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Gold Fields gold mine to be powered with wind, solar and battery

A Western Australian gold mine will be the first Australian mine to be powered by a wind, solar, battery and gas microgrid now under construction.

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) has today announced \$13.5 million in funding to Agnew Gold Mining Company Pty Ltd, part of the Gold Fields Group (Gold Fields) for the development of a high penetration renewable microgrid at its Agnew Gold Mine in the northern Goldfields, Western Australia.

The renewable hybrid microgrid will consist of five wind turbines delivering an 18 MW wind farm, a 10,000 panel 4 MW solar farm and a 13 MW / 4 MWh Battery Energy Storage System (BESS) with security and reliability of a microgrid underpinned with a 16 MW gas engine power station. This will be the first time wind generation as part of a large hybrid microgrid in the mining sector in Australia.

The renewable energy microgrid is expected to provide 55 to 60 per cent of the energy requirements with the potential meet almost all energy requirement at certain times.

Gold Fields will also adopt innovative operational practices such as dynamic load shedding, renewable resource forecasting and IPP-controlled load management to maximise renewable energy use while maintaining system security.

Distributed energy producer EDL will design, construct, own and operate the microgrid to power the Agnew Gold Mine in two stages, under a 10 year agreement with Gold Fields. The first stage involving a new off-grid power station incorporating gas, diesel generation and solar is due to be completed in mid 2019. The second stage including the wind, battery and microgrid system recently started construction and will be completed in 2020.

ARENA CEO Darren Miller said this project marks a growing shift in thinking around powering mine sites.

“The project Gold Fields is undertaking will provide a blueprint for other companies to deploy similar off-grid energy solutions and demonstrate a pathway for commercialisation, helping to decarbonise the mining and resources sector,”

“ARENA is continuing to help build a business case for renewables in mining which has been underlined by other successful projects such as Rio Tinto’s Weipa project and Sandfire Resources’ DeGrussa Solar Project, reducing their fuel consumption by up to 20 per cent,” Mr Miller said.

“We’re excited to see more mining companies taking up renewable options and Gold Fields’ project comprising solar, wind and battery is helping to position into a more reliable and sustainable energy supply to call upon for the life of the mine.

Gold Fields Australia Executive Vice-President Stuart Mathews says: “The Agnew hybrid microgrid project reflects the company’s strategic objective to strengthen energy security, optimise energy costs and reduce its carbon footprint through innovation and the adoption of new technologies. The ARENA contribution significantly supports and encourages our efforts.”

EDL CEO James Harman said the company had seen increasing momentum towards hybrid energy solutions, particularly in remote off-grid locations.

“EDL is pleased to be an active contributor to Australia’s transition to sustainable energy,” Mr Harman said.

“Our strong base of knowledge and experience from our successful hybrid renewable projects will enable us to provide Agnew Gold Mine with greater than 50 per cent renewable energy over the long term, without compromising power quality or reliability.

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