TOTAL
ENVIRONMENT
CENTRE

10 YEARS Est. 2008

Oakley Greenwood

Financial Viability of Community Scale Battery Ownership Models

prepared for:
Total Environment Centre

Melbourne +613 9016 2550 Sydney +612 8091 3650 Brisbane +617 3283 3249

objective

To assess the business case for community scale (100 kWh-5MWh) batteries under current economic, regulatory and technological settings

business case study

What it would take for the batteries to pay for themselves under four ownership scenarios: **a network-related business**, **a community energy group** and **a retailer** versus a counterfactual (**individual BTM meter**), including

- Basic technical requirements to maximise consumer returns from storage (e.g. capacity and charging/discharge rates; islandability; portability; microgrid potential; etc.).
- Regulatory context and challenges (including single community batteries versus aggregated household batteries in microgrids and options for innovative network tariffs).
- Potential negative impacts and risks (e.g., the limited lifespan of batteries; competition from home batteries; networks monopolising this market; etc.).
- Relevant metering & consumer protection requirements.

main tasks

Information gathering regarding, for example, battery size and costs, historical wholesale prices and frequency control and ancillary services prices.

Modelling the estimated financial benefits under each of the ownership models in different NEM regions.

modelling approach

“Grid-side battery” model.

- Energy market benefits.
- FCAS market benefits.
- Transmission benefits.
- Distribution system benefits.
- Voltage benefits.
- Cost/sizing assumptions.

“Customer-side battery” model.

- Individual financial benefit (in addition to PV).
- Cost/sizing/usage/tariff assumptions.

results

- All three of the grid-side community scale battery ownership models outperform an individually owned, behind-the-meter battery.
- Of the three community-scale ownership models tests, the retailer-owned model produces the highest level of benefit to the asset owner. This is because the retailer can interact directly with the wholesale market, thereby gaining the full benefit available from the wholesale electricity price arbitrage and FCAS revenue streams.

benefits to end consumers

- For all end consumers in the distribution network, the potential to benefit from lower network tariffs due to the deferral of local network augmentation costs.
- For all end consumers within the local area served by the grid-side, community scale battery:
  - The potential to consume locally generated, carbon-free electricity (to the extent that the community battery purchases and re-injects rooftop PV electricity generated within the local area).
  - The potential to continue to have access to electricity supply (during a supply interruption that occurs upstream of the local area (e.g., a generation failure or an upstream network asset failure).

implications for advocacy

The benefits of grid-side, community-scale batteries are maximised by:

- Ensuring that cost-reflective price signals are available for the services that these devices can provide in deferring or reducing the need for augmentation to the network.
- Arranging means to make it easier for a community-owned battery to gain access to other revenue streams that are currently only available to market participants.