

World-class battery storage system helps to power country town

18 May 2018, by David Ellis

A new energy storage system developed by University of Adelaide researchers and industry partners is now successfully supporting the electricity network for the country town of Cape Jervis, South Australia.

The new, world-class system is part of a \$3.65 million trial led by the University of Adelaide in collaboration with SA Power Networks and system supplier PowerTec. The project is supported by the Australian Renewable Energy Agency (ARENA) on behalf of the Australian Government with \$1.44 million in grant funding.

The mobile battery energy storage system and its specialised control system reduces peak load of the local substation, stabilises the [electricity network](#) in the area, and supports a number of nearby customers in the event of a power interruption – all without manual intervention.

The battery receives control signals from high-voltage electricity infrastructure more than 5km away at the main powerline to the town of Cape Jervis, and makes its own decisions about how best to support local electricity delivery.

"This technology is novel because the mobile battery energy storage system's operations are now completely autonomous," said Associate Professor Nesimi Ertugrul, from the University of Adelaide's School of Electrical and Electronic Engineering.

"If an outage occurs, our mobile battery system automatically runs a range of safety checks before providing back-up power to nearby houses until the main grid is restored.

"This feature means that residents can also share residential solar power with neighbours during an outage.

"This autonomous battery system has many

unique and advanced features. We can monitor the system and intervene if necessary, but the system can operate safely in all kinds of situations without the need for any operator instructions," Associate Professor Ertugrul said.

"It also allows us to understand the technology under real operating and weather conditions, and gives us the potential to create a knowledge base for industry and system developers."

The South Australian Minister for Energy and Mining, Dan van Holst Pellekaan, welcomed the commissioning of the battery as an example of how [energy storage](#) can help make our system more affordable and reliable.

"The Marshall Government has committed to invest \$50 million to establish a Grid Scale Storage Fund to secure more new storage technologies," Minister van Holst Pellekaan said.

The University's Deputy Vice-Chancellor (Research) and Provost, Professor Mike Brooks, said: "This new technology is a world-leading example of how the University of Adelaide is matching its research strengths to business and community need, with real benefit for the people of South Australia.

"Our research and development expertise in energy has risen to the challenge."

Associate Professor Ertugrul said if an outage occurred because a tree had fallen on powerlines, the power would normally remain out at a regional community for longer, because there is a large area to check for debris.

"Cape Jervis has been chosen as the trial location based on several criteria, including the high level of solar PV generation in the area and the large influx of people in the summer, which, when combined with very hot weather, results in high peak

electricity demands," said Paul Roberts, Manager Corporate Affairs, SA Power Networks.

"From SA Power Networks' perspective, the trial is an opportunity to look at alternative ways to meet peak demand requirements (which usually occur only on a few days a year), rather than more expensive investment in increased network capacity. Avoiding inefficient peak demand-related network investment will help contain long term network costs for customers.

"We are keen to understand the benefits, reliability and cost of this kind of battery installation as an alternative option to direct investment in a network capacity upgrade," Mr Roberts said.

As part of the trial in Cape Jervis, the system's performance will be monitored across multiple seasons to test performance under a range of conditions.

The data generated from the Cape Jervis trials and all tests using the mobile test platform will be made publicly available on the Australian Energy Storage Knowledge Bank website: aeskb.com.au.

Provided by University of Adelaide

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