FIMER

Case Study

Western Australia's Peel Business Park is powering over 50% of its site through a solar, battery and microgrid solution.

Working with owner /operator client Peel Renewable Energy, FIMER developed a customised solar, battery and microgrid solution to supply power to the Peel Business Park in Nambeelup, Western Australia. Fully integrated and commissioned in March 2021, it is the first-ever renewable energy microgrid in Australia to power an industrial estate. The energy solution will deliver safe, reliable and green energy to the tenants of the estate at an expected energy cost savings of around 30% compared to published tariffs in Western Australia.

The Peel Business Park is a multi-staged 1,000-hectare greenfield industrial estate being developed in Nambeelup (approximately 70km south of Perth) in Western Australia. DevelopmentWA (the state government's land developer) has activated the first phase of the Peel Business Park, with Stage 1 lots released in 2020.

Due to the remoteness of this new industrial development area, an existing power connection to the traditional grid did not exist, and it was not economically feasible to construct and extend a new full-supply grid connection to the site. An onsite, behind the meter solar and battery solution was highlighted as the most cost-effective, reliable and green alternative to a traditional servicing approach. By utilising a smart renewables microgrid solution, the business park will instead use locally generated renewable energy directly from an onsite solar farm, along with a battery energy storage system, to power over 50% of the site.

Peel Renewable Energy was appointed by DevelopmentWA through an open tender process in October 2019 to deliver, manage and service the energy solution for the Peel Business Park.

Avora Energy, a privately owned Western Australian engineering, procurement and construction company, was engaged by Peel Renewable Energy to design, procure, construct and commission the solar and battery solution. Sunrise Energy Group, an expert in behind the meter renewable solutions, was a technical and project management partner to the project. Jarrah Solutions provided protection, SCADA and comms schemes for the project, including the microgrid control system.

The renewable energy solution includes a 1.2 MW solar farm, incorporating over 2772 bi-facial 440W panels with a NEXTracker single-axis tracking system, a FIMER skid mounted

solar & battery inverter system with medium voltage power distribution system and a 2.5 MWh Saft battery energy storage system.

Jeff Brill, Avora Energy's Managing Director, reported that, "During the product component selection process, we were looking for a combined inverter and battery solution that would elegantly meet all the technical and project requirements. FIMER's PV & battery solution was a fully integrated solution that could be delivered on a single skid that ensured easy installation, commissioning and servicing."

The FIMER solution was designed specifically for this project. With over 12 months of planning across multiple teams in Australia and Europe, the customised 40" skid incorporates:

- A FIMER PVS980-58 central inverter
- A FIMER bi-directional inverter, the PVS980-58BC, including grid-forming-ready technology
- A hybrid Medium Voltage Transformer
- Associated switchgear

Aaron Zadeh, FIMER Australia's Utility-Scale Solar Manager, said of the solution, "We are extremely excited to have been part of this ground-breaking solution with Peel Renewable Energy, Avora Energy, Sunrise Energy Group, Jarrah Solutions and DevelopmentWA. FIMER custom designed and manufactured this solution for the project. It's a unique 'hybrid inverter station' that hosts both a solar inverter and battery converter on a single medium voltage station. It uses FIMER's PVS980 technology and offers a range of benefits to Peel Business Park tenants."

Aaron continued, "FIMER's technology can shape how small utility-scale microgrids can thrive in Australia moving forward."

Utilising the hybrid station with both FIMER inverters enables the technology to share a portion of hardware that brings significant synergies over the system's life, from a faster installation, higher reliability, and a rapid return on investment as well as long-term support and maintenance benefits.

The 1.2 MW solar farm is serviced by the FIMER PVS-980-58 solar PV inverter, which provides high efficiency, low auxiliary power consumption, innovative air cooling and is designed for outdoor applications.

The FIMER PVS-980-58BC, a bi-directional inverter, will service the 2.5 MWh energy storage solution and will convert, store and discharge excess power from the battery solution in periods of high demand.

The battery system installed and commissioned on the site is a 2.5 MWh Saft solution with a 1.2 MW power rating. Saft's containerised lithium-ion batteries are equipped with sophisticated temperature management, safety equipment and cloud-enabled controls.

Michael Lippert, Saft's Market Leader for Energy Storage Solutions, said of the technology, "Our batteries are built with advanced Li-ion technology, which has been proven to provide high efficiency, long-life energy storage for microgrids in harsh environments and under very dynamic charge/discharge operation patterns."

Michael continued, "We were able to deliver our 2.5 MWh 'plug-and-play' battery solution on time and being easily integrated with FIMER's solution, facilitated fast installation and commissioning."

In 2020, the COVID-19 pandemic had a widespread global impact, affecting supply chains across both domestic and international borders.

Jeff Brill, Avora Energy's Managing Director, confirmed that "Despite having had several delays across the project due to COVID-19, the FIMER team were proactive and responsive during this period. To ensure there were no further project delays from lockdowns across Australian state borders, FIMER remotely trained and supported our engineers to be able to commission the FIMER solution on time."

The solution was delivered in late December 2020 and commissioned in March 2021.

As the estate grows and more tenants move in, the flexibility of the FIMER solution will enable Peel Renewable Energy to expand its renewable energy offering, using either ground or roof-top mounted solar arrays.

Rob Breden, WA General Manager of Peel Renewable Energy, spoke highly of FIMER's offering and mentioned that "FIMER's technical solution, quality product offering, local support and deep product knowledge stood out from the start. Since commissioning, we have been impressed with FIMER's after-sales support and the capability versus nameplate of the installed solar and battery solution".

The solar generation and battery energy storage solution has an expected annual output of over 3 GWh and will reduce CO_2 emissions by approximately 2,100 tons per annum.

Thinking about your next installation project?

With our huge portfolio of solar solutions, integrated digital services and reliable support network, you can count on us. To find out how FIMER can help you achieve even more with your installations, visit **www.fimer.com** to find your local sales rep.