

# ARENA Distributed Energy Resources Projects

MARCH 2019



Australian Government  
Australian Renewable  
Energy Agency

**ARENA**

## ABOUT THIS TABLE:

The table below summarises Distributed Energy Resources (DER) projects that have received funding from ARENA as at 20 March 2019. This includes projects funded through the demand response competitive round and the recent network hosting capacity and studies announcements. It also covers a range of different types of projects including virtual power plants, microgrids and business models funded through the Advancing Renewables Program. These projects relate to grid connected DER, either located in the National Electricity Market (NEM), South West Interconnected System (SWIS) or North West Interconnected System (NWIS).

Lead Applicant	Project Title	Round (where applicable)	Project Summary	Type of Project	Partners	Start Date	Finish Date	State	ARENA Funding (\$)	Project Value (\$)	Key Contact	Key Contact Details	Key DEIP Workstreams
<a href="#">Energy Australia</a>	Demand response incentive program to reduce peak demand using automated curtailment/VPP in VIC and SA (RERT)	Demand response	EnergyAustralia is trialling activities with residential, small business, retail, commercial, and industrial customers and will use a variety of methods including shifting of heating and cooling energy consumption and the use of incentive programs to encourage users to reduce energy consumption during peak times. The program features a range of measures including behavioural change elements, automatic curtailment using technical devices such as Wattwatchers and coordination of a virtual power plant of battery storage located at homes and businesses of customers.	Demonstration	Redback Technologies, Greensync, Wattwatchers, Green Power Solutions	Oct-2017	Oct-2021	VIC	\$6,929,000	\$16,649,000	Victor Petrovski, Michael Coetzer	victor.petrovski@energyaustralia.com.au	Markets, Interoperability & Resilience
<a href="#">Energy Australia</a>	Demand response incentive program to reduce peak demand using automated curtailment/VPP in NSW (RERT)	Demand response	EnergyAustralia will trial activities with residential, small business, retail, commercial, and industrial customers and will use a variety of methods including shifting of heating and cooling energy consumption and the use of incentive programs to encourage users to reduce energy consumption during peak times.  The program will feature a range of measures including behavioural change elements, automatic curtailment using technical devices such as Wattwatchers and coordination of a virtual power plant of battery storage located at homes and businesses of customers.	Demonstration	Redback Technologies, Greensync, Wattwatchers, Green Power Solutions	Oct-2017	Oct-2021	NSW	\$1,435,500	\$12,591,000	Victor Petrovski, Michael Coetzer	victor.petrovski@energyaustralia.com.au, Michael.Coetzer@energyaustralia.com.au	Markets, Interoperability & Resilience
<a href="#">EnerNOC</a>	Demand response from commercial/ industrial business within 10 minutes of AEMO instruction in VIC (RERT)	Demand response	The combined 50 MW demand response portfolio consists of commercial and industrial energy users who have agreed to safely reduce their electricity consumption during demand response events dispatched by AEMO.  Having installed its own metering technology at customer sites, energy users are capable of implementing load curtailment within 10 minutes of receiving dispatch instructions from EnerNOC indicating that a demand response event is commencing. In addition, a portion of the sites have also been equipped with control equipment that allows EnerNOC to remotely initiate a safe load reduction.  Participating businesses are able to maximise payments from utilities for partially powering down operations during moments of severe grid strain.  EnerNOC is using the EnerNOC Site Server, a highly secure, low latency communications gateway for energy management and demand response applications, to deliver its emergency reserve.	Demonstration	N/A	Oct-2017	Oct-2021	VIC	\$5,400,000	\$9,000,000	Matt Grover, Rando Yam	Mgrover@enernoc.com, Rando.Yam@enernoc.com	Markets, Interoperability & Resilience

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<a href="#">EnerNOC</a>	Demand response from commercial/ industrial business within 10 minutes of AEMO instruction in NSW (RERT)	Demand response	<p>The combined 50 MW demand response portfolio consists of commercial and industrial energy users who have agreed to safely reduce their electricity consumption during demand response events dispatched by AEMO.</p> <p>Having installed its own metering technology at customer sites, energy users are capable of implementing load curtailment within 10 minutes of receiving dispatch instructions from EnerNOC indicating that a demand response event is commencing. In addition, a portion of the sites have also been equipped with control equipment that allows EnerNOC to remotely initiate a safe load reduction.</p> <p>Participating businesses are able to maximise payments from utilities for partially powering down operations during moments of severe grid strain.</p> <p>EnerNOC is using the EnerNOC Site Server, a highly secure, low latency communications gateway for energy management and demand response applications, to deliver its emergency reserve.</p>	Demonstration	N/A	Oct-2017	Oct-2021	NSW	\$1,800,000	\$3,600,000	Matt Grover, Rando Yam	Mgrover@enernoc.com, Rando.Yam@enernoc.com	Markets, Interoperability & Resilience
<a href="#">Flow Power</a>	Demand response commercial/ industrial business NSW installation of an intelligent controller (RERT)	Demand response	<p>This project involves the rollout of Flow Power's kWatch® Intelligent Controller. The Controller gives customers live data feeds, alerts and integration of onsite equipment. When it comes to demand response, the Controller allows participating businesses to reduce their demand in minutes when Flow Power is called on by AEMO under the Short Notice Reliability and Emergency Reserve Trader (RERT).</p> <p>By providing SMS and email alerts, the kWatch® Intelligent Controller gives Flow Power a clear and fast communication channel with participants, who receive participation payments in addition to a revenue stream if they are called upon to shift power use. Customers had the choice to integrate equipment with the Controller, meaning the customer could control energy intensive equipment from the kWatch® portal. The program will roll out Controllers across customer sites over the next three years and then provide availability and activation payments where appropriate. Flow Power's kWatch Intelligent Controller is an innovative way of managing demand response. The Controller facilitates ten-minute responses to AEMO market signals by giving customers a live data feed, alerts of events and equipment automation. Customers can use the information from the Controller throughout the year to understand their power use throughout the year.</p>		Utilacor	Sep-2017	Sep-2021	NSW	\$1,318,250	\$3,786,655	Liz Fletcher	Liz.Fletcher@flowpower.com.au	Interoperability & Resilience
<a href="#">Intercast &amp; Forge</a>	SA industrial business with dispatchable demand response (RERT)	Demand response	Intercast and Forge are using direct curtailment of energy use at its foundry site in SA.	Demonstration	N/A	Sep-2017	Sep-2021	SA	\$323,654	\$386,584	Mark Mignone	mmignone@intercast.com.au	Customer, Interoperability & Resilience

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<a href="#">Powershop</a>	Behavioural demand response program utilising a mobile app notification system directed to Victorian residential retail customers (RERT)	Demand response	The <i>Curb Your Power</i> program is delivering its reserve via behavioural response from residential and business customers in Victoria. When there is a peak demand event, Powershop notifies participants and asks them to voluntarily reduce their energy consumption for a set period of time. If participants reduce their usage and successfully hit their reduction target, they are rewarded with a power credit. <i>Curb Your Power</i> is supported by Reposit Power through their enabling of access to Reposit enabled batteries, in addition to firm capacity being provided through Monash University's cogeneration facility. Powershop's <i>Curb Your Power</i> program is innovative in its use of the company's smartphone app, as they are able to engage with participants on their energy usage efficiently following events. <i>Curb Your Power</i> is also trialling financial incentives through the form of power credits as opposed to gift cards or other physical rewards. Powershop's <i>Curb Your Power</i> program has attracted over 10,000 Powershop customers and is the largest behavioural demand response program ever run in Australia.	Demonstration	Reposit, Monash University	Dec-2017	Dec-2020	VIC	\$995,237	\$1,184,771	Lachlan Simpson	Lachlan.Simpson@powershop.com.au	Customer, Interoperability & Resilience
<a href="#">United Energy</a>	Dynamic Voltage Management Demand Response (RERT)	Demand response	United Energy will use voltage control devices installed at substations across its entire distribution network to deliver demand response as a participant of the Demand Response initiative. The Project will deliver 12 MW of demand response reserve from 1 December 2017, increasing to 30 MW of demand response reserve in years 2 and 3. The United Energy Project works by slightly reducing the voltage at substations across its network in Melbourne and the Mornington Peninsula. By using smart meter voltage data at customer substation locations, United Energy will be able to ensure the reductions are done in a precise and controlled manner. The voltage will be reduced by an average of 3 per cent during peak demand surges, where appliances are able to continue being used. By only running the system at low voltages for short and controlled periods of time, United Energy can provide AEMO with reserve without harming their systems.	Demonstration	N/A	Oct-2017	Jan-2021	VIC	\$5,762,000	\$6,612,000	Rodney Bray	rodney.bray@ue.com.au	Interoperability & Resilience
<a href="#">ZenHQ</a>	VPP for distributed demand response and renewables integration through a network of smart thermostats and automated HVAC control (RERT)	Demand response	The Zen Ecosystems project will deliver its reserve through direct load control, where air conditioning, heating and ventilation can be automated by ZenHQ using a network of connected thermostats across Victoria and South Australia in the commercial and residential customer segments. Residential customers are also able to participate in a behavioural demand response program to voluntarily contribute to managing their energy usage during peak demand. The automated, "smart" and connected Zen Thermostat is an innovative approach to reducing peak loads on an energy network. Zen, an Australian company, trialled this approach successfully in the United States, where it was able to show energy savings of between 10-30%.	Demonstration	RACV, BillCap, Zen Within	Oct-2017	Dec-2020	VIC	\$1,963,500	\$5,572,258	Michael Joffe, Bede Wolfenden	michael.joffe@planetinnovation.com.au, bede.wolfenden@planetinnovation.com.au	Interoperability & Resilience

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<a href="#">Jemena Electricity Networks (VIC) Ltd</a>	Demonstration of three dynamic grid-side technologies for increasing distribution network DER hosting capacity	DER projects (network hosting capacity)	The project aims to roll out three novel technologies and intelligent control systems to understand and demonstrate their ability to increase penetration of distributed energy resources (DER) at the neighbourhood level, safely and cost-effectively. These technologies improve the ability of network operators to monitor the low-voltage network, while the intelligent systems proactively manage grid power and voltage to increase DER utilisation.	Demonstration	AusNet Services, University of NSW, State Grid International Development Co.	Jan-2019	Feb-2021	VIC	\$1,120,000	\$2,250,000	Dr. Peter Wong, Jemena Network Technology & Measurement Manager	peter.wong@jemena.com.au	Interoperability & Resilience
<a href="#">Royal Automobile Club of Victoria</a>	Smart Hot Water System - Distributed Energy Resources Project	DER projects (network hosting capacity)	The project is developing a smart electric Hot Water System (HWS) prototype which allows real-time variable control of energy stored. The system integrates into a Home Energy Management System (HEMS) which can manage excess solar PV generation, directing it to the hot water storage system when needed to maximise home owner benefits but also limit reverse power flows into the distribution network. The project will also allow distribution networks to have visibility and control of hot water systems as energy storage resources across a fleet of smart HWS. Once the prototype is developed the consortium will run a pilot involving 20 participants across a partner Victorian distribution network.	Demonstration	Reposit Power, WheezyTech, Wilson Industries, Citipower, Powecror Australia, United Energy Distribution	Jan-2019		VIC	\$273,000	\$608,000	Lawrence Law	lawrence_law@racv.com.au	Interoperability & Resilience
<a href="#">SA Power Networks</a>	Advanced VPP grid integration	DER projects (network hosting capacity)	The project will co-design and implement an interface to exchange real-time and locational data on distribution network constraints between SA Power Networks (SAPN) and the VPP being rolled out in South Australia for the SA Government by Tesla (Tesla's proposed VPP bundle for households includes a 10kW battery plus 5kW solar system). By adopting locational, dynamic network constraints the interface aims to overcome the static 5kW export limit applied to households by SAPN, which effectively reduces the export potential of their VPP by 50%. API will be trialled on approximately 1,000 Tesla systems in a 12 months field trial of dynamic hosting capacity.	Demonstration	Tesla Motors Australia, CSIRO	15 Jan-2019	30 Sep-2020	SA	\$1,032,000	\$2,105,366	Dr Bryn Williams, Future Network Strategy Manager	bryn.williams@sapowernetworks.com.au, 0416 152 553	Markets, Interoperability & Resilience
<a href="#">Solar Analytics</a>	Enhanced Reliability through Short Time Resolution Data around Voltage Disturbances	DER projects (network hosting capacity)	The project targets increased visibility, improved modelling capability and enhanced system reliability through the analysis of load and small scale solar PV generator response in the event of short-time resolution voltage disturbances. Solar Analytics will work with AEMO (customer) and Wattwatchers (hardware) to develop automated data acquisition and delivery of generation and load data when a system disturbance event occurs. The outcome is focused on voltage disturbance monitoring and simulations.	Demonstration	Wattwatchers Pty Ltd and Australian Energy Market Operator Limited	9 Jan-2019	1 Jun-2020	NSW	\$491,725	\$1,024,850	Dr Jonathon Dore	jonathon@solaranalytics.com.au	Interoperability & Resilience

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<a href="#">Zeppelin Bend Pty Ltd</a>	evolve DER Project	DER projects (network hosting capacity)	The project will include the augmentation and extension of the multiple software systems (owned and developed by members of the consortium), to calculate and publish the operating envelopes and constraints that apply to individual or aggregated DER operating within the electrical network. Individual or aggregated DER will then be able to optimise their local and market behaviour within these operating envelopes and constraints and by doing this will be able to ensure there are no breaches of the secure technical limits of the electricity system as a whole. Operating envelopes and constraints will be published either directly to the connection point for sites hosting DER or to nodes representing aggregated DER within micro-grids on the network. As a result networks will have greater visibility of DER being connected or the remaining capacity to connect or host DER on its network.	Demonstration	Energy Queensland, Ergon Energy, Energex, Essential Energy, Ausgrid, Endeavour Energy, ANU, Reposit, Evergen, Redback Technologies, SwitchDIn NSW Gov also giving funding through side deed with ARENA	Feb-2019		ACT, NSW, QLD	\$4,292,632	\$12,949,750	Bill Tarlinton, Managing Director Anthony Charlton, Director	bill.tarlinton@zepben.com, 0405 493 060 anthony.charlton@zepben.com, 0413 610 357	Interoperability & Resilience, Frameworks
<a href="#">ANU</a>	Community models for deploying and operating Distributed Energy Resources (DER).	DER studies	ANU will undertake an analysis of community energy models (i.e. where distributed generation, storage and load are not co-located behind a single NMI meter). It will build upon existing work demonstrating how community energy storage can increase DER hosting capacity, and reduce electricity costs for consumers. The analysis will explore technical, economic, social and regulatory issues of community energy models in order to demonstrate how they can aid issues of energy equity, support increased DER penetration and simplify DER orchestration. Recommendations will also be made as to how these models can be demonstrated.	Study	Energy Consumers Australia, Energy Networks Association, Enova Community Energy, RePower, Shoalhaven, TasNetworks, Thinking In Colours, Totally Renewable Yackandandah, Evoenergy	Jan-2019		ACT, QLD, TAS, VIC	\$499,000	\$1,370,000	Marnie Shaw, Research Leader, Battery Storage and Grid Integration Program	marnie.shaw@anu.edu.au	Interoperability & Resilience, Markets
<a href="#">CSIRO</a>	National Low-Voltage Feeder Taxonomy Study	DER studies	The study will develop an Australian low voltage (LV) distribution network taxonomy by working with DNSPs from across Australia to identify a concise set of highly representative LV network models for Australia, with the aim of facilitating effective DER hosting analysis by researchers.	Study	Energy Networks Australia, Ausgrid, AusNet Electricity Services, Western Power, Endeavour Energy, Energy Queensland, Essential Energy, Horizon Power, SA Power Networks, TasNetworks	Dec-2018		NSW	\$485,000	\$1,880,000	Gavin Cross, Project & Product Development Manager	gavin.cross@csiro.au, 02 4960 6262	Interoperability & Resilience, Frameworks
<a href="#">Dynamic Limits Pty Ltd</a>	Dynamic Limits DER Feasibility Study	DER studies	This project will undertake a study into the feasibility of implementing dynamic DER export limits to better manage voltage and thermal constraints on the electricity network. The study will examine existing approaches to managing network capacity constraints, investigate the general technical feasibility of implementing a dynamic DER control scheme, and undertake a site-specific analysis, examining implementation on feeders experiencing constraints.	Study	University of South Australia, Systems22 Pty Ltd, SAGE Automation Pty Ltd, Essential Energy	Dec-2018	Sep-2019	SA and NSW	\$292,213	\$628,993	Alex Lloyd	alex.lloyd@dynamiclimits.com	Interoperability & Resilience

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<a href="#">Oakley Greenwood Pty Ltd</a>	Pricing and Integration of Distributed Energy Resources Study	DER studies	<p>The study will examine the how the value of the services that DER can provide vary depending upon the level at which they are deployed within the electricity supply chain, and what market arrangements should be used to integrate DER into the electricity supply chain, including direct customer DER, aggregation of DER, wholesale market integration of DER and use of DER for ancillary services and reserves. The outcome of the study will be to undertake an:</p> <ul style="list-style-type: none"> <li>• analysis of the regulatory and economic environment for DER in the NEM and internationally</li> <li>• assess signals at all levels of the market including conducting a cost-benefit analysis of the different models, and</li> <li>• investigate required rule changes for implementation.</li> </ul> <p>The study will involve various key stakeholders through a series of workshops.</p>	Study	Australian Energy Council Limited, Australian Energy Market Operation Limited, Energy Consumers Australia Limited, Total Environment Centre Inc, Enel X (formally EnerNOC), OC Energy, GreenSyn	Dec-2018		NEM	\$207,000	\$460,000	Lance Hoch	lhoch@oakleygreenwood.com.au	Markets
<a href="#">Powercor Australia Ltd</a>	Distributed Energy Resources Hosting Capacity Study	DER studies	<p>The project aims to demonstrate the issues faced by Australian distribution networks in maintaining security and quality of supply in the context of increasing distributed energy resource (DER) penetration. It will also assess the potential mitigation options, based on analysis of implementation cost vs benefit (i.e. additional PV hosting capacity created). This will provide a basis for more informed discussion between industry and academia using actual network data and a publicly available power system analysis software.</p>	Study	ENE Australia Pty Ltd	Jan-2019	Oct-2019	VIC	\$164,402	\$353,993	Andrew Dinning, Manager Generation & Major Augmentation	adinning@powercor.com.au	Interoperability & Resilience, Frameworks
<a href="#">University of Melbourne</a>	Advanced Planning of PV-Rich Distribution Networks Study	DER studies	<p>This study aims to produce planning recommendations and develop innovative analytical techniques to assess network hosting capacity of solar PV using readily available network and customer data, with emphasis on historical and current AMI measurement data. It will also develop representative network models using large AMI data set from AusNet distribution network, identify PV hosting capacity limits for those network types and assess network and non-network solutions for addressing those limits.</p>	Study	Ausnet	Jan-2019		VIC	\$204,000	\$497,000	Luis (Nando) Ochoa, Professor of Smart Grids and Power Systems	luis.ochoa@unimelb.edu.au	Interoperability & Resilience
<a href="#">University of Tasmania</a>	Optimal DER Scheduling for Frequency Stability Study	DER studies	<p>UTAS will design algorithms for co-optimisation of DER scheduling for dispatch of energy and for provision of power system frequency stability services at least cost, within the constraints of distribution networks and while simultaneously respecting the motivations and primary functionality desired by DER owners. Outcomes will include the identification and development of algorithms for optimally coordinating a fleet of DER to provide a desired level of automatic frequency response capacity while remaining within network capabilities. UTAS will test algorithms which can achieve a firm guarantee on frequency support and network constraint commitments for all feasible frequency response scenarios, and those that can only achieve these commitments probabilistically. Learnings include understand what frequency stability services levels network hosted DER can provide, optimal DER dispatch to ensure frequency-response capacity and FCAS hosting capacity of networks</p>	Study	ANU, TasNetworks, Powerlink Queensland, Technische Universitat Berlin	Jan-2019		TAS	\$528,000	\$1,810,000	Evan Franklin	evan.franklin@utas.edu.au	Interoperability & Resilience

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<a href="#">AGL</a>	Virtual Power Plant	N/A	Deployment of a 5 MW virtual power plant consisting of 1,000 distributed energy storage systems to dispatch around 9 MWh of stored energy. Customer recruitment lessons learned, response to both planned and unplanned dispatch events, VPP participation FCAS market.	Demonstration	N/A	Feb-2017	Sep-2020	SA	\$5,000,000	\$19,225,025	Greg Abramowitz	GAbramow@agl.com.au	Customer
<a href="#">AGL</a>	Peer to Peer Distributed Ledger Assessment	N/A	Virtual trial simulated P2P energy trades using data collected from AGL's demand response trial in Carrum Downs, a suburb of Melbourne, Victoria. Included 68 residential customers with air conditioning + PV, 6 with batteries also. Trial found that under existing rules and based on pure economic drivers, P2P market needs market participants to reduce cost of servicing P2P customers. Distributed ledger technology can technically support a P2P energy trading market, with most value delivered under a model with multiple retailers and network pricing/settlement procedures based on factors such as location and time of generation.	Demonstration	IBM Australia, Marchment Hill Consulting	Mar-2017	Mar-2018	VIC	\$120,000	\$279,500	Brendan Whelan	bwhelan@agl.com.au	Markets
<a href="#">AGL</a>	Demand response using PV/battery/energy reduction/smart meters in NSW (RERT)	N/A	AGL's <i>Peak Energy Rewards</i> programs are exploring new ways to intelligently manage behind-the-meter distributed energy resources and to motivate customers to engage with their energy use. AGL is offering customers the flexibility to either have their loads directly controlled, or to choose which loads to curtail themselves. The approach requires new device control and customer engagement strategies that could make demand response in the residential sector more widely applicable.	Demonstration	Greensync	Dec-2017	Mar-2021	NSW	\$2,624,019	\$10,473,019	Jane Butler	Jane.Butler@agl.com.au	Interoperability & Resilience
<a href="#">ANU</a>	Forecasting distributed solar energy production	N/A	Real-time analysis of generation from 650,000 solar PV systems around Australia across a range of environmental conditions. Accurate estimations of cloud characteristics such as location, motion and opacity, when matched to the PV systems.	Study	N/A	Apr-2016	Sep-2019	ACT	\$800,000	\$2,700,000	Research and Innovation Office, CECS, ANU	grants.cecs@anu.edu.au	Frameworks
<a href="#">ANU</a>	Real-time operational PV simulations for distribution network service providers	N/A	This project will provide low voltage network operators (DNSPs) with high-resolution solar energy forecasting data mapped to their electricity networks. This project will deploy an operational framework for the prediction of power output from solar PV, which groups total power generation according to low voltage network assets (e.g. zone substations). This operational framework combines solar PV installation data (locations, capacities), along with electrical network information (which zone substation or feeder line the PV site is connected to) that is provided by the DNSP partners, to make near-term predictions of the power output from those PV systems.	Demonstration	Soly Pty Ld, SOLAR HUB, SMA, Si Clean Energy, Regional Power Corporation, POWER AND WATER CORPORATION, Essential Energy, Ergon Energy Corporation, Electricity Networks Corporation	Apr-2016		ACT	\$1,190,000	\$2,790,000	Dr. Nick Engerer	nicholas.engerer@anu.edu.au	Interoperability & Resilience
<a href="#">ANU</a>	Consumer energy systems providing cost-effective grid support (CONSORT)	N/A	The project will develop an innovative automated control platform and new payment structures that will enable consumers with solar PV and battery systems to provide support services to a constrained electricity network serviced by an undersea cable. It will also develop reward algorithms for services provided by consumers, and includes a social science component to analyse behavioural responses and consumer attitudes.	Demonstration	TasNetworks, Reposit Power, University of Sydney, University of Tasmania	Jan-2016	Jun-2019	TAS	\$2,895,951	\$7,991,746	Sylvie Thiebaut	Sylvie.Thiebaut@anu.edu.au	Customer



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<a href="#">APVI</a>	A Distributed Energy Market: Consumer and Utility Interest, and the Regulatory Requirements	N/A	Design elements of a new regulatory framework for DE market that puts supply and demand side options on same competitive footing. RIT-D evolving into integrated resource planning approach. Stimulate market development through information and training, MEPS. Changes to customer billing to make relationship between peak demand/network cost more direct.	Study	N/A	Nov-2012	Oct-2013	NSW	\$174,000	\$174,000	Muriel Watt	chair@apvi.org.au	Markets
<a href="#">Ausgrid</a>	Ausgrid Power2U Project	N/A	The Ausgrid Power2U project involves the establishment a \$4.1 million fund to help selected customers to permanently reduce their electricity use on Ausgrid's network. By permanently reducing customer demand for grid supplied electricity, Ausgrid can delay, or avoid, network investment and, over time, lower the cost of electricity for all customers.	Demonstration	City of Sydney	Nov-2018	Nov-2020	NSW	\$1,000,000	\$4,200,000	Craig Tupper	power2u@ausgrid.com.au	Customer
<a href="#">Australian National University</a>	Machine-learning-based forecasting of distributed solar energy production	N/A	Fuses real time data from a few hundred widely distributed PV systems with image data from sky cameras. A machine learning model was developed and used the data from both streams to predict generation at 5 min to 60 min intervals. Use of data loggers to measure the accuracy of machine learning prediction algorithms.	Study	Telstra	Nov-2012	Sep-2016	ACT	\$890,000	\$2,710,000	Robert C. Williamson	bob.williamson@nicta.com.au	Interoperability & Resilience
<a href="#">Brookfield Energy</a>	Delivering higher renewable penetration in new land and housing developments through off-grid microgrids	N/A	Feasibility study for a microgrid from a technical, economic, commercial and regulatory view point. The microgrid modelled incorporates roof-top PV, central solar farm, microgrid Management System and smart controllers at each customer connection, gas generators, large battery storage, Home Energy Packages (air-con, hot water, heat pump and EV charging station options) integrated with home controller, community Retail Services - smart metering, data management, billing and customer services. Technical lessons include: need for a proprietary smart grid communications for utilities, need for a modelling tool that is more automated than existing software packages, that the microgrid would deliver services in an off-grid context	Study	LWP, Siemens, Baker McKenzie	Sep-2015	Nov-2016	NSW	\$442,000	\$848,000	Daniel Hilson	t.leckie@flowsystems.com.au	N/A
<a href="#">Carnegie Clean Energy</a>	Garden Island Microgrid Project	N/A	Solar PV, battery and control system to provide power at a naval base. If option to connect to wave energy generator exercised, could demonstrate how wave energy could reduce reliance on diesel and complement solar and batteries to provide power to coastal off-grid and fringe of grid communities	Demonstration	N/A	Aug-2016	Feb-2020	WA	\$2,500,000	\$7,498,712	Jonathan Fievez	enquiries@carnegiece.com	Interoperability & Resilience
<a href="#">City of Campbelltown and Local Government Association of South Australia</a>	Financial model for community-owned solar	N/A	Financial model predicated on SAPN local government tariff (no demand) types, changes to tariff structure was a challenge for model design. Model relies on establishment of a trading cooperative to manage investment, energy demand to be profiled at candidate sites. Project resulted in a model with IP owned by City of Campbelltown.	Study	SAPN, Bendigo Bank	Oct-2012	Nov-2013	SA	\$15,000	\$45,000	Trixie Smith	trixie@trixprojectservices.com	Frameworks

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<a href="#">Clean Energy Council</a>	Future proofing in Australia's Electricity Distribution Industry	N/A	Technical, regulatory and economic analysis that provides a framework for discussions in forums/events. Reports produced: <ul style="list-style-type: none"> <li>• Energy storage safety: common consumer questions</li> <li>• Energy storage safety: Responsible installation, use and disposal of domestic and small commercial systems</li> <li>• Review of policies and incentives</li> <li>• Analysis of demand-side management opportunities</li> <li>• Grid integration of renewables - research stocktake</li> <li>• Grid Connection Experiences Survey Results 2013-14</li> <li>• Technology Testing Survey analysis report</li> <li>• Priorities for inverter energy system connection standards</li> <li>• Calculating the value of small-scale generation to networks.</li> </ul>	Study	N/A	#N/A	#N/A	All	\$878,000	\$878,000	Tom Butler	info@cleanenergycouncil.com.au	N/A
<a href="#">CSIRO</a>	Plug and play solar power	N/A	Developed a grid management system for RAPS which comprised the use of a skyward facing camera to capture periodic images of the sky, integration of algorithms to turn images into a short term prediction for the next 15 minutes, and decision-support software to turn these predictions into scheduling for any stored energy such as batteries, or energy production such as diesel generators. Project showed a reduction in diesel generator ramp rate events could be achieved leading to reduced maintenance and financial savings.	Demonstration	N/A	Jan-2012	Apr-2017	NSW	\$1,290,000	\$2,910,000	Chris Knight	chris.knight@csiro.au	Interoperability & Resilience
<a href="#">CSIRO</a>	Australian Solar Energy Forecasting System (ASEFS) - Phase 1	N/A	Development of solar forecasting system for implementation in AEMO systems to allow large solar to participate in the NEM. Development of forecasting techniques and tools for advanced research program.	Study	N/A	Nov-2012	Jun-2016	ACT	\$3,090,000	\$7,777,000	John Ward	John.K.Ward@csiro.au	Interoperability & Resilience
<a href="#">CSIRO</a>	Solar energy management for utilities	N/A	CSIRO developed a world-first 'firm' solar energy system to reliably reduce the impacts of peak demand by tackling air conditioner electrical consumption, which is the primary cause of peak demand in Australian electricity networks.	Demonstration	N/A	Jul-2012	Dec-2014	QLD	\$225,715	\$665,700	Dr Stephen White	stephen.d.white@csiro.au	Interoperability & Resilience
<a href="#">CSIRO VPS 2</a>	Virtual Power Station 2	N/A	Use of controllable PV, batteries and load (typically air-conditioners) to optimize the on-site electricity supply and demand on site and implementation of coordination algorithms to deliver multi-site aggregation and coordination for 67 households in south-east Queensland. Design and testing of reference controllers for both single site and multi-site coordination of distributed controllable loads, rooftop solar PV generation, and battery storage systems connected to a low voltage electricity distribution network, use of communication channel for demand response enabled devices and communications infrastructure.	Demonstration	University of Newcastle, Tritium Pty Ltd, SMA, Selectronic Australia Pty Ltd, LEND LEASE COMMUNITIES (AUSTRALIA) LIMITED, LATRONIC SUNPOWER PTY. LTD., Ergon Energy Corporation	Jul-2014	Apr-2018	NSW	\$850,000	\$2,587,000	John Ward	John.K.Ward@csiro.au	Interoperability & Resilience
<a href="#">Curtin University</a>	Increasing the uptake of solar photovoltaics in strata residential developments	N/A	Testing and demonstration of new governance model benefits, risks and costs between developers, owners, tenants, strata bodies and utilities at 50 units in the White Gum property development. Energy system design, billing, legal addendums for dwelling purchasers and dwelling leases.	Demonstration	LandCorp, Electricity Networks Corporation, CRC for Low Carbon Living Ltd, City of Fremantle, Balance Utility Solutions	Apr-2016	Jul-2019	WA	\$900,375	\$2,590,375	Jemma Green	jemma.green@curtin.edu.au	Customer

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DC Power	Rooftop solar electricity retailer project	N/A	DCP is building Australia's first customer-owned electricity retailer and solar service company. DCP will be creating a business model supporting the transition to the distributed energy future.	Demonstration	N/A	Jan-2018	Mar-2020	VIC	\$1,000,000	\$1,900,000	Emma Jenkin	emma.jenkin@dcpowerco.com.au	Markets
<a href="#">DNV GL</a>	New Australian performance standards for home battery storage systems	N/A	The project is analysing Australian and international battery performance testing and consulting with stakeholders in order to come up with a proposed Australian Battery Performance Standard. The battery standard is intended to cover battery systems ranging from residential to small commercial systems, with an estimated maximum size estimates of 100kW peak power and 200 kWh stored energy, connected to a solar PV system. This will initiate the formal standard development process with Standards Australia.	Study	Deakin University, CSIRO, Smart Energy Council	Jul-2018		National	\$1,400,000	\$3,120,000	Nishad Mendis	Nishad.mendis@dnvgl.com	Interoperability & Resilience
<a href="#">Ecoult</a>	Project Fulfil	N/A	The project aims to advance the technical aspects and commercial value of Ecoult's UltraBattery by focusing on delivering an affordable and reliable battery monitoring and management system for operating lead-acid batteries in partial state of charge (PSoC) applications, as well as developing interfaces and tools to enable use of the system with existing inverters, and predictive analytics to improve network integration. In turn, this will enable the commercialisation of the technology so the UltraBattery can compete in markets that require it to operate at a PSoC.	R&D	N/A	Nov-2016	Jan-2020	NSW	\$4,100,000	\$10,363,900	John Woods	john.wood@ecoult.com	Interoperability & Resilience
<a href="#">Ecoult</a>	UltraBattery Distributed Solar PV Support and UltraBattery for RAPS	N/A	Tested capability of UltraBattery to deliver superior storage performance for RAPS, manage voltage/power fluctuations on distributed grid and improved diesel efficiencies. Found that standardisation around an interface could potentially reduce effort to integrate battery in energy system.	Demonstration	N/A	Feb-2013	Apr-2016	NSW	\$554,000	\$1,210,000	Ben Shepherd	ben.shepherd@ecoult.com	Interoperability & Resilience
<a href="#">EPC Technologies</a>	A demonstration of how medium-scale solar on industrial rooftops can be effectively integrated into the distribution network	N/A	Technical feasibility of 11.6MW of solar on 12 industrial rooftops in a Brisbane suburb, in particular the equipment and controls are needed on distribution networks. Also considers the regulatory and commercial barriers to installations.	Demonstration	N/A	Sep-2017	Nov-2018	QLD	\$225,000	\$900,000	Greg Denton	greg.denton@epctechnologies.com.au	Interoperability & Resilience
<a href="#">Ergon Energy</a>	New approach for providing solar PV and battery storage systems to residential customer	N/A	Project tested the value of a battery energy storage system (BESS) as a retail offering. Ergon Energy Retail retained ownership and the right to use the BESS for Demand Response events. The systems were able to reduce peak demand and deliver aggregated DR. Use of BESS in grid outage due to Cyclone Debbie highlighted a need to develop standard procedures for BESS systems to ensure customer safety and network stability.  Initially manually processes used to activate systems as a VPP, but this did not result in dispatch to match peak events. Integration with trading or VPP platform via Application Programming Interface is recommended to allow automated discharge when threshold prices are reached.	Demonstration	Sunverge, SunPower	Jul-2015	Mar-2018	QLD	\$400,000	\$2,620,000	Lisa McDonald/ Chris White	lisa.mcdonald@ergon.com.au chris.white@ergon.com.au	Frameworks

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<a href="#">Frontier Impact Group</a>	Toolkit for community renewable energy funding and financing	N/A	Central repository on the steps for developing and financing projects (focus on community solar PV). Resources include a financial checklist of information required by investors, financiers and regulators; financial model examples and finance industry contacts/resources.	Study	Community Power Agency, Embark Australia	Jun-2015	Oct-2018	VIC	\$467,717	\$676,298	Jennifer Lauber Patterson	jennifer@frontierimpact.com.au	N/A
<a href="#">Fulcrum 3D</a>	PV Forecasting	N/A	Cloud Detection and Prediction for Maximising Solar PV Utilisation in Off-grid Hybrid Power Systems - develop a product that would enable solar farm operators to accurately predict changes in PV output due to cloud coverage 1-20 minutes ahead of time.	Demonstration	N/A	Sep-2014	Dec-2016	NT	\$545,559	\$1,114,759	Martin Poole		Interoperability & Resilience
<a href="#">Greensync</a>	Decentralised Energy Exchange (deX)	N/A	The project trialled the use of deX and tested how an online marketplace for buying and selling power from DER would be used by customers and energy technology businesses. Greensync are working with a series of industry projects that will build out and mature the deX platform (for example the ARENA-funded Simply Energy Virtual Power Plant project)	Demonstration	United Energy Distribution Pty Limited, The Australian National University, Mojo Power, ACT Environment and Planning Directorate, DELWP (Victoria), ActewAGL Distribution	Feb-2017	Apr-2018	VIC	\$450,000	\$983,000	Bruce Thompson	hello@dex.energy	Markets
<a href="#">Horizon Power</a>	Project Highgarden	N/A	Horizon will install a variety of distributed energy technologies in 90 homes and businesses in Carnarvon. The technology tested will include 'internet of things' energy metering, rooftop solar, household battery storage and inverters with remote monitoring and control devices, and weather forecast devices. The three year trial aims to overcome the technical and commercial barriers faced by 'prosumers', to reduce the cost of distributed energy systems by up to 25 per cent. Commenced consumer engagement and data device capture installation.	Demonstration	Murdoch University, Reposit, Wattwatchers	Oct-2017	Oct-2020	WA	\$1,920,000	\$7,087,296	David Edwards	david.edwards@horizonpower.com.au	Interoperability & Resilience
<a href="#">Hydro Tasmania</a>	Rottneest Island: Addressing the Energy and Water Nexus	N/A	This project combines innovative use of renewable energy and smart controls to help reduce the amount of diesel fuel needed to generate power and produce clean drinking water at Rottneest Island, a popular tourist destination. Hydro Tasmania is deploying an advanced control system, along with a dynamically controlled resistor, to maximise the contribution of renewable energy. The control system is being integrated with the desalination plant and water storage facility to switch on the plant and pumps when renewable generation outpaces demand on the island. The combined contribution of wind and solar generation, working with smart demand-management of the desalination plant, is expected to reduce diesel fuel used for power generation by 45%.	Demonstration	N/A	Jun-2015	Feb-2021	WA	\$4,810,000	\$7,310,000	Ray Massie	Ray.Massie@hydro.com.au	Interoperability & Resilience
<a href="#">Impact Investment Group</a>	Karratha Airport Solar Plant	N/A	Demonstration of solar PV with cloud predictive technology to reduce storage required to maintain Horizon Power performance standard. Successful trial reduced the battery requirement by 50% while keeping output ramp up and ramp down within limits imposed by Horizon Power.	Demonstration	N/A	Jun-2015	Aug-2018	WA	\$2,300,000	\$6,823,741	David Webster	lea.lewin@flextronics.com	Interoperability & Resilience

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<a href="#">Indra Australia</a>	Indra Monash Smart City	N/A	Using Indra's grid management platform, the project will enable control of distributed energy resources, including a minimum of 1 MW of solar panels, 20 buildings, electric vehicle charging stations and 1 MWh of energy storage. Firstly, the assets will be monitored in real-time enabling visibility and control at the low-voltage network. Secondly, the assets will be optimised to ensure efficient and reliable supply of electricity within the technical limits. The third and final phase will implement a transactive market to allow each building to buy and sell electricity, and optimise use in response to pricing signals.	Demonstration	N/A	Oct-2018		VIC	\$2,970,000	\$7,170,000	German Burbano	gburbano@indracompany.com	Interoperability & Resilience
<a href="#">ITP Renewables</a>	Performance testing of eighteen batteries	N/A	Performance testing of eighteen batteries claims made by manufacturers about performance, integration, and installation of battery packs, and to disseminate the results to the public. Initial data suggested that efficiency of >85% can be expected for either Li-ion NMC or Li-ion LFP chemistries and that lithium batteries are better suited to high cycling and high charge/discharge rate applications than lead acid chemistries.	Demonstration	Canberra Institute of Technology	Mar-2015		ACT	\$870,000	\$1,115,000	Oliver Woldring	oliver.woldring@itpau.com.au	Interoperability & Resilience
<a href="#">LO3 Energy</a>	LaTrobe Valley microgrid project - blockchain to manage peer to peer trading and microgrid operations	N/A	The Latrobe Valley Microgrid Feasibility Study will assess the viability of creating a local energy marketplace for dairy farms, residential participants and commercial/industrial customers in the Latrobe Valley. Participants will sell excess energy generation, demand response capabilities and network support services to improve integration of Distributed Energy Resources, such as rooftop solar. The Project will incorporate PV, storage, demand response and LO3 Energy's Exergy platform to deliver an optimal distributed energy model in the region. LO3 Energy has developed a blockchain-based platform called Exergy. Blockchains are digital ledgers that simultaneously share, update, and distribute information without the need for a central storage facility for data. Types of transactions enabled by Exergy include (1) a user with solar panels selling their excess production to their neighbour (2) a grid operator buys frequency regulation from several small storage systems (3) a user sets their programmable thermostat to reduce energy use when the local price for energy goes above a certain price threshold, (4) users are charged a dynamic grid fee based upon the physical infrastructure required to transact with their counterparty.	Study	N/A	Mar-2018		VIC	\$370,000	\$775,000	Belinda Kinkead	bkinkead@lo3energy.com	Markets
<a href="#">Moreland Energy</a>	Moreland micro-grid investigation - Feasibility and product design for inner city brown fields off-grid solar (called Here Comes The Sun" HCS)	N/A	MEFL and project partners GreenSync and Jemena undertook a virtual trial based on historical power consumption data from medium density Melbourne suburbs to examine how a grid-connected solar PV and storage system could provide 'behind the meter' power needs of users. This included energy demand profile modelling, financial cost-benefit modelling, consumer surveys, interviews and focus groups, logistical analysis, a legal, regulatory and policy review, and stakeholder consultation to determine the technical, financial, operational, market and policy/legal feasibility of microgrids.	Study	Greensync	Nov-2015	Jul-2017	VIC	\$112,000	\$226,000	Bruce Thompson	bruce@mefl.com.au	Frameworks

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<a href="#">NEV Power</a>	Narara Ecovillage Smart Grid	N/A	Community title development incorporating a smart grid of 50 houses that will use smart grid control system to balance generation, storage and load consumption and two-way transformer for main grid connection. The microgrid will use solar PV, energy storage and integrated demand side management and control systems. The project will collect data on social impacts, consumer behaviour and how the microgrid interacts with the NSW electricity network.	Demonstration	E2Designlab	Sep-2016	Aug-2022	NSW	\$1,158,660	\$2,472,000	Toby Roxburgh	toby@beast.solutions	Customer
<a href="#">NOJA</a>	Intelligent Switchgear	N/A	Developing new protection, control and monitoring firmware to address specifically targeting the requirements of Distribution Network Service Providers (DNSP) and reducing the connection cost of renewable energy resources. Once developed, 100 units will be installed on electricity networks across Queensland and Victoria where renewable energy connects to the grid and in locations of high renewable penetration. These products will manage the protection challenges associated with renewable resources integration increasing the hosting capacity of the electricity network by using dynamic protection configuration, precise wide-area measurements and real-time monitoring capabilities. This will be achieved with advanced protection schemes and with synchrophasors. Undertook review of connection standards and made recommendations on requirements for embedded generators for inclusion in an Australian standard	Demonstration	AEMO, AusNet Services Ltd, Energy Queensland Ltd, Deakin University, University of Queensland	Jul-2017	Apr-2021	QLD	\$5,000,000	\$21,080,000	Neil O'Sullivan	NeilO@nojapower.com.au	Interoperability & Resilience
<a href="#">Pooled Energy</a>	Demand management and modulation	N/A	The project will sign up pool owners to have their pool upgraded to a 'smart pool' via the installation of an intelligent controller. This device is connected to the Internet of Things and automatically manages the pool's pump and the dispensing of chemicals. By analysing data from the pool, the weather and the electricity network the Pooled Energy technology can reduce the costs of owning a pool and by aggregating the control of thousands of pool pumps Pooled Energy will be able to provide grid support services	Demonstration	N/A	Sep-2017	Jun-2021	NSW	\$2,500,000	\$5,000,000			Interoperability & Resilience
<a href="#">Reposit Power</a>	Intelligent storage for Australia's grid using GridCredits a battery control module	N/A	The project piloted GridCredits, a battery storage control module that allows consumers to monitor electricity usage and access their solar power overnight and at peak times. Reposit offered the 'GridCredits System' (Reposit controller and meter to allow Reposit software to communicate and control the inverter) to volunteer households in Canberra. The project produced case studies of a battery participating in the wholesale market (energy, network and ancillary services) to maximise financial returns to the household. The logic applied in battery charge/discharge strategy is specific to the households usage patterns and learned from a mass of data including tariffs, load/solar generation, weather predictions.	Demonstration	N/A	Jul-2014	Mar-2017	ACT	\$446,000	\$932,000	Luke Osbourne	luke@repositpower.com	Markets
<a href="#">Restech Pty Ltd</a>	The Enerverter (Project Aztec)	N/A	The Enerverter is a novel product that is effectively a small packaged micro-grid (nano-grid) used for industrial motor applications, particularly for water and wastewater. The project consists of three stages: Stage 1 is the development of a deployable working prototype, Stage 2 is the pilot testing in three real world water and wastewater applications and stage 3 is the final commercialisation of the product.	Demonstration	N/A			NSW	\$660,000	\$1,320,000			N/A

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<a href="#">Simply Energy</a>	Virtual Power Plant	N/A	VPP on up to 1,200 residences in Adelaide using Greensync's deX platform on a commercial scale. This represents 6 MW of residential energy storage, while a further 2 MW of demand response capacity will be deployed across 10 commercial businesses.	Demonstration	GreenSync, SAPN, AEMO, Tesla, Flextronics	Jan-2018	Oct-2021	SA	\$7,700,000	\$23,500,000	Greg Trainor	greg.trainor@simplyenergy.com.au	Customer, Interoperability & Resilience
<a href="#">Solar Analytics</a>	Monitoring for Better Energy Outcomes for Residential Solar PV	N/A	The Project aims to accelerate deployment of an Australian-developed technology designed to monitor the performance of residential solar PV systems and provide low cost analytics and fault diagnostics. Solar Analytics' technology compares energy generation against performance expectations, reporting system data back to the residential user, while also identifying faults and providing corrective actions. The Project will demonstrate the cost/benefit of monitoring and analytics for delivering optimised energy yields for homeowners, solar retailers, installers and retail PPA providers.	Demonstration	Australian PV Institute	Dec-2016	Nov-2020	NSW	\$2,144,000	\$9,761,803	Renate Egan	renate@solaranalytics.com.au	Interoperability & Resilience
<a href="#">Sustainable Melbourne Fund</a>	Expansion of the Environmental Upgrade Agreement Market in Victoria	N/A	This project enables the expansion of the commercial rooftop solar market across Victoria by increasing the number of local governments offering innovative finance for such projects through loan repayments collected through Council rates. It produced a template of favourable finance terms under a EUA and how to guide for Councils on establishing EUAs.	Study	N/A	Apr-2016	Jul-2019	VIC	\$821,369	\$1,314,390	Scott Bocskay	scott.bocskay@sustainablemelbournefund.com.au	Customer
<a href="#">Synergy</a>	Alkimos Beach - Greenfield MicroGrid	N/A	Commercial feasibility of a new energy retail model including tariffs for community energy storage. The project will provide performance data from a large distribution battery within the network, performance data relating to peak load reduction resulting from battery installation; and customer responses to renewable energy and storage in comparison to non-participating households.	Demonstration	Lend Lease Communities Pty Ltd	Aug-2014	May-2021	WA	\$3,310,000	\$6,712,300	Alex Uchanski	energystoragetrial@synergy.net.au	Customer
<a href="#">United Energy</a>	Peak Demand Reduction using Solar and Storage	N/A	Information on the cost effectiveness of deploying solar/storage (at subsidised cost) versus traditional augmentation projects to alleviate constraints, constrained substation load profiles with and without dispatch of multiple and single solar/storage on hot days. UE is developing operating modes for the systems including automated control algorithms and monitoring dispatch for implications to non-network solution planning through to mid 2019.	Demonstration	N/A	Jul-2017	Jun-2019	VIC	\$450,000	\$1,234,000	Anil Khushalani	Anil.Khushalani@ue.com.au	Interoperability & Resilience
<a href="#">University of Adelaide</a>	Mobile testing facility for energy storage systems in the field	N/A	Implemented a mobile, microgrid test platform with IoT connectivity off 4G private network. Mainly used for peak lopping and voltage control at feeder level, islanding to a lesser extent. The Storage Bank can be used for large battery grid connected applications, behind the meter and remote diesel microgrid applications.	Demonstration	Zen Energy Systems, South Australian Government, Solar Storage, SA Power Networks, Power and Drive Solutions, Energy Networks Association	May-2015	Oct-2019	SA	\$1,441,811	\$3,264,368	Nesimi Ertugrul	nesimi.ertugrul@adelaide.edu.au	Interoperability & Resilience

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<a href="#">University of Queensland</a>	Increasing Visibility of Distribution Networks to Maximise PV Penetration Levels	N/A	Develop semi-automated state estimation tool validated through tests and demonstration on feeders in the partner distribution network service provider (DNSP) networks (Tasnetworks, United Energy, Energex). This trial will explore whether customers could supply useful data to the SEA and improve DNSP visibility of the operating state of their LV and MV distribution networks so they can operate their networks more effectively to maintain mandated electricity supply quality and the safe loading of their distribution networks, potentially enabling customer PV export restrictions to be lifted. This will also facilitate more efficient network investment planning decisions.	Demonstration	Queensland University of Technology, Australian Power Institute, Energy Networks Australia, Tasnetworks, United Energy, Energex Part of the Energy Queensland Group, Aurecon, Redback Technologies, Springfield City Group	Dec-2017	Jan-2020	QLD	\$1,190,000	\$2,884,000	Simon Bartlett	simon.bartlett@uq.edu.au	Interoperability & Resilience
<a href="#">UNSW</a>	Addressing barriers to efficient renewable integration	N/A	Bench testing response of PV and storage inverters to disturbances on the network. Installation of high-speed disturbance records on key distribution network feeders will monitor and record behaviour during power system disturbances. Results from this will provide detailed information that can be used to develop a "composite PV-load model" to more accurately represent the behaviour of load with embedded PV.	Demonstration	ElectraNet, TasNetworks, AEMO	Aug-2016	Jul-2022	NSW	\$982,000	\$2,302,724	John Fletcher	John.fletcher@unsw.edu.au	Interoperability & Resilience
<a href="#">UTS</a>	National Community Energy Strategy: Catalysing community renewables in Australia	N/A	Workshops held and website materials produced to facilitate community energy models, funding and finance, capacity building, profile/raising support, policy and regulatory reform.	Study	N/A	Nov-2013	Jun-2015	NSW	\$330,000	\$461,000	Nicola Ison	nicole.ison@uts.edu.au	Customer
<a href="#">UTS</a>	Networks Renewed	N/A	The project is examining the technical potential of inverters to provide real and reactive power and demonstrate feeder-level power quality improvement. Methods of estimating the value of voltage regulation and network support services from inverters. Evaluation of policy, regulatory barriers to strategic inverter use.	Demonstration	United Energy Distribution Pty Limited, Ausnet Services, SMA, Reposit Power, Essential Energy, APVI	Jul-2014	Apr-2019	NSW	\$538,240	\$1,113,243	Chris Dunstan	chris.dunstan@uts.edu.au	Frameworks
<a href="#">UTS</a>	Mapping network opportunities for renewable energy	N/A	Developed a standardised data protocol on network information and opportunities, supported by Network Service Providers in the NEM. The project enhanced the UTS Institute for Sustainable Futures' Dynamic Avoidable Network Cost Evaluation (DANCE) model to produce annual maps of network capacity and constraints, planned investment and the potential value of decentralised energy in electricity networks across the NEM, through a publicly accessible web portal.	Study	NSW Trade and Investment, Ergon Energy Corporation, ElectraNet, Clean Energy Council Ltd	Jul-2014	Jan-2018	NSW	\$1,871,000	\$5,073,975	Stuart White	Stuart.White@uts.edu.au	Frameworks



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<a href="#">UTS</a>	Facilitating Local Network Charges and Local Electricity Trading	N/A	Five virtual trials across local government areas in NSW, Victoria and Queensland tested whether local DER reduced network charges from using only local network and whether excess generation could be allocated to other sites by virtual net metering. One of these virtual trials based in the Willoughby Council local government area demonstrated that a relatively low local network charge could send a meaningful signal to operate dispatchable generation when the network is most likely to need support. The full results of these trials are available through the Institute for Sustainable Futures website	Study	N/A	May-2015	Aug-2016	NSW	\$250,000	706,000	Alison Atherton	Alison.Atherton@uts.edu.au	Markets
<a href="#">UTS ISF</a>	Feasibility study for 'solar gardens' projects across multiple sites	N/A	<p>The Social Access Solar Gardens Project prototyped four of the first solar gardens projects in Australia in locations across New South Wales, Queensland and Victoria. The Project aimed to enable solar gardens that will benefit the 30% of Australian consumers currently excluded from owning solar PV. Solar gardens work by installing a central solar array, generally near a population centre. Energy customers can purchase or subscribe panels in the solar array. The electricity generated is then credited on the customer's electricity bill.</p> <p>The project has two major streams of work: research work around regulatory barriers and development of prototype social access solar gardens business models.</p>	Study	NSW Government, Bendigo Sustainability Group, Blacktown Council, Brotherhood of St Laurence, Byron Shire Council, Community Owned Renewable Energy Mullumbimbi (COREM), Community Power Agency, Energy Queensland, Enova Community, Energy Institute for Sustainable Futures, University of Technology Sydney, Norton Rose Fullbright, Pingala, Powershop, Queensland Council of Social Services, Repower Shoalhaven, Shoalhaven Council, Swan Hill Shire Council	Jan-2018	Dec-2018	NSW, QLD, VIC	\$240,000	\$635,000	Jay Rutovitz, Research Director	jay.rutovitz@uts.edu.au	Customer