How Hydro Tasmania can become a ‘Battery for the Nation’ in Australia

Alex Beckitt – February, 2019
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1. Australia’s National Energy Market (NEM)

The Australian NEM:
- Energy only market (and FCAS)
- Spans 6 states and territories;
- Operational since 1998;
- Has approximately 40,000 km of transmission infrastructure;
- Supplies ~10,000,000 customers;
- Generating capacity of ~54,241 MW (as at December 2017);
- Annual demand of ~180,000 GWh

長いグリッドと少ない消費
2. Drivers of change in the NEM

- Ageing fleet, coal plant retirements
  - Tighter supply/demand causing market volatility
- Falling costs of renewable energy
  - Significant uptake of wind and solar driven primarily by the federal level
- Consumer reactions to increasing prices
- Renewable Energy Target
  - Increased and extended in 2009
  - Amended downwards in 2015
  - Phasing out 2020-2030
- States bringing in different schemes

- 急速に変化する世代構成
3. Quantifying the challenge

- ~30% of the NEM’s thermal fleet is forecast to retire 2028-2037.
- This capacity is likely to be replaced primarily by VRE.
- A key challenge will be ‘dispatchability/firming/balancing’.

石炭時代の終わりとグリッドに接続する新しい再生可能エネルギー
The Australian Energy Market Operator (AEMO) has identified that the NEM requires 15,000 MW of large-scale storage by 2040.
5. Energy storage solutions

- オーストラリアは多くの貯蔵オプションを検討しています
- Tesla delivered a **100MW/129MWh Tesla battery** alongside Hornsdale wind farm.
  - Main value in delivering grid services - Frequency etc.
- **Snowy Hydro board has endorsed final plan to expand scheme by ~2,000MW** – awaiting shareholder approval
- **Where does Battery of the Nation fit?**


6. Battery of the Nation

“Battery of the Nation” には多くの利点があります

We envisage Battery of the Nation could include up to 5 interconnectors, 2,500 MW of pumped storage hydro, and significant wind generation.

- **Cost competitive** energy storage.
- **Significant wind resources**.
- **Facilitates uptake of VRE** in the National Energy Market.
- **Downward pressure on prices**.
6. Battery of the Nation

Hydro Tasmania is developing a series of white papers addressing issues felt by hydro operators around the world.

- The first released December 2018
- Topics include:
  - How will Tasmanian assets respond to more interconnection?
  - Modelling the value of Tasmanian pumped hydro
  - Benefits for neighbouring regions
  - Revenue and finance models
7. Key messages

1. Tasmania has significant natural resources to help it become a Battery for the Nation in Australia.

2. It is integral that the value of PHES and strategic interconnection is properly recognised in market/policy frameworks.

3. The Australian government is keen to continue exploring opportunities for pumped hydro in Tasmania.
Thank you
有難うございました。

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