# **Our renewable energy future**

Victoria's energy transition - Loddon Mallee context



Energy, Environment and Climate Action

#### How to use this slide pack

#### Self – Guided Reading

 These slides are designed so that individuals can read through the information at their own pace. You can click or scan the QR codes for further reading

#### Facilitated Delivery

 If you would like to request a facilitator to deliver these slides to your organisation, please email <u>lmr.cpp@delwp.vic.gov.au</u>

This slide pack is current as of March 2024 and due for review June 2024

#### Purpose

- This presentation covers key information about the renewable energy transition for Victoria and Loddon Mallee
- This is a snapshot of key concepts, to find out more please click or scan the QR code at the top right of each page
- The content is aimed at people with a general understanding of renewable energy
- To learn about renewable energy, visit the Australian Renewable Energy Agency website via the QR code

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## Why we're transitioning to renewable energy

- Due to global emissions, the impact of climate change will affect all of us.
- Global greenhouse gas emissions continue to rise when they need to be rapidly falling.
- The main source of Victoria's emissions is burning fossil fuels – like coal, oil, and gas – for energy and transport.





Under high emissions, compared to 1986-2005. Updated from Victoria's Climate Science Report 2019

#### How we're transitioning

#### Victorian Renewable Energy Targets

- 25% by 2020 (achieved)
- 65% by 2030
- 95% by 2035.

#### Storage

- at least 2.6 GW of energy storage capacity by 2030
- at least 6.3 GW by 2035 that's enough renewable energy to power around half of Victoria's current homes at their peak energy use.





## **Key Organisations**



### **Key Organisations**



Name	Description	
Australian Energy Market Operator - AEMO	The Australian Energy Market Operator (AEMO) is Australia's independent system and market operator and system planner. AEMO's purpose is to ensure safe, reliable and affordable energy and enable the energy transition for the benefit of all Australians	
Australian Energy Regulator – AER	The AER's work is focused on ensuring that consumers have access to safe, reliable, affordable energy now and into the future. It enforces the laws of the National Electricity Market (NEM) and spot gas markets in southern and eastern Australia.	
Distribution Network Service Provider (e.g. Powercor)	Network businesses in the National Electricity Market (NEM) are called transmission network service providers (TNSPs) and distribution network service providers (DNSPs). Energy distribution companies own and maintain the wires and pipelines that bring electricity and gas to your home or business. They differ from state to state.	
State Electricity Commission - SEC	The SEC is a government-owned renewable energy company. The SEC supports Victoria's energy transition by investing in new renewable energy generation and storage, supporting households to go all-electric, and building the renewable energy workforce we need to drive Victoria's energy transition.	
Transmission Company Victoria - TCV	Transmission Company Victoria (TCV) is a new company created by AEMO Victorian Planning to progress the VNI West transmission project.	
Transmission Network Service Provider (e.g. AusNet)	ork Transmission network service providers (TNSPs) build, maintain, plan and operate the network transmission networks AusNet is a TNSP that has been contracted by AEMO to build, own and operate WRL.	
VicGrid	VicGrid is coordinating the planning and development of Victoria's Renewable Energy Zones and transmission infrastructure to support the transition to renewable energy.	
Victorian Transmission Investment Framework - VTIF	sion The VTIF is changing how we plan and develop electricity transmission infrastructure in Victoria to ensure it benefits all /ork - Victorians	

### Partnering with Traditional Owners

VicGrid is committed to seeking to work in partnership with Traditional Owners as distinct rights holders to Country and Sea Country. We will enable their selfdetermination priorities and ensure that First Peoples are at the centre of decisionmaking processes around issues and opportunities that directly affect them.

In response to <u>Pupangarli Marnmarnepu</u> <u>'Owning Our Future' Aboriginal Self-</u> <u>Determination Reform Strategy</u>, VicGrid and DEECA will partner with Traditional Owners and other Aboriginal Victorians to identify and address key expectations and Aboriginal community concerns that align to their rights and cultural responsibilities.



## **Renewable Energy Zones**



- Renewable Energy Zones (REZs) are areas in Victoria with the greatest potential for renewable energy, such as wind, sunshine, rain, tides, waves and geothermal heat.
- The Australian Energy Market Operator's (AEMO) Integrated System Plan (ISP) identified 6 Victorian REZs:
  - Central North
  - Gippsland
  - Murray River Loddon Mallee
  - Ovens Murray
  - South Victoria
  - Western Victoria



#### **Renewable Energy Projects Victoria**



This map provides a summary of the energy generation facilities in Victoria that are operational, approved, in process and under construction.

Note: this does not include existing gas and coal generation.

Scan or click the QR code to see the full map

Croajingolong National Park

Mildura



### Victorian Renewable Energy Target Auctions

The Victorian Renewable Energy Target auctions -VRET1 and VRET2 - help us meet our renewable energy targets by providing long-term contracts that create investment certainty to build new energy generation projects.

Under VRET1, 5 projects were delivered, bringing forward 800 MW of new renewable capacity, enough to power more than 570,000 Victorian households.

- Berrybank Wind Farm
- Cohuna Solar Farm Loddon Mallee
- Dundonnell Wind Farm
- Mortlake South Wind Farm
- Winton Solar Farm

Figure 1: Successful projects from VRET1



### Cohuna Solar Farm





The Project is located approximately 8 km south of Cohuna, in the Shire of Gannawarra, within the State of Victoria, Australia. The project is a 34 MW utility scale solar farm using highly efficient bi-facial photovoltaic (PV) modules, which can absorb light irradiance from both sides of the module and so are able to capture additional energy from light reflected from the ground.

"The Cohuna Solar Farm is providing sustainable electricity to over sixteen thousand local homes and directly contributing towards achieving the Victorian Government's Victorian Renewable Energy Target of 50 per cent by 2030"

- Werther Esposito, CEO for Enel Green Power Australia



#### Victorian Renewable Energy Target Auctions



The Victorian Renewable Energy Target auctions -VRET1 and VRET2 - help us meet our renewable energy targets by providing long-term contracts that create investment certainty to build new energy generation projects.

Six projects have been successful under VRET2:

- Derby Solar Project Loddon Mallee
- Kiamal Solar Farm Loddon Mallee
- Fulham Solar Farm & DC Coupled Battery
- Frasers Solar Farm
- Glenrowan Solar Farm
- Horsham Solar Farm







## **Derby Solar Project**

Derby Solar Farm is an approved solar farm to be located in Derby, near Bendigo in the Murray River Renewable Energy Zone in Victoria.

The facility will produce 95MW of clean power to be dispatched to the Victorian electricity grid, enough to power **25,000 households per year**.

The project will include:

- Approximately 3630 arrays of monocrystalline tracking solar panels on mounting units
- 18 pre-fabricated MV power station inverters
- Battery energy storage
- A switching station
- 2m high mesh fencing to the site compound

- Landscaping with three rows of fast-growth indigenous trees
- Four access gates with a width of 8m along the facility's frontage to Derby-Serpentine Road
- 197m of overhead power line to connect the facility to an existing 66kV Powercor overhead power line.



### **Kiamal Solar Farm**





#### Kiamal Solar Farm (Stage 1)

Kiamal Solar Farm is located in north-west Victoria, approximately 3 km north of the township of Ouyen with Stage 1 fully commissioned. Stage 1 of Kiamal Solar Farm consists of:

a solar farm with a nameplate capacity of 200 MW (AC) / 256 MWp;

a 190 MVA synchronous condenser; and a 220 kV, twin 180 MVA Kiamal Terminal Station

#### Kiamal Solar Farm (Stage 2)

Kiamal Solar Farm will located south west of KSF1 on the eastern side of Calder Highway. Stage 2 of Kiamal Solar Farm consists of: a solar farm with a nameplate capacity of 150 MW (AC) / 186 MWp; an integrated battery (DC connected BESS) with a capacity of 150 MW / 300 MWh and a transmission line to connect KSF2 to the Kiamal Terminal Station



## **Our Electricity Network**



Our renewable energy future

#### Transmission Lines VNI West

VNI West is a proposed new high capacity 500 kV double-circuit overhead transmission line, which will deliver vital new transmission infrastructure to:

- carry clean, low-cost renewable power from renewable energy zones (REZs) in New South Wales and Victoria, in particular the wind and solar-rich regions of the Murray River REZ and the Western Victorian REZ
- improve security and reliability in the electricity network as coalfired power stations retire.





#### **Community Engagement**

Community engagement is the process by which a developer interacts with the community to guide the development of a renewable energy project.

It is a general term used to refer to many activities including communication, consultation, participation and co-development.

Effective, considered community engagement is fundamental to generating community support for renewable energy development projects.

### **Benefit Sharing**

Sharing the benefits of infrastructure development can enhance the social and economic outcomes for the local community and build community support.

Australia's Clean Energy Council (CEC) defines community benefit sharing as:

"sharing the rewards of renewable energy development with local communities. It aims to integrate a development in the local community by contributing to the future vitality and success of the region. It is based on a desire to establish and maintain positive long-term connections to the area and to be a good neighbour"



# **Distributed Energy Resources**

Many Victorians use distributed energy resources to generate, store, manage and sell their energy. This includes solar panels, home batteries, electric vehicles and controllable air conditioners.

The use of distributed energy resources is increasing. It is expected that:

- by 2025, solar panels on homes and businesses will deliver up to 60% of our energy demand at times
- within the next decade, the energy in small-scale batteries will increase 8-fold
- by the mid-2030s, electric vehicle use will increase by more than 1600%.



#### **Renewable Energy Key Terms**

Acronym	Term	Description
REZ	Renewable Energy Zone	Renewable Energy Zones (REZs) are areas in Victoria with the greatest potential for renewable energy, such as wind, sunshine, rain, tides, waves and geothermal heat
SLUA	Strategic Land Use Assessment	Strategic Land Use Assessments are a means of assessing public value of future government land use options. They provide a structured process to gather, analyse and comparatively assess the relevant evidence base to support good land use decision-making.
TNSP	Transmission Network Key Provider	Transmission network service providers (TNSPs) build, maintain, plan and operate the network transmission networks
VNI West	Victoria to NSW Interconnector West	The Victoria to NSW Interconnector West – known as VNI West – is a proposed new 500 kV double circuit transmission line connecting the high voltage electricity grids in New South Wales and Victoria (more info to follow)
VRET	Victorian Renewable Energy Target	The Victorian Renewable Energy Target auctions VRET1 and VRET2 help us meet our renewable energy targets by providing long-term contracts that create investment certainty to build new energy generation projects.
WRL	Western Renewables Link	The Western Renewables Link is a proposed new 190km overhead high-voltage electricity transmission line that will carry renewable energy from Bulgana in western Victoria to Sydenham in Melbourne's north-west.



#### Visit www.energy.vic.gov.au to learn more about Victoria's renewable energy future



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