**AEMO Virtual Power Plant Demonstrations**

* <https://arena.gov.au/projects/aemo-virtual-power-plant-demonstrations/>

**$2.46m** Funded by ARENA

**$4.93m** Total project cost

[**Project overview**](https://arena.gov.au/projects/aemo-virtual-power-plant-demonstrations/)

* **Lead Organisation** Australian Energy Market Operator Limited

**Location** Victoria

* **Start Date** March 2019

**Summary**

A Virtual Power Plant (VPP) broadly refers to a group of resources that are coordinated using software and communications technology to deliver services traditionally performed by a conventional power plant. In Australia, grid-connected VPPs focus on coordinating rooftop [photovoltaic (PV)](https://arena.gov.au/renewable-energy/solar-pv-rd/), [battery storage](https://arena.gov.au/renewable-energy/battery-storage/) and controllable load devices.

The Australian Energy Market Operator (AEMO) anticipates a rapid uptake of residential battery storage systems in the National Electricity Market (NEM), driven by a number of government incentives schemes announced in [South Australia](https://homebatteryscheme.sa.gov.au/), [Victoria](https://www.solar.vic.gov.au/Solar-rebates/Solar-batteries), [New South Wales](https://www.nsw.gov.au/your-government/the-premier/media-releases-from-the-premier/extra-bill-relief-with-solar-energy-and-battery-roll-out/) and [Queensland](https://www.qld.gov.au/community/cost-of-living-support/concessions/energy-concessions/solar-battery-rebate).

As AEMO currently has no visibility of how VPPs operate, this project will test a new technical specification for VPPs to deliver Frequency Control Ancillary Services (FCAS) in the NEM, enabling VPPs to capture new value streams that could be shared with their customers.

AEMO will also augment its systems to receive operational data from VPPs to observe their behaviour, including how VPPs respond to wholesale energy market prices or deliver local network support services.

AEMO will use this data to improve its operational forecasting of VPPs, and identify further changes required to integrate VPPs into market frameworks at large-scale, including potential regulatory reforms.

**How the project works**

The AEMO Virtual Power Plant Demonstrations project involves accelerating upgrades to AEMO’s systems and processes to obtain operational visibility of VPPs.

AEMO is engaging with existing pilot scale VPPs to participate in the VPP Demonstrations, which will start in June/July 2019 and run for at least 12 months.

The AEMO Virtual Power Plant Demonstrations project aims to:

* test a new technical specification for portfolios of [distributed energy resources](https://arena.gov.au/renewable-energy/distributed-energy/) to deliver FCAS
* observe VPPs stacking multiple value streams to improve their commercial viability (by delivering FCAS, network support services and responding to energy price signals)
* provide an evidence base to inform changes to regulatory settings or AEMO’s operational processes

**Area of innovation**

The areas of innovation in this project relate to AEMO:

* testing a new technical specification for Distributed Energy Resources (DER) to deliver FCAS, potentially facilitating more competition to deliver these services at a lower cost to consumers
* developing its systems to receive operation data from VPPs so that AEMO can observe VPP behaviour and learn what changes are required (either to regulatory setting or operational processes) to integrate VPPs into the NEM at large-scale.

**Benefit**

ARENA’s funding will accelerate updates to AEMO’s systems and processes to receive operational data from VPPs so that AEMO can learn about how VPPs operate.

Insights from these demonstrations will inform necessary regulatory or operational changes to facilitate a smooth integration of VPPs into the NEM before they become widespread.