

## **Written Submission to the Australian Energy Regulator (AER)**

### **Point of Issue - Community Battery Tariffs proposed by Energy Queensland**

**Desired Outcome:** Energex and Ergon withdraw annual negative tariffs for the installation of community batteries or propose positive tariffs that consider the upside to improved network stability and deferment of local network equipment upgrades.

Community batteries tariffs must establish and build positive business cases for rapid and far-reaching battery storage and network firming implementation. Rooftop solar roll-out continues unabated and the excess solar during the day is causing significant network issues. In addition, coal fired power stations are coming to “end-of-life” and major network storage is not going to come online soon. Electric storage batteries are a mature technology, and prices are falling in line with lower global lithium pricing and the uptick in global manufacturing volumes, similar to the pricing history of rooftop solar panels.

#### **Basis of proposal:**

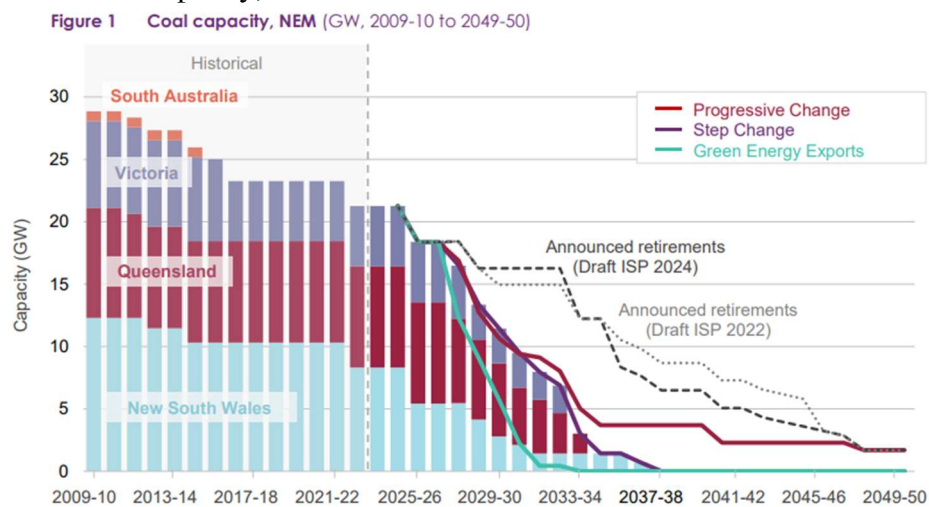
1. The uptake of rooftop solar, behind the meter batteries and electric vehicles is accelerating through consumers’ self-action.
2. Increasing solar generation is flooding the grid and driving down the wholesale energy market prices during daylight hours.
3. During morning and evening energy demand spikes, the wholesale pricing spikes to meet demand.
4. The power grid was only built to move energy one way, from generators to customers. The grid is becoming increasingly unstable with increasing solar generation.
5. Community batteries that store energy locally, help to stabilise the grid, and facilitates the maximum roll-out of solar PV, while preventing solar curtailment which would otherwise occur.
6. We propose that a large-scale rollout of local batteries is the key to leveling wholesale pricing and to use renewable energy to meet the demand peaks throughout the day.
7. Solar and wind currently generates significant energy during the day, however coal fired power stations provide the lion’s share of energy to meet the overall daily demands in Qld. Urban roof area is sufficient to install rooftop solar to completely replace coal fired grid power. However, storage is the key to provide power 24/7.
8. AMEO is predicting the phase out of coal fired power stations through to the mid-2030’s – just 10 years away. Refer extract from Draft 2024 Integrated System Plan Executive Summary (pages 8 and 9):

#### **Coal is retiring, faster than announced.**

- a. Ten large coal-fired generators have closed since Munmorah ceased operations in 2012, the latest being Liddell this year. Retirements have been announced for all but

one of the remaining fleet, with about half by 2035 and the rest by 2051, continuing the steady rate of retirement since 2012: see Figure 1.

- b. However, the ISP forecasts that the remaining coal fleet will close two to three times faster than those announcements. In the most likely Step Change scenario, about 90% of the current 21 gigawatts (GW) of coal capacity would retire by 2034-35, and all before 2040. Even in Progressive Change, only 4 GW of coal generation would remain in 2034-35.
- c. Coal retirements may occur even faster than these forecasts. Ownership has become less attractive, with higher operating costs, reduced fuel security, high maintenance costs and greater competition from renewable energy in the wholesale market. Coal owners are only required to give three and a half years' notice of a closure, which gives very little time for the NEM to react. **Replacement capacity must be put in place well in advance.**
- d. Figure 1 Coal Capacity, NEM



- 9. The next five (5) years is pivotal with both rooftop solar and battery storage rollout.
- 10. More solar is required, and storage is the key to unlocking solar. However, community battery storage projects struggle to financially break even.
- 11. An urgent focus on tariffs is required to a build better business case for local storage.
- 12. Larger “In front of the meter” batteries can provide lower unit-cost batteries than batteries installed behind-the-meter in small businesses and residences.
- 13. Community batteries can provide for renters, unit and low-income residents who currently miss out on the solar and battery opportunities available to owner occupiers.
- 14. Energy generated locally keeps money that would otherwise leave the local economy to pay for the grid sourced energy, remaining and spent in the local community and increases local employment.
- 15. Energex and Ergon face the challenges of aging infrastructure and a future of increasing electrical demand required for electrified buildings and EVs.

16. EVs will significantly increase the electrical demand to offset petrol and diesel required for the ICE vehicles.
17. A change of approach is required to roll out battery storage and infrastructure firming on a very local level that provides increased redundancy and capacity.
18. Batteries can offset upgrades to poles and wires and transformers.
19. The increased rollout of solar can meet the increased daytime loads thus reducing the load on the local network. Note this does not consider the period during transition where solar and storage take-up is low with increasing electrical demands for EV's and building electrification. Local batteries also increases storage redundancy.
20. Energy Qld - Energex and Ergon, need to encourage and support the commercial take up of community batteries to store energy locally as the energy system transitions to renewable and decentralised energy generation using rooftop solar.
21. When considering post code area 4075, there are 10,000 residents (Energex 2023 and Census 2021). If each resident requires between 10 – 50 kWh of battery storage to meet the evening and overnight demand, then we require 10,000 x 25kWh behind-the-meter batteries. However, if only 40% of the residents take up their own behind-the-meter batteries, and the balance of the storage capacity to allow the local area 4075 to achieve self-sufficient storage is provided using community batteries. Then that could be reduced to 2,000 x 75kWh pole mounted community batteries, or 300 x 500kWh kiosk community batteries or a combination of both formats and sizing. Note a further reduction in storage for the community is expected. This is due to not all properties have the same loads each day and the demand for battery storage is less than the sum of the averages.
22. When considering residential properties in post code area 4075 only, the upper cost for behind-the-meter batteries: \$1,200 per kWh storage, 25kWhr per resident, 10,000 residents is \$300 million. This is beyond the capacity of government to meet these costs across the state. We need to consider private capital options to fund this transition. Grid and community scale batteries need to be on equal footing when competing for funds from both private and public sources.
23. There is limited pumped hydro capacity in the state which can only deliver back to the grid, 50% - 60% of the energy received for storage as a maximum. This does not consider the HV power line and distribution losses in the local networks. The lower energy efficiency of the overall storage system increases the costs to provide additional generating capacity to meet the system / network energy demands at night.
24. Locally distributed batteries have higher overall energy storage efficiency (estimated 80% - 90%) than remote pumped hydro. This does not mean that pumped hydro is not required, however, it does not mean that it is not the only alternative.
25. Why is a state-controlled entity actively proposing financial barriers for the rollout of network energy storage and firming when considering the arguments above. Privately funded batteries will support transition and the currently proposed barriers will not support the rollout as required in our networks.