

COMMUNITY BATTERIES

A PRACTICAL GUIDE

AT A GLANCE

Best suited to:

Areas with high solar penetration

Main benefit:

Smoothing local power loads and increasing reliability

Main barriers:

Upfront costs and governance arrangements

Good first step:

Asking whether the local retailer supports community batteries

Image: TRY





OVERVIEW

Community batteries are shared battery systems connected to the local electricity network that can store and release electricity for the benefit of multiple households, farms, or businesses.

Rather than each property or business installing its own battery, a larger battery is installed in a neighbourhood, town, or industrial precinct. The battery charges during periods of high solar generation or low demand, and discharges when demand is higher or solar generation falls, or when network services are required (to improve network performance).

Different ownership and operating models are emerging in Australia, including:

- Distribution network-owned batteries – usually installed in areas where they can reduce network constraints, increase solar hosting capacity, and improve local network performance. In this situation, the benefit to customers may be indirect because the savings are shared across the whole customer base, and batteries are often treated as network infrastructure.
- Privately owned community batteries – owned and operated by a private company, which may earn revenue through services such as energy trading or demand response. Households, farms or businesses typically access the battery through a retailer, rather than owning the battery directly.
- Behind-the-meter batteries providing shared energy or grid services – larger battery systems installed on a private site, such as an industrial estate or shopping centre, where the battery primarily supports local energy use but may also provide wider grid or market services.



SUITABLE BUSINESS TYPES

- Regional towns with high rooftop solar penetration – particularly where local transformers or feeders are constrained, daytime solar exports exceed local demand, evening peak demand is increasing, and network upgrades are expensive.
- Businesses occupying multiple properties in close proximity, such as in industrial precincts

with several businesses exporting solar at different times, or farming areas where different industries have different seasonal energy needs.

- Remote towns or fringe-of-grid businesses where there is reliance on diesel for a part of their generation.



BENEFITS

There are a number of potential benefits to participating in community battery arrangements, including:

- By charging and discharging strategically, community batteries can help reduce evening peak demand, smooth local loads, and defer expensive network upgrades.
- Improved resilience by supporting the local energy network with ancillary services, such as frequency control and voltage stability, and reducing stress on weak feeder power lines.
- Community batteries may allow businesses to benefit from battery storage without purchasing their own system, helping small businesses that cannot afford an individual battery or are operating on a site unsuitable for one.
- Privately or community owned batteries may help keep some of the economic benefits local, sharing profits with members through lower prices, or with the hosting business.



CHALLENGES

Some of the challenges to consider include:

- The regulatory framework can be complex, particularly where batteries provide multiple services. Rules are still evolving around ownership, energy sharing, network participation, and market access. For example, in some areas, private community batteries are able to earn revenues for grid support services, whereas in other areas they are not.
- Community batteries can involve significant upfront costs, including battery systems, transformers, civil works, communications systems, engineering and approvals.

- Financial returns depend heavily on reducing the upfront and operational costs, gaining customers to generate revenue, being able to price your energy competitively, achieving strong utilisation rates, and being able to monetise network benefits.
- Being clear on who benefits financially, who controls the battery, and who carries the risk of something going wrong is important. Financial benefits can be direct, or indirect through more reliable local power or savings on energy bills. Different ownership models can produce very different outcomes for communities.
- To effectively manage community batteries, battery managers need strong communications networks so they can access metering data and connect to network systems and battery controls in real time. These communications networks are not always available in rural and regional areas.
- Finding the best location for a battery.



TECHNICAL CONSIDERATIONS

Grid connectivity

- Need to establish whether the community battery can be integrated into the local electricity network. This may require engineering studies including network modelling, protection upgrades, and identifying approved export management systems.
- The availability of adequate control systems that allow the community battery to operate automatically – using software that responds to local solar generation, battery state of charge, electricity demand, and electricity pricing.

Project planning and collaboration

Developing a community battery usually involves:

- Network studies and engineering design.
- Community consultation, ongoing engagement, and market development (identifying potential customers).
- Planning and grid connection approvals.
- Software and communications integration and the installation of meters.



IMPLEMENTATION CONSIDERATIONS

Land and space requirements

- Consider whether there is sufficient space and suitable setbacks (depending on planning requirements).

Ownership model

Depending on the ownership model, community batteries are generally developed through collaboration between Distribution Network Service Providers (DNSPs), councils (for the necessary approvals), community organisations, and electricity retailers.

Batteries owned by the DNSPs may require less coordination as they will generally be installed on sites they already own or control, while private companies and communities will need to consider sites and network connections.

Community engagement

Successful development of community batteries often depends on:

- Clear ownership structures.
- Transparent benefit sharing.
- Good community engagement.
- Strong technical design.



DECISION FACTORS

When this option may make sense

Community batteries may be best suited in areas with:

- High solar uptake, with local production exceeding demand.
- Constrained export capacity.
- Growing electricity demand, especially in the evening peak.
- Network reliability concerns, especially where network upgrades are expensive.
- Interest in local energy solutions.

A strong commitment for participants to work together is required.

When it may not be suitable

- If your communications systems are not strong enough to access metering data and connect to networks and control systems in real time.
- If network constraints mean private community batteries are unable to earn revenue for grid support services.

Key decision criteria

The preferred ownership model may depend on:

- Local objectives.
- Access to capital.
- Regulatory arrangements.
- Desired customer outcomes.

In the case of behind-the-meter community batteries, the businesses may need technical advice to determine the most suitable size for the battery and consider:

- The long-term availability of low-cost daytime power to charge the battery.
- The ability to either use or discharge stored battery power during the evening peak when power prices are high.
- Any other revenues possible through network support services.

Costs vary significantly depending on size and complexity and can range from several hundred thousand dollars to many millions of dollars. There is also a range of ongoing costs including:

- Battery and hardware maintenance and facility management (i.e. buildings and grounds).
- Software and communications updates and maintenance.
- Operational management.
- Eventual battery replacement.



CASE STUDY.

TOTALLY RENEWABLE YACKANDANDAH

In 2021, Totally Renewable Yackandandah commissioned their first community-owned battery, Yack01. The 274 kWh battery and 65 kW solar installation is a behind-the-meter battery that can power 30-40 local homes overnight via the local energy provider.

In 2025, the community launched their second community battery, Yack02, a 200 kWh battery and 65 kW solar system located at the local Sports Park. In addition to providing power to the local network, this battery has a particular focus on reducing operating costs and supporting the Sports Park facility during power outages, ensuring that the kitchen, showers and toilets remain available to the local community. This could occur for minor outages or as designated by local authorities after emergencies.

For more information see: totallyrenewableyack.org.au/watts-happening/yack01-community-battery

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www.re-alliance.org.au/electrification