Blog Post – Summary of CEIG's Grid Access Reform

A recent analysis drawn from the Clean Energy Investor Group's (CEIG) investor members found the lack of revenue certainty currently present in the Australian market and excessive risk for clean energy projects across Australia has led to a 100-250 bps risk premium on the cost of equity, compared to other OECD markets such as Europe, North America, and North Asia.

This risk adds a material cost to Australia's energy transition amounting to close to 10% of the total value of the future development pipeline required to achieve a 1005 renewable grid by 2045.

In a bid to improve investor certainty, in line with its third investor principle, CEIG has engaged the global strategic advisory firm Castalia to develop an alternative grid access reform.

CEIG is proposing a physical access regime which is designed to apply across the National Electricity Market (NEM), and within the Renewable Energy Zone (REZ) framework, leading to the following benefits:

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

CEIG recently presented its grid access reform as an alternative option for congestion management to the Energy Security Board (ESB).

Why grid access reform is important?

A key factor for investors when considering whether to invest in a clean energy project is the relative certainty of future revenue streams associated with the project over the life of the proposed asset.

The higher the revenue certainty, the lower the risk, and in turn, the lower the cost of capital for the project, and therefore a lower overall cost for consumers, the end users of the electricity which is generated or dispatched.

To assess the level of revenue certainty that a clean energy project is likely to receive over the life of the asset, investors review a broad range of project metrics and forecasts such as risk of curtailment, expected level of grid losses connection and commissioning delays and any protections that can be offered to mitigate these risks.

Investors also consider closely the future energy policy landscape and potential impacts, positive or negative for future clean energy investment decisions.

For projects in developing renewable energy zones (such as those proposed in NSW), investors will also consider metrics such as the tenor and firmness of access rights to the transmission network and at what level the REZ hosting capacity is proposed to be capped.]

CEIG's grid access reform has been designed to respond to the four objectives set out by the Energy Security Board for transmission access reform.

1. **Efficient locational signals for generators** - better signals for generators to locate in areas where there is available transmission capacity including inside and outside REZs.
2. **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.
3. **Measures to give investors' confidence** that their investments will not be undermined by inefficient subsequent connections.
4. **Efficient dispatch** - achieving efficient dispatch by eliminating disorderly bidding.

CEIG's alternative proposal to CMM-REZ

CEIG grid access reform has four key elements:

1. Queueing for curtailment order
2. Transmission Charges as a safety valve
3. Adoption of Average Loss Factor for settlement purposes
4. Eliminate 'race to floor' bidding

1. Queueing for curtailment order

A key element of the CEIG's grid access reform is to send a locational signal to generators by creating a curtailment order if curtailment becomes necessary.

The curtailment order would apply to all existing and new centrally planned transmission capacity, such as those set out in the Integrated System Plan (ISP).

Access to available transmission capacity would be based on a "last in, first curtailed" basis where incumbent generators would receive the highest priority position ('0') in the queue, thus providing a much higher level of revenue certainty for existing plants. A generators place in the queue cannot deteriorate.

Once available transmission capacity is exhausted, the new connections may continue to occur consistent with an "open access" NEM. However, those wishing to connect would receive a higher number in the queue ('1, 2, 3, 4', etc) if congestion arises.

The queue delivers increased predictability of curtailment risk in the future, ultimately providing a locational signal to investors.

Incorporating the queue order into the current dispatch algorithm, bid price would remain the first consideration, followed by the marginal loss factor (to account for physical losses) and when curtailment is required the transmission queue would then be applied.

Figure 1: Order of Decision Making in Dispatch Order

Source 1: Castalia

2. Transmission Charges as safety valve

In locations where there is no existing or planned transmission capacity, a generator can fund transmission investment to improve their position in the queue and protect the dispatch capacity of existing incumbent generators.

Transmission charges provide an efficient locational signal to new entrants where there is limited transmission capacity.

In addition to considering the benefits of a location with abundant resources, investors would be required to evaluate a less reliable position in the curtailment queue (e.g., '5') and the cost of transmission network enhancements to gain a more certain dispatch position (i.e., '0') in the queue.

Transmission projects paid for by transmission charges would not require RIT-T approval, however if the project becomes RIT-T approved the transmission charges would be refunded.

The Transmission Network Service Provider (TNSP) would need to offer a fair transmission charge to generators and this could be regulated by the Australian Energy Regulator (AER).

Contracts between TNSPs and generators to complete the transmission upgrade would also need to include Service Level Agreements (SLAs) on par with SLAs offered to incumbents through the queuing system.

The proposed transmission charges approach would provide greater certainty of dispatch, and furthermore an incentive for storage to act as a substitute to local transmission, lowering the overall transmission investment needed.

3. Use Average Loss Factor for settlement purposes

Providing investors with more predictable revenue will lead to an improvement in investor confidence and as a result a lower cost of capital.

To achieve these outcomes, CEIG propose replacing the Marginal Loss Factor (MLF) with an Average Loss Factor (ALF) for determining settlement prices in the spot market.

The use of ALFs for settlement purposes would be based on historical data, providing more predictable revenue than MLF's which are based on relatively short-term signals.

Unlike MLF which typically overstates the value of losses, resulting in an over-recovery of funds, ALF's are based on actual system losses so there would be no unfair wealth transfer away from customers.

MLF would be retained however for the dispatch order as presented in Figure 1 above.

4. Eliminate 'race to floor' bidding

In the current market, when there is a local constraint, 'race to the floor' bidding behaviour may lead to thermal generators which have high underlying costs being dispatched alongside zero marginal cost Variable Renewable Energy (VRE).

In a NEM with 100% VRE, little or no market efficiency is to be gained from optimising the order of dispatch, as all generation is from zero marginal costs technologies. CEIG's proposal is to change the dispatch algorithm to curtail thermal generation first as a 'tie-break'.

This would result in no impact on the reliability of supply. The dispatch algorithm already incorporates "physical" dispatch system requirements which can be retained. For example, if

thermals' ramp rate requirements mean they need to be dispatched to ensure supply in future periods.

CEIG's grid access reform benefits

The current open access regime is not fit for the future NEM as it does not provide long-term revenue certainty and difficult to predict future revenues. Nor does our current market design envisage how the market will operate in 100% renewable grid.

CEIG's grid access reform will achieve the four objectives transmission access reform is setting out to solve.

Ultimately, achieving these objectives will minimise the total infrastructure cost to achieve the least-cost transition for consumers.

For further information on the CEIG Grid Access Reform proposal

https://ceig.org.au/wp-content/uploads/2022/02/2022-02-23-Report-on-Transmission-Access-Reform.pdf

About the Clean Energy Investor Group

The Clean Energy Investor Group represents 18 domestic and global investors with a combined Australian portfolio value of over A$24 billion and more than 70 clean energy assets under management. It is an investor body, representing the unique perspective of clean energy investors to regulators, policy makers and the broader energy sector.

https://www.ceig.org.au/