

**MyTown**  
MICROGRID

# MICROGRID V THE GRID

A point of view from Murray Hogarth,  
Head of Impact & Communications, Wattwatchers

Proudly supported by:



## A quick recap:

- 3-year project running until mid-2023
- \$1.8M+ in federal & state grant funding
- Data-led, in-depth *feasibility study* to explore
  - a potential Heyfield local microgrid
  - other community energy solutions
- PLUS, share the lessons learnt with other communities around Australia



**MyTown Microgrid - a feasibility study taking a deep dive into Heyfield's energy future**



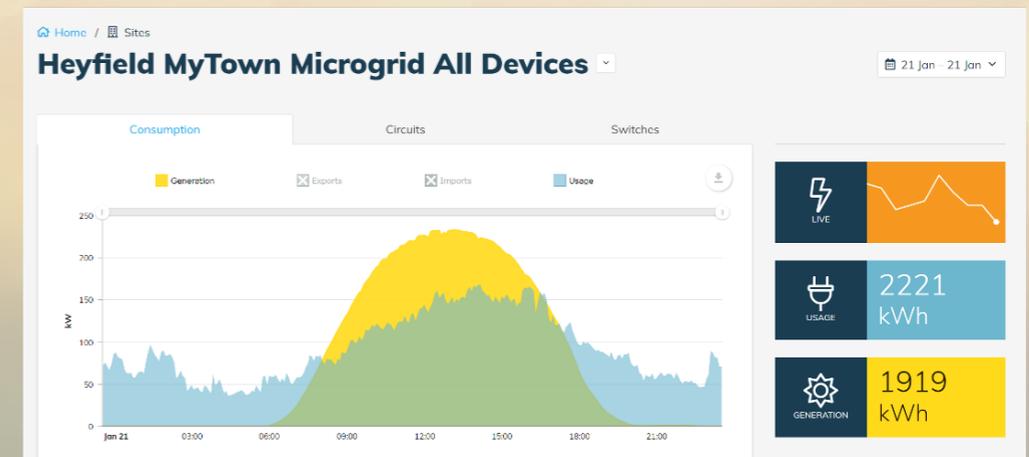
**Public launch event at the Heyfield Wetlands Centre on 25 February, 2021**



Community Liaison Officer Emma Birchall with local installer Brenton Stuart (Stuart's Electrical Contracting)

## Project is capturing lots of energy data:

- 90+ smart energy monitoring devices installed
- Covering 75+ homes, businesses, schools
- Additional data is being collected from
  - online questionnaire for participants
  - the local network (AusNet Services)
  - industry sites (e.g. Australian Sustainable Hardwoods)



## High-level community objectives:

- Lower cost energy (or is it better value from energy?)
- Greater reliability and resilience
- Better environmental outcomes
- More community involvement and benefit
- Technology to optimise and future-enable the system

CAN A MICROGRID DELIVER THESE OUTCOMES FOR HEYFIELD?

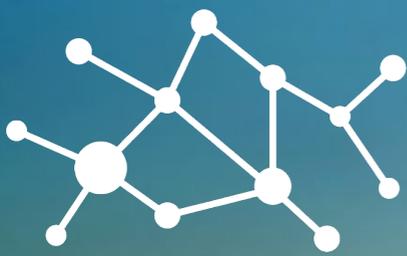
WHO WILL DO IT AND AT WHAT COST?

AND IF NOT A MICROGRID, CAN THE COMMUNITY ACHIEVE ITS 'ENERGY FUTURE' AMBITIONS IN OTHER WAYS?

When the project polled the local community, we found that:

**83.8%** would like to see Heyfield powered by 100% renewable energy

**88.2%** would change their energy retailer to a local community-owned alternative



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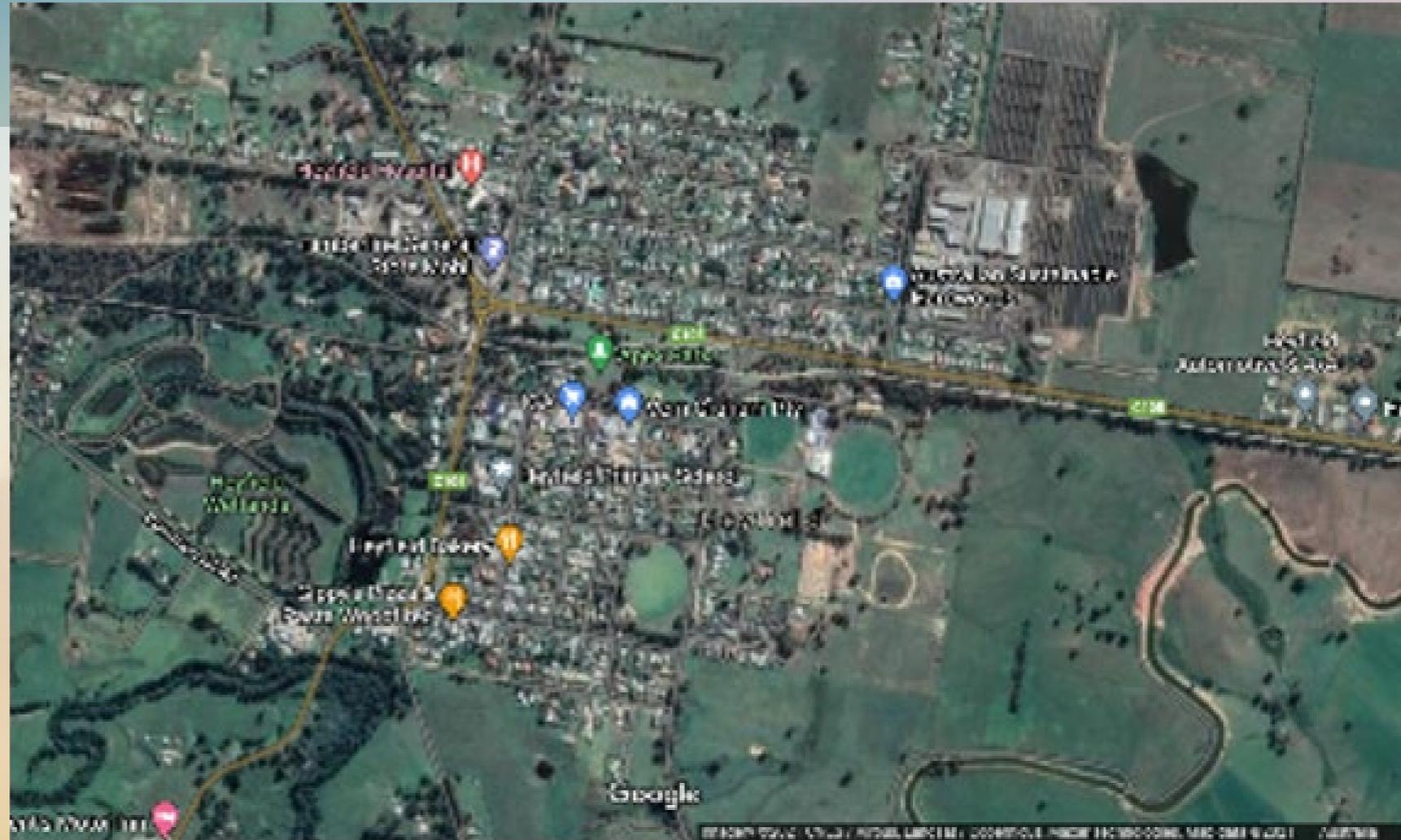
# 3858

ABC News - 19 October, 2010

## Heyfield flies the flag for sustainability

The Heyfield community is being praised for creating a home-grown program that helps individuals address climate change, save money on utility bills and create a healthier environment.

The Sustainable Smart Town program uses a three flag system to help households and businesses assess their level of sustainability.



**A helicopter-view of the Heyfield township, including the large Australian Sustainable Hardwoods industrial site (in the top right-hand quadrant) ... but the 3858 postcode area is much bigger again, with a series of villages and farms.**

**Heyfield has a lengthy, award-winning history of community-based sustainability projects.**

# Data is fed into a community dashboard for public display

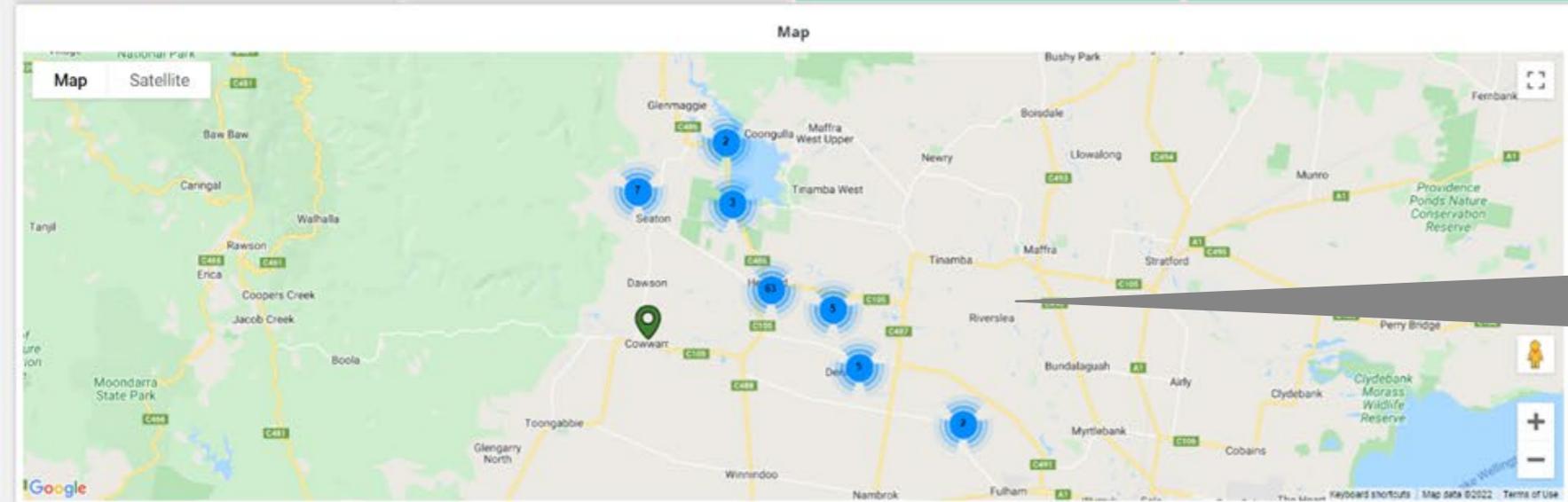
Overview Live Today History Device Inventory

**MyTown MICROGRID**

Overall Project Install Progress: 93.6%

No. of Sites: 74

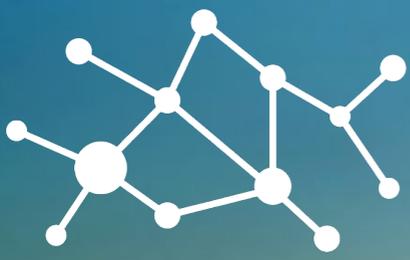
No. of Devices: 91



Map of anonymised device locations

All Sites with Solar - Avg Daily Consumption	All Sites with Solar - Avg Daily Generation	All Sites with Solar - Avg Daily Solar Export	All Sites w/o Solar - Avg Daily Consumption
34.16 kWh ↑	21.74 kWh ↑	11.03 kWh ↑	14.01 kWh ↑
Residential with Solar - Avg Daily Consumption	Residential with Solar - Avg Daily Generation	Residential with Solar - Avg Daily Solar Export	Residential w/o Solar - Avg Daily Consumption
14.13 kWh ↑	13.88 kWh ↑	9.38 kWh ↑	9.67 kWh ↑
Commercial with Solar - Avg Daily Consumption	Commercial with Solar - Avg Daily Generation	Commercial with Solar - Avg Daily Solar Export	
116.76 kWh ↑	48.85 kWh ↑	15 kWh	
School - Avg Daily Consumption	School - Avg Daily Generation	School - Avg Daily Solar Export	
98.71 kWh ↑	94.79 kWh ↑	40.01 kWh ↑	

Aggregated data from the residential, commercial and school sites



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# 3892

Mallacoota power supply

strengthened as AusNet installs

Gippsland's first community battery

AusNet Services today (28 May, 2021) announced it has installed Gippsland's first community battery in Mallacoota, making the town one of the first in Australia to have a grid-connected energy storage system included in its local network.

This innovative project plays a key role in improving power reliability by up to 90% for the town of Mallacoota. AusNet has contributed \$7.5 million for this project which forms part of the Victorian Government's program announced today to improve energy services in bushfire prone areas.



**This is Mallacoota from the air, another East Gippsland community which is frequently cited as a prospective location for a microgrid solution. It's a very different scenario to the Heyfield one.**



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**0.0085%**



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100%



**Renewable generation from the sun and the wind is becoming so fast to develop, and inexpensive to deliver, that experts talk about a future where we have abundant clean electricity and the lowest-cost energy in human history.**



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## We are AEMO

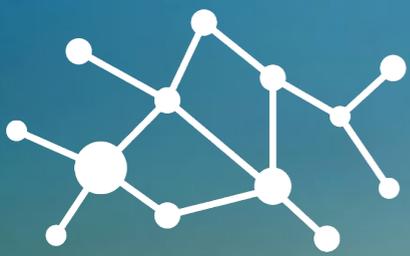
Shaping a better energy  
future for all Australians



# 2025

'By 2025, there will be periods of time when all customer demand could be met by renewable generation. This underscores AEMO's priority to develop grids that are capable of running at *up to 100 per cent instantaneous renewable penetration by 2025* to deliver reliable and affordable energy to consumers.'

- Daniel Westerman, AEMO CEO, 31 August, 2021

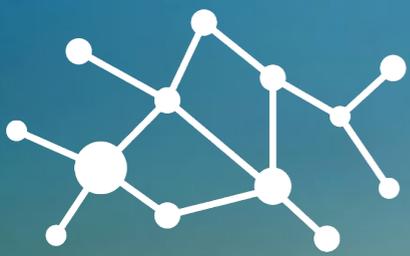


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**\$1.10\***



\*This fee example comes from a Heyfield local resident's power bill. It may vary depending on the energy retailer and tariff plan that applies.

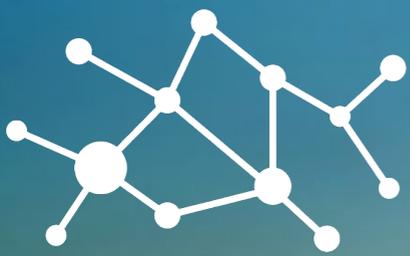


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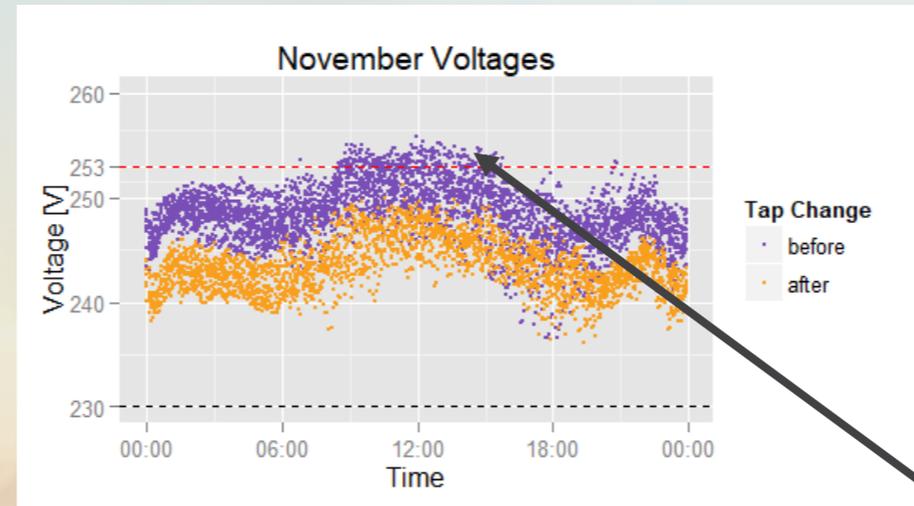
**\$100M?**



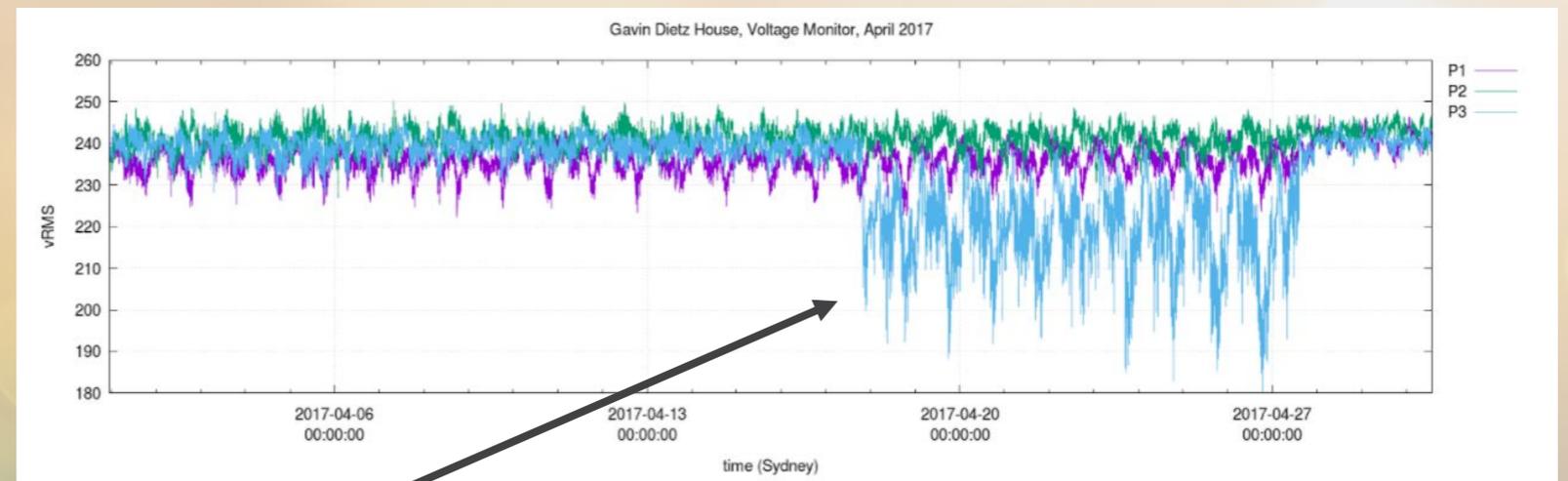
**Want to buy a used bit of the electricity system and then pay to run it yourself?**



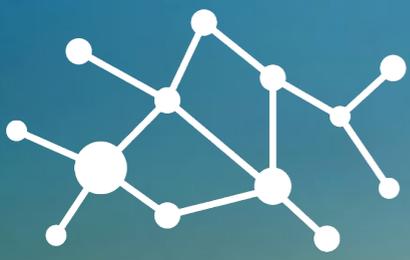
# 230V



Example of voltage readings exceeding nominated upper limits. (Source: Solar Analytics)

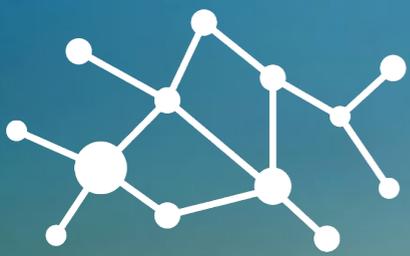


Example of under-voltage which stopped this household's oven and clothes dryer from working. (Source: Wattwatchers)



# 4AM/5AM 3PM/4PM

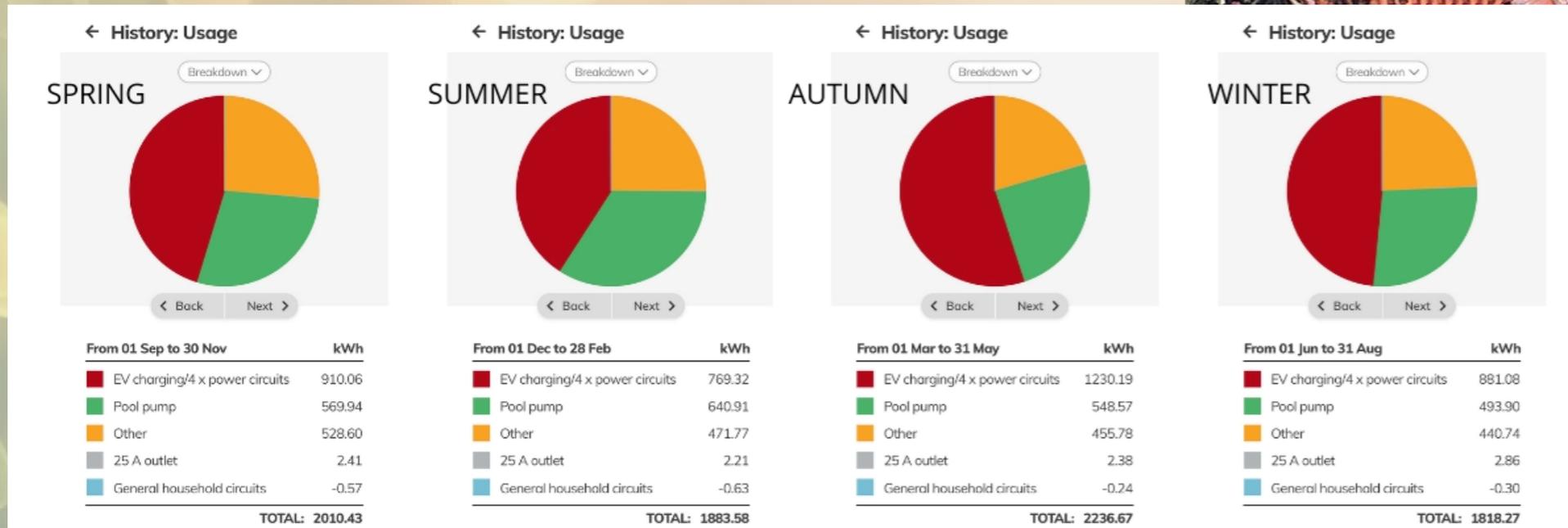


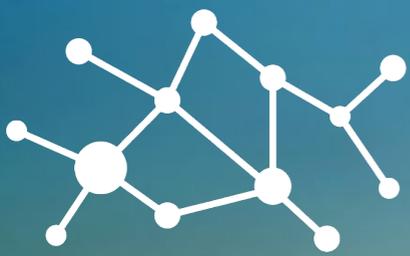


# MyTown

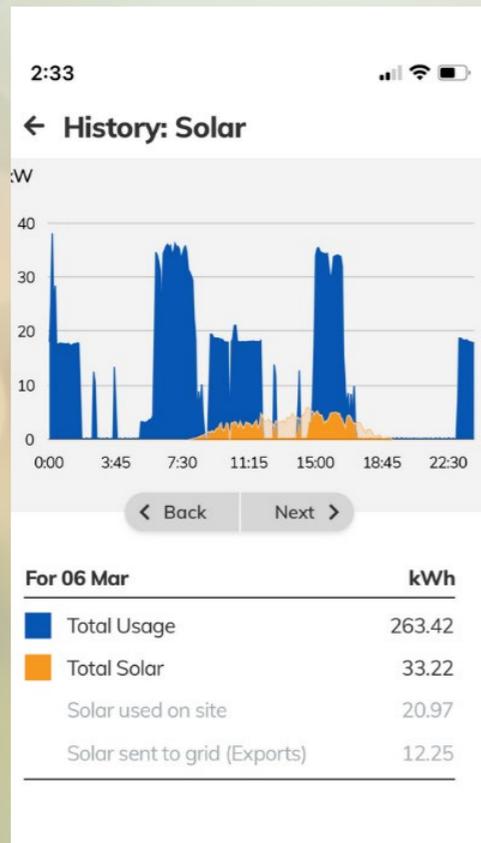
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# 6.6kW

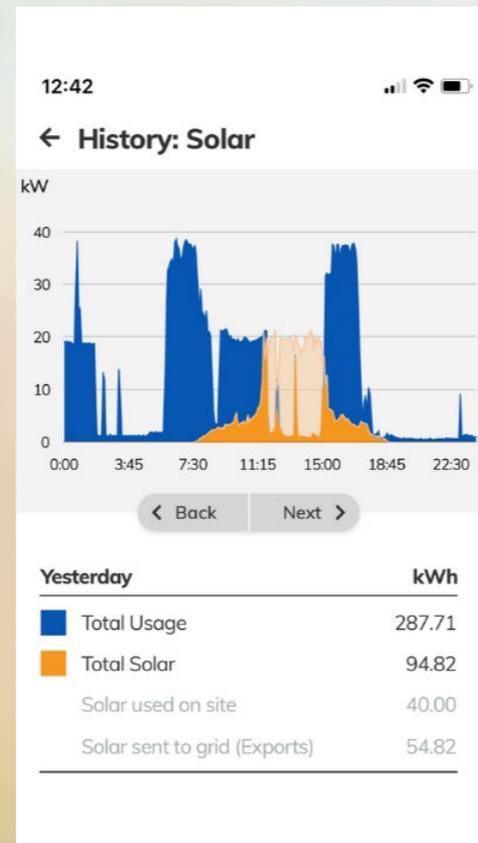




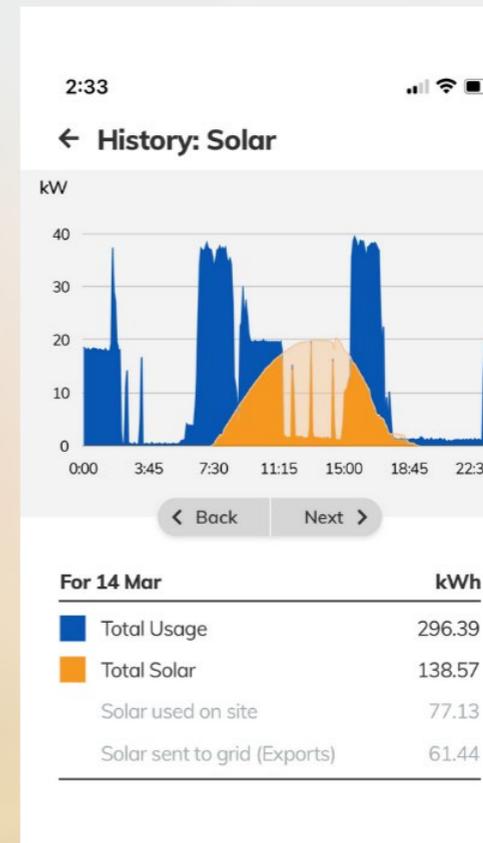
MEANWHILE, DOWN ON THE FARM: opportunities start with efficiency and renewables, but...



POOR SOLAR DAY



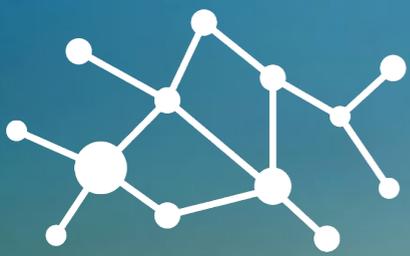
MID-RANGE SOLAR DAY



GOOD SOLAR DAY

## INSIGHTS & OPTIONS

- Variability has to be managed and accounted for
- Onsite battery storage could help, but at what cost?
- Grid provides the back up, but how reliable is it?
- Can the farmer change the herd's milking routine?



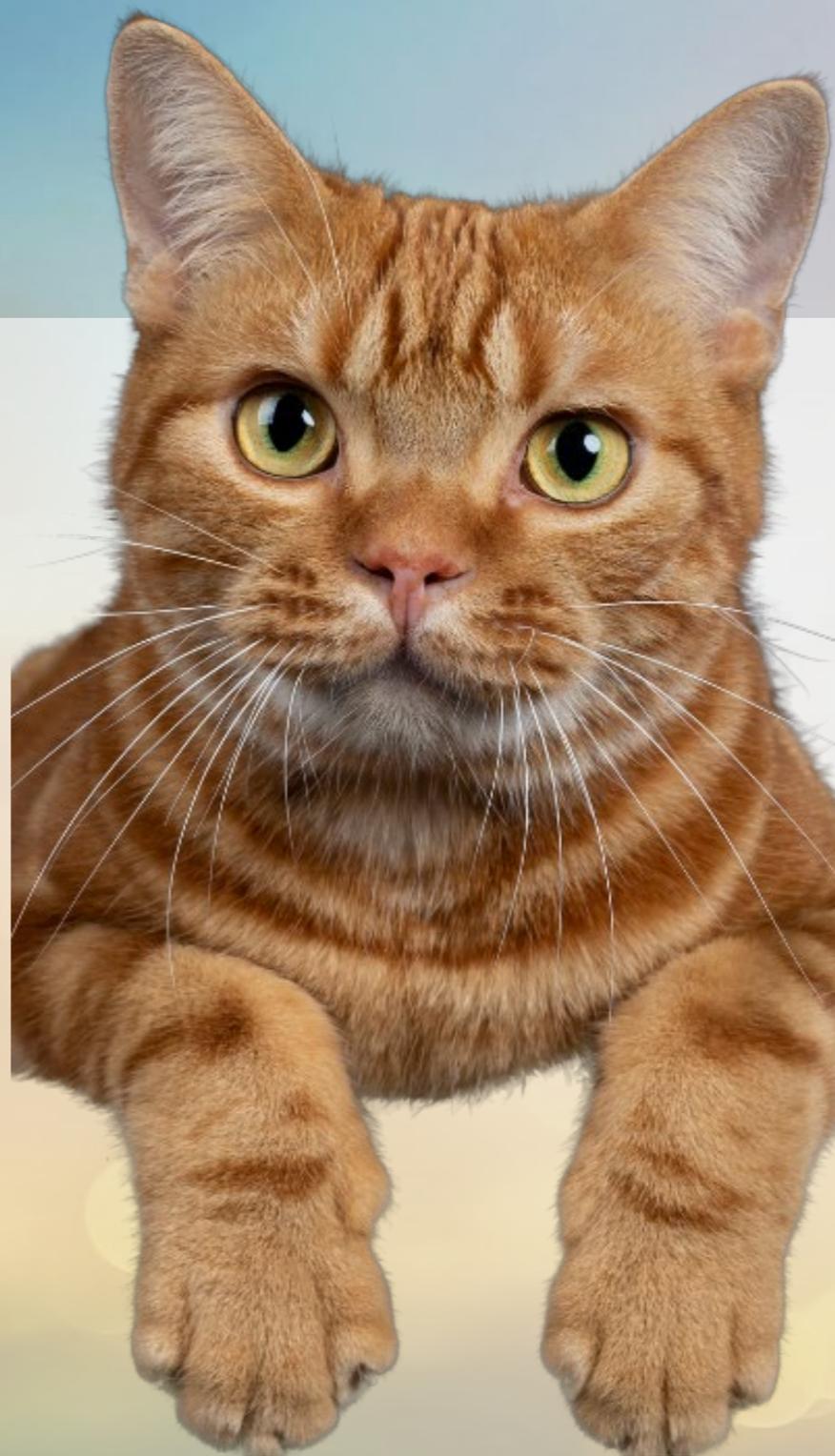
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I'm Heyfield the Cat... a distant relative of Garfield.

But we're very different cats.

Garfield is tubby and lazy, makes trouble, and has a very dry sense of humour.

I'm nimble, flexible and busy, I get along in my community, and I'm **FUN!**





## Are the trends your friends?

- Renewable energy & distributed energy resources (DERs) led by small-scale and large-scale solar (and large-scale offshore wind is coming)
- General electrification and fuel switching, especially away from gas
- Electric vehicles with vehicle-to-home (V2H), vehicle-to-grid (V2G) and vehicle-to-everything (V2E)
- Net Zero/decarbonisation/regeneration
- New competitors, new business models and new technologies in a dynamic energy sector
- Green Hydrogen & Australia as a 'clean energy superpower'

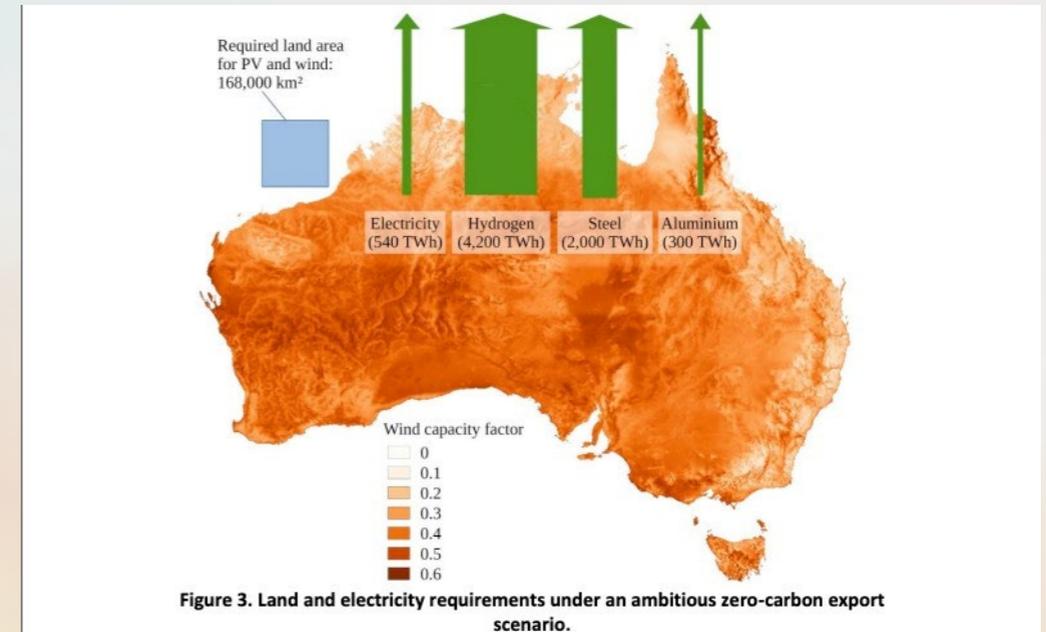
100% renewables?

500% renewables?

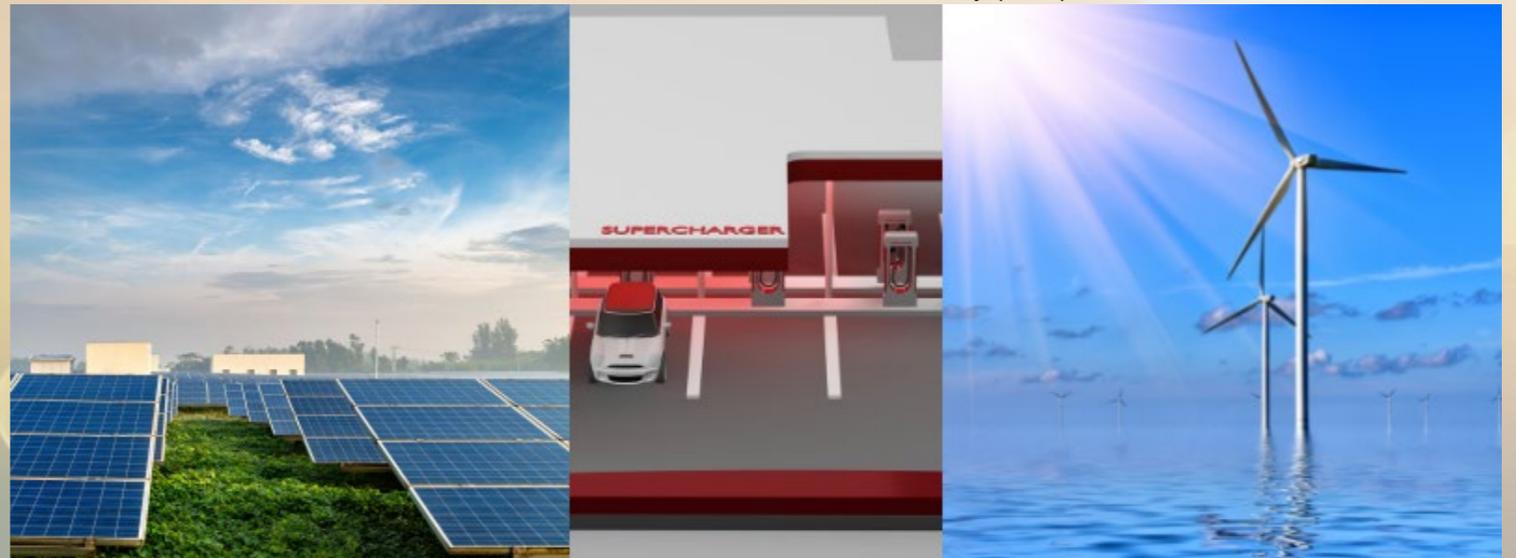
700% renewables?

1000% renewables?

2700% renewables?

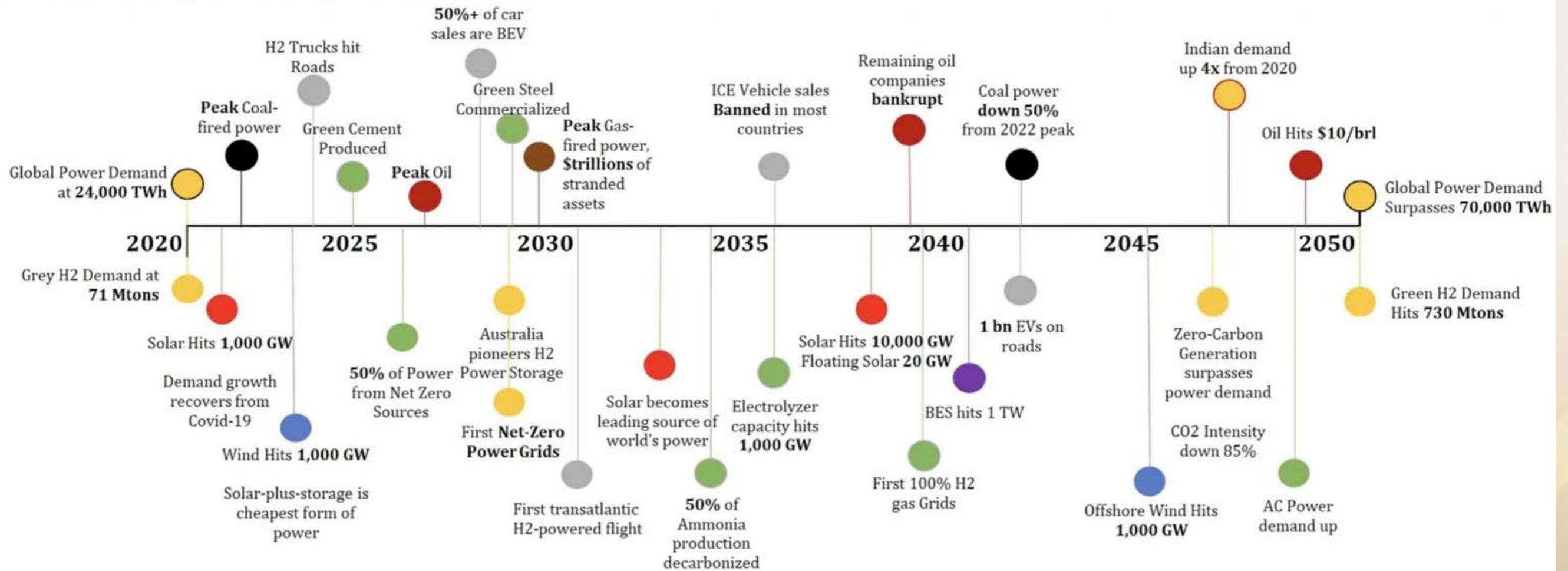


SOURCE: Australian National University (ANU)





## Annual Primary Electricity Market to 2050



SOURCE: Rethink Energy (this graphic has been published in Australia by Renew Economy)

<https://rethinkresearch.biz/product/rethink-energy/>

## Heyfield has options (and they aren't mutually exclusive):

- Net Zero for electricity by when? 2025? 2030?
- A local energy cooperative or retailer (like a Bendigo community bank branch for electricity?)
- A community battery and critical sites back-up
- A Virtual Power Plant (VPP) model - a coordinated network of small-scale distributed energy resources including rooftop solar, batteries, electric vehicles and smart appliances
- Other 'Virtual Microgrid' solutions, especially as EVs proliferate
- Energy efficiency, solar expansion and optimisation, load shaping and shifting, while working towards greater self-sufficiency and maybe a microgrid 'one day'



### REMEMBER THIS...

When the project polled the local community, we found that:

**83.8%** would like to see Heyfield powered by 100% renewable energy

**88.2%** would change their energy retailer to a local community-owned alternative

My closing questions for the MyTown Microgrid project and the Heyfield community:

- Are you ready to look beyond a microgrid *per se* for your community solution?
- Whatever you decide, how will the community organise itself and form a representative body?
- What businesses, government agencies, research groups, other organisations and people will you need to work with?



**THANK YOU**

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## Next Steps



- Recording of webinar will be available on our webpage  
[MyTown Microgrid | heyfield](#)  
[\(heyfieldcommunity.org.au\)](#)
- Wish to join the CRG please email:  
[info@mytownmicrogrid.com.au](mailto:info@mytownmicrogrid.com.au)
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