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Utilising technology to increase distributed energy in low voltage networks

A new invention by Brisbane company eleXsys Energy could help to increase the penetration of home solar and batteries in low voltage areas, reducing the need to build costly distribution grid infrastructure.

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) has announced \$451,167 in funding to eleXsys Energy to demonstrate the potential of their new technology, eleXsys, to increase distributed energy resources (DER) hosting capacity on low voltage power lines.

The eleXsys device works by regulating voltage on low voltage power lines by dynamically providing or absorbing reactive power, for the benefit of new and existing DER customers where the device is installed. By maintaining voltage within normal operating bands, eleXsys can better utilise DER, such as locally produced solar and battery storage, without expensive grid upgrades.

The \$1.92 million trial will be undertaken in conjunction with local distribution network service provider (DNSP) Energy Queensland who will undertake testing of eleXsys at its Real Time Digital Simulator facility in Cairns to show how the device performs across a wider range of network types. The project will also benefit from the insights of several other DNSPs participating in a dedicated stakeholder reference group.

eleXsys Energy will manufacture and install five eleXsys devices, with three being directly connected to Energy Queensland's network, one being trialled behind the meter on a customer's premises, and the other being used for testing at the Real Time Digital Simulator facility. The final findings of the project will be made public through a comprehensive knowledge sharing report.

ARENA CEO Darren Miller said technology will play an increasingly important role in adding more renewables to our energy makeup.

"To help increase the amount of distributed energy we can have on Australia's energy network, it's vital that ARENA supports these new technologies such as the eleXsys which not only help to connect more home solar and batteries, but also helps to avoid expensive network augmentation works to support increased demand,

"ARENA is excited to be supporting eleXsys Energy's trial of the eleXsys device. After a successful trial in south east Queensland, we could see the technology installed across the grid to save costs for users while also enabling more distributed renewables to be connected to the grid." Mr Miller said.

eleXsys Energy CEO Dr Bevan Holcombe said: "ARENA's support and that of Energy Queensland are critical to demonstrating applications of eleXsys in the residential DER market and how existing distribution grids can be supported to host much more exported solar energy than is typically the case in Australia today."

ARENA has previously supported over \$100 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.

For more information on eleXsys Energy, visit their [website](#) and ARENA's [projects page](#).