ENERGY SECURITY BOARD

POST 2025 MARKET DESIGN PROGRAM

TRANSMISSION ACCESS REFORM: TECHNICAL WORKING GROUP - SESSION 4

22 MARCH 2022

OVERVIEW

- Physical access rights – experience from Western Australia
- Revised objectives and assessment criteria
- Proposed approach to assessment models: hybrid approach
- Core features of models
  - Investment timeframes
  - Operational timeframes
- Models identified for further development
- TASK – consider attributes of models in the context of the assessment criteria

PHYSICAL ACCESS RIGHTS

Experience from Western Australia

Overview of WA's 'unconstrained' access regime

Overview: Western Australia's South West Interconnected System (SWIS) was operated as a notionally unconstrained access regime, where generators were granted firm physical access rights through their access contracts with Western Power. This encountered challenges when contracted network capacity reached system limits, leading to various 'bolt-on' solutions.
The SWIS access regime is being converted to an open access regime, commencing October 2023, coincident with the introduction of a security-constrained, co-optimised real time market.

- The original access contracts for generators in the SWIS included a declared sent out capacity (DSOC), which required Western Power (WP) to provide the generator with access to that level under system normal conditions
  - This implied a 'do no harm' arrangement for new connections, which must fund augmentation (deep connection costs) as necessary (or desired) to avoid impinging upon existing access rights
- WP has operated an access queue for new connections under a published Application and Queuing Policy
  - Queue position was first-come, first-served; not necessarily aligned with project readiness / financial commitment
  - Anecdotally, queue position became a tradeable commodity, potentially open to speculation
- New connecting parties would be offered:
  - A reference service, which may entail substantial deep connection costs (potentially $100s of millions); or
  - A non-reference service, which may entail reduced access rights (i.e. curtailment)

Points of interest:

- The SWIS access regime faced similar threshold challenges to other 'do no harm' arrangements, with the next connection faced with very high connection costs or curtailment.
- The connection process became the greatest barrier to new investment.

Growth of ‘non-reference’ connections

Deep connection costs were a barrier to investment, and work-arounds have only provided temporary relief

Situation

- Once the network was ‘full’, connecting generators were faced with extremely high deep connection costs in order to receive firm access (under a reference service)

Solution

- Connecting generators would also be offered non-reference services, which were typically automated, post-contingent runback on a ‘last-in, first-out’ basis
- Experience shows that this non-reference arrangement was preferred by connecting generators

Outcomes

- Once network capacity was reached, no generator funded deep augmentation works
- The proliferation of uncoordinated post-contingent runback schemes reached its limit (the next threshold)
- This progressed to the introduction of pre-contingent runback arrangements

Key criticisms

- Curtailment based on access contracts results in less efficient dispatch
- Curtailment driven by off-market arrangements degrades the accuracy of pre-dispatch forecasts

Growth of ‘non-reference’ connections

Deep connection costs were a barrier to investment, and work-arounds have only provided temporary relief

Situation

- A single constraint in the network could affect multiple generator connection applications, which may not be contiguous in the access queue
- This created a first-mover disadvantage, where the first generator to connect would face the highest up-front cost

Solutions

- The first mover could be eligible to receive rebates where a subsequent connection benefits from the augmentation funded by the first mover
- Competing Application Group (CAG) process established for batching of applications

Outcomes

- Once network capacity was reached, no generator funded deep augmentation works
- To our knowledge, only one CAG was completed: funding a bespoke, pre-contingent curtailment tool – not network augmentation

Key criticisms

- In a small, lumpy market, coordination of multiple connection applicants in a CAG, with their own timelines, remained challenging
- The CAG curtailment tool operates outside the central dispatch process, degrading the accuracy of pre-dispatch forecasts

OBJECTIVES, ASSESSMENT CRITERIA AND CORE MODEL FEATURES OF TAR

Recap

REVISED ACCESS OBJECTIVES

Investment timeframes
The level of congestion in the system is consistent with the efficient level.

Operational timeframes
When congestion occurs, we dispatch the least cost combination of resources that securely meets demand.

1. Investment efficiency: Better long-term signals for generators, storage and scheduled loads to locate in areas where they can provide the most benefit to consumers, taking into account the impact on overall congestion.

2. Manage access risk: Establish a level playing field that balances investor risk with the continued promotion of new entry that contributes to effective competition in the long-term interests of consumers.

3. Operational efficiency: Remove incentives for non-cost reflective bidding to promote better use of the network in operational timeframes, resulting in more efficient dispatch outcomes and lower costs for consumers.

4. Incentivise congestion relief: Create incentives for technologies that can help to alleviate congestion (e.g. storage and demand-side resources) to locate where they are needed most and operate in ways that benefit the broader system.

REVISED ASSESSMENT CRITERIA

	Criteria	Description
1	Efficient market outcomes – investment	Better incentivises for generators, storage such as batteries, and load such as hydrogen electrolysers to locate in efficient areas.
2	Efficient market outcomes - dispatch	Better incentives for market participants to bid in a fashion that best reflects its underlying costs, resulting in more efficient dispatch outcomes and reducing fuel costs across the NEM. In turn, this may also reduce emissions.
3	Appropriate allocation of risk	Risk arising due to congestion in the NEM should be allocated, to the extent possible, to the party that is best placed to manage or otherwise bear that risk.
4	Manage access risk	Address the current market design features that amplify access risk to market participants above what would occur in a natural competitive market. Facilitate market participants' ability to manage access risk. Managing the risk arising from regulatory change, i.e. consider whether there are strategies to mitigate the impact of the changes on market participants.
5	Effective wholesale competition	Avoid creating barriers to new entry.
6	Implementation considerations	Cost, complexity, uncertainty of outcome, the likely timing of benefits versus costs.
7	Integration with jurisdictional REZ schemes	As requested by Ministers, the proposed rules must provide flexibility such that differences between jurisdictions' access schemes, including those without REZ schemes, can be integrated.

MIX AND MATCH APPROACH TO MODEL DEVELOPMENT

Break down access reform into its component concepts in order to develop a set of core features that need to be addressed, irrespective of which model we adopt.

Describe how each model addresses each core feature. This will give us a set of options for how we address each core feature.

Assess the performance of each option for addressing core feature A against our assessment criteria.

- Repeat for all the other core features.

Select the best performing options for addressing each core feature in order to develop a hybrid solution

- Check for internal consistency.

CORE FEATURES OF ACCESS MODELS IN INVESTMENT TIMEFRAMES

Feature	Description
Nature of incentive	How does the model incentivise efficient investment decisions/disincentivise inefficient investment decisions?
Identifying efficient connection locations	How do we determine which parts of the network should be subject to incentives/disincentives to connect? How do we take into account different generator output profiles?
Approach to managing new connections	How do we deal with different proponents seeking to connect at different times?
Treatment of pre-existing generators	What do we do about generators who are already there? How do we strike the right balance between new entrants and incumbents?
Efficient retirement decisions	How do we make sure that the framework encourages efficient retirement decisions for end-of-life generators?
Maximising hosting capacity of available transmission	How do we maximise the potential hosting capacity of the network by encouraging investments that enhance hosting capacity?
Signals for congestion relief	How do we create incentives for demand side and two way technologies to locate where they are needed most?

CORE FEATURES OF ACCESS MODELS IN OPERATIONAL TIMEFRAMES

Feature	Description
Efficient dispatch outcomes	How do we make sure that we dispatch the cheapest available combination of resources to securely meet demand?
Signals for congestion relief	How do we create incentives for demand side and two way technologies to operate in ways that help to alleviate congestion?
Managing inter-regional flows	How do we ensure that we use the transmission system efficiently when inter-regional flows are affected by congestion?
Allocating the value arising from regional pricing	How do we allocate the value arising from the use of regional pricing? [Note: issue overlaps with investment timeframes]

MODELS IDENTIFIED FOR FURTHER DEVELOPMENT

Operational timeframes	Investment timeframes
Vanilla congestion management model	REZ adaptation (i.e. selective availability of rebates as per CMM-REZ)
Congestion relief market	Preferential dispatch
Preferential dispatch	Locational connection fees
Dual price floors	Connection fees based on long term plan
Shaped MLFs	PIAC REZ model

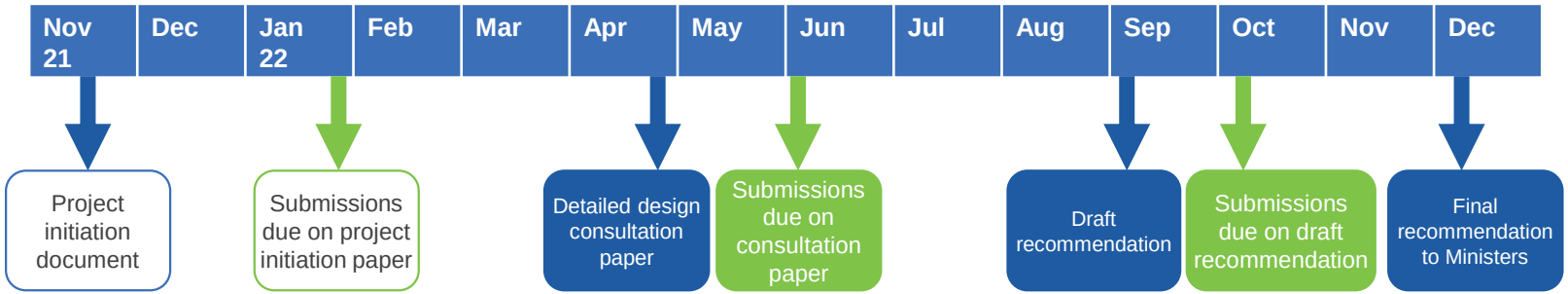
Based on discussions with stakeholders to date, we do not propose to progress the detailed design of the grey shaded models on grounds that they are only indirectly related to access reform.

PRELIMINARY ASSESSMENT OF MODELS

Mural task –

For use to brief the board and in the upcoming consult paper

NEXT STEPS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Project initiation document
Submissions due on project initiation paper
Detailed design consultation paper
Submissions due on consultation paper
Draft recommendation
Submissions due on draft recommendation
Final recommendation to Ministers