



# COMMUNITY ENERGY for Venus Bay?

Community Resilience and Reliable Energy Feasibility Study at Venus Bay

let's talk about the possibilities of community owned energy!



Keep up to date with planned community consultations via the timeline on the back. For more information scan the QR code or head to: [vbcc.org.au/communityenergy](http://vbcc.org.au/communityenergy)

Welcome to Bulletin #6 March '23

## Assessing our energy options

At Community Workshop #2 we discussed renewable energy options best suited to Venus Bay and Tarwin Lower and showed the different ways they could contribute to a local energy system. Firstly, we talked about how the options can be sized small or large to suit different situations.

Rooftop solar, batteries and generators come in all sizes from 3kW for a small household up to 2,000kW or more for the whole community. There are other renewable technologies available, but they have many limitations.

- Wave and tidal power are technologies with which Australia has minimal experience. Even if an installation made sense, it might only produce enough energy to provide for a small cluster of 100 homes.
- Hydrogen might be a form of energy storage in future but now it remains very expensive.
- Biogas can be produced from waste – dairy cows and people! If you combined all the waste in the district, you would only have enough gas to power the dairy farm. Small biogas converters that produce gas from organic wastes can be used for cooking at home. One example, available in Australia, is the [Homebiogas](#)
- Wind is an abundant resource locally; it complements solar by operating well at night and on wintry days. Many people have mixed feelings about wind turbines in their environment and significant planning and consultation is required.



**Fun Fact:** Venus Bay and Tarwin Lower already have 1,500kW of solar panels installed and would need to install a further 4,200kW if the community was to generate as much electricity as it uses in a year.

- One large wind turbine might produce half the community's energy needs. Smaller wind turbines are less intrusive but much more expensive. A small turbine to support the energy at the mobile phone tower is a possibility worth pursuing.

Many other options were not considered. Hydropower would need a better local resource; Solar thermal, offshore wind, gas and nuclear all suit much larger projects. Other forms of storage might be worth considering when each technology matures, which would need evaluating when that happens.

## How microgrids work

A microgrid can do everything a main electricity grid can do. The most important feature of a microgrid is maintaining power when electricity from the main grid is unavailable. With modern technology, the switch from the main grid to a local microgrid can happen seamlessly so you might not even know that there has been a power outage on the main grid.

The system at the Venus Bay Community Centre (VBCC) has a solar system, a battery and a backup generator that together keep the power on at the Centre during outages. It provides an example of a microgrid, albeit a very small one.

We can apply the same operating principles of the VBCC system to a community-wide microgrid system, and it would work in the same way.

## Coming up! - Community Energy Workshop #3 Saturday April 15<sup>th</sup>, 12 – 4pm

Our third Community Workshop will focus on pathways and actions we can take to realise our renewable energy options. We'll check that our actions align with our values, and we'll hear about Community Wealth Building, the approach being applied to the funding, investment and business model development.

### How microgrids work continued.....

In the first instance it makes sense for a microgrid to stay connected to the main grid because you can draw as much energy as you need and send any surplus you might have back to the main grid. (e.g., from solar panels on a sunny day!)

If your microgrid system is going to keep working when electricity from the main grid is unavailable, it needs to detect the outage and disconnect. The disconnection point is essential. Firstly, for safety. Ausnet services need to be sure you are not powering up something that needs to be repaired, which would be dangerous for the people doing the repairing.

Once the microgrid is disconnected from the main

grid (known as “islanding”) it is in charge of balancing the energy supply with the energy used. Batteries are perfect for balancing because they can absorb surplus solar or provide power if the solar isn't supplying enough or if the outage is at night.

If an outage lasts for a while, the microgrid needs to continue generating enough to match all the electricity needed, so a backup generator may be required to boost the batteries, especially during winter. Currently, generators are mostly run on diesel but in the future they could be biogas or hydrogen powered.

People could also use less electricity to reduce the demand of the system. Remember our work on calculating how much energy is required to meet Essential, Enough and Everything needs.

### Shared community values, shaping our energy choices

People from across Tarwin Lower and Venus Bay came together at two Workshops in February 2023 when we explored a set of values that will guide our choices of renewable energy technologies and where to locate them. The values in the graph below were discussed in small

groups at the workshops, before being ranked from most important (Safety) to less important (More say). One additional value – Peace and Tranquillity – was also identified. You can read more about the values discussion in the [Community Energy Harvest Report #2](#) and add your thoughts on the relative importance of these values, for you, through the [Community values survey](#) – both can be found at [www.vbcc.org.au/communityenergy](http://www.vbcc.org.au/communityenergy)

