

22 JULY 2020

## Major study to tackle weak, unstable energy grids

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) has today announced \$495,680 in funding to the Grid Innovation Hub at Monash University to conduct a desktop study that will explore how to manage unstable and weak parts of the electricity grid.

Researchers at the Grid Innovation Hub will conduct the desktop study to explore issues and strategies associated with connecting renewable energy technologies such as solar, wind and battery projects into weaker parts of the National Electricity Market (NEM).

The \$1.3 million project will use the West Murray region of the North West Victorian network as a case study due to the region's current system stability challenges.

Outcomes and outputs from the study will be applicable to other Renewable Energy Zones (REZs) across the NEM such as the Central West Orana REZ in NSW.

The study is supported by stakeholders who will be providing in-kind support including the grid inverter technology provider ABB, the Australian Energy Market Operator (AEMO) and AusNet Services.

The study will survey grid stability issues, and will explore a variety of techniques to manage them including the siting and operations of technology such as synchronous condensers, wind and solar farms, and battery systems incorporating advanced inverter systems. The project will facilitate enhanced understanding of weak grid areas, providing an opportunity for NEM stakeholders to understand and explore solutions to current and emerging issues.

Key outcomes of the study include aiming to improve the understanding of approaches to mitigate grid connection risk for renewable developers, increasing hosting capacity in weak networks and supporting a greater understanding of power system security and reliability when operating with higher shares of renewable energy.

ARENA CEO Darren Miller said: "Australia's power system is currently undergoing a major transformation, with the rise in inverter-connected solar and wind. These renewable resources are typically located in weaker areas of the grid, causing stability issues."

"Monash's study, while looking at North West Victoria, will aim to provide a solution for other renewable energy zones across Australia and help to increase the value delivered by renewable energy, reduce or remove barriers to renewables uptake and help to increase the overall skills and capacity in this important area." Mr Miller said.

Dr Tony Marxsen, Chairman of the Monash Energy Institute's Grid Innovation Hub, said the goal is to explore new approaches to connecting large renewable energy sources to power Australia's future, from coast to coast, sustainably and affordably.

"Australia's renewable energy future will use decentralised energy sources in areas of high winds and lots of sunshine – and these areas tend to be remote from cities, where the grid is weak. Even with the strengthened interconnections foreseen in AEMO's Integrated System Plan, the problem of weak grids in remote areas will continue to challenge large renewable investments," he said.

Dr Behrooz Bahrani, Director of the Grid Innovation Hub, said: "This project should provide insights and possibly even pre-engineered solutions to ease the burden of grid stability and security, and speed up connection approvals."

AEMO Managing Director and CEO, Audrey Zibelman, said: "Australia has the technical capability to operate our power system with solar and wind generation contributing up to 75 per cent of our energy at times.

"AEMO looks forward to supporting this important government-funded project that will contribute to maintaining system security in a transitioning National Electricity Market with a high share of renewable resources," she said.