Phase One) and an additional 270MW Solar Project (Phase Two).

Pumped storage hydro is currently the most efficient and effective means of large-scale electrical energy storage worldwide. By storing large amounts of water in an upper reservoir and releasing this down through turbines and generators, production of energy can be initiated instantly to meet high electricity demand during peak periods. The Kidston Pumped Storage Hydro Project will utilise the existing mining voids and infrastructure left from an abandoned gold mine to minimise construction and environmental impact. Additionally, it will use the energy produced from the co-located 270MW Kidston Solar Project to pump water back from the lower to the upper reservoir during the day, in combination with pumping during low demand periods at night.

This project will be the first of its kind in Australia to integrate renewable energy production and energy storage on a large scale.

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Image courtesy of Genex Power



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