

# Community-Scale Battery Working Group – Monthly Meeting

**Meeting Date/Time:** 6<sup>th</sup> June 2023 3-4:30pm

**Location:** Teams

**Number of Attendees:** 38

**Chair:** Laura Lynch (DEECA)

**Topic:** Narara Ecovillage + ANU ECA grant

**Minutes Taker:** Louise Bardwell (ANU)

## Meeting Agenda

- The neighbourhood battery in Narara Ecovillage. Presentation by Chris Wenban and Jonathan Ellis.
- Announcement of a new grant to support this forum from Energy Consumers Australia (grant awarded to ANU). "Keeping the community in community batteries: targeted research and knowledge sharing to maximise consumer benefits"

## Meeting Minutes

### Announcements:

#### New members

- Isabella Powell joining from Jemena
- Michael Towke stepping in for Alida at AusGrid on community battery program and CSBWG steering committee while Alida is away

**Agenda Item/s:** Narara ecovillage: Community Power in operation

### Minutes:

- Have around 650 hectares of land they are building on
- Building to their own sustainability standards. Using a 7 star standard.
- Focus on natural techniques and materials for the houses.
- Have their own BTM power network, NEV Power.
  - Is a R2 exempt embedded network under AER regulations. All on same LV circuit.
  - All houses in village required to have at least 4kW of solar. Village has together over 350kW installed solar.
  - NEV Power Smart Grid installed to AusGrid HV network with smart grid controllers for safety coordination
  - Hitachi ABB 437kWh community battery installed 2022
  - Installed back up diesel generator for further safety net. Have had to use this so far to achieve their 100% resilience.
  - Can't restrict everyone in village to stay with NEV Power but all have kept them as their retailer.
- Struggled to receive contracts with wholesale retailers for their HV connection. Ended up with HV tariffs there were up 200+% on a 3-year contract with wholesale retailer. Didn't hugely impact monthly bill but concerned for future. Not sure if HV connection was best choice over a LV one.

- Large amount of fixed costs associated with their network (tap change transformer, street lights, poles wires)
  - Difficult with only 50 customers, manageable with 100
- Community battery performs time shift from daytime production to night time consumption or exports to the grid.
  - Community is a net exporter of energy
- Use Slack channel to ask households to make real-time changes in energy consumption in event of disaster or incident on main grid.
  - Can alert need for demand response when running on battery
- EVs recently introduced new challenge – now have 11 vehicles and have to educate owners about when to charge (i.e. daytime only). Threaten to drain the community battery overnight
- Using demand management: hot water timers set to midday, load shifting household appliances to midday, reducing overall demand
- Battery facts
  - CAPEX ~\$600k. Majority of this raw battery module cost. Installation and labour was relatively minimal as was installed during COVID.
  - Delivers ~400kWh
  - Is housed in similar infrastructure to a car port
  - OPEX ~\$2k per year (e.g. have an electrical engineer within village who from time to time will charge for their services)
  - Depreciation ~\$60k
  - Some noise issues associated with battery's own air conditioner. Houses within 50-75m to the battery could hear the turn on and off of the battery. AC likely to turn on and off throughout the day. Battery consumers ~35kWh per day for the AC.
  - Configuring battery for FCAS has proven difficult
- Perfect summer's day battery can still retain around 60% SoC overnight whilst meeting community load
- Winter's day battery SoC around 20% over night
- Still net exporter of power during a rainy week
- Community very receptive and interested to see how their energy use and behaviour can be shifted to adapt with changing conditions. E.g. delaying use of appliances to sunny days
- Battery's performance over first 12 months
  - Battery full 22% of the time
  - Battery often fully charged by 9am
  - Battery discharging 49% of the time (overnight)
  - Battery helped network be energy self-sufficient 88% of the time
  - Remaining 12% of the time NEW power was partly reliant on power from the grid. This equated to 90 days of the year where needed to import from grid to support load.
- NEW power mostly run by volunteers
  - Currently developing smart grid technology that involves a low power local network. Will be used to deepen understanding of energy production and consumption. May be used to control and smooth energy demand.
  - Want to use smart grid data to introduce ToU billing. E.g. higher charges overnight vs. lower ones during the day.
- Happy to be demonstration village. Willing to share their data (where appropriate) to others to assist research and development of similar sites
- Current challenges & lessons
  - Have on average 7.5kW per house – too much power then needed during the day.
  - No longer receive FiT for solar exports to the grid
  - Export more than 1,000kWh per day
  - CB relatively expensive and therefore unlikely to replicate. Has been complicated to make use of it to participate in schemes like FCAS due to reconfiguration requirements (e.g. large quotes to adjust battery operating system)

- In future looking at use of household batteries over centralised batteries. HH batteries per kWh proving to be cheaper.
- You are welcome to visit the ecovillage, run tours monthly.

#### Q&A

- Battery operating system set to self-consumption (charge when surplus solar, discharge to avoid grid imports)
- If go for home batteries rather than a community battery may be operated quite differently depending on how you structure your tariffs - ie. they may hoard energy for overnight rather than exporting in the evening (which helps the whole ecovillage avoid drawing from the grid)
- Currently around only 2-3 houses have their own HH batteries
- When started project, EV batteries seemed like a far away opportunity. Know there is around 10 additional batteries available
- Have asked some houses to be West facing instead of just east facing to extend solar PV generation periods
- Can be islanded. Number of occasions where blackouts occur on main grid and they retain power
- Customer benefit from backup power is typically valued at \$25/home/hour.
- For more information can read their project report here: <https://arena.gov.au/projects/narara-ecovillage-smart-grid/> . Received around \$1.3million from ARENA. Third report coming out soon.
- Village itself is self-funded (no mortgage), raised money from community itself. ARENA funding just for microgrid.

#### **Agenda Item/s:** ANU ECA grant – “Keeping the community in community batteries”

##### **Minutes:**

- Grant will be covering the workings of the CSBWG, including the monthly meeting, distribution of meeting minutes, setting of agenda, running steering committee etc.
- Second ‘Future of neighbourhood batteries’ conference will be run on November 28<sup>th</sup> this year. Email coming out this week to save the date and ask for proposals. Focus of conference will be on research and policy implications.
- Grant is split between two key research areas

#### Q&A

- How will knowledge sharing between CSBWG and others occur. CSBWG to date run by word of mouth. Coalition for Community Energy Knowledge Hub – could this link up with the work of CSBWG to support each other?
- No point that can be linked to outsiders to inform them more about the CSBWG. For example, could a landing page be developed?
- Laura will bring up above at next steering committee meeting. Might also schedule in a discussion next meeting about what format the CSBWG should take going forward now that it has grown and continues to grow. E.g. possibility of sub-groups related to topics like tariffs, emissions impact, regulation etc.

#### **Agenda Item/s:** Emissions versus decarbonisation in the context of a community battery – Lachlan from YEF

##### **Minutes:**

- Decarbonisation or maybe more broadly (energy) transition.
- Can really dig yourself into a hole trying to specifically account carbon and emissions. Current situation of accounting has a lot of double dipping in.
- Decarbonisation narrative vs. emissions reduction

## Action Items