

Welcome to the Congestion Management Public Forum

Acknowledgement of country

Introductions

Agenda

TIME	ITEM	
09:30	Welcome, acknowledgement of country and introductions	
	Paul Johnson, Commonwealth, on behalf of Energy Senior Officials	
09:40	Key themes of stakeholder feedback - Anna Collyer, ESB	
09:50	Evolution of the CRM design – Amanda Sinden, ESB	
09:55	 Stakeholder presentations Clean Energy Investor Group (CEIG) Clean Energy Council (CEC) RES Australia Tilt Renewables Neoen Australian Financial Markets Association (AFMA) Energy Consumers Australia (ECA) 	
11:00	Q & A – Anna Collyer	
11:20	Next steps – Anna Collyer	
11:25	Close – Paul Johnson	
11:30	End	

TRANSMISSION ACCESS REFORM

JOINT SENIOR OFFICIALS – ESB PUBLIC FORUM



25 January 2023

KEY THEMES OF SUBMISSIONS

The Directions Paper proposed a hybrid model including the congestion relief market, enhanced information and two variants (priority access or congestion fees).

Figure 1. Core elements of the hybrid model



The final package needs to deliver a coherent approach to meeting access reform objectives and result in implementable systems with secure and economic dispatch.

SUBMISSIONS

32 submissions were received as at 16 January 2023.

Figure 1. Stakeholder representation (count of submissions)



Notes:

'Other' refers to submissions from the Australian Pipelines and Gas Association and the Australian National University (ANU).

SUBMISSIONS – STAKEHOLDER PREFERENCES

There was no clear preference between priority access and congestion fees.

Figure 2. Stakeholder preferences



Notes:

'Partial support for the CRM' typically refers to stakeholders wanting to revert to the Edify Energy proposal and/or CEC's modified version.

'Defer decision' refers to stakeholders (a) not prepared to voice a preference without detailed modelling and/or cost benefit analysis or (b) proposing to defer TAR until the case for change is reassessed after the implementation of other NEM initiatives (e.g. Rewiring the Nation, REZ development)

EVOLUTION OF THE CRM DESIGN

ENERGY SECURITY BOARD



LMP Locational Marginal Price FTR Financial Transmission Right CMM Congestion management model REZ Renewable Energy Zone CRM Congestion Relief Market



Submitted by Edify Energy

"The modified CRM model" Submitted by Clean Energy Council "The Congestion Relief Market" Published by the ESB

Stakeholder concerns with evolution of the CRM design

A number of submissions were partially supportive of the CRM design if it re-adopted Edify Energy's original proposal or CEC's modified version.

Specific concerns included:

- referring to the congestion relief price as the locational marginal price (LMP)
- complexity of the design choices
- need for targeted education initiatives, worked examples and user-friendly models.

Clarifying the language of LMPs

- Many stakeholders are concerned with the term of 'LMP' given their familiarity in the context of COGATI.
- The proposed CRM shares underlying mathematical concepts but it has key differences from a classical LMP and FTR regime:
 - Under the CRM design, generators continue to be paid at the RRP for the energy market dispatch
 - CRM participants can profit from dispatch adjustments priced at the LMP (subject to their bids and offers).
- Those differences maintain the intent of the Edify proposal and the ESB version is very similar to the CEC's.
- Importantly the CEC and ECB versions address practical implementation issues arising with the Edify model.





The ESB is working to develop the detailed design of the CRM in light of stakeholder feedback.

The ESB recognises the need to establish an education workstream to familiarise stakeholders with the changes. This includes presenting technical information in an accessible way so that stakeholders can familiarise themselves with the proposed reforms.

Stakeholder presentations

CEIG - Transmission access reform

25 January 2023

Clean Energy Investor Group

CEIG - Transmission access reform project



Clean Energy Investor Group

CEIG's model

Physical access regime Apply across the NEM Compatible with REZs **Benefits** Locally firm Tx access rights More predictable curtailment risk Efficient utilisation of Tx network Minimise cost of infrastructure investment Lower cost of capital Improved investor confidence

Principles used to define CEIG position

Principles for reform

- Should not undermine development of new generation
- Should share efficient congestion fairly across existing and new plants
- Should **not undermine** bilateral trade, existing contracts or long-term price predictability
- Should reduce risk during asset operation, not increase it
- Should account for all types of congestion
 - thermal limits, voltage stability, pre-contingent and system strength
- Should not undermine system security
- Should not be overcomplicated





CEIG position

CEIG recommends that Ministers consider the adoption of a range of measures that separately, or in combination, can improve the investability of the NEM

Range of benefits:

- Improve NEM investability
- Reduce excessive risks
- Improve revenue predictability
- Lower cost of capital and therefore costs to consumers





CEIG position – quick wins

Support development of Enhanced information proposal

- Goal: more granular, more regular, consistent measure of network availability across NEM; now and in future
- Start asap

Support investigation of ESB's proposal to round constraint coefficients

• Goal: potential for more equitable sharing of congestion risk



Support new mechanism to commit implementation of ISP Tx inv.

- Goal: provide confidence to industry around timing and quantum of Tx capacity available
- Start asap



CEIG position – quick wins (2)

Investigate Grid black spot program to unlock existing curtailed VRE capacity

- Identify 'black spots' w/ curtailed VRE capacity in grid
 - Focus on small scale, cost-effective projects
 - Complementary to the States' transmission build; works in parallel with w/ RIT-Ts
 - Grant funding: Rewiring the Nation (national program)
 - \rightarrow unlock cheapest MW in NEM, for benefit of consumers



SmartValve can push power off overloaded lines or pull power onto underutilized lines

Source: Smart

Wires

- Future-proof upfront: CEFC (through Rewiring Nation) to upscale solutions?
 - RIT-T solutions are not sized to account for future generation in an area

CEIG working with CEIG Member Banpu Energy and Stride Renewables



CEIG position – Investment timeframe

Priority access model

- Support: further development of Priority access model
 - Detailed design must follow principles outlined above incl. fair risk allocation (existing vs. new plants)
- If priority access not implemented:
 - Ministers to revisit in 12-18 months, post completion of Enhanced information reforms

Congestion fees model

- Not support: congestion fees model
 - Would impose new cost without any concrete benefits (= higher consumers costs)





CEIG position – Operational timeframe

Congestion Relief Market (CRM)

- Support: further development of Edify's version (with CEC amendments)
 - Must ensure energy continues to be priced at regional reference price (RRP);
 - Support CRM as genuine voluntary model.

Congestion Management Model (CMM)

- Not support: implementation of CMM
 - Increases risk and uncertainty incl. in PPA market;
 - Not aligned to direction of reform in NEM to reward flexibility and dispatchability
- Reject reforms that use Locational Marginal Pricing (LMP)







For more information, including to read our submissions, visit <u>www.ceig.org.au/</u>







TRANSMISSION ACCESS REFORM JOINT PUBLIC FORUM

CLEAN ENERGY COUNCIL JANUARY 25, 2023

ACCESS REFORM STATE OF PLAY

CEC represents the entire renewable energy supply chain – we have assessed this issue at great breadth. We have worked collaboratively with the ESB, supporting the Modified CRM in June 2022, but are concerned with current speed to deliver this reform.

Key concerns:

- Significant confusion and uncertainty regarding need for urgent reform, no clear evidence of predicted congestion
- Not enough analysis or information available to enable us to make a recommendation as to which, if any, of the hybrid models are preferable
- CMM remains in consideration, causing distraction and preventing progress

We urge officials to "hasten slowly". There is **no evidence to suggest this reform area needs to be accelerated**. Rushing things creates a material risk of unintended consequences, and will markedly increase uncertainty in an already difficult investment market.

Industry is at a deadlock.



HOW WE MOVE FORWARD

Industry wants to continue to work collaboratively. To enable this, the following is needed:

- Mandatory Locational marginal pricing (LMP) needs to be removed from consideration in the energy only market. LMP, of which the CMM is an example, is poison for investment. It distracts from real industry collaboration and reduces trust in the ESB's process.
- Before any firm decisions can be made on the ESB's proposed models, full cost-benefit analysis (CBA) and modelling must be shared, including NERA modelling. This must be provided with adequate time for industry consultation and testing.
- Allow for harmonisation of federal and state programs, and do not prioritise a national access reform ahead of these. Most of the ESB's work is theoretical and not evidenced based, we should look to the approaches being adopted by state and federal governments and learn and adapt from them. Also recognising the landscape has changed significantly since Post-2025 review commenced.
- ESB and Senior Officials should not rush this process. Take the time to assess the options, and to develop them to a level where all members of industry, government and consumer groups can understand and engage with the process



ISSUES TO BE ADDRESSED

- **Congestion relief market:** Support reverting CRM to more closely align with CEC and Edify proposed models, however, much more remains before it can confidently be supported for implementation. Optional nature of CRM must be preserved
- **Enhanced Information model:** Its not clear why this model is 'not enough' better information is very powerful, and developers will make better locational decisions when it is available. More granular and standardized data is needed and can be implemented now.
- **Priority Access:** Creates risks of inefficiencies by linking investment and operational timescales. Requiring CRM to resolve inefficiencies changes CRM's function. Also creates connection risks. Grandfathering issues are extremely complex. Perverse queuing incentives remain.
- **Congestion Fees:** Significant complexity of fee calculation and allocation. Also intersects with connection process and grandfathering.
- **Coefficient Rounding:** The concept broadly has merit however requires further examples and analysis before this could be committed to review could exist separately to TAR
- **Congestion materiality:** There is little analysis available as to how material congestion will be in future. ESB must provide detailed and transparent power system and market modelling to assess the materiality of future congestion. This is the critical first step in any CBA.



For further information, please contact:

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Transmission Access Reform

Martin Hemphill, Manager - Grid Connections January 2023



RES Overview







Investment Timeframe: Priority Access



RES strongly opposes all variants of the priority access model, including the proposed hybrid with the Congestion Relief Market. We anticipate the following counterproductive outcomes:

1. Lost incentive for efficient connection arrangement design

2. Strengthened incentive for connections race

3. Inappropriate allocation of access risk

4. Grandfathering complexity

Investment Timeframe: Transmission Fees



RES strongly opposes all variants of the transmission fees model, including any hybrids with the Congestion Relief Market. We anticipate the following counterproductive outcomes:



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Operational Timeframe: RES Recommended Approach

In RES' view, all four transmission access reform objectives can be achieved by combining an operational timeframe model with enhanced information.



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Operational Timeframe: RES Recommended Approach

Status quo	RES suggested CMM	RES suggested CRM
 Physical access is determined by bid price When a constraint is binding, most generators bid to MFP Physical access is then determined by constraint equation coefficient - <u>winner</u> <u>takes all</u> No financial compensation for curtailment 	 Physical access is determined by bid price and then coefficients Congestion fees are proportional to a generator's contribution to congestion <u>Congestion rebates</u> <u>are pro-rated</u> <u>based</u> <u>on coefficients</u> 	 Initial access is pro-rated based on coefficients to generators with tied bids in the initial energy market run CRM is used to trade to an efficient physical dispatch scenario

Outcomes: RES Recommended Approach

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The following outcomes apply to either CMM or CRM as recommended by RES:

- 1. Physical access aligns with the lowest cost for consumers as the most efficient generator is curtailed. This mimimises overall curtailment and emissions.
- 2. Financial access is pro-rated based on coefficients. This maintains the existing incentive for efficient connection arrangements whilst exposing new entrants to the congestion they cause. Exposure to this risk will align locational decisions of new entrants with efficient system level outcomes.
- 3. Investors will take operational TAR models into account when estimating project revenues. A separate investment timeframe model is not required.
- 4. The economics of energy storage within congested REZs will be improved from the status quo.

Thank you!



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www.res-group.com



TRANSMISSION ACCESS REFORM SENIOR OFFICIALS AND ESB JOINT ONLINE WORKSHOP PRESENTATION

JONATHAN UPSON JANUARY 25, 2023

TILT RENEWABLES OVERVIEW



ONE OF THE LARGEST OWNERS AND DEVELOPERS OF WIND & SOLAR GENERATION IN AUSTRALIA

Operating Portfolio & Development Pipeline

Portfolio highlights





- There is near unanimous support for Enhanced Information
- We would respectfully suggest that Energy Ministers ask their Departments to immediately start work on this initiative at their February meeting
- Information and forecasting of all curtailment needs to be included
- Thermal, voltage stability, and pre-contingent congestion all need to be included
- Forecast of existing, committed and 'probable' future projects is important
- This initiative is likely to be more effective than some consider particularly if it is developed in close collaboration with industry



- COGATI/CMM/LMP was proposed by the AEMC about four years ago
- In the past four years, very little has changed
 - AEMC / ESB proposes LMPs in a consultation paper
 - ~90% of submissions oppose the LMPs for many varied and important reasons
 - ESB tweaks the problem to be solved and/or LMP and proposes it again
 - ~90% of submissions oppose the LMPs for many varied and important reasons
 - ESB tweaks the problem to be solved and/or LMP and proposes it again
 - Etc., Etc., Etc
- The scheme's operation and rebate formula have not been well defined and no cost benefit analysis has been supplied despite repeated requests over the years



- Briefly, there are two basic reasons why LMP is the wrong policy
- It would have a chilling effect on new investments caused by increasing uncertainty in revenue, financing, and offtake agreements while disrupting existing market systems and offtake/hedging arrangements
- At the same time all Governments want to accelerate new investment in generation and storage
- The inevitable result would be higher electricity prices (less supply = higher prices)
- ...and LMP does not address the fundamental problem which is discouraging new generators from locating in congested areas
 - "This model [LMP] does not provide a signal to locate in places where the generator does not increase congestion." ¹

¹ Energy Security Board – Transmission access reform Consultation Paper May 2022 p. 42



- Congestion Relief Market
 - Attractive concept due to optionality and incentivising storage to relieve congestion
 - Worth further investigation and scenario modelling---without LMPs
- Priority Access Queue
 - Current proposal likely to be problematic for new generation and storage
 - However, we support further work on CEIG's model *"ensuring there is a fair allocation of risks between existing and new plants so that new investment is not disincentivised."*²
 - This will likely be very challenging

² CEIG Transmission Access Reform submission to ESB December 21, 2022







Lindsay Gamble Policy Director

Transmission access reforms



- AFMA represents participants in financial markets
- Financial market is critical to the success of the NEM
- Financial markets like:
 - Simplicity
 - Concentration of buyers and sellers
- RRP provides a solid foundation for the financial market



Consumer Advocacy on Transmission Access Reform

25 January 2022

Consumers pay roughly half their traditional electricity bill for the cost of networks. The ISP will add more than 50% to the cost of transmission.

Projected Increase in the Regulatory Asset Base (RAB) -- \$ real 2022 \$140.0b \$120.0b \$33.2 b \$100.0b \$25.3 b \$21.7 b \$22.2 b \$80.0b \$18.7 b \$60.0b \$86.0b \$40.0b \$79.3b \$78.8b \$73.9b \$57.1 b \$20.0b \$0.0 b FY2010 FY2015 FY2020 FY2025 FY2030 Distribution RAB Transmission RAB

The ISP will add more than \$12 billion to the transmission RAB by 2030, an increase of 50%+ in real terms.

The cost of the actionable ISP has already increased more than reflected in this chart. The chart also doesn't include ~\$10B of future transmission projects indicated by the ISP's "optimal development path" but not yet in the 10-year actionable period.

Combined with rising cost of capital, this will contribute significantly to increased prices for transmission services.

Consumers deserve to be confident that the ISP can deliver the least-cost system as it promises. The ISP modelling assumes the use of locational price signals to drive efficient investment and operational behavior by generators.

Energy Consumers Australia Analysis, with data from AER and AEMO

Locational pricing is a feature of high renewable networks -- and it is found in places with lower costs of capital than Australia.



Locational Marginal Pricing is used by all seven US organised electricity markets and Argentina, Chile, Mexico, Peru, Russia, New Zealand and Singapore.

The Australian market is risky and attracts a higher cost premium

A survey of CEIG members suggested that the cost of capital is higher in Australia compared to other OECD countries such as the UK, US and Europe.

Source: Clean Energy Investment Group, Unlocking low-cost capital for clean energy investment, Clean Energy Investment Principles, August 2021.

The CRM is a Confused Reform Mechanism

Transmission Access Reform aims to increase investor certainty and reduce disorderly bidding. CRM adds uncertainty and extends disorderly bidding.



- Unclear participation \rightarrow More than half TWG members polled think participation will be <60%.
- Clear costs, unclear benefits, and need for liquidity will delay market entry, if it happens at all.
- Accurate revenue forecasting from the CRM will be difficult.



- The CRM creates an additional incentive for disorderly bidding for fossil generators with good transmission access.
- For example, a gas peaker when prices are low and congestion is evident would be able to earn revenue from CRM – despite adding no value since they were never going to be physically dispatched.



- Implementation costs for AEMO and market participants are a guess, because CRM is a new, untested approach.
- Smaller market players offering flexibility, for whom the fixed costs are material, won't join until market proves itself, which may never happen.

The Congestion Management Model (CMM) is a fair compromise.

ECA and prominent clean energy developers all agree on a reform package centred on the CMM that uses Inferred Economic Dispatch for allocating congestion revenue (from consumers to generators). Such an approach could wait and see if an investment timeframe is needed and build confidence in the technical analysis required to create an investment signal.





Inferred Economic Dispatch creates an easily forecasted revenue stream, increasing investor certainty, and avoids compensating out-ofmerit generators.

Inferred Economic Dispatch sends an investment signal that can help developers avoid congested areas. Consumers and/or Generators with existing PPAs can be grandfathered and compensated for any harm they suffer



Offers a low-risk, lowcost approach to implementation that uses the locational pricing already in the NEM dispatch engine. Consumers have compromised significantly to land at CMM with a wait-and-see approach on investment signals.







LMP with Financial Transmission Rights is the global standard and best solution for consumers. CMM takes money created by transmission congestion – which consumers pay for – and gives it to generators. An investment signal would position generators to fund some transmission build. CMM's certainty creates rationale for taking a wait-and-see approach.

Any voluntary approach to managing congestion requires significant safeguards for consumers.

If the CRM is adopted, it must be accompanied by a clear monitoring and market re-design regime that ensures we don't simply continue the "Build – Constrain – Complain" approach to Transmission Access.



Active market monitoring can identify the need to restart regulatory proceedings and revisit an approach like LMP, if there is little preparation in the CRM.



If the CRM is adopted, the IRP needs to be amended and clarify which transmission projects are emerging because of a misalignment between the ISP and market design.



If there is a voluntary approach to the operational time frame, a clear and strong investment time frame signal via the transmission fee model must be adopted.

ECA's Comparison of Congestion Management Approaches



Who will participate in the CRM?



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ENERGY CONSUMERS AUSTRALIA

Q&A

NEXT STEPS



PROCESS FOR REFINING MODELS





Refine options

Directions paper November 2022

Outline hybrid model & consult on design choices Draft recommendations February 2023

Draft recommendations based on stakeholder feedback, objectives & assessment criteria.

Final recommendations mid-2023

Final recommendations based on stakeholder feedback, objectives & assessment criteria.





Close