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Storing excess solar from the grid using hot water systems

On behalf of the Australian Government, the Australian Renewable Energy Agency (ARENA) has today announced \$1.98 million in funding to Rheem Australia Pty Ltd (Rheem) to conduct its Active Hot Water Control project using hot water systems in South Australia.

Rheem's trial will explore a number of approaches to demonstrate active control over approximately 2,400 residential hot water systems within South Australia. Residential customers with and without solar panels will be able to participate. The project is being launched under Rheem Australia's renewables brand, Solahart.

As part of the trial, Solahart will reward consumers for participating in demand management of hot water systems and test incentives required for customer participation across solar and non-solar homes, as well as across different socioeconomic groups.

A Virtual Power Plant (VPP) will be established to aggregate the hot water heater's electrical load, curb electricity usage at peak times (known as demand response), participate in electricity price arbitrage and provide network services to the grid.

The South Australian Government will also match ARENA's funding for the \$9.9 million project.

The project will integrate Solahart Powerstore - a solar smart, grid interactive, electric water heater - with a home energy management system to demonstrate a low-cost, scalable way for hot water systems to provide demand management services.

ARENA CEO Darren Miller said this trial would get the most out of rooftop solar and allow hot water systems to provide demand management.

"As more of Australia's electricity comes from solar, we need to increasingly shift more of our energy consumption to daylight hours when solar PV is generating, rather than at night when solar isn't available.

Hot water heating is a major source of household energy consumption. While it was once most efficient to heat water at night, now low cost surplus electricity is increasingly available during the middle of the day.

We need a way to know when this surplus power is available, and smart technology to manage electricity consumption at times when it will be the lowest cost to consumers without any loss of amenity," he said.

"By aggregating and optimising the energy use of hot water systems and other household appliances, VPPs could play a major role in managing system stability and reducing power bills for customers in South Australia and nationally.

"This trial will help to create a pathway to scale up the use of hot water systems in demand management, while rewarding customers for taking part in the trial through cheaper energy bills," he said.

Rheem CEO Chris Taylor welcomed the support for the trial.

"We are thrilled with this initiative and collaboration. South Australians are leaders in the adoption and use of renewable energy solutions, and uniquely, this partnership and technology aims to make it easier for SA residents to further reduce their energy bills, enabling participation in the renewables boom whether or not they are able to invest in solar PV."