

Microgrid Demonstration Initiative



Presentation
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Environment,
Land, Water
and Planning

Introduction

The presentation will provide an overview of the MDI including:

- grant programs
- microgrid drivers and designs
- summary of approved projects

What is the Microgrid Demonstration Initiative?

The Microgrid Demonstration Initiative (MDI) is an initiative of the Government's *Renewable Energy Action Plan* (REAP).

The first, state-wide, grant program made available up to \$10m in funding. The funding priority were for projects that:

- demonstrate innovative financial and business models
- include a range of stakeholders
- address key sector challenges (regulatory, technical, economic and social) to enable market development
- will capture and share learnings

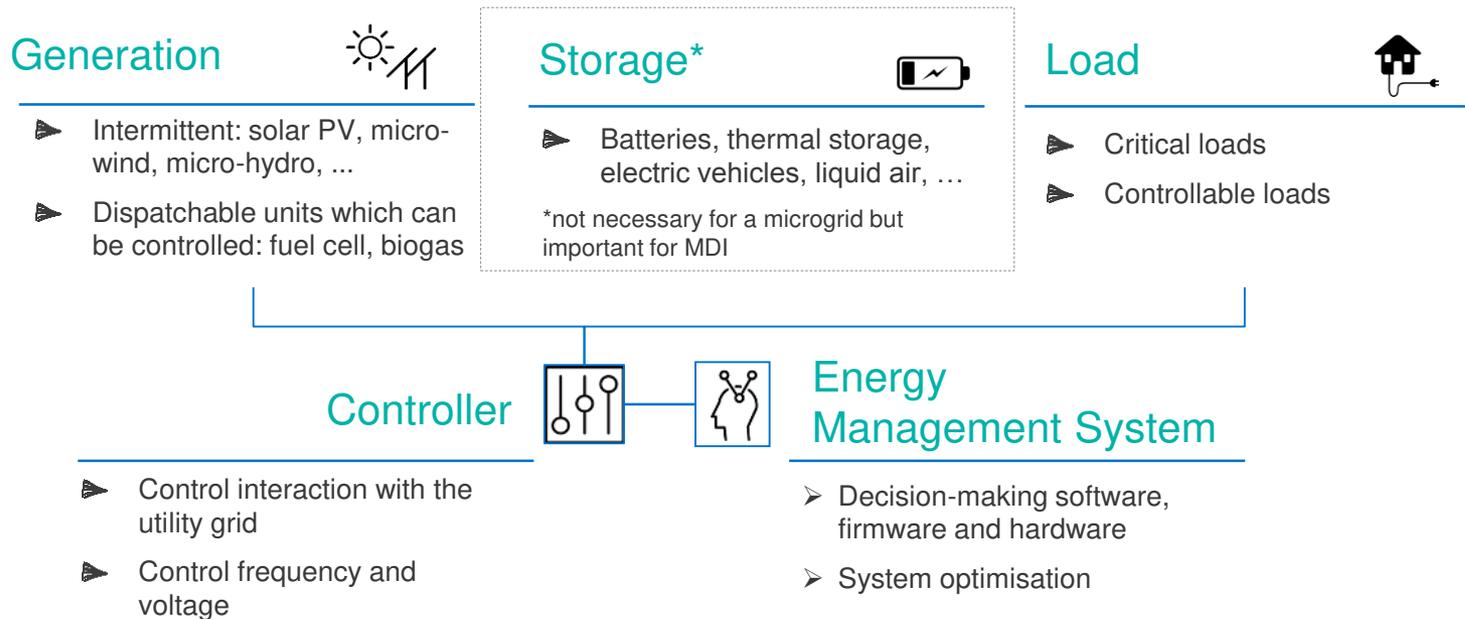
The second grant program was Latrobe Valley Microgrid Program (LVMP).

The purpose was to fund **a** microgrid project based in the Latrobe Valley that would:

- lower the cost of electricity for participating businesses (customers)
- lead to the attraction of new businesses, expansion or retention of existing businesses in the region
- deliver economic development outcomes (direct and indirect jobs and investment) and support the transition of the Latrobe Valley to a low-emission economy.

But, what is a microgrid?

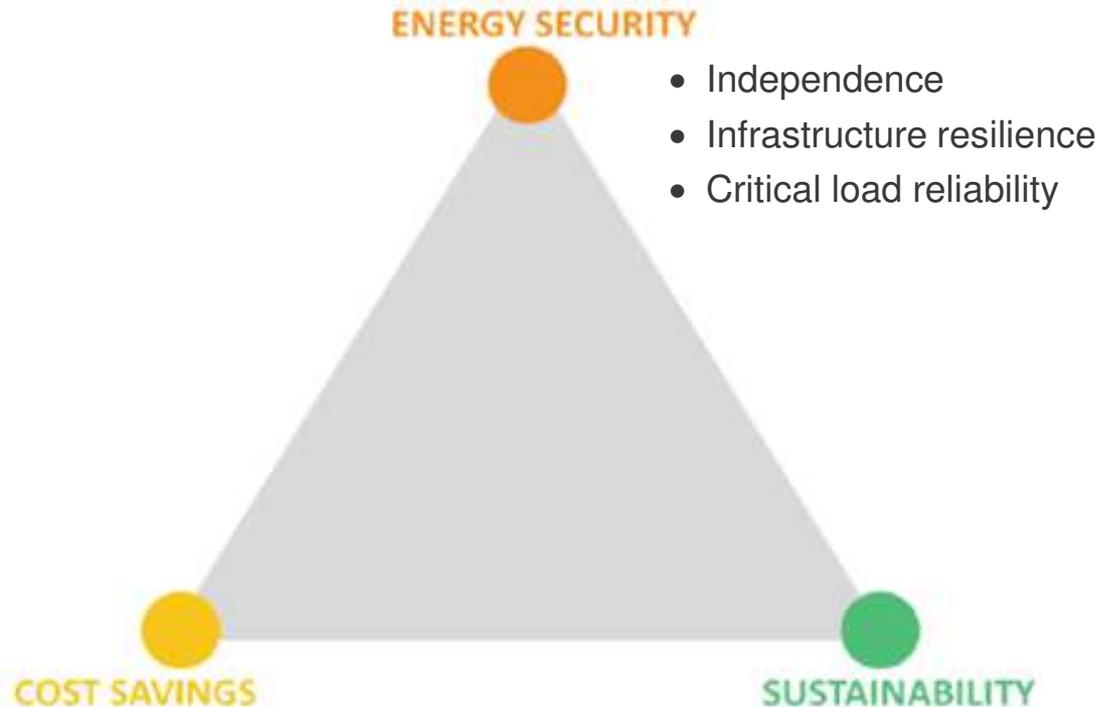
This diagram shows the typical components, and capabilities, of a microgrid.



A microgrid may or may not be connected to a larger grid.

Why are microgrids developed?

Energy security, sustainability and cost savings are the main drivers for microgrids. A project may be prompted by one or more of these drivers.



- Operate infrastructure at lower cost
- Hedge against electricity prices
- Generate revenue

- Control on-site energy used/ generated to optimise renewables
- Reduce emissions

Totally Renewable Yackandandah (TRY)'s Sanatorium Road Microgrid

Project topology: Microgrid

Location: Yackandandah (Hume Region)

	<ul style="list-style-type: none">▶ New Solar PV capacity
	<ul style="list-style-type: none">▶ Battery storage▶ Hot water systems
	<ul style="list-style-type: none">▶ households on SWER line
	<ul style="list-style-type: none">▶ Household and transformer controls

The community led project will establish a microgrid on Sanatorium Road.

To demonstrate how small renewable energy systems (solar PV and battery storage) can support the electricity grid and provide an economical and technical alternative to network upgrades.

Helping the TRY community achieve their 100% renewable energy target.

Euroa Environment Group's Microgrid Project

Project topology: Smart embedded network
Location: Euroa (Hume region)

	▶ New Solar PV capacity
	▶ Battery storage
	▶ Local businesses
	▶ Business and transformer controls

This project combines local business interest in increasing their use of renewable energy and storage with microgrid development.

It will reduce the local demand for electricity from the grid and reduce the need for seasonal diesel generators.

Euroa aims to demonstrate an economic alternative for local renewable generation for network operators.

Monash University's Microgrid Electricity Market Operator

Project topology: system operator

Location: Clayton (Port Phillip Region)



▶ up to 100 buildings of different load profiles on the campus



▶ Active grid management across campus generation and loads

University led project that will explore the market potential for a third-party entity responsible for microgrids.

The project will demonstrate how this entity can manage customers' (campus buildings) energy use and bills.

Will also explore opportunities to develop economic value from microgrid operations.

Origin Energy's Virtual Power Plant

Project topology: Virtual power plant (VPP)

Location: Victoria (TBD)

	▶ Solar PV
	▶ Battery storage
	▶ Households and commercial businesses
	▶ Cloud based control

This VPP will coordinate distributed renewable energy resources and flexible demand from residential and industrial participants.

The VPP will boost grid stability by discharging power from solar PV and batteries located at homes and commercial and industrial sites to reduce their power bills.

Switchdin's Birchip Cropping Group Microgrid Demonstration

Project topology: microgrid

Location: Watchem (Loddon Mallee region)

	▶ Solar PV
	▶ Battery storage
	▶ Cropping group
	▶ Local control

A microgrid based on a solar photovoltaic (PV) and battery system will be installed at Birchip Cropping Group's local facility.

The project will provide a working demonstration of microgrid technology and its ability to lower energy costs and improve energy reliability for the region's farmers.

Ovida's Community Energy Hubs Demonstration

Project topology: Smart embedded network

Location: Melbourne

	▶ Solar PV
	▶ Battery storage
	▶ Multi-tenanted buildings
	▶ Local cloud based

This project covers the installation of shared solar PV and battery systems at three multi-tenanted buildings in Melbourne.

Will demonstrate new models for how residential and commercial tenants can access and share renewable energy resources and reduce household energy costs.

The scheme will allow interested tenants to opt-in and reduce the amount of electricity purchased from the electricity grid.