Grid access reform proposal

Presentation to ESB – CMM Technical Working Group

18 February 2022

Clean Energy Investor Group

About CEIG

CEIG is the voice for domestic and global renewable energy developers and investors in Australia

Combined, CEIG members own:

- More than 11GW of installed VRE
    - 20% total NEM
    - 50% total clean energy in NEM
- More than 70 power stations
- Portfolio value of around $24B
- Pipeline of more than 18GW

ESB P2025 reform

ESB has set out 4 objectives* for access reform

Main CEIG focus

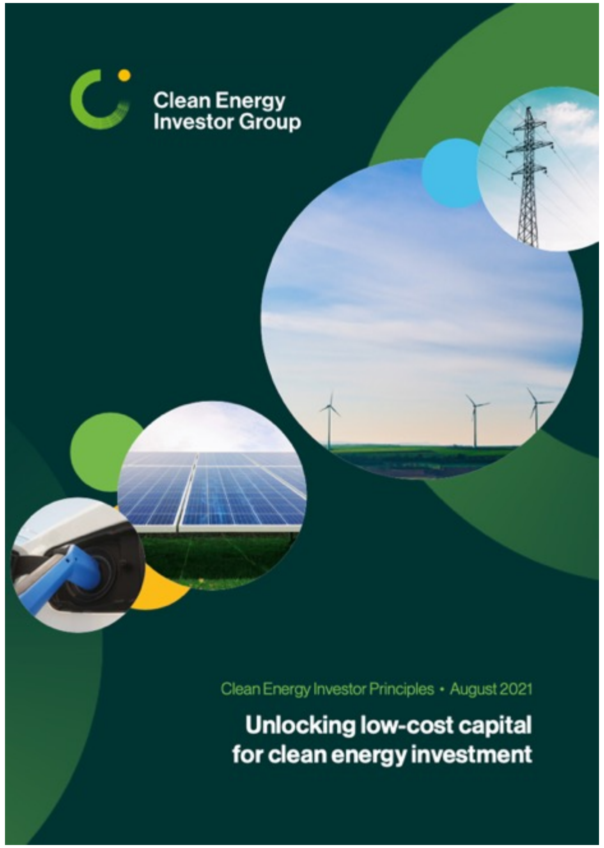
- **Efficient locational signals for generators** - better signals for generators to locate in areas where there is available transmission capacity incl in REZs.
- **Efficient locational signals for storage and demand side management** - establishing a framework that rewards storage and demand side resources for locating where they are needed most and operating in ways that benefit the broader system.
- **Measures to give investors confidence** that their investments will not be undermined by inefficient subsequent connections.
- **Efficient dispatch** - achieving efficient dispatch by eliminating disorderly bidding.

* ESB, *Transmission access reform – Project initiation paper*, p.12 (Nov-21)

CEIG’s alternative proposal to CMM-REZ

Grid access reform proposal

- This is a concept design: we are open to feedback & amendments.
- Alternative to ESB’s CMM-REZ that seeks to be consistent with approach adopted in CEIG’s Investor Principles



Risk premium in Australian market

- Survey of CEIG Members: 100-250 bps risk premium on cost of equity
- Caused by lack of revenue certainty and excessive risk

What the current NEM looks like

In thermal world, open access regime made sense

- Steady load, steady generation
- Need to generate competition
- No guarantee of dispatch

Solving for short-term dispatch problem

Problem: lack of revenue certainty creates risk premium

- Open access ➔ uncertainty around future congestion + volatile MLFs
- No mechanism to allocate spare transmission (Tx) capacity
- Tx investment framework: uncertain timetable for future Tx investment

Consequence

- High risk premium due to revenue uncertainty & difficulty to predict future revenues

What will the future NEM look like?

NEM quickly transitioning to 100% Variable Renewable Energy (VRE)

Solving for long-term investment problem

- Energy transition will require large capital deployment (see 2022 draft ISP)
- VRE generators characteristics:
  - High upfront capital cost: infrastructure cost (through cost capital) becomes more important, energy price less;
  - Near zero marginal cost: if all bidders have near zero marginal cost, no social benefit to dispatching any particular plant ahead of another
- NEM geographical re-alignment

Problem: achieve NEO by avoiding inefficient generation and Tx investment

- Need to minimise total infrastructure costs to achieve least-cost transition
  - Price lever (lower cost capital): need greater revenue certainty at time of financial investment decision about future ability to dispatch
  - Volume lever (minimise volume of infra built): optimise location of generation and Tx
- Efficient locational signal must be based on future generation and Tx mix

Key elements of our proposal

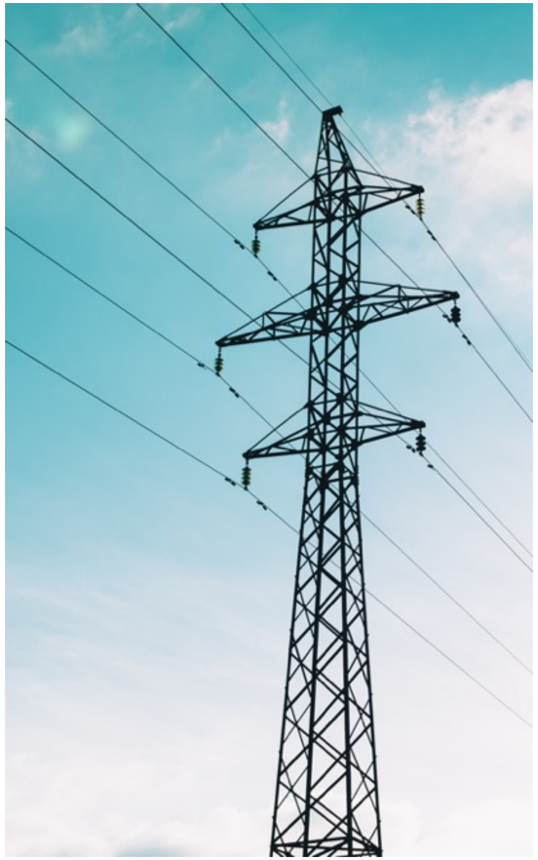
Grid access reform – Summary (1)

Queueing for spare Tx capacity

- Applies to existing/ future ISP Tx
- Allocate access to spare Tx capacity based on a queue
  - *“Last in, first curtailed”*
- Includes protection for existing plants

Transmission Charges as safety valve

- Applies if no existing or planned Tx capacity
- Generator can fund Tx inv to improve position in queue
- Incentive for storage as substitute to Tx inv



Queueing for spare transmission capacity

Why a queue?

- Locational signal to generators about curtailment order if curtailment becomes necessary (*"last in, first curtailed"*)
- Applies to spare existing or future centrally-planned (i.e. ISP) Tx capacity

How places are allocated in queue

- Protection for incumbents: existing plants receive position '0' in queue;
- First-come first-serve/ auction for new entrants connecting to spare Tx capacity (position '0');
- Once spare Tx exhausted, queue does not prohibit connections
  - instead, generators receive a high number in the queue (i.e. implicit knowledge of future curtailment risk)

○ Place in queue cannot deteriorate

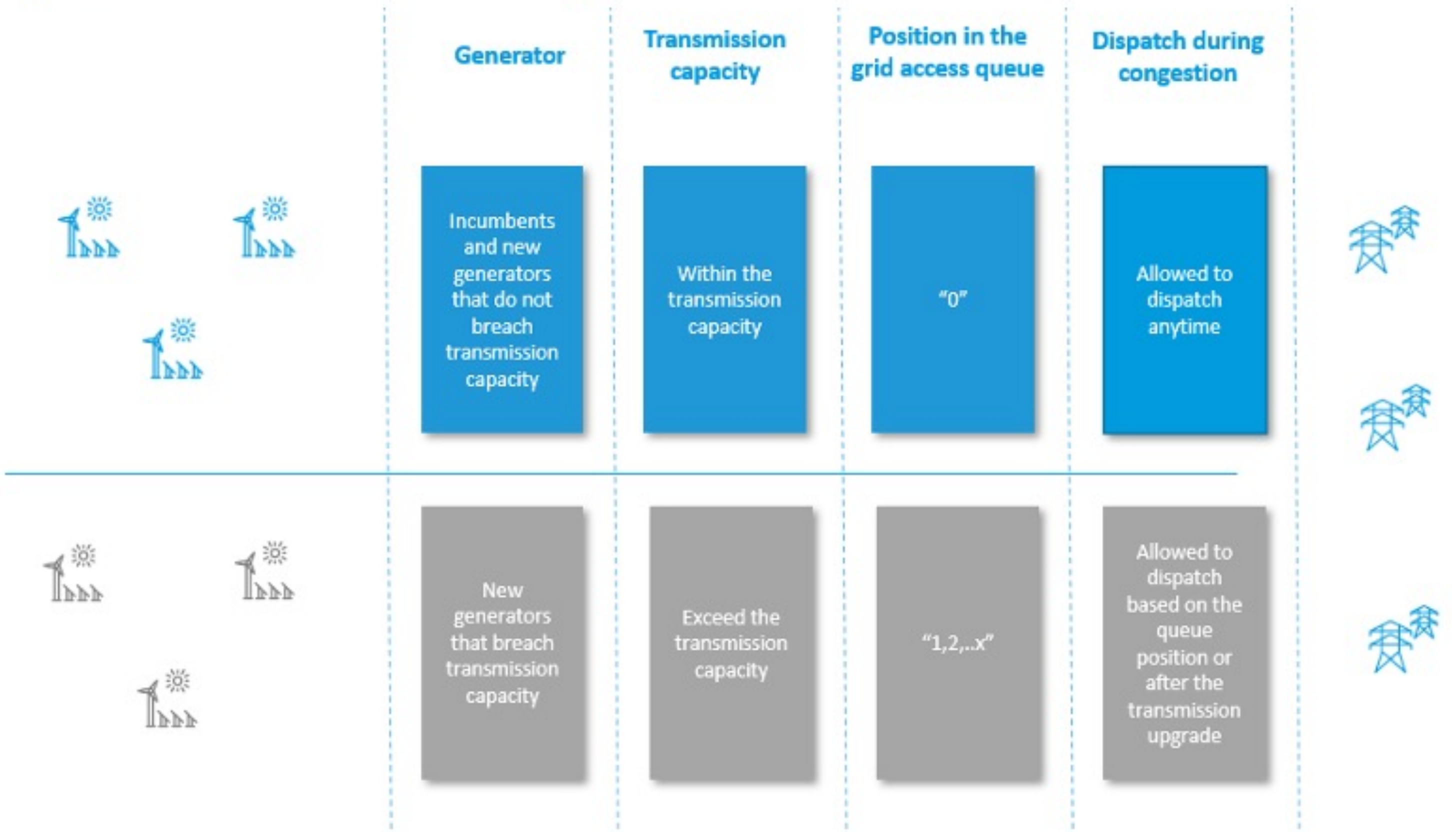
How the queue affects dispatch

Figure 3.3: Order of Decision Making in Dispatch Order

Source: Castalia

Operation of Tx queue

Figure 3.2: Overview of the Transmission Queue



Source: Castalia

Transmission Charges as safety valve

Why Transmission Charges (TCs)

- New entrant generator can fund Tx investment to improve position in queue
- Efficient locational signal when limited Tx capacity:

  Requires investors to evaluate:
  - Benefits of location with abundant resources but also high position in queue (e.g. ‘5’);
  - TC: cost of transmission network enhancement to gain position ‘0’ in queue

TC features

- No need for RIT-T approval
- Regulated TC price and SLAs to balance negotiating power (generator/ TNSP)
- Incentive for storage as substitute to TC

Grid access reform – Summary (2)

Use Average Loss Factor for settlement purposes

- Improve revenue certainty and predictability to lower cost of capital

Eliminate ‘race to floor’ bidding

- Amend tie-break rule to curtail plants with higher marginal cost first
    - Retain “physical” dispatch system requirements (e.g. coal plant ramp rates).

Grid access reform – Benefits

Benefits

- Locally firm, stable, more predictable access rights to Tx network
- Efficient utilisation of Tx network
- Minimise cost of infrastructure investment (generation, storage, Tx)
- Lower cost of capital
- Improved investor confidence

Thank you

Any questions or feedback?

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