



NOVA SOLAR FARM

CASE STUDY

Remote micro-grid connected solar farm without batteries

NOVA SOLAR POWER STATION

CIRCULAR SOLUTIONS

Circular Solutions is a specialised renewable energy consultant and contractor. Our services include:

- Concept development including feasibility, design, strategic planning, and regulatory advice;
- Project delivery as a turnkey or EPC contractor, as in house project and contract management for the owner, or as a fully financed (BOO) solution.

Our team are specialists in:

- Concept design and specification of micro-grid and island power systems;
- Detailed design and project delivery of renewable energy projects with significant experience in remote locations; and
- Systems integration and commissioning including thermal power and batteries.

Because we are a consultant and a contractor, we are uniquely placed to provide practical advice to our clients and partners based on current costs and on-site experience.

For more information about Circular Solutions, our team, capability and experience please visit our website www.circularsolutions.com.au.

To contact us to discuss your renewable power projects please email the team at info@circularsolutions.com.au.



NOVA SOLAR POWER STATION

Circular Solutions was engaged by Zenith Pacific Pty Ltd to engineer, construct and commission the Nova Solar Power Station in the Eastern Goldfields of Western Australia. Zenith is an Independent Power Producer operating 12 power stations supplying micro grid networks in Australia and Papua New Guinea including the Independence Group's Nova Nickel Project. The Nova Solar Power Station is a 6 MWp solar farm connected to IGO Nova Mine's 11 kV islanded

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micro-grid network. The solar farm is capable of producing up to 12.5 GWh of electricity per year and will displace around 10% of the mine's current diesel use.

The Nova Solar Power Station project is the first large scale mine connected solar farm in Australia to be constructed without government funding. We believe that It is also the first large scale microgrid in Australia to achieve greater than 50% instantaneous solar penetration without firming technology such as batteries or flywheels.

TECHNOLOGY

To maximise the output from the site and minimise the capital investment, the project is using high efficiency Canadian Solar 400 and 405 W polycrystalline modules. The structure employed is the Arctech single axis tracker to optimise the site yield.

The control system incorporates a Fulcrum3D cloud camera to optimize the spinning reserve. The camera allows Zenith to forecast clouding conditions and bring additional generators online to avoid overload events.



TEAM

Independence Group (IGO) is a leading ASX-listed mining and exploration company that owns and operates the Nova nickel-copper-cobalt operation. IGO's strategy is to become a globally relevant, premium producer of metals critical to clean energy. IGO will do this by focusing on being a vertically integrated and proactively green business that delivers quality products made safely, ethically, sustainably and reliably, by people who are bold, passionate, fearless and fun - a smarter, kinder, more innovative company.

Zenith Energy (Zenith) is one of Australia's leading Independent Power Producers Zenith owns and operates the power generation systems for the Nova mine. Zenith specializes in tailored off-grid power generation and service models, including the integration of a complete range of thermal and sustainable fuel sources to deliver cost-effective and reliable solutions for clients.