A technical feasibility study for a town-level microgrid in Victoria

Enabling household, community and network energy resilience

Presentation | AEVA WA Branch 14 October 2025

Jo Oddie

Energy Resilient Trentham

Acknowledgement of Country

I'd like to acknowledge the traditional owners of the country that we are on this evening, the lands of the **Whadjuk** people of the **Noongar** nation. I pay my respects to their elders past and present and recognise any of the Aboriginal or Torres Strait Islander people joining us today.

I also acknowledge the **Djaara** people-their elders past, present and emerging, the traditional owners of **Djandak**, the country where the knowledge building that I will talk about this evening has taken place.

I further acknowledge the support of **DJAARA**, our local aboriginal business enterprise in Victoria for their support for this work.

Energy Resilient Trentham

What are we talking about this evening?

1. Acknowledgement and introduction
2. Household, Community, Network energy resilience
3. Results of the ERT Technical Feasibility study
4. Other options for community energy resilience

Let’s get started

- *What is the impact for your household if the electricity grid has a five-day outage?*
  - *How will you manage, what are your household energy needs – what can’t you live without?*
  - *What resilience measures do you have in place at household level?*
  - *How much does it matter if you can’t access the pharmacy or food supplies or fuel?*
- *What is the impact for your business if you have a five-day outage?*
  - *Will you lose stock? (cold chain for pharmaceuticals?)*
  - *Will you be able to operate?*
- *If you have solar PV already, are you set up to share energy with your neighbours / neighbourhood?*

Three levels of energy resilience

1. Individual (household / business) energy resilience
2. Community energy resilience
3. Network energy resilience

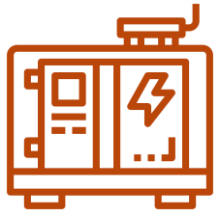
1 Household and business energy resilience

Available now for your house or business:

- **Solar PV**
- **Battery** – approx or > 13 kWh battery – Federal grant / WA state grant - up to 100kWh (grant eligible up to 50 kWh)
- **Generator + Changeover switch** established – 5-9, or more, kVa
- **Electric vehicle** – Vehicle to Load – 40 – 62 ++ kWh battery on wheels…

All electric household? Only one energy bill- including transport.

Solar Power



Electric Car

1 Household and business energy resilience

Your energy use behaviours and appliances play a (big) part

- Do you use your electricity when you are generating most, or when the grid is operating on more renewables? [Wind, large scale solar, small scale solar] - See NEM Watch-Renew Economy
- How would you use electricity if you only had access to energy in your battery?
- Energy efficient appliances?
- Time of day for hot water heating? (heat pump hot water)

Here now or coming soon

With your Electric Vehicle – Vehicle to Load, Vehicle to Home, Vehicle to Grid (will dramatically reduce need for generator – if it's a good path)

(Transport + energy resilience ☺)

In aggregate these will be part of wider **community solutions** too

Electric Car

1

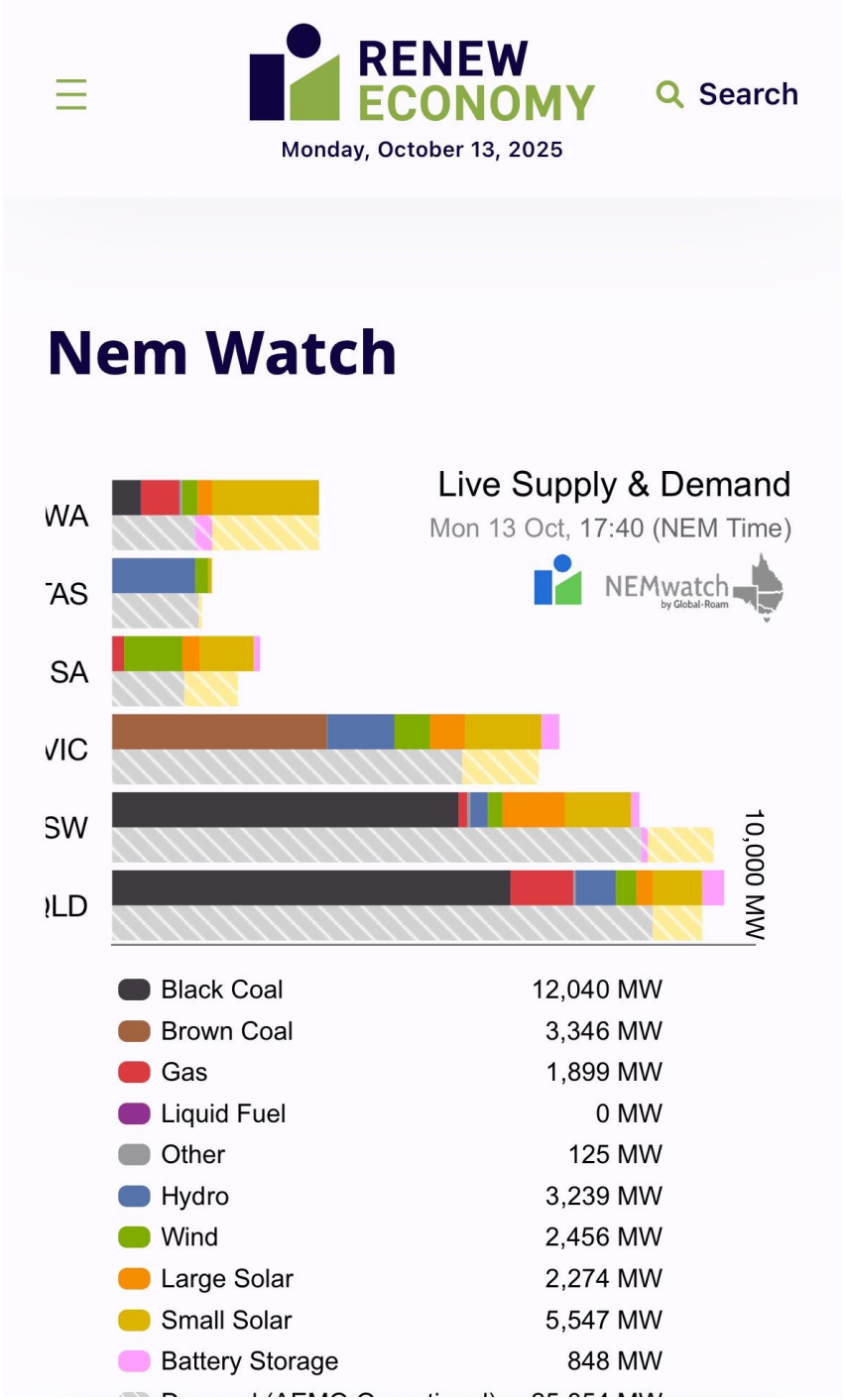
NEM Watch- Renew Economy

What's generating the energy in the grid?

Real-time data…

3:40 pm Monday 13 October

https://reneweconomy.com.au/nem-watch/



2 Community energy resilience

"we know we can function in an outage..."

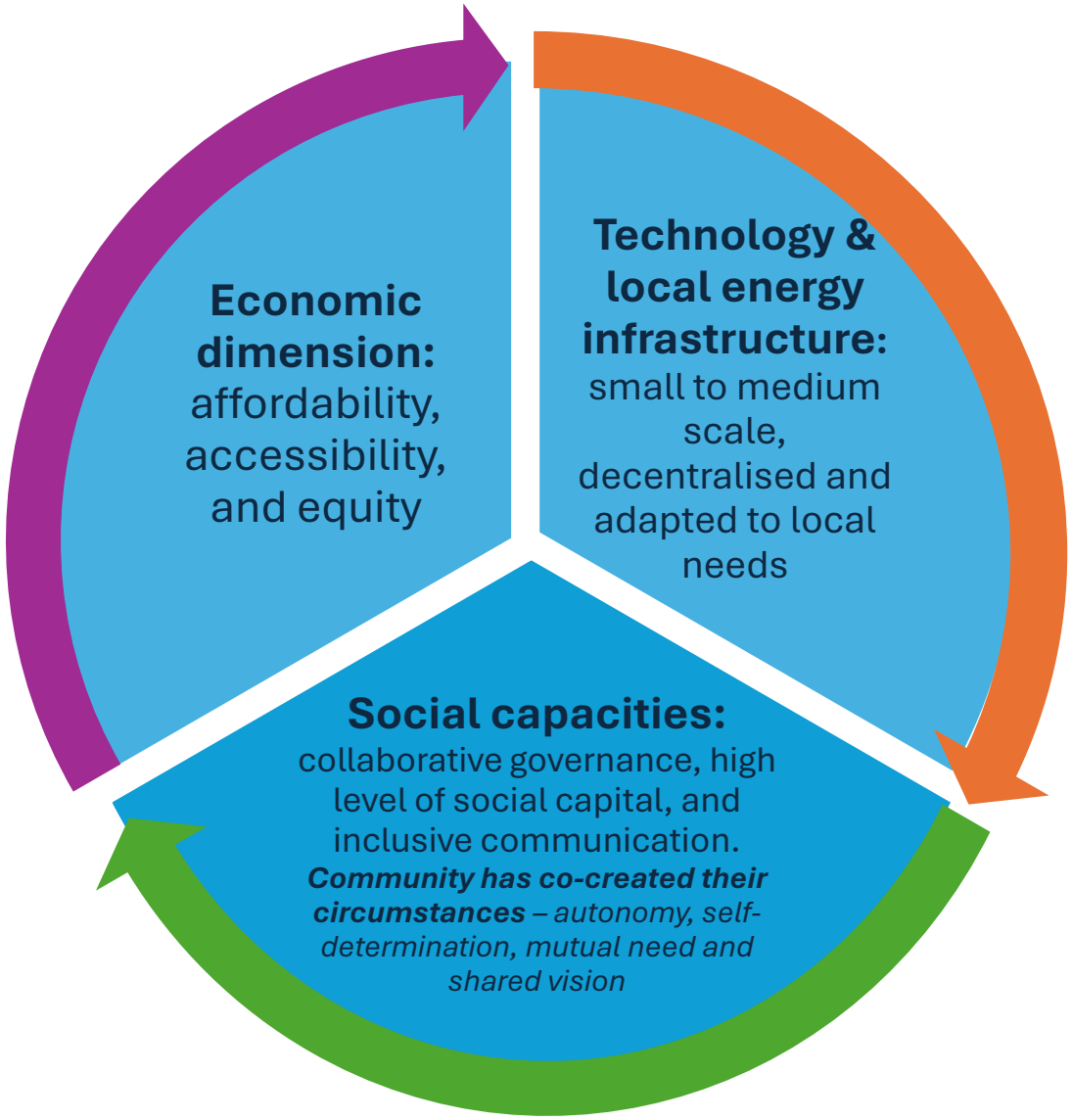
Community spokesperson,
Corryong, NE Victoria

2 Community energy resilience, is when:

The **community** has the capacity and resources to **adopt** and **utilise** local appropriate energy solutions that help to **learn** and **anticipate**, **withstand**, and **quickly recover** from climate disasters.

What are the resources and services you need collectively in your communities when there is an extended outage?

2 Community energy resilience-key elements



Across Australia communities are collaborating to:

- ✓ **Design energy systems and solutions** that will provide energy resilience in extreme events
- ✓ **Challenge the old rules** and ways of working
- ✓ Establish **community owned** solar farms and energy
- ✓ **Building partnerships** with federal, state and local government; DNSPs, energy retailers for funding and systems
- ✓ **Share their knowledge** – Coalition for Community Energy c4ce.org.au

2 Community energy resilience

- Everyone taking **individual action** partially contributes to community-wide and potentially equitable solutions

But…

- We still need **solutions** that support individual households and (maybe **essential businesses**) that can’t install their own systems, and that provide longer duration solutions - for longer than > ½ day outage

3 Network energy resilience

- This is the role of the **Distribution Network Service Providers (DNSPs).**
- In WA this is **Western Powe**r – a government business enterprise – poles and wires and distribution.
- In the eastern states the **Distribution Network Service Providers are privatised. This can mean they are hard to work with/**
- Western Power **does not specifically mention 'resilience'** in its 5-year plan – but does mention some elements of 'resilience' – see next slide.

Western Power Corporate Strategy | 2021-2031

Powering the lives of our community by delivering the modular grid

Our community expects us to SAFELY:

- Provide reliable supply
- Keep costs low
- Connect more renewables
- Support jobs and growth

Our plan to deliver for the community focuses on:

- Optimising our transition to the modular grid
- Integrating Distributed Energy Resources (DER) into the grid
- Delivering outcomes for customers
- Driving financial sustainability
- Decarbonising our community

Driven by our people

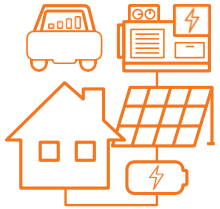
- Safety First
- Customer Focus
- Be Bold
- Teamwork

Enabled by technology

Corporate Strategy Actions | 2021-2031

Optimising our transition to the modular grid

- Apply existing risk practices to the hybrid network
- Underground meshed urban areas through financial partnerships with local communities
- Deploy 4,000 SPS or equivalent in the autonomous network by 2031
- Develop a roadmap for microgrids in the autonomous region and have appropriate trials in place by 2025
- People, property and fleet investment to support the modular grid



Integrating Distributed Energy Resources (DER) into the grid

- Manage critical system low risks while maximising the opportunity for the community to invest in DER
- Develop a functioning distribution system operator capability by 2025, scale post 2025
- Invest in SCADA to address obsolete assets, improve reliability and embrace new technology
- Complete the roll-out of advanced metering infrastructure by 2027
- Connect up to 1GW/3GWh of storage to the network by 2031

Delivering outcomes for customers

- Improve response times for customers
- Proactive engagement to encourage industry attraction and development
- Review the contributions policy during AA5
- Review credit policy for customer connections to provide greater fexibility
- Enable customer self-service by 2025
- Developing standards to integrate fexible solar
- Continue public communication activities

Driving financial sustainability

- Recover $860M in deferred revenue in AA5
- Engage government on long term financial sustainability
- Develop network tarif proposals that improve cost refectivity
- Create a productivity improvement fund to target business improvements that deliver 6% IRR within fve years
- Develop unregulated proftability of $10M per annum by 2024
- Investment benefits discipline
- Review approach to tax on capital contributions

Decarbonising our community

- Implement Western Power's 2050 net-zero transition plan by 2023
- Ensure that Western Power can support greater than 50% of all energy needs by renewable sources by 2031
- Transition >25% of our light passenger fleet to electric vehicles by 2025
- Develop standards for the optimised charging of electric vehicles by 2025
- Replace all streetlights with LEDs by 2029
- Thought leadership on electrifcation

Case study: Horizon Power microgrid and V2G at Exmouth

https://thedriven.io/2025/09/22/network-completes-v2g-trial-to-show-technology-works-in-remote-micro-grids/

- Western Australia's regional energy provider Horizon Power says it has successfully completed a 12-month vehicle-to-grid (V2G) trial in the resort town of Exmouth which shows the technology can be deployed in its remote micro-grids.
- Horizon manages a host of small and local micro-grids across the vast expanse of the country's biggest state, and it was keen to learn how the two-way flow of energy from electric vehicles (EVs) can be incorporated into such systems.
- It provided four local groups and service organisations with two V2G-compatible Nissan Leaf EVs and V2G smart-charging equipment, and matched it with its Distributed Energy Resource Management System (Derms) that is has used to integrate rooftop solar and combine with weather forecasts that predicts the availability of solar energy.

Energy Resilient Trentham

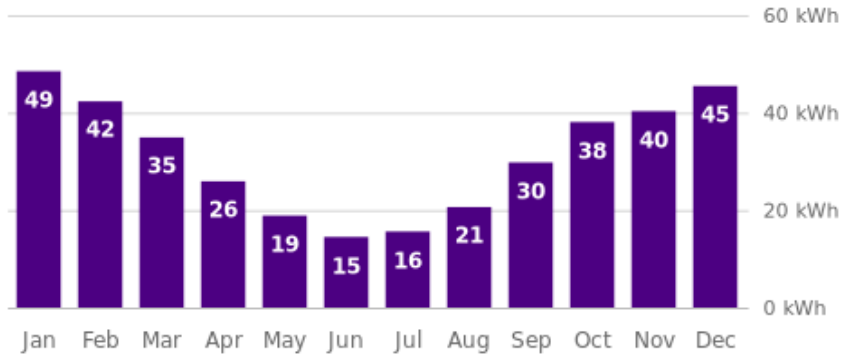
Context for Energy Resilient Trentham

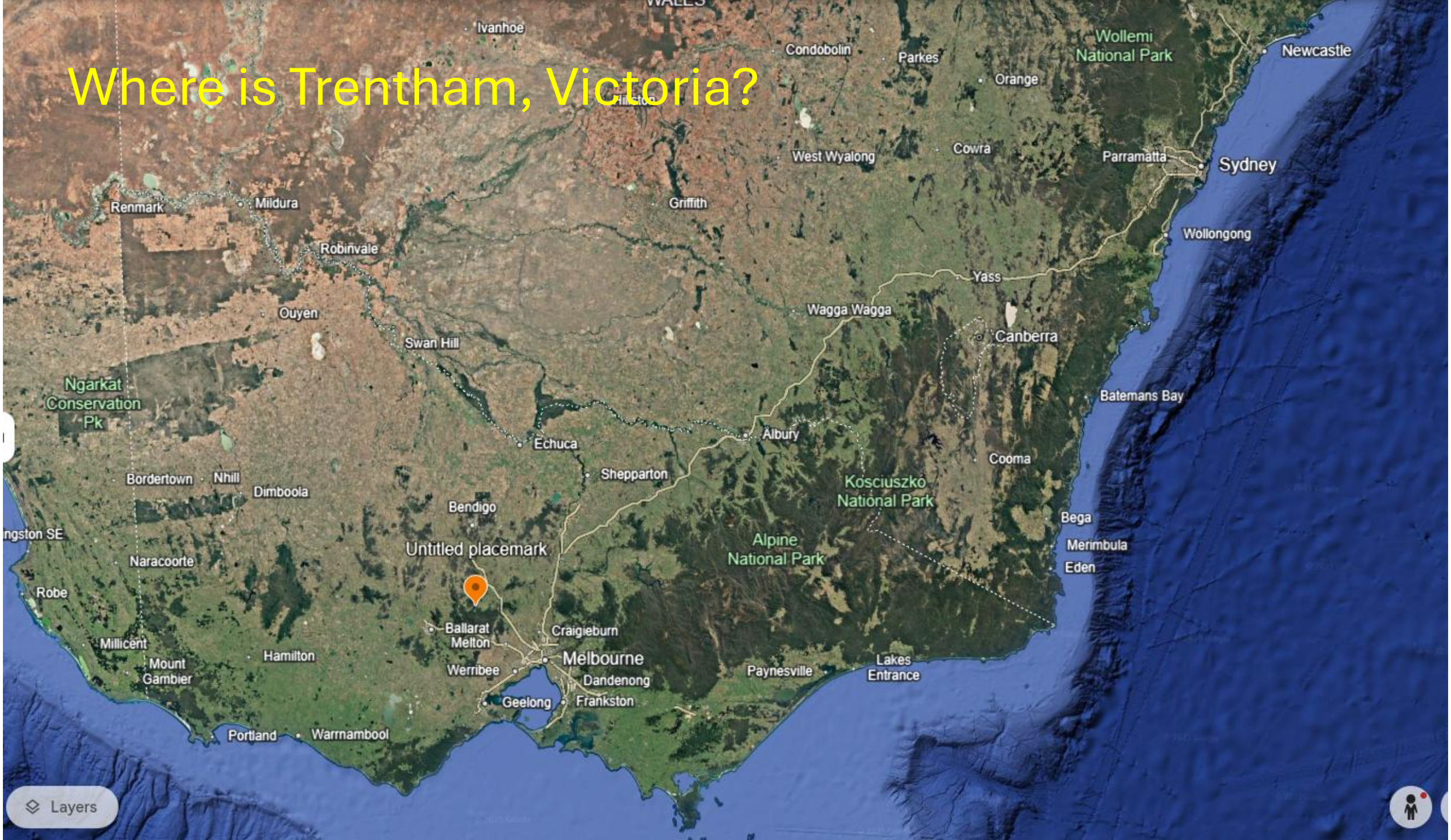
A project under Trentham Sustainability Group Inc.

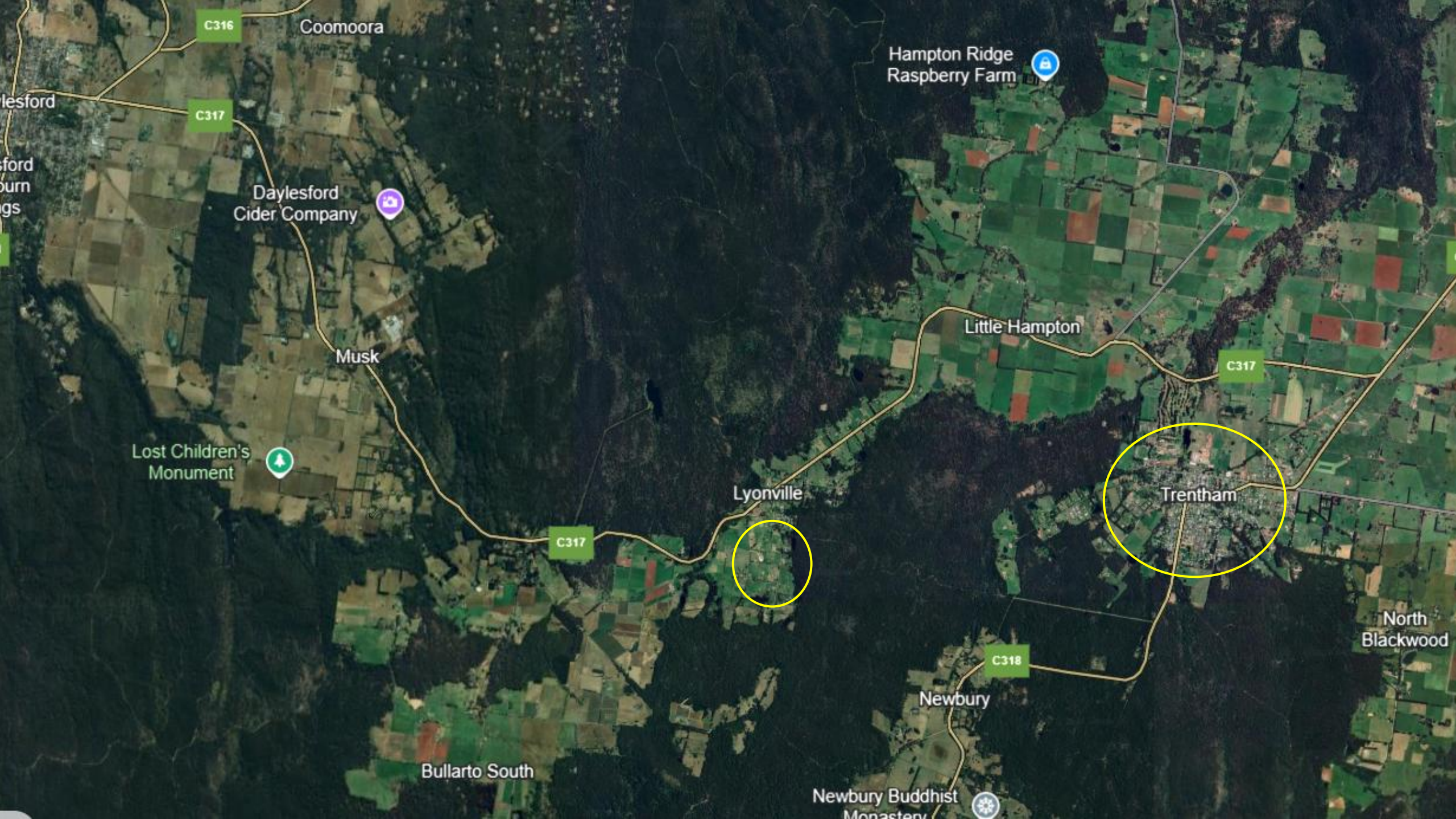
About Trentham

- Population: 1800 people + > 1000 visitors per week
- Altitude: 750 metres (Bluff Knoll = 1099 metres)
- Latitude: 37 degrees south (2 degrees **further south** than Albany)
- Winter – June, July, August, September - Mins down to -10 degrees C, typical maximum range 2-8 degrees C – COLD, COLD, COLD
- Rainfall – 1000 mm p.a.

- Very exposed to strong, cold southerly winds, mostly overcast and foggy days – at the top of the great dividing range.
- Solar generation




Where is Trentham, Victoria?
Ivanhoe
Condobolin
Parkes
Orange
Wollemi National Park
Newcastle
West Wyalong
Cowra
Parramatta
Sydney
Renmark
Mildura
Griffith
Robinvale
Wollongong
Yass
Ouyen
Wagga Wagga
Canberra
Swan Hill
Ngarkat Conservation Pk
Batemans Bay
Albury
Echuca
Cooma
Shepparton
Bordertown
Nhill
Dimboola
Kosciuszko National Park
Bendigo
Bega
Untitled placemark
Alpine National Park
Merimbula
Naracoorte
Eden
Robe
Ballarat
Melton
Craigieburn
Millicent
Hamilton
Melbourne
Mount Gambier
Werribee
Paynesville
Lakes Entrance
Dandenong
Geelong
Frankston
Portland
Warrnambool
Layers

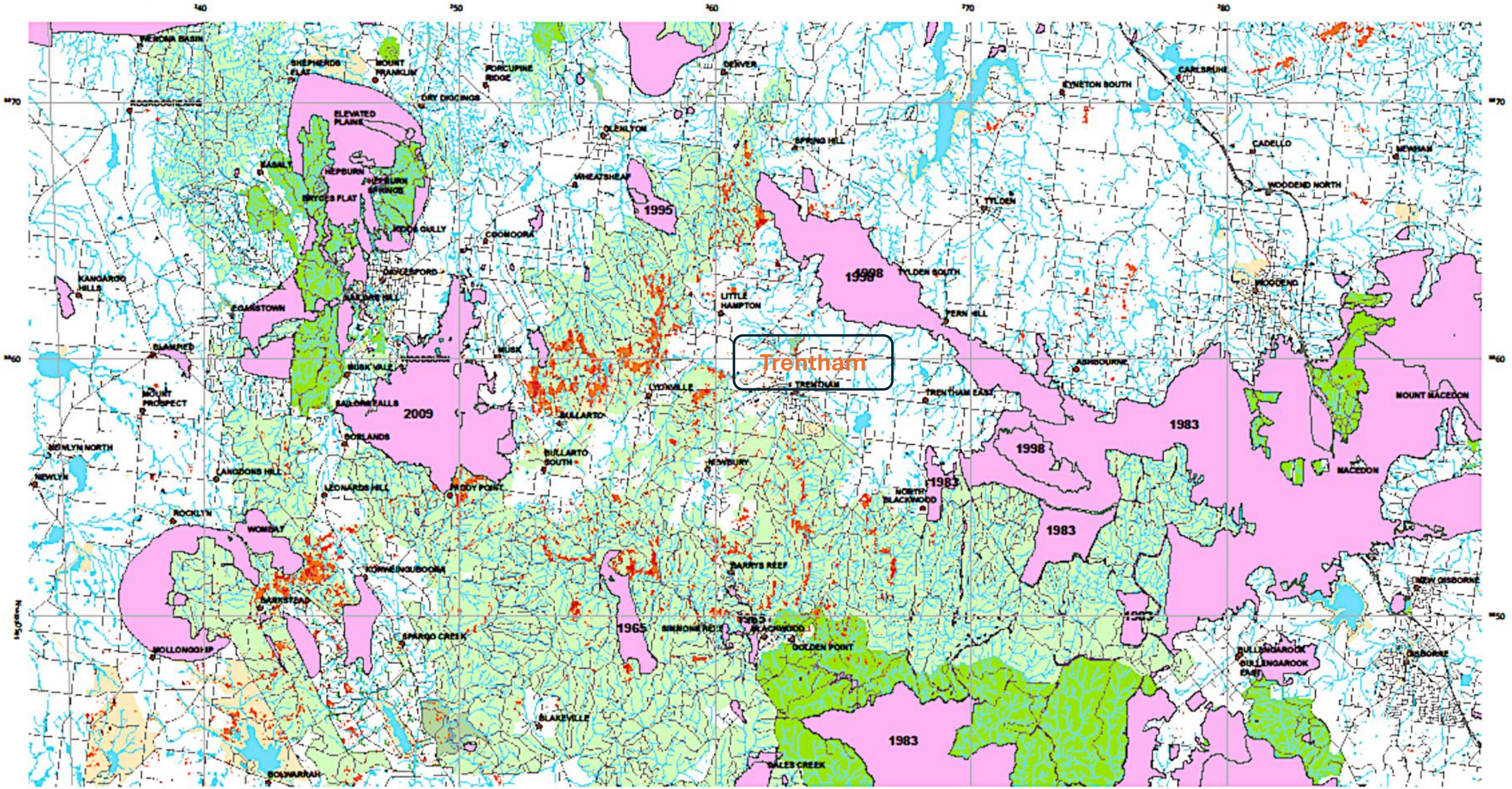

C316
Coomoora
Hampton Ridge
Raspberry Farm
C317
Daylesford
Cider Company
Musk
Little Hampton
C317
Lost Children's
Monument
Lyonville
Trentham
C317
North
Blackwood
C318
Newbury
Bullarto South
Newbury Buddhist

Trentham has a long history of bushfires

- It is located in the Wombat Forest, surround by tall eucalyptus forest

Trentham - Blackwood Fire History

FOREST FIRE MANAGEMENT VICTORIA



Victoria’s electricity infrastructure is ageing

Many extended and widespread grid outages are experienced across the State, and around Trentham, more so in extreme weather events

The ageing electricity infrastructure has regularly been the source of ignition for bushfires across the State

Victoria's ageing electricity infrastructure – Poles & Wires

Energy Resilient Trentham

Table 1 – Average Structure Age by Voltage

Voltage Class	Average Age
500 kV	41.4
330 kV	52.0
275 kV	31.0
220 kV	53.6
66 kV	43.3
Overall Avg.	**52.6**

The expected service life of AusNet towers is 70 years.

AusNet Services AMS 10-77 Transmission Line Structures
July 2020

We are trying to address the extended period of time we might be without grid electricity

' Nine of the 16 major fires on 12 February 1977 (inc Creswick..) were caused by **electrical assets**.....

On Ash Wednesday, 16 February 1983: it appears that four of the eight major fires on that day were caused by **electricity assets**.....(Macedon)

On 7 February 2009 the pattern was repeated. Failed **electricity assets** caused five of the 11 major fires that began that day .....

The importance of Victoria's **electricity infrastructure** to this Commission's investigations is highlighted by the devastation wrought by the Kilmore East fire: 119 lives were lost as a result of that fire, which was caused **by electrical arcing** after a conductor—which was probably **43 years old** broke.... '

2009 Victorian Bushfire Royal Commission – Final Report

Extreme weather events causing grid to fall across the State

- Anakie – February 2024 - 6 towers destroyed.
- Cressy – January 2020 - 6 towers destroyed and 2 damaged on 2 different transmission lines.

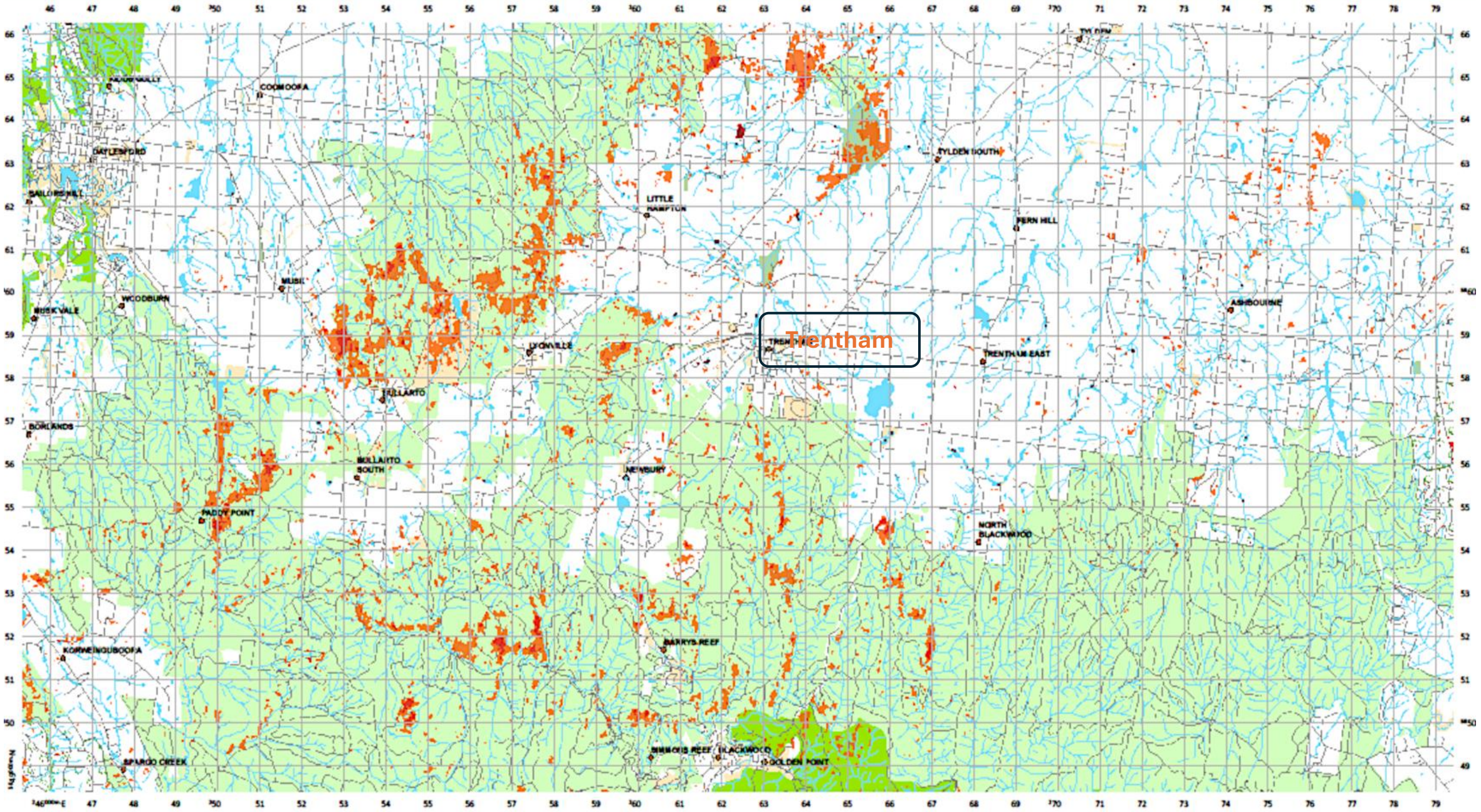
- Kinglake - February 2009

The day the wind came

- In June 2021 Trentham, and other areas in southern Victoria experienced a severe windstorm. The wind blew at high speeds for more than 12 hours.
- Many trees fell across the single incoming electricity line to the township of Trentham. Large areas of the forest were blown over – like pick up sticks
- Trentham experience a 5-day outage, nearby areas had outages of up to 3 weeks.
- It was mid-winter and very cold and very little or no solar generation.

Trentham - Blackwood
June 2021 and October 2021 Storm Event Severity Mapping

FOREST FIRE MANAGEMENT VICTORIA



Energy Resilient Trentham

‘ The township of Trentham experienced compounding infrastructure outages during this event… The infrastructure failures across power, telecommunications and water services impacted the community significantly in terms of their ability to remain in place, source information and receive messaging. ’

Community Report June 2021 Extreme Weather Event
Emergency Management Victoria

The energy resilient Trentham team decided to work on community energy resilience solutions

Neighbourhood battery and proposed microgrid and battery for central Trentham

Community energy resilience solutions

Energy Resilient Trentham

ENERGY RESILIENT TRENTHAM

- **A neighbourhood battery initiative at ‘The Mechanics, and**
- **A possible“microgrid” for the Trentham core township,**

are Trentham Sustainability Group’s responses to the June 2021 extreme weather event.

Expert community engagement too….

Timeline of key events and activities 2021 to 2025

Energy Resilient Trentham

1. Jun 2021 - Extreme Storm Event
2. Jun 2022 - Engaged Middleton Group to undertake Technical Study on possibilities.
3. Oct 2022 - ***Energy and Climate Resilient Trentham*** - Middleton Report completed.
4. Dec 2024 - Issued Request for Tender – Microgrid Design and Business Plan.
5. Feb 2025 - Yarra Energy Foundation - engaged – Technical Study and Business Case
6. Feb 2025 - Mycelia Renewables Ltd - engaged - Community engagement program
7. Mar 2025 - Victorian Govt. grant of $423,000 for a battery and increased solar at The Mechanics Hall, Trentham
8. June 2025 – Microgrid Feasibility study Final report

Solution – An islandable microgrid based on the Market Street transformer.

2023 Victorian Government Energy Resilience Studies identified a microgrid as a solution for Trentham

Secured grant funding to develop microgrid design and engage community

Two community engagements, Ongoing conversations with community and key actors

Solutions for Trentham

1. Trentham Neighbourhood Battery – ‘The Mechanics’

A **neighbourhood** or **community battery** is…

an energy storage system sized between a home battery and a utility scale battery (i.e. ~50kW-250kW).

- Usually installed on the low voltage distribution network
- Often trades on the electricity markets
- Typically expected to involve or benefit local residents/customers
- **Can provide energy resilience through site backup.**

Cabarita Community Battery, Ausgrid (NSW)


This neighbourhood battery is in North Fitzroy in inner suburban Melbourne

The Mechanics – Community Emergency Hub

- The Trentham Mechanics is a recently renovated community facility that will operate as the **Community Emergency Hub** where people can gather in an extreme event.
- Has been awarded a new community battery + more PV; One of 10 batteries funded across the region – Central Victoria Greenhouse Alliance, funded by a Victorian Government DEECA grant **$423,000.**
- The additional energy backup system comprises **100kW/280kWh battery** and additional **30kW solar PV system-adding to the existing 28kW s**olar.
- There is also a **100kVa generator at the Mechanics**, which is fuelled with diesel, and can be used to provide energy to the Mechanics in the likely absence of solar generation – night, smoky, overcast
- With the combination of battery, additional solar and the generator the Mechanics will be able to keep operating for as long is needed in extended grid outages.

Solutions for Trentham

2. A low voltage grid-connected islandable microgrid for the core township

We engaged a consultancy group to prepare a technical feasibility study and business plan, so that we could potentially apply for an ARENA regional microgrid program grant.

Energy Resilient Trentham

Why an islandable microgrid?

1. Because Trentham's grid power supply can be affected by:
   - localised bushfires
   - localised storm events
   - remote storm and bushfire events
   - ageing network infrastructure

2. And the benefits can include:
   - Keeping the **centre of town operating** and providing food and **essential services** during outages
   - Providing **multiple places for people to go**, stay connected, power up devices, keep informed
   - Avoid or reduce food wastage and impacts on local businesses

YARRA ENERGY FOUNDATION

YEF

Trentham Microgrid Feasibility Study

Finn Buchhorn, Energy and Storage Project Officer

Phani Harsha Yeggina, Energy and Storage Project Officer

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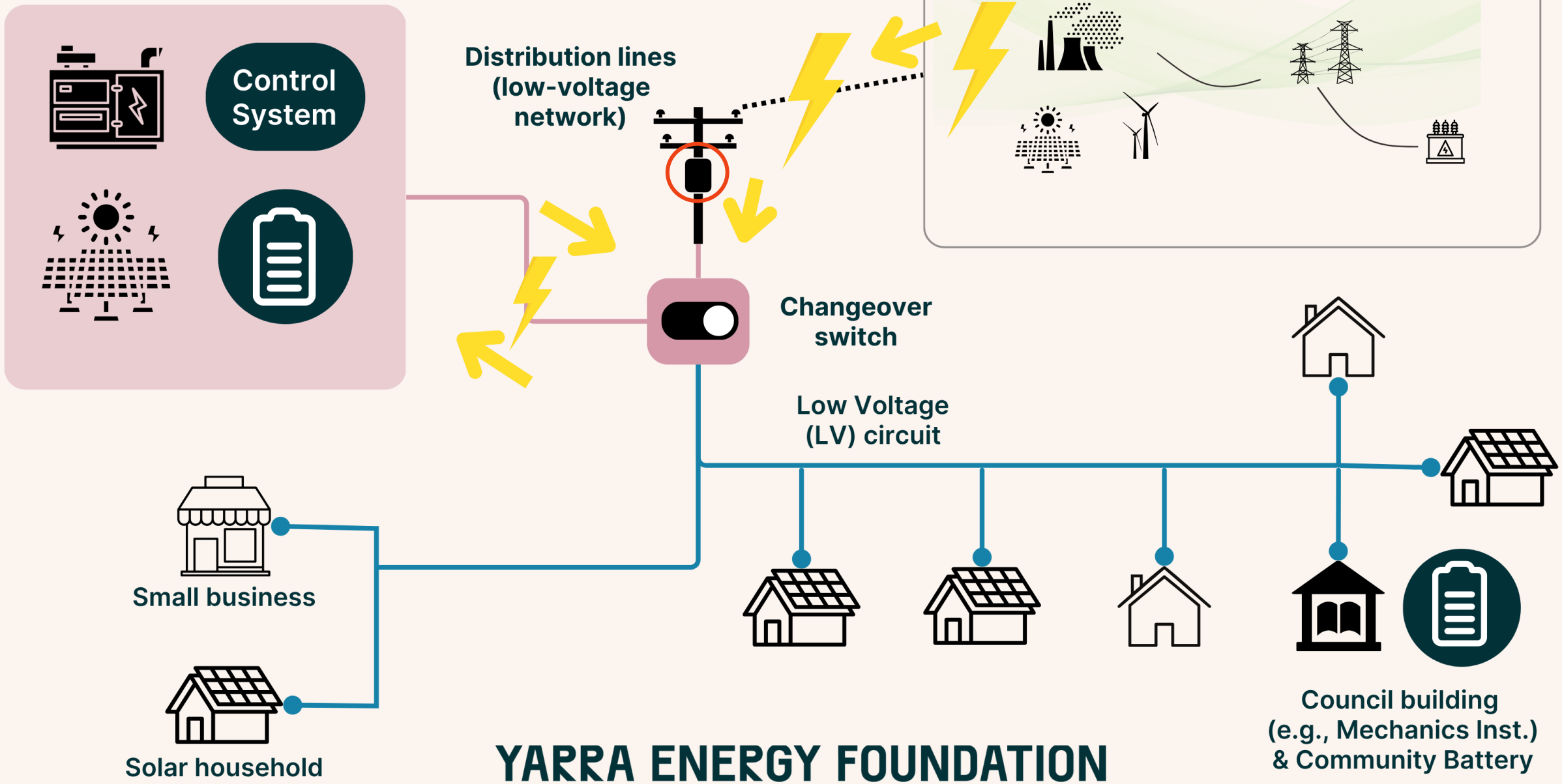
information@yef.org.au | 03 7037 6040

Agenda

- Microgrid refresher
- Feasibility Study Scope
- Methodology and Results
- Conclusions
- Recommendations

Corryong (VIC), location of an AusNet Services owned Microgrid

Grid Connected Microgrid



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Feasibility Study Scope

1. **Assess technical feasibility** of Grid Connected Microgrid in Trentham that would:
   - Connect directly into existing Market Street Transformer
   - Supply backup to 66 residential properties and 36 businesses
   - Achieve 4 hours of Battery System only backup
   - Achieve 3-5+ days of backup when using a diesel generator
2. **High-level microgrid design** and approach to operations
3. Conduct **financial and commercial analysis**
4. **Future proofing** the project

Feasibility Study Methodology

Network Data Analysis
Analysing data provided by Powercor to determine design and specificaiton requirements for the proposed microgrid.

Microgrid Design
Specifying microgrid design and key equipment (e.g. Battery System, diesel generator, control systems etc) based on TSG requirements and network data analysis.

Microgrid Costing and Commercial Development
Costing of microgrid design using supplier quotes and industry expertise. Commercial elements of the project were developed following consultation with TSG, Energy Retailers and Powercor.

Financial Modelling of Microgrid Operations
Simulation modelling of microgrid operations over 15 year life, resulting in a financial report and assessment of key metrics such as Return on Investment, Net Present Value and project costs (CAPEX and OPEX).

Reporting and Risk Assessment
Development of detailed project report (in business case format), including a project risk assessement.

Existing solar PV vs Potential solar PV

The current solar capacity on the Market Street network, as of April 2025 is **153 kWp**, with an export limit of 127 kW

Potential to host an additional **349 kWp** of rooftop solar in the microgrid, assuming a 67% uptake vs the theoretical maximum, this would equate to an additional **234 kWp**, taking the assumed future solar capacity of the microgrid to **387 kWp.**

Microgrid Design

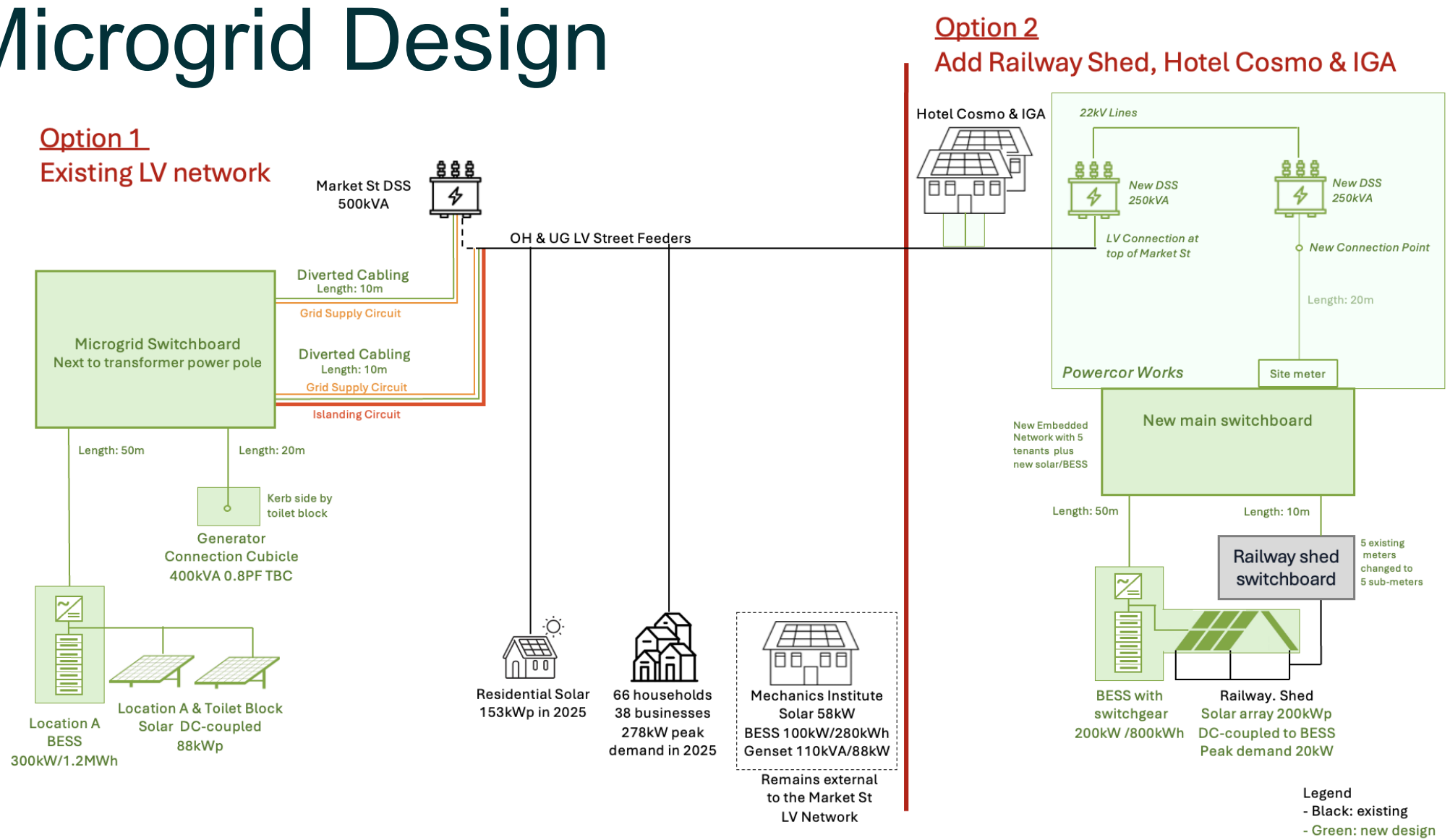
Equipment (Space A):

- **Battery System:** 300kW / 1.2 MWh
- **Portable Generator:** 400kVA
- **Dedicated Solar PV:** 88 kW
- **Community Solar:** 200-400kW

Features:

- **Load Management:** all hot water systems, modular approach.
- **Energy Management System:** can transition between market trading and grid islanding modes.
- **Possible Extensions:** Station St, Cosmo, Country Grocer.

Microgrid Design



Financial Results

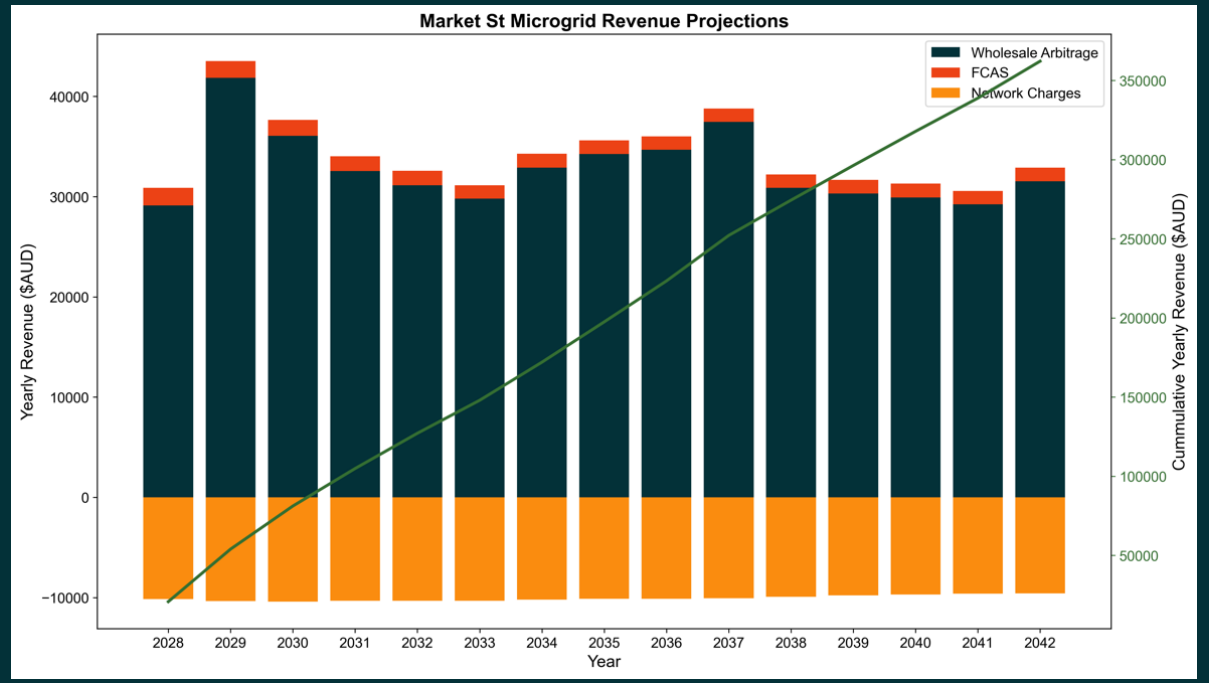
CAPEX: $2,456,000

OPEX: $45,340 per annum

- Revenue is generated by trading the BESS in energy markets (~25k per yr).
- Most of the revenue comes from wholesale arbitrage (buying and selling energy), a small amount is from network services (FCAS).

Average Earnings: -$21,194 per annum

Financial Modelling Results	
Revenue (15 years)	$362,185
Earnings (15 years)	–$317,915
Net Present Value	–$2,889,978
Internal Rate of Return	—
Return on Investment	-91%
Payback Period	—



Value of Customer Reliability and Network Resilience

- VCR is the value of reliable electricity supply to different customers. For example, 2024 VCR — **$35.69 per kWh** for residential in regional areas like Trentham.
- Australian Energy Regulator (AER) determines these values and DNSPs use them to make a case for infrastructure investment.
- Investments made by DNSPs are recovered through network tariffs.
- A third-party provider of reliability **cannot monetise** the value of VCR like a DNSP. The benefits of resilience remain economically unrecognised.

Conclusions

1. **The microgrid as proposed is not viable** as it would run at an operating loss.

2. **A community led microgrid is not likely to stack up** – third parties can't monetise resilience benefit, only networks can.

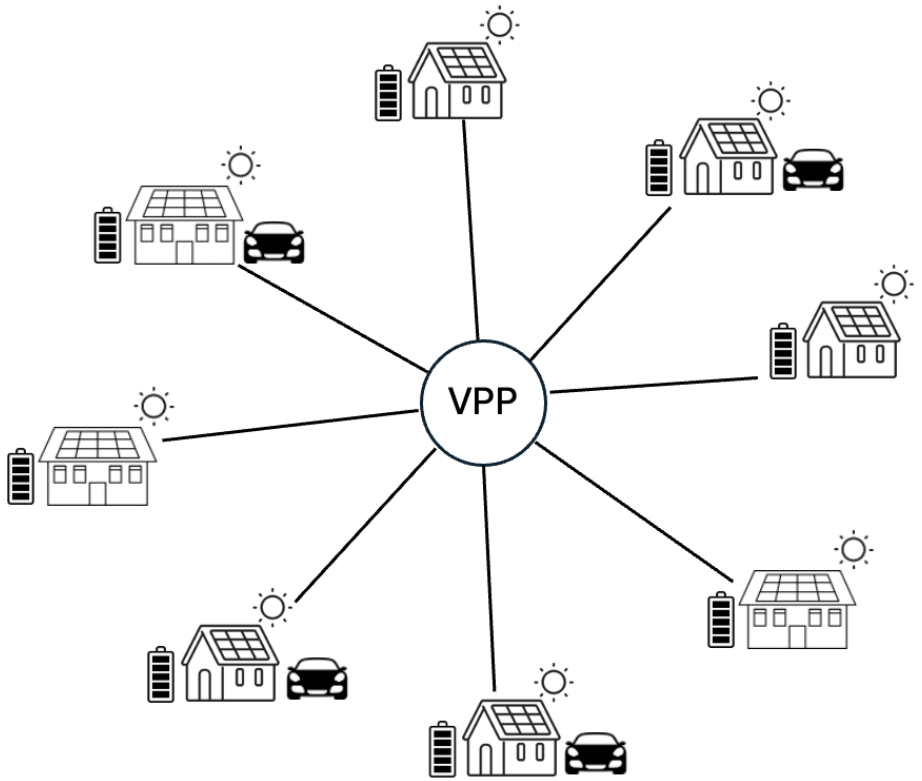
3. **Significant regulatory challenges exist**, these need to be overcome before a project could proceed.

4. **Powercor (DNSP) support is essential** – unfortunately, they are prioritising other solutions (e.g., proposed feeder tie in line)

Alternative Approach

- A network of site backup systems - all properties install solar and batteries.
- Each site has independent backup supply.
- With federal rebates, it is estimated to cost ~$1.9 million.
- Potential for residents to participate in a Virtual Power Plant (VPP) to coordinate their batteries and generate additional benefits or revenue.

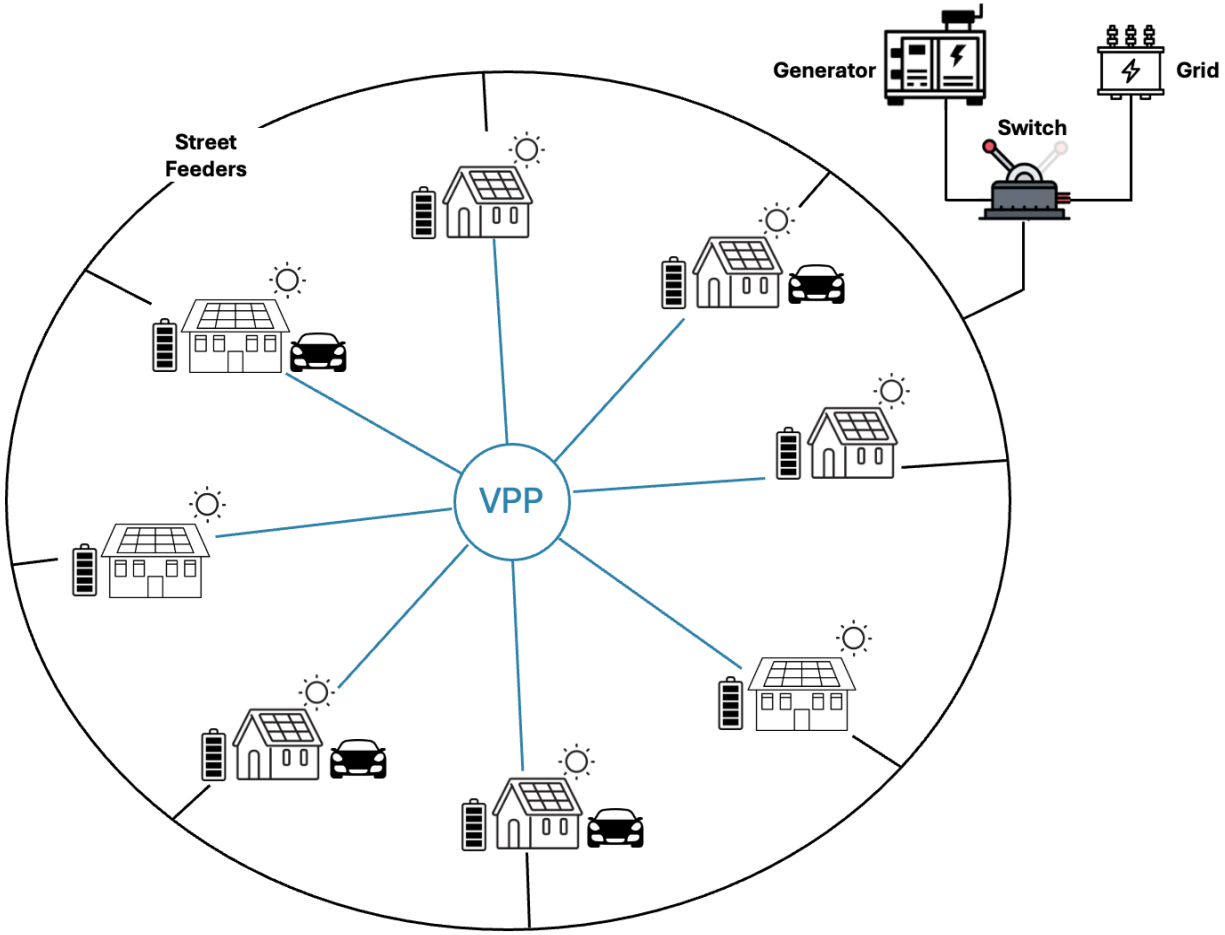
Conceptual representation of a network of site microgrids



With a possible extension

- Installing a generator only microgrid on the network would add an additional layer of resilience.
- Estimated to cost $300,000 CAPEX, and ~$15,000 per annum in OPEX.
- Business case for this extension would need to be developed.

Network of site microgrids augmented by generator supply



Recommendations

- Consider pursuing **single site based microgrid alternatives** (e.g. network of site backup systems) - cheaper, easier to deploy and scalable.
- Continue to **advocate for better regulatory certainty and support** for third party led microgrid projects.
- Continue to advocate for **more support for community led energy** resilience projects.

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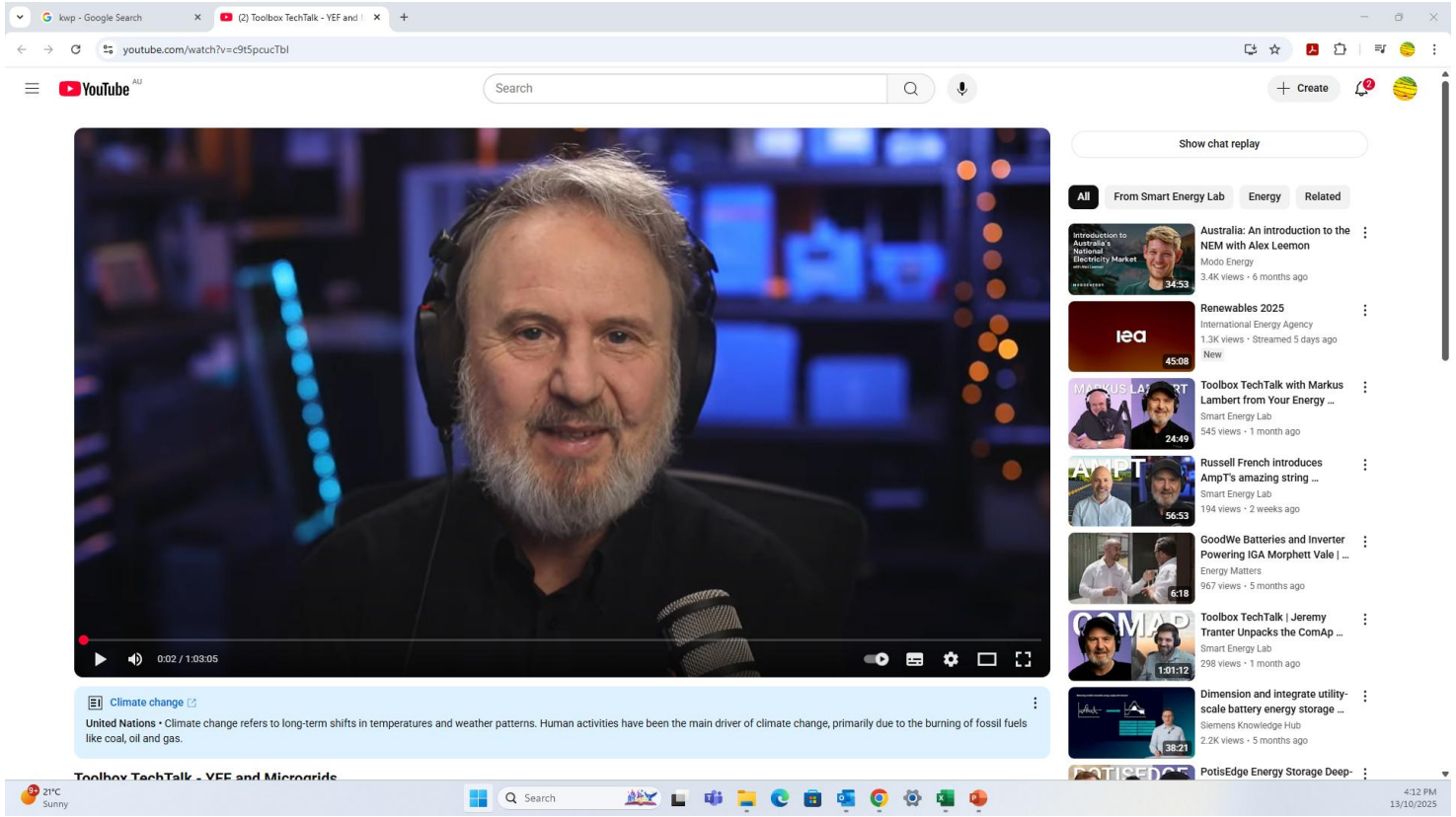
Summary of key features of our work

- **Social capital** and **enduring commitment** of our little team over 4 years (evolving) - weekly one-hour coffees, our own resources, improved community group governance. Agility, flexibility….
- **Skills and time** (capability) to write good quality grant applications
- **Social networks** with other communities on the same journey
- **Building relationships with system actors** – DNSPs, energy services providers with a focus on community, State government policy team, local government, Federal government – ARENA / DCCEEW, local and regional community leaders and influencers, local community bank, Telcos
- **Regular communication** with these actors
- **Looking and learning** – courses, conferences
- **Sharing our own learn**ing - presenting our findings.

Watch our story here:

Smart Energy Lab – Launched 13 October

- https://youtu.be/c9t5pcucTbI



Read the full technical feasibility study report here:

https://www.yef.org.au/our-stories-and-events/investigating-a-microgrid-for-trentham-victoria/

Trentham Sustainability Group thanks the following organisations for their partnership and support:

Energy Resilient Trentham

Community Bank Trentham & Districts

Bendigo Bank

Hepburn Shire Council

FRRR Foundation for Rural Regional Renewal

ANZ

YARRA ENERGY FOUNDATION

Mycelia Renewables

C4CE COALITION FOR COMMUNITY ENERGY

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The Coalition for Community Energy (C4CE) is the peak body of the growing community energy sector in Australia.

It is time for the contributions of community energy to be recognised by governments and industry!

Become part of our community led energy transition!

- **Decarbonise** our energy supply
- **Decentralise** our energy supply

https://c4ce.net.au/

Annexes

Annex 1 What other Victorian communities are doing

Case: Omeo - slide 1 (high country Victoria)

- After the devastating **2019-20 fire season**, the Victorian **Government's Department of Energy, Environment, and Climate Action (DEECA) and AusNet** undertook a feasibility study to investigate how new energy infrastructure can provide support for communities and households affected by extreme weather events.

  Community Microgrids and Sustainable Energy Management Program Omeo supports the increase of distributed energy supplies that can keep participating Omeo businesses and residents connected during electricity disruptions. The Ubi platform is used to charge batteries when extreme weather events are forecast, providing increased resilience in the event of an outage.

Case: Omeo – slide 2

- 6.8 kW PV Panels (per residence)
- Hybrid Inverter
- Regular usage residents: 11 kWh Battery
- Larger usage residents: 19.3 kWh Battery
- Mondo's Ubi 3.0 energy management system (the brain!)

- **Omeo Link:** https://www.mondo.com.au/projects/cmsep-omeo
- **Cost :** $?
- **Key to success:** Financially supported by Mondo (Ausnet) and Victorian Government

Case: Mirboo North (South Gippsland hills)

- Mirboo North was devastated by a ferocious windstorm in February 2024. While the clean-up was long and hard, it was aided by a unique community foundation.

Action:

*'There are **10 businesses** in our town receiving **changeover switches**, they are businesses that we deemed to be **essential** in the wake of the storm – e.g. food and beverage, supermarket, bank, pharmacy and hardware businesses.*

*Given the stock losses and loss of trade, we hope that some of these **businesses will choose to invest in a generator of their own**, perhaps they will be able to apply for a grant down the track - but in the meantime we found that most of them were able to hire generators after the last storm, so that is the short-term option for backup power.'*

COST: $?

Funded by Ausnet Grant, Mirboo North Community Foundation, Victorian Government

Mirboo North Link: https://www.abc.net.au/news/2025-05-16/mirboo-north-community-fund-rebuilds-town-after-fatal-storm/105037436

Case: Mallacoota (Far East Gippsland, Victoria)

- Mallacoota township was burned in the 2019/2020 Black Summer bushfires – new years day 2020.
- Electricity infrastructure was burned.
- Telecommunication infrastructure failed too.

Action:

- *Residents purchased diesel generators due to slow DNSP response.*
- *A microgrid has been established recently that ONLY operates when the grid is down.*

"The process should be clearly communicated to the community, feature fire-resilient upgrades, and most importantly proactively demonstrate a shift away from the centralised grid towards fire-resistant renewables and DER solutions. This is key for end-of-the-line communities with low energy security."

COST: $? Funded by Victorian Government

Summary of lessons from Black Summer

How to improve energy security in bushfire-prone communities:

1. Use disaster/fire-resistant materials for energy infrastructure, such as concrete poles and underground cables.
2. Install distributed energy resources (DERs), such as rooftop solar and batteries, to provide backup power in the event of a grid outage.
3. Promote energy efficiency measures to reduce demand on the grid.
4. **Develop community-based plans for energy resilience, such as mutual aid agreements and community microgrids.**

Annex 2 Virtual Power Plant

And Virtual Energy Network

Virtual Power Plant (VPP)

A Virtual Power Plant (VPP) is a network of distributed energy resources, like home solar and battery systems, that **are managed remotely to function as a single power plant**. These resources are coordinated to provide energy to the grid during peak demand, offering benefits to both consumers and the grid.

- Being ready to participate in a VPP is a condition of new Federal Battery grant (public funding for public benefit) and a condition (life-time commitment –eek !!!! Of the Synergy battery grant)

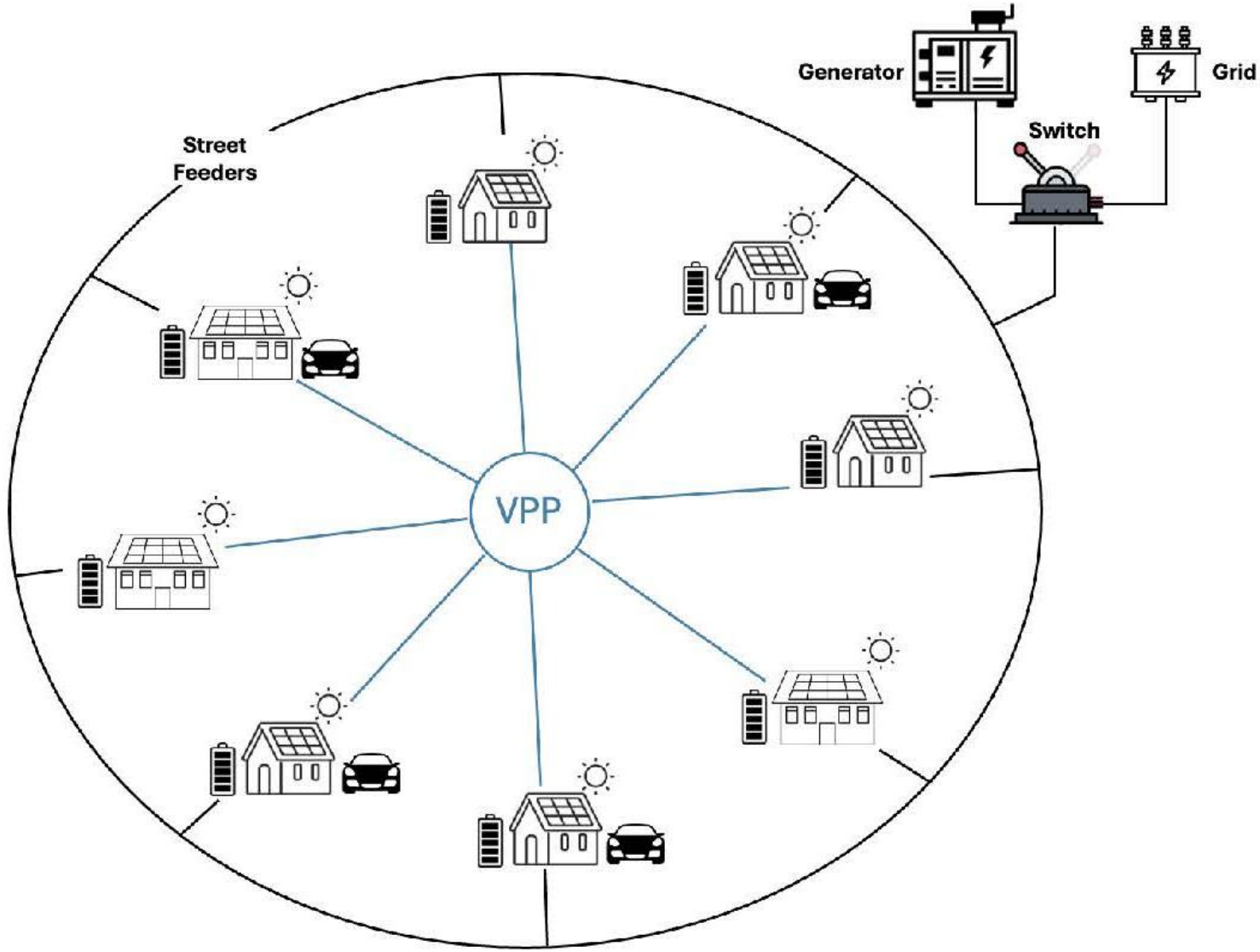

Figure 18: Network of site microgrids augmented by generator supply

Virtual Energy Network? (VEN)

What is a virtual energy network?

- A virtual energy network (VEN) is a **digital platform** that enables households and small businesses to **buy and sell** solar energy through the existing electricity grid. It enables solar producers to sell surplus energy at favourable rates, consumers to access locally generated solar energy at competitive prices and community-wide utilisation of renewable energy.

No solar? No problem!

- Whether you rent, run a small business or live in a shaded home, you can still benefit. The VEN gives everyone access to lower cost renewable energy, not just those with panels.