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United Energy to test voltage control improving grid stability

On behalf of the Australian Government, The Australian Renewable Energy Agency (ARENA) has today announced \$900,000 in funding to Victorian distribution business United Energy to trial delivering grid stability services through voltage-reduction demand response capabilities on their electricity distribution network.

The trial will test United Energy's Dynamic Voltage Management System capability to deliver Frequency Control Ancillary Services (FCAS) to the Australian Energy Market Operator (AEMO) and the National Electricity Market.

Traditionally provided only by coal, gas and hydro-electric power stations, FCAS is used by AEMO, to maintain the frequency on the electrical system and provide a fast injection or reduction of energy to maintain grid stability.

By using this technology, United Energy aims to deliver 30 MW of FCAS capacity to the National Electricity Market. The system will be tested during the 2019/20 summer.

Under the \$1.4 million trial, United Energy will install frequency monitors and use data from its smart meter network to quickly act to stabilise frequency across its 47 zone substations, which act as controlling points across the electricity network. The trial will demonstrate how voltage management can respond to frequency disturbances on the power system. Speed of response will also be monitored, with the system tested to automatically respond in less than five minutes to frequency changes.

United Energy's 676,000 households and businesses across Melbourne and the Mornington Peninsula won't be affected or experience any downtime in energy supply during the testing.

ARENA has previously funded FCAS trials at solar and wind farms, with United Energy's trial being the first to be conducted on the distribution network.

ARENA CEO Darren Miller said the project will demonstrate how innovative new technologies can provide important grid services that have traditionally been provided by coal and gas generators.

"United Energy's project is showing we could leverage data coming from smart meters to help provide essential stability services that are required on the grid without customers being asked to reduce their energy use."

"One of ARENA's key investment priorities is focussed on integrating renewable energy into the grid. Along with FCAS trials we have funded at solar and wind farms, this trial using voltage management is showing that we can achieve the same grid stability services currently provided by traditional generators," Mr Miller said.

United Energy's General Manager, Electricity Networks Mark Clarke said if the trial was successful, it would provide significant benefits to customers and the grid as a whole.

"Victoria is unique as our extensive smart meter network allows us to have in-depth insight and control of the network and this trial will allow us to look at new ways to use this data for the benefit of the broader community," Mr Clarke said.

"We already provide one of the most reliable networks in Australia and this is about leveraging existing assets supported by new technology for the benefit of the broader power grid.

"Frequency events can have a major impact on power supplies if not managed quickly. We will be testing how this technology can support the stability of the national energy grid and minimise major power outages."

United Energy previously received \$5.76m in ARENA funding as one of ten pilot projects within ARENA's \$35 million three-year demand response trial with AEMO and the NSW Government. As part of this funding round, United Energy are using their voltage management system to deliver 30 MW of emergency reserves. This helped prevent power outages for 14,000 customers each hour during last summer's heatwave events on January 24 and 25.

The trial will also look at what role regulated networks may have participating in FCAS markets.

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