**Advanced Energy Resources Wind, Solar and Battery Project**

[**https://arena.gov.au/projects/advanced-energy-resources-wind-solar-and-battery-project/**](https://arena.gov.au/projects/advanced-energy-resources-wind-solar-and-battery-project/)

**$3m** Funded by ARENA

**$11.2m** Total project cost

* **Lead Organisation** PGWF Pty Ltd

**Location** Port Gregory, Western Australia

* **Start Date** May 2019
* **Project Partners** Advanced Energy Resources Pty Ltd

**Summary**

Second-hand wind turbines, solar and a battery will combine to power a remote mine in Western Australia.

**How the project works**

This project consists of a hybrid 2.5 MW [wind](https://arena.gov.au/renewable-energy/wind/) farm, 1 MW [solar farm](https://arena.gov.au/renewable-energy/large-scale-solar/) and a 2 MW / 0.5 MWh [battery](https://arena.gov.au/renewable-energy/battery-storage/) that will provide power to a GMA Garnet’s (GMA) garnet mining and processing operation in Port Gregory, Western Australia.

Advanced Energy Resources (AER), a Perth-based renewable energy developer, generator and electricity retailer will build, own and operate the site, due to be commissioned in December 2019.

When complete, the project will be only the second grid-connected project in Australia (after [Kennedy Energy Park](https://arena.gov.au/projects/kennedy-energy-park/)), and the first in Western Australia to combine solar, wind and a battery into a single hybrid plant.

**Area of innovation**

This project is expected to demonstrate multiple areas of innovation including:

* a new grid connection design that overcomes challenges associated with connecting large amounts of renewable energy to weak grids, provides backup power, and facilitates high penetrations of customer-side renewable generation
* in an Australian-first, this project will use wind turbines from northern Germany that were decommissioned and refurbished in Australia by AER.

The innovative grid connection uses a back-to-back inverter configuration to separate the customer-side generation from the network, which simplifies the grid connection process. In addition, the battery will smooth fluctuations in generation and load output, which will help stabilise voltage on the local network.

**Benefit**

This project showcases an innovative way of delivering low cost, reliable renewable energy to large energy users in fringe of grid areas, delivering several Australian-first ideas.