

# Victorian Greenhouse Alliances Annual Conference 2022

## Energy market solutions (for geeks)

### Panel:

- **Tom Hallam**, AusNet Services
- **Mel Miller-Yule**, Yarra City Council
- **Chris Wallin**, Yarra Energy Foundation

**Facilitator: Scott McKenry**, Eastern Alliance for Greenhouse Action



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# Acknowledgement of Country

***We acknowledge the Wurundjeri, the Traditional Owners of the land we are meeting on today, and pay respect to their elders: past, present and emerging. We acknowledge that their sovereignty was never ceded and that they have looked after this country for millennia.***

***Likewise we acknowledge Traditional Owners around Victoria, whose lands provide us with the energy, food, water and other resources we are using today.***



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## Energy Market Solutions (for Geeks)

1. Have you read an article on Renew Economy in the last two weeks?
2. Do you have a good idea of current energy prices in the NEM?
3. Are you able to define the initialisation *DNISP* ?
4. Could you explain how a virtual power plant works to a colleague?
5. Are you able to decipher the back of an energy bill (large market)?



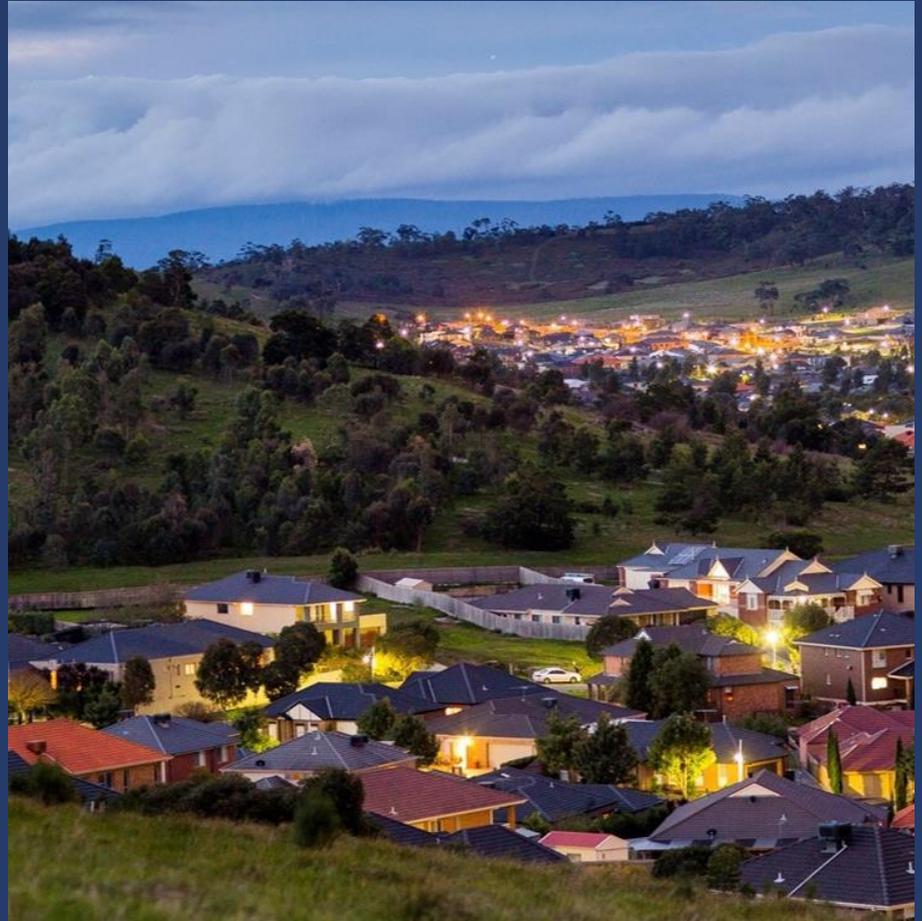
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# Community Energy initiatives

VGA Conference Presentation

Tom Hallam | 29<sup>th</sup> April 2022



# There are several renewable solutions that are available to communities...

## single to small hubs

serving single homes or community facilities, or in small or isolated rural/urban fringe



### Behind meter PV and battery

Individual households to commercial and industrial premises



Systems for LV customers comprised of solar &/ battery &/ diesel generators



Stand Alone Power Systems (SAPS) Infront of the meter Off grid systems for LV customers

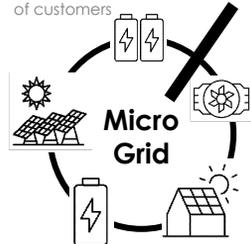
## medium to large hubs

Town-scale solutions integrating single to small hubs with grid scale infrastructure

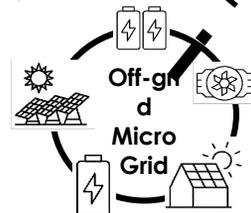


### Grid Scale Storage (BESS)

Battery Storage supporting large clusters of customers



A combination of BESS, DER and central generators supporting large clusters of grid connected customers



A combination of BESS, DER and central generators supporting large clusters of off grid customers

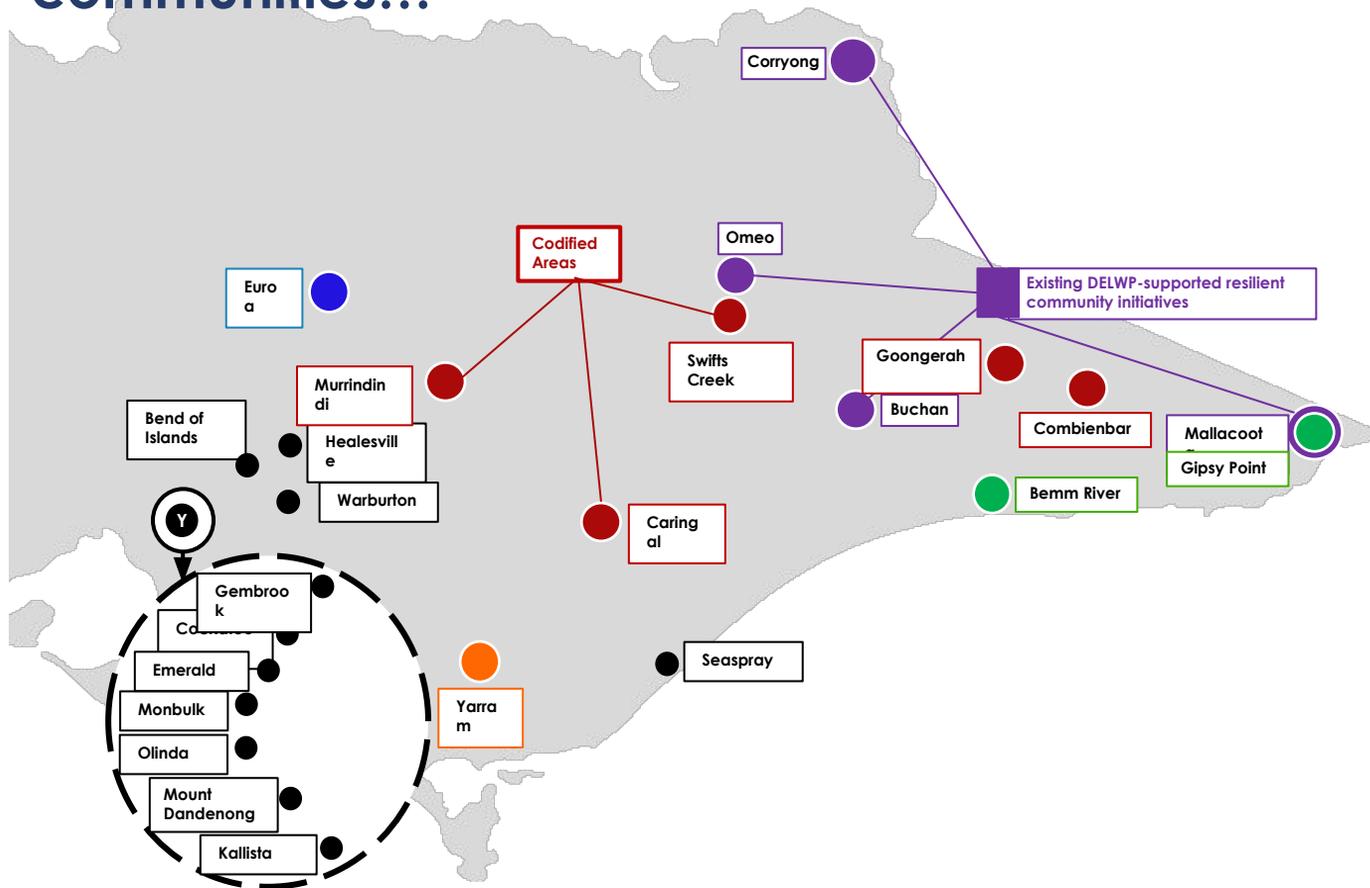
## benefits

- Reduced outage duration and frequency
- Potential to offer network support and wholesale market services (where orchestration or aggregation enabled)
- Higher resilience to extended outages from extreme weather events
- Potential to offer network support and wholesale market services
- Higher resilience to extended outages from extreme weather events
- Reduce safety risk
- Potential to remove networks with high cost to serve

## Why do it?

- **Securing Essential Services:** Futureproofing at-risk critical services (communications, fire services, etc)
- **Enabling Residential Basic Needs:** Ensuring access to clean water, refrigeration, cooling and cooking
- **Supporting Network Infrastructure:** Implementing fail safe solutions within network segments
- **Addressing Network Issues:** Solving ongoing Network problems with long term renewable solutions
- **Community Advocacy:** Understanding community needs and aspirations
- **Enabling a Net Zero Future:** Creating a platform for future community energy projects Why do

# Within the AusNet Distribution Network, we are pursuing the following solutions in these communities...



Solutions	Location
<b>Storm Response Areas</b> Microgrid, Front of the meter SAPS and ESS	Y. Sites Healesville Warburton Bend of Islands Seaspray
<b>Battery Energy Storage Solutions (BESS)</b>	Euroa
<b>Off-Grid Microgrids</b> (including SAPs, load reduction, demand mgmt.)	Gipsy Point Bemm River
<b>Grid-connected Microgrid</b> (incl community battery)	Yarram
<b>SAPS</b> (single customers only)	Combiobar Goongerah Codified Areas
<b>DELWP Projects</b> (multiple combined solutions)	Mallacoota Buchan Omeo Corryong

# A typical Community Energy Solution looks like....

## Mallacoota



**Microgrid**

**1MW / 1 MWh Battery Storage**      **1 MW Diesel Generator**  
 Power Town for 60 mins      Power Town up to 5 days

**Essential Services SAPS**

**10 x PV, Battery and Generator**  
 ~130kW PV, ~270kWh Battery Total  
**Essential Services and Businesses**  
 Power Businesses up to 5 days

**Behind the meter DER**

**30 x Heat Pump (~30 kW total)**  
**Demand Management**

## Corryong



**Microgrid**

**2.5MW / 5 MWh Battery Storage**      **1.5 MW Diesel Generator**  
 Power Town for 120 mins      Power Town for up to 5 days

**Essential Services SAPS**

**14 x PV, Battery & Generator (Indigo)**  
 ~190kW PV, ~100kWh Battery Total  
**Essential Services and Businesses**  
 Power Businesses up to 5 days

**Behind the meter DER**

**52 x 6kW PV, 12kWh Battery**  
**Residential Solar & Storage**  
 Power Homes for up to 12 hours

## Omeo



**Essential Services SAPS**

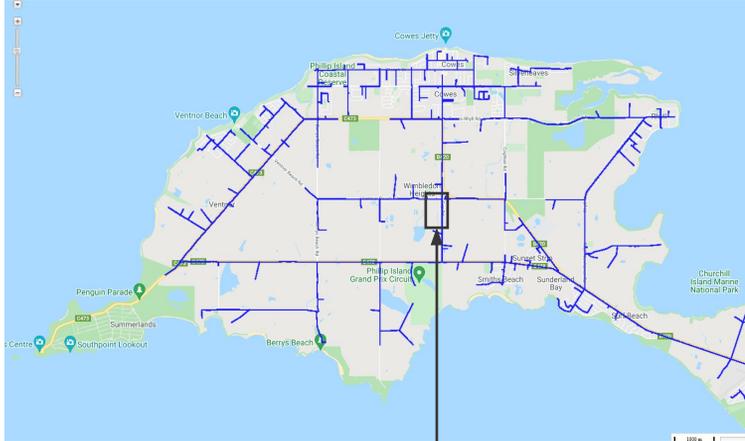
**3 x PV and Battery**  
 ~80kW PV, ~180kWh Battery Total  
**Essential Services and Businesses**  
 Power Businesses up to 5 days

**Behind the meter DER**

**25 x 6kW PV, 12 kWh Battery**  
**Residential Solar & Storage**  
 Power Homes for up to 12 hours

# Phillip Island Community Storage

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## Overview:

### Phillip Island Community Energy Storage Solution (PICESS)

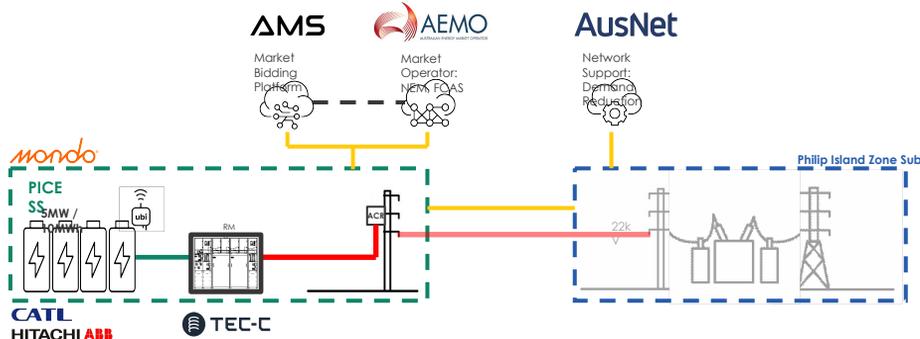
- 5MW / 10MWh
- Grid-scale BESS for peak demand support
- Future Islanding capability considered in design, reducing the augmentation requirements if islanding is implemented by DNSP

### Phillip Island Network Tariff Trial

- Proving the concept of "virtual storage" by using portion of PICESS to serve Phillip Island community and utilising AusNet's network tariffs to support the "virtual storage" concept and encourage community energy behaviours.

### Phillip Island LV Neighbourhood Batteries Feasibility Study

- Technical and Commercial Feasibility Study for LV neighbourhood batteries at sites on Phillip Island with high solar penetration.



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Yarra City Council



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## The First Inner-urban Community Battery

Chris Wallin, [chris.wallin@yef.org.au](mailto:chris.wallin@yef.org.au)

# YARRA ENERGY FOUNDATION



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# Question time



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