



Media Release

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Latrobe Valley virtual microgrid could allow dairy farms to trade energy via blockchain

Latrobe Valley dairy farmers could be buying and selling locally generated renewable energy using blockchain, thanks to a study funded by the Australian Renewable Energy Agency (ARENA).

On behalf of the Australian Government, ARENA today announced \$370,000 in funding for a feasibility study into a 'virtual microgrid' for the Latrobe Valley.

The \$775,000 project will be led by Brooklyn-based energy company LO3 Energy and focuses on the feasibility of creating a 'virtual microgrid' across up to 200 dairy farms, over 100 household consumers and around 20 other commercial and industrial customers in the Gippsland region.

A 'virtual microgrid' is a local marketplace of connected energy users who can buy and sell electricity within a localised area.

The virtual microgrid will incorporate solar PV, battery storage, smart appliances and enabling technologies combined with the LO3's Exergy peer-to-peer energy trading platform which uses blockchain technology to allow participants to securely buy and sell locally produced renewable energy.

This marketplace would allow Gippsland farmers to take greater control of their energy use, providing the opportunity to sell their solar power back to the grid, delivering savings on their energy bills.

Participants would be linked in an internet-of-things-based marketplace while using AusNet's distribution network. Participants would have a combination of solar, battery and smart devices to generate and store energy and manage usage.

Farmers would be able to participate at no upfront cost through loans provided by the Sustainable Melbourne Fund, repaid through council rates.

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**For more
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The study is expected to be completed by end of 2018, and if successful the pilot microgrid could be rolled out in Gippsland in 2019.

The project involves a consortium of partners including AusNet Services, Sustainable Melbourne Fund, Dairy Australia and Siemens.

ARENA CEO Ivor Frischknecht said the feasibility study would be the first step in transitioning one of Victoria's primary agricultural regions towards renewables, and would be the first trial of a blockchain-based virtual microgrid in Australia.

"With significant increases in distributed energy resources across the network, there is an emerging opportunity to optimise these systems through orchestration.

"The 'virtual microgrid' concept brings an alternative approach to these solutions where the control remains with the customers, rather than retailers, who can choose to opt in depending on the current prices and energy types, or their willingness to provide demand response," Mr Frischknecht said.

"A large focus of LO3's project is capturing the benefits from avoided network investments combined with optimising energy consumption to significantly improve the economic outcomes and increase the generation sourced from renewable energy for the Latrobe Valley region," he said.

Brooklyn-based energy company LO3 built and manage the Brooklyn Microgrid, which was the first local energy marketplace to use blockchain.

Lawrence Orsini, LO3's founder and CEO said: "This is a landmark project for us and the Australian energy industry as it combines a number of our innovative technologies to optimise the use of renewable energy."

"As the economy decarbonises and coal generation continues to be retired, wind and solar will increasingly enter the market - but their intermittent generation has created a need for new ways to store and manage energy," he said.

"This microgrid will showcase solutions for this including battery storage to make greater use of solar energy and demand response in which consumers will be paid for choosing to conserve energy at peak times," Mr Orsini said.

For more information, visit arena.gov.au or LO3energy.com

PRESS RELEASE

- Customers to be able to buy and sell electricity 'peer to peer' within a local energy marketplace and be paid for 'negawatts' – the energy saved by turning off an appliance
- Local solar and battery installations set to provide much needed cost savings and additional revenue streams to support the farming industry
- Exergy platform allows local businesses and residents to securely buy and sell energy and benefit from efficient energy choices, while at the same time contributing to lowering future network costs for all customers.

DAIRY FARMS UNLOCK INSIGHTS IN RENEWABLE ENERGY NETWORK POSSIBILITIES SET TO REVOLUTIONIZE INDUSTRIES

The Latrobe Valley will be the location for a feasibility study on a virtual energy network that could provide a long-term solution to Australia's evolving energy network – and also deliver vital financial benefits to the dairy farm industry

Brooklyn, NEW YORK — 27 April, 2018: Dairy farmers in the Latrobe Valley are joining with local residents and businesses to develop energy solutions through a feasibility study that could one day revolutionise Australia's energy industry.

Awarded a \$370,000 grant from ARENA, supported by \$100,000 from AusNet Services; LO3 Energy and partners will conduct an important feasibility study to determine how a new virtual microgrid network, run on the Exergy™ blockchain based market platform created by LO3 Energy, who developed and manages New York's Brooklyn Microgrid, will not only allow future participants to securely buy and sell locally produced renewable energy but will also pay customers for reducing their energy use.

And with the energy-hungry farming industry still recovering from the 2016 milk crisis, it promises a cost-effective and resilient solution for farmers to create and manage their own energy and profit from trading their excess generation.

Lawrence Orsini, founder and CEO of LO3 Energy, said "This is a landmark project for us and the Australian energy industry as it combines a number of our innovative technologies to optimize the use of renewable energy.

“As the economy decarbonises and coal generation continues to be retired, wind and solar will increasingly enter the market - but their intermittent generation has created a need for new ways to store and manage energy.

“This microgrid will showcase solutions for this, including battery storage to make greater use of solar energy and demand response in which consumers will be paid for choosing to turn off appliances at peak times.

“Engaging with farms is a key part of the project as they have capacity to install large solar generation and storage. Exergy makes it possible for them to become mini power plants and gain revenue for energy they don't use.”

The project involves a consortium of partners including ARENA, AusNet Services, Sustainable Melbourne Fund, Dairy Australia, Siemens and CommPower Industrial.

VIRTUAL MICROGRID

The study will include up to 200 dairy farms, 150 homes and 20 industrial consumers in the Latrobe Valley.

It will be a virtual microgrid, meaning the participants are linked in an internet of things (IoT) based marketplace while continuing to use the electricity distribution network provided by AusNet Services for the physical transport of electricity.

All participants will have one or more of a combination of energy generation sources such as solar power or wind turbines; energy storage such as batteries; or reactive smart devices such as smart thermostats or refrigerators. Farmers may participate at no upfront cost through loans, provided by the Sustainable Melbourne Fund, repaid through councils rates, giving businesses immediate cash injections with the possibility of additional net income generated through the microgrid.

Much like the Brooklyn Microgrid, the network will use 'TAGe' hybrid computer/meters to record data on energy usage and production of each participant and share it as 'tokens' on the blockchain based Exergy platform.

This creates a decentralised energy marketplace in which participants use a smartphone app to set their energy usage and pricing preferences and 'smart contracts' are used to make automatic transactions of the energy 'tokens'.

In addition to facilitating the sale of megawatts from local producers and prosumers, the microgrid will also allow consumers to be paid for their 'negawatts' - the energy demand avoided by turning appliances off.

When demand or generation puts pressure on the grid, any hybrid computer/meters that are set to accept energy reductions at a certain price will send signals to installed smart devices to reduce their usage or exports and ease local congestion.

AusNet Services Managing Director, Nino Ficca believes it's imperative to support projects that work toward enhancing the future of the grid.

"We're proud to be investing in the LO3 Energy feasibility study as we seek to empower communities and their energy future," said Mr Ficca.

FARMING BENEFITS

Several communities have already expressed an interest in participating and the scheme has also received a positive reception from some of the dairy co-operatives operating in the Latrobe Valley.

Farms are estimated to support up to 80kW solar and 250 kWh of battery storage – giving a potential total of 16MW for the project – the typical energy consumption profile of a dairy farm allows excess energy to be sold in the daytime.

Dairy Australia Group Manager, Trade and Strategy, Charles McElhone said the dairy industry was committed to supporting innovation in the energy sector in an effort to improving the profitability of dairy farmers and processors.

"Energy reliability and power price volatility are major challenges for the dairy sector and all indications point to renewables playing an increasingly important role in the solution," Mr McElhone said.

"It's critical that we get behind any innovation with the potential to make our dairy farms more profitable and our industry more sustainable."

Orsini added: "Dairy Australia has shown themselves to be very progressive in partnering with this project. We hope the many other industries that have similar capacity to become power generators will take note."

ENDS

About Exergy™

Exergy™ is a distributed ledger system combining software and hardware layers, a token system for transacting energy, and a architecture that

advances market design and technology in tandem. Through proprietary block chain software, Exergy creates secure pathways for decentralised markets, peer-to-peer transactions, predictive analytics, micro-hedging and other applications that are only beginning to be explored. For more information visit exergy.energy.

About the project partners

LO3 Energy, a Brooklyn, New York based company, is building a platform to enable decentralized business models and innovative technologies related to energy, cleantech and utility systems. The LO3 team has deep expertise in design, architecture, development, prototyping and testing of cutting edge distributed energy, computing and peer-to-peer networks. The company builds tools and develops projects to support and accelerate proliferation of the distributed energy and sharing economy of the future. More information at: www.LO3energy.com.

AusNet Services is Victoria's largest energy delivery service, owning and operating approximately \$11 billion of electricity and gas distribution and transmission assets that connect into more than 1.3 million Victorian homes and businesses. AusNet Services is listed on the Australian Securities Exchange (ASX: AST) and Singapore Exchange.

Sustainable Melbourne Fund (SMF) is the Latrobe Valley Microgrid finance partner. SMF will enable microgrid participants to unlock immediate cash injections with the possibility of additional net income generated through the microgrid. SMF will provide up to 100% of the capital required through long term loans repaid by a fixed charge on council rates, called Environmental Upgrade Agreements. By stretching out payments over a long period of time, the project will enable immediate free cash-flows to be generated to businesses and therefore the wider Latrobe Valley community.

Dairy Australia is the national services body for dairy farmers and the industry. It aims to assist farmers in adapting to a changing operating environment, and achieve a profitable, sustainable dairy industry. Dairy Australia encourages innovation within their dairy farms to help farmers be internationally competitive. Rising energy prices continue to put cost pressures on Australian dairy farmers. Dairy Australia is actively exploring cutting-edge options to support farmers and regional communities address these challenges.

Siemens is a global electrical engineering powerhouse that concentrates efforts on solving the biggest challenges transforming our world; climate change, urbanisation, globalisation, digitisation and demographic change. They provide solutions in the areas of Power Generation, Energy Management, Building Technologies, Mobility, Digital Factory, Process Industries and Drives and Healthcare. Siemens is one of the world's largest providers of energy and resource-efficient technologies, in

operation since 1847, with 348,000 employees in over 200 countries. Siemens brings to the project experience and its vast range of products, systems, solutions and services in relation to MicroGrid / Hybrid Power Plant solutions, comprising of Energy Storage, MicroGrid Controllers, Special Protection / Control Schemes, EBoP and Software Solutions for autonomous control, security of supply, data analytics and cyber security.

CommPower Industrial is made up of solar engineers specialising in commercial and community solar and battery storage projects. CommPower, and their local partners, will be responsible for the solar and battery installations design that will be undertaken as part of this project.

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