**Decentralised Energy Exchange (deX) Program**

* <https://arena.gov.au/projects/decentralised-energy-exchange/>

**$10m** Funded by ARENA

**$31.84m** Total project cost

* **Lead Organisation** GreenSync Pty Ltd

**Location** Victoria

* **Start Date** March 2019

**Summary**

GreenSync’s Decentralised Energy Exchange (deX) is a market-enabling digital platform that aims to provide electricity networks with better coordination and control of the increasing volume of distributed energy resources (DER) in the electricity grid. deX also aims to enable consumers to get more value from their energy assets (such as solar, batteries and electric vehicles), by being rewarded for participating in grid services.

**How the project works**

deX is an open access software platform that enables transparent and localised marketplaces to operate. Consumer owned devices registered with deX will be visible to network and market operators and can be contracted for grid services, such as supplying energy during peak demand, managing frequency or grid voltage, and reducing network constraints.

The deX platform consists of three layers:

* deX Connect – Facilitating customer choice and reducing costs by ensuring [DER](https://arena.gov.au/renewable-energy/distributed-energy/) assets and technologies can be registered easily to deX and can communicate efficiently with each other on a cloud-to-cloud basis
* deX Vision – Assisting Distribution Network Service Providers (DNSPs) and market operators in ensuring electricity supplies are secure by creating a register of DER, visibility of size, type and activity, plus mediation mechanisms
* deX Markets – Enabling marketplaces by providing a forum in which legitimate parties can exchange digital contracts for DER services in a secure, transparent manner.

Over three years, the deX platform will be scaled up nationally through projects with networks, governments and technology vendors. The result could be a globally scalable software solution that will form the architecture for future flexible, transactive grids.

**Area of innovation**

deX is a market-enabling digital platform that forms the layer between DER and the grid through Application Programming Interfaces (APIs). It aims to allow technology manufacturers and other platform owners to integrate their technology with deX so that consumers can register their DER. Retailers and network operators will then be able to view, coordinate and contract available DER for a variety of energy services.

A technology agnostic platform, deX will be open to all technology providers, networks and retailers. This creates opportunities for further innovation moving towards a transactive grid where services from DER are valued, participation increases, and overall system efficiency and reliability are maintained.

**Benefit**

deX could provide Australia with a national platform that forms a dynamic register of DER and supports a wide range of DER technologies, virtual power plants and network management systems, to support a flexible grid increasingly powered by renewables.

The platform will allow customers to get more value out of their energy assets by rewarding them for contributing to the grid. Retailers and aggregators will be able to contract capacity for wholesale market opportunities. Networks will gain visibility of behind-the-meter generation, allowing them to forecast more accurately, control DER to dispatch, or contract DER for other grid services, such as voltage and frequency management, in line with dynamic network conditions.

deX will enable higher shares of renewable energy to be connected to the grid while ensuring electricity is secure, reliable and available where and when needed.

**Additional impacts**

This project is developing Australian clean-tech innovation that can be exported globally to solve similar issues in countries or regions with deregulated energy markets and increasingly high penetration of [solar](https://arena.gov.au/renewable-energy/solar/), [batteries](https://arena.gov.au/renewable-energy/battery-storage/), [electric vehicles](https://arena.gov.au/renewable-energy/electric-vehicles/) and other DER.

The project will deliver significant industry-wide benefits by:

* sharing knowledge and capabilities
* creating and publishing a set of consistent approaches (“protocols”) for DER, VPPs and network systems
* establishing consistent approaches for DER contracting
* establishing market-enabling foundational registration, contracting and consent approaches that support consumers, networks and retail value stacking.