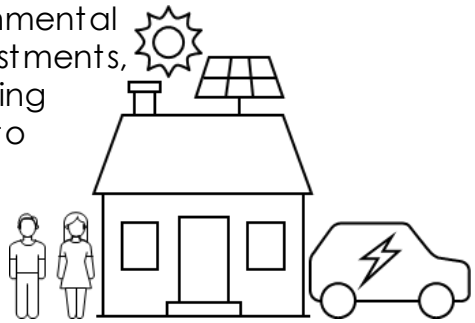
Project Info Pack

Introducing the first ever distributed energy marketplace trial giving Australian consumers the edge.

Australia is leading the world in the installation of rooftop solar and has a growing appetite for other Distributed Energy Resources (DER) including battery storage and electric vehicles.

The energy systems which exist today were designed for the one-way flows of electricity from large-scale generators to consumers.

For Australian households and businesses to fully realise the financial and environmental benefits of their DER investments, energy systems and trading frameworks must adapt to facilitate dynamic bi-directional trade and flows of Electricity.



What does DER mean?
DER is the name given to devices commonly located at houses or businesses that produce electricity or actively manage consumer demand. Another name for DER is "behind the meter" resources because electricity is generated or managed 'behind' the electricity meter in the home or business.

Common examples of DER include Rooftop Solar PV, Battery Storage, Thermal Energy Storage, Electric Vehicles and Chargers, Pool Pumps, and Home energy management technologies.

DER aggregation

When DER are grouped together to operate and deliver services as a single entity, we call this 'aggregation'. For example, a single household solar and storage system only generates a very small amount of electricity in comparison to a large power station. However, if hundreds or even thousands of households combine their output, they could provide some services similarly to a traditional large scale power station. The organisation that manages the aggregated DER is known as an 'Aggregator'.

Project Partners

Get Involved:
Visit: Mondo's Project EDGE website
Visit: AEMO's Project EDGE website
Contact: EDGE@aemo.com.au

Project Introduction

Project EDGE (Energy Demand & Generation Exchange) seeks to demonstrate a proof of-concept DER Marketplace that enables aggregated DER to deliver efficient, secure, and coordinated wholesale and local network support services at the grid edge.

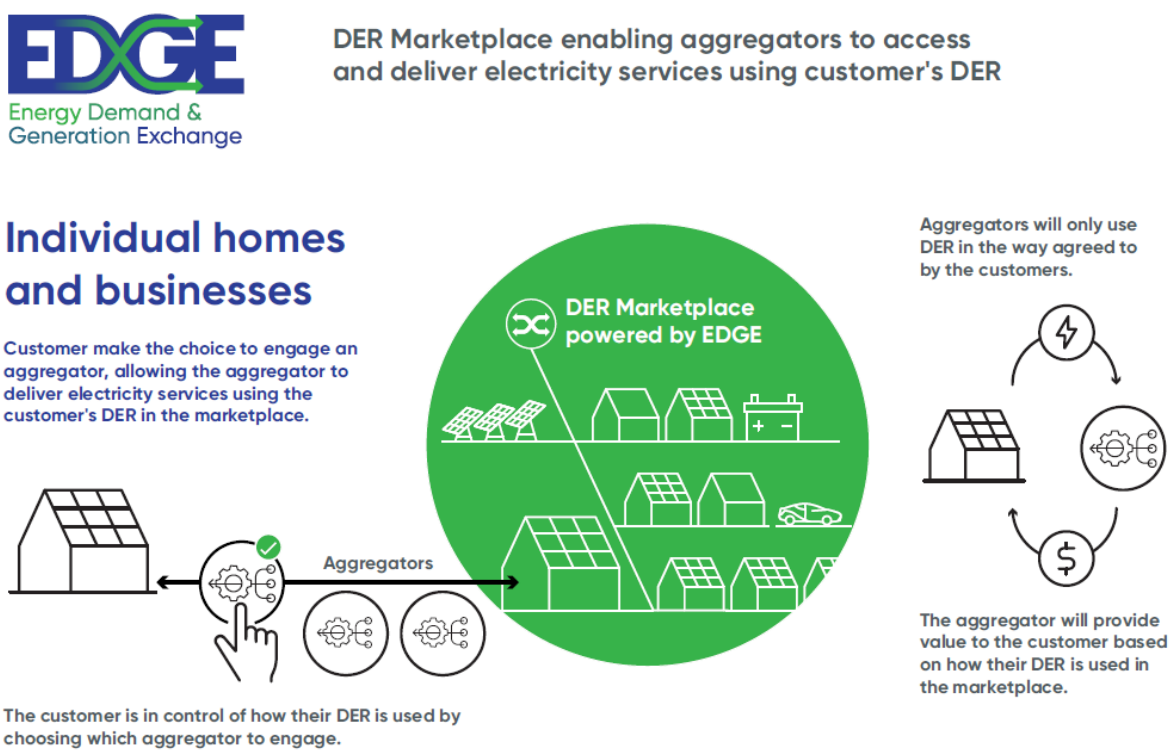
Integrating Distributed Energy Resources (DER) at large scale into the National Electricity Market (NEM) is highly complicated as the power system and market frameworks were designed to facilitate the one-way trade and flows of electricity from large-scale generators to consumers.

AEMO, AusNet Services and Mondo are partnering, with support from the Australian Renewable Energy Agency (ARENA), to demonstrate how a Two-Sided Market and power system could work.

This builds on the theory explored in the Open Energy Networks process (OpEN), which identified how AEMO and DNSPs could collaborate to enable DER to provide both wholesale market and local network services.

The following diagram provides a high-level overview of how consumers and their household DER access the markets via an aggregator, and the EDGE marketplace.

Figure 1: Consumer access to the DER Marketplace



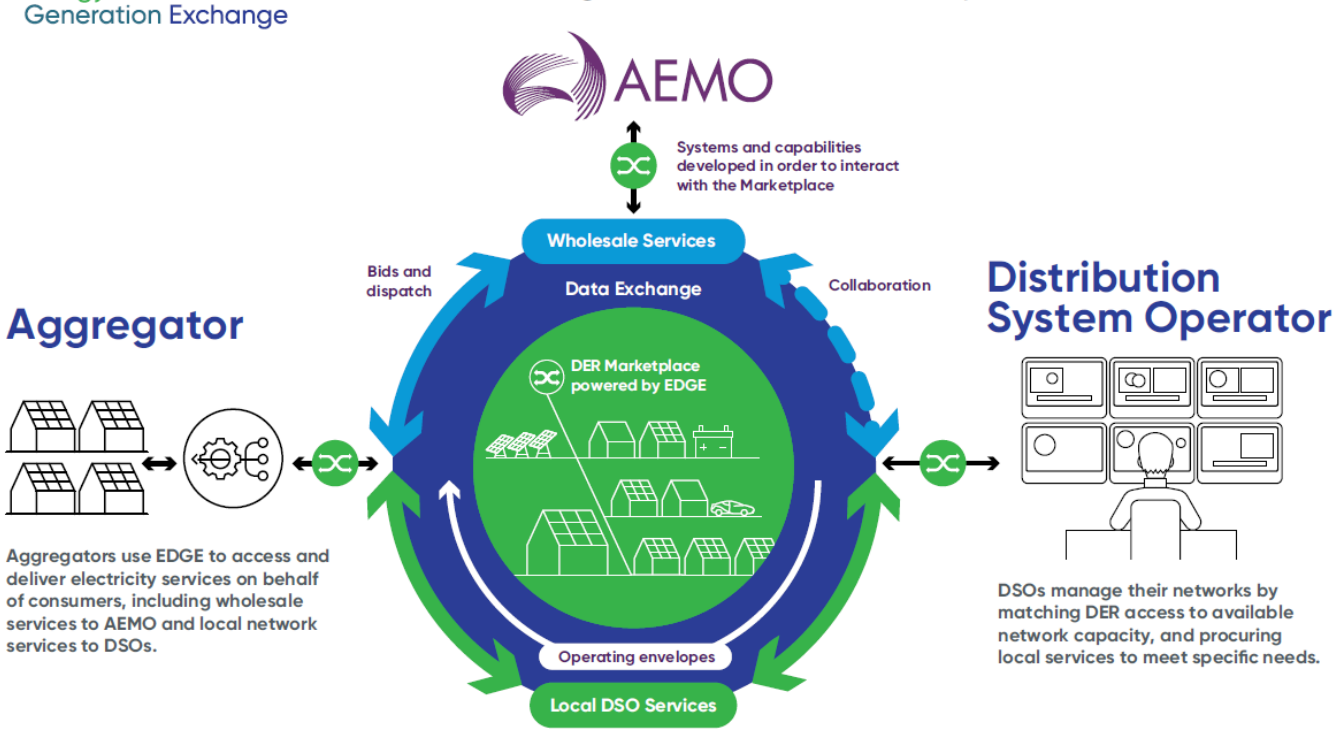
Project Marketplace

The EDGE marketplace enables the trade of wholesale market services with AEMO, and local market services with the DSO. It incorporates many functions including the communication of operating envelopes from DSO to Aggregator, wholesale market interactions and the data exchange required to facilitate the various trades.

The proof-of-concept marketplace will be ready for testing by 2022, delivering the minimum requirements with opportunities to explore additional capability as the project matures.

A mix of residential and commercial/industrial (C&I) customers within the AusNet distribution network area in Victoria will participate in Project EDGE via an aggregator. While the project starts small, it will eventually scale to around 1,000 customers or 10 MW of DER.

The DER Marketplace enabling aggregators to deliver a range of electricity services and helping DSOs to manage their networks efficiently.



DSO – the Distribution System Operator is a role that the Distribution Network Services Provider transitions to as they dynamically manage capacity and operate the network to optimise value to customers and the energy system, including increased hosting of DER

Key Objectives

Project EDGE's specific objectives are:

1. Demonstrate how DER fleets could participate in existing and future wholesale energy markets at scale.
2. Demonstrate different ways to consider distribution network limits in the wholesale dispatch process.
3. Demonstrate how to facilitate standardised, scalable and competitive trade of local network services.
4. Demonstrate how data should be exchanged efficiently and securely between interested parties to support delivery of distributed energy services.
5. Develop a proof of concept, integrated software platform to facilitate delivery of objectives 1-4 in an efficient and scalable way.
6. Develop a detailed understanding of roles and specific responsibilities that each industry actor should play.
7. Conduct comprehensive cost benefit analysis to provide an evidence base for future regulatory decision making.
8. Conduct a customer focused social science study to understand customer opinions on the complexities of DER integration.
9. Deliver best practice stakeholder engagement throughout the project with a commitment to knowledge sharing.
10. Deliver recommendations, supported with evidence, on how and when the concepts demonstrated should be implemented operationally.

Project phases and timelines

Phase 1:
Project Inception
Q4 2020

Phase 2:
Core platform development
Q4 2021

Phase 3:
Finish platform build & testing
Q2 2022

Phase 4&5:
Operational trials
Q1 2023