Cannington Power Station

Leading the way towards the integration of renewable energy and existing technology to power remote, off-grid mining operations

Highlights

- **In an Australian-first, a 3MW solar photovoltaic (PV) facility has been integrated with EDL's existing 40MW power station at the South32 Cannington mine in north-west Queensland.**
- **The solar PV facility was also the second largest to be installed at a remote mine in Australia—comprising 7200 panels and covering an area of almost six hectares.**
- **The use of solar power will enable South32 to prevent 4000–6000 tonnes of greenhouse gas emissions per year.**

EDL has successfully provided Cannington with power as the sole source generator since 1997, with a demonstrated track record of reliable power generation exceeding 99.7% availability.

The original power station was diesel-powered but in 1999, after the completion of the Cannington Lateral gas pipeline, EDL worked in partnership with South32 to upgrade the station to a primarily gas-fired facility.

As part of the upgrade, EDL successfully integrated the new gas-fired power station with the diesel-fired station, while at the same time decommissioning some diesel generators to optimise the installed capacity of the facility.

Prior to the solar PV facility coming online in 2018, the Cannington Power Station was fuelled by 6MW diesel and 35MW gas-fired generation.

Cannington mine

At a glance

Start of operations:
1997 – diesel power station
1999 – gas power station
2018 – solar PV facility

Installed capacity:
35MW gas
6MW diesel
3MW solar

Location:
200km south of Mt Isa, QLD, Australia

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Solar PV facility at Cannington mine

The challenge

South32 has publicly stated their commitment to contributing to a smooth transition to a world that avoids more than two degrees of warming. As such, their Climate Change Strategy is built on three focus areas—climate change opportunity, climate resilience and emission reduction.

EDL rose to the challenge of assisting South32 to deliver on this strategy.

The solution

EDL worked with SunSHIFT to provide an innovative, off-grid solution to offset gas consumption with solar generation at the Cannington Power Station.

SunSHIFT delivered a solar PV facility, or solar farm, using large-scale, modular and moveable solar PV technology that was largely pre-fabricated to facilitate rapid construction and ease of expansion. Construction was completed in late 2018.

The outcomes

The new six-hectare solar farm generates 3MW of electricity while preventing between 4000 to 6000 tonnes of greenhouse gas emissions per year, contributing to the objectives of South32's Climate Change Strategy.

The electricity generated supplies the mine's accommodation village and airport, with the surplus electricity supporting the mining and processing operations at Cannington.

The cost to install and operate the solar farm will be offset by lower fuel costs into the future, which boosts the economic viability of the facility.

The future

This energy integration project has further enhanced EDL's experience in providing renewable hybrid energy solutions for remote locations and adds to our growing footprint in this vital area.

There is potential for the expansion of the solar PV facility's capacity and introduction of energy storage or batteries, in line with South32's future needs.

EDL is currently assessing the technical and economic viability of the use of batteries as virtual spinning reserve to reduce fuel and fired hour costs at the off-grid project.

Source:

Our Approach to Climate Change 2018 - https://www.south32.net/sustainability/sustainability-reports