Australian Energy Storage Alliance

Opportunities for Energy Storage in NSW– Sep 2018

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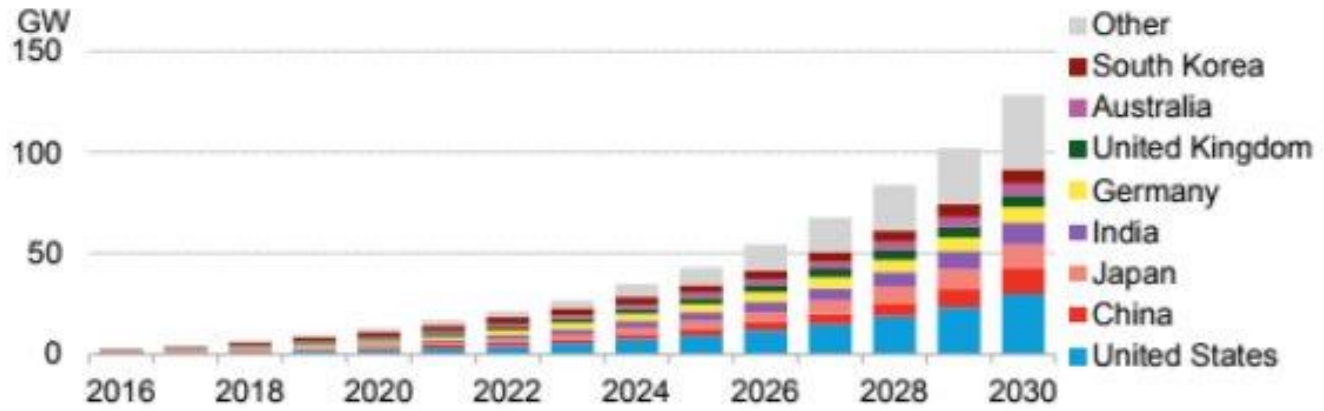
australian energy storage alliance

Among Leaders in Energy Storage Uptake

Bloomberg NEF 'Energy Storage Forecast 2017-30' lists Australia as "one of 8 countries expected to lead massive boom in global energy storage uptake" to 2030

Figure 1: Global cumulative storage deployments by country, based on power output



Source: Bloomberg New Energy Finance

- **Regionally, energy storage build will be roughly equally spread across APAC, EMEA and the AMER**. In the earlier years, between 2017 and 2020, APAC will represent almost half of the total installed capacity, as South Korea, Japan, Australia and China have supported earlier build in these markets (Figure 2 and Figure 3).

Bloomberg NEF 'Energy Storage Forecast 2017-30'
Via RenewEconomy

Where are the Opportunities?

The Australian Energy Market Commission (AEMC) makes & amends the National Electricity Rules that underpin the NEM

Residential

C&I and Microgrid Projects

Utility / Grid Scale

- National Electricity Market (NEM)
- South West Interconnected System (SWIS)
- Northern Territory Electricity Network/s

Report: Opportunities for Utility Scale Batteries in NSW

*A report by the Australian Energy Storage Alliance in partnership with **AECOM** and supported by the NSW Energy and Resources Knowledge Hub through the NSW Department of Industry*.

NSW Marketplace

New South Wales :

- the largest population in Australia
- most electricity generation capacity to the National Electricity Market (NEM)
- typically an overall net importer of electricity from the NEM
- has experienced one of the steepest wholesale electricity price increases
- expects retirement of thermal coal-fired generation - AGL Energy 2GW Liddell plant 2022

NSW is centrally placed on the NEM with interconnections to the other participating states.

It has the potential to derive significant economic benefit through becoming a net exporter of energy by installing further generation and storage.

NSW Network Service Providers:

- Ausgrid, Endeavour Energy, Essential Energy and ActewAGL (Australian Capital Territory)

Where are we now?

Uptake of Renewable Energy in NSW

NSW is leading the way in Australia in large scale solar with close to 300 MW of solar capacity installed to date. The report lists the solar and wind farms currently operational and those planned.

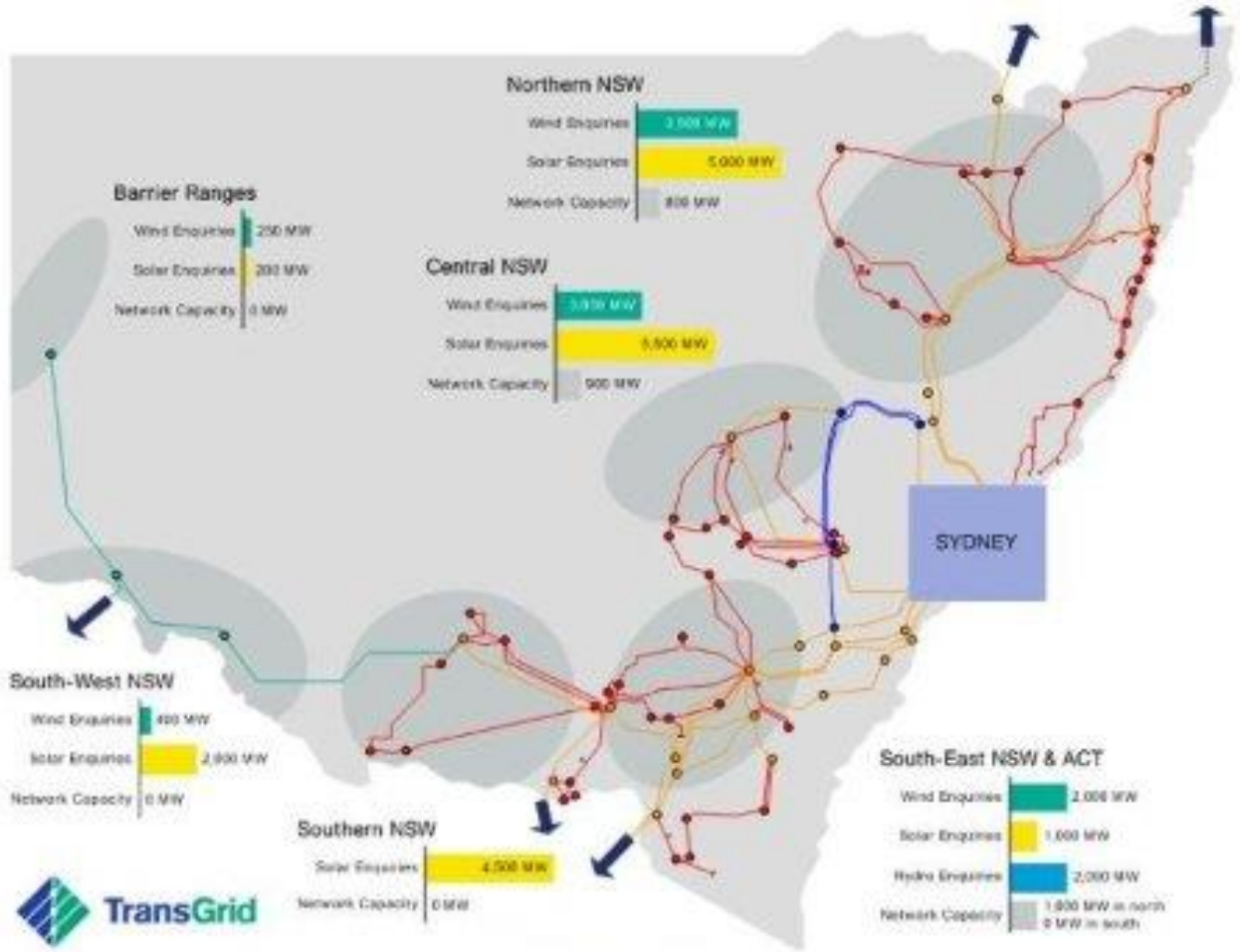
While no utility scale battery storage has been implemented in NSW, many of the developments include the ability to add battery storage at a later date.

The NSW Government has defined new Renewable Energy Zones, which, once developed as proposed in the Integrated System Plan, would give the private sector greater certainty to make efficient long-term investment decisions. Recently announced by NSW Government is the Emerging Energy program to support the next generation of large-scale energy and storage projects in NSW

TransGrid's Submission to the AEMO's ISP Consultation 2018

Features of the best renewable energy zones:

- Quality and diversity of renewable resources
- Availability of firming capacity
- Proximity to load centres
- Cost of integration to the transmission network
- Suitability of geography and land use
- Existing connection enquiries
- Support from local communities



Source: TransGrid Submission to the AEMO ISP Consultation, 2018

Recent Announcements for Battery Storage in NSW

New England NSW via Wikipedia

Development of the **Sapphire Renewable Hub** to include Storage

- Located in the New England district in Northern NSW
- Excellent profile for wind and solar
- Battery storage for large scale, dispatchable renewable energy

"***The Sapphire Renewable Energy Hub will be the largest such project in the world. This is the future of energy generation in Australia, being constructed right now***." Ed Mounsey, CWP Head of Development

https://cwprenewables.com/wp-content/uploads/2018/08/180817_Media-Release-CWP-Receives-Approval-for-Sapphire-Renewable-Energy-Hub.pdf

AEMC sees Opportunities for Energy Storage

The Australian Energy Market Commission (AEMC) outlined that Energy Storage:

- can reduce congestion on both transmission and distribution lines and other network assets, potentially shaving the peak demand that drives a lot of network augmentation,
- can provide ancillary services like frequency control, voltage support and potentially even system restart services,
- can substitute for generation, helping to integrate intermittent renewable generation and allowing trading between times of higher and lower wholesale electricity prices.

The AEMC is addressing many of the challenges of the current regulatory model, which was built around defined roles along the supply chain.

AEMC, [Online]. : https://www.aemc.gov.au/markets-reviews-advice/annual-marketperformance-review-2015

Where are other Opportunities?

Lord Mayor Clover Moore and
TransGrid CEO Paul Italiano
at Aexandra Canal Depot

Industrial and Commercial Large Scale Batteries in NSW

City of Sydney recently unveiled the first industrial-scale battery in the Sydney metropolitan area.

The battery was installed by TransGrid, “behind the meter”, and is powered by more than 1,600 solar panels on the roof of the City of Sydney’s new Alexandra Canal depot.

TransGrid CEO Paul Italiano: “***large-scale batteries will play a large role in the future of electricity network services***”.

Australia is a diverse market for Energy Storage

Drivers are phase out of coal fired generation, high cost of power, the uptake of solar PV, power purchase agreements, integration of smart systems and issues relating to security of supply.

To find out more, see **Australian Energy Storage Alliance**

Website EnergyStorageAlliance.com.au

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