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Composing a distributed energy symphony in Western Australia's largest energy grid

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) has today announced \$8.6 million in funding to Western Power for the development of a pre-commercial pilot focused on developing and operating Distributed Energy Resources (DER) within the South West Interconnected System (SWIS) in Perth, Western Australia (WA).

The \$35.5 million project, known as Project Symphony, is being undertaken over two years in partnership with Western Power, WA energy retailer Synergy and the Australian Energy Market Operator (AEMO).

Project Symphony is a unique pilot where around 500 customers with over 900 DER assets such as rooftop solar, battery storage and major appliances, will be orchestrated as a Virtual Power Plant (VPP). Additional DER assets will be brought online through the involvement of third-party aggregators in a later phase of the project. It will explore and better understand how the innovative use of DER can provide benefits to customer affordability and network security, reduce emissions, and help strengthen the WA economy and Wholesale Energy Market.

In recognition of the value Project Symphony can help deliver to the future operation of WA's electricity network, \$26.9 million in funding was secured and announced for its development by the WA Government and AEMO in February this year.

Funding for Project Symphony will go towards the development, integration and testing of software systems that manage energy distribution, market operation and market aggregation. Together, these will underpin the effective monitoring and coordination of a high volume of mostly customer DER assets.

If Project Symphony is successful it will help to identify the investment required to further expand the role of DER, all the while supporting the ongoing reliability and security of the SWIS within current market structures. This trial is a critical component to the WA Government's [DER Roadmap](#).

Australia has the highest rate of rooftop solar photovoltaics (PV) uptake in the world. Around 3 GW of small-scale solar PV systems were installed in 2020, for a cumulative total of 13 GW of installed capacity across 2.61 million installations since 2010. This trend is pronounced in WA, where currently 1.7 GW of rooftop solar PV serves over 1 out of every three households and almost 25 per cent of the SWIS capacity mix.

ARENA CEO Darren Miller said Project Symphony aims to adapt grid management to support greater uptake of rooftop solar, home batteries and other DER assets.

"DER presents an opportunity to increase consumer value and reduce costs for all consumers. The rapid growth in DER uptake reflects households taking advantage of the rapid development of new technology to store and manage energy, bolstered by recent state government incentive packages.

"However, without appropriate coordination of DER, network operators may be required to curtail DER output to manage constraints. Project Symphony aims to address these issues and highlight the benefits that orchestration can provide to consumers and the energy system."

ARENA has previously partnered with AEMO to fund the [Victorian DER Marketplace trial](#), 'Project Edge'. Based in the Hume region of north east Victoria, the initiative aims to coordinate the development of a replicable model for trading of electricity and grid services from DER that can be expanded across the National Electricity Network.

ARENA has also supported over \$120 million of DER projects, and established the Distributed Energy Integration Program (DEIP) a collaboration of government agencies, market authorities, industry and consumer associations aimed at maximising the value of customers' DER for all energy users.