

Transmission access reform

Stakeholder feedback template

The template below has been developed to enable stakeholders to provide their feedback on the questions posed in the consultation paper and any other issues that they would like to provide feedback on. The AEMC encourages stakeholders to use this template to assist it to consider the views expressed by stakeholders on each issue. Stakeholders should not feel obliged to answer each question, but rather address those issues of particular interest or concern. Further context for the questions can be found in the consultation paper.

SUBMITTER DETAILS

ORGANISATION: Eneflux

CONTACT NAME: Andrew Jones

EMAIL: [REDACTED]

PHONE: [REDACTED]

DATE 6 June 2024

PROJECT DETAILS

NAME OF REVIEW: Transmission access reform

PROJECT CODE: EPR0098

SUBMISSION DUE DATE: 6 June 2024

CONSULTATION QUESTIONS

Testing and modelling the hybrid model

<p>Question 1: Feedback on cost benefit analysis conducted in 2023</p> <p>What are stakeholder views on the assumptions used in the CBA?</p>	<p>No specific concerns regarding the CRM model, which is supported in principle.</p> <p>The CBA appears to assume that investors in new generation will not respond to the current market design and signals when locating new projects. These market settings have been in place since the market commenced (1998), and it is irrational to assume sophisticated investors will ignore these signals moving forward.</p> <p>At a macro-economic and policy scale, the inherent assumption that the proposed priority access reform will be consistent with the stated policy objectives of the reforms is challenged.</p> <p>Based on the information provided, there appears to be a risk of uncertainty for industry participants and stakeholders and the potential for the proposed priority access to undermine the following stated policy objectives:</p> <ul style="list-style-type: none"> • 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 • Investment efficiency • Operational efficiency <p>Based on the information made available in the consultation documents, it is considered that the CBA does not currently present as a useful input for formulation of regulation.</p>
<p>Question 2: Feedback on prototyping</p> <p>What are stakeholder views on the result of the prototyping analysis? Is there any additional analysis that would be useful?</p>	<p>The prototyping focuses on the minutia of how the proposed changes would be implemented. The focus instead should be on the fundamental economics (cost benefit analysis) of transmission and generation planning.</p>
<p>Question 3: Feedback on modelling the hybrid model</p> <p>Noting that this work is still being completed, do stakeholders have any initial views on how modelling priority access would impact investment decisions?</p>	<p>It is difficult to provide specific comment definitively on the detailed modelling as that work is still being undertaken.</p> <p>In broad terms, the criteria for when a project would receive 'priority access' i.e. at what point in the planning and investment stage for a project this would be triggered is likely to substantially affect investment signals. It is difficult to see how this would not impact on developers and investors in a way that will undermine the current 'level playing field'.</p> <p>Specifically, the priority access model as proposed allocates curtailment risk in descending order, to legacy generators, potential new REZ generators and new generators.</p> <p>This will distort location signals to favour the existing generators and expensive REZ generation, which typically involves the construction of long expensive transmission lines and often expensive centralised system strength solutions. Cost and risk will be concentrated on new projects outside of the REZs, despite these projects otherwise being driven by other market signals to be of efficient scale and to maximise use of the existing transmission system.</p>

	<p>This is likely to result in cost and risk being artificially concentrated on the marginal new entrant generators, inefficiently driving up the price of energy to consumers.</p> <p>This increase in price will drive a large wealth transfer from electricity users to incumbent generators that have been gifted priority access rights. It is also likely to favour inefficient development of remote REZ areas through the preferential allocation of transmission, rather than requiring these projects to compete on a level playing field with other, potentially more efficient projects.</p> <p>See detailed submission below.</p>
--	--

Assessment of key model options

<p>Question 4: Assessment of priority access allocation models</p> <p>Each model option outlined in this section addresses the problem and reform objectives to different degrees.</p> <p>Which model option do you prefer and why?</p>	<p>No preferred model.</p> <p>The priority access proposal should not be supported</p> <p>See detailed submission below.</p>
<p>Question 5: Assessment of CRM implementation approaches</p> <p>What are the relative advantages and disadvantages of each design?</p> <p>Do stakeholders have a preferred design and if so, why?</p>	<p>Progression of a CRM is supported in principle.</p> <p>No specific preferred design at this time. Detailed assessment of design options should continue.</p>

Key stakeholder concerns

<p>Question 6: Feedback on impact of the hybrid model on PPAs?</p> <p>What are stakeholder views on the observations and AEMC initial views regarding impacts of the hybrid model on PPAs?</p>	<p>No specific concerns regarding the CRM model, which is supported in principle</p> <p>The priority access model concentrates congestion risk on new entrant generators. This is likely to drive up the cost of PPAs for non-REZ projects.</p> <p>Although REZ projects are treated favourably relative to non-REZ projects, REZ projects typically have high-cost transmission components, expensive centralised system strength solutions and stranding risk associate with inefficient scaling. So this model will disadvantage the more efficient projects, hence driving up PPA costs.</p> <p>See detailed submission below.</p>
<p>Question 7: Feedback on impacts of the hybrid model on financial markets</p> <p>What are stakeholder views on the impacts of the hybrid model on financial markets? Specifically:</p> <ul style="list-style-type: none"> How the proposed access model, or particular aspect(s) of the model, may impact their ability to manage price risk in the market? 	<p>No specific concerns regarding the CRM model, which is supported in principle.</p> <p>The priority access aspects of the hybrid model would distort the market and place different risks on different classes of generators. For incumbent generators who are allocated preferential transmission rights, the cost of hedging would be likely to decrease due to reduced risk.</p>

<ul style="list-style-type: none"> The subsequent impact that a reduced ability to manage price risk may then have on participants' hedging costs. 	<p>For generators that don't benefit from gifted transmission rights, the risk would increase.</p> <p>It is anticipated that portfolios seeking to use this new generation for hedging would see a high cost of managing risk due either to the need to over-hedge or simply pay the higher cost of these projects due to internalisation of the increased risk.</p> <p>See detailed submission below.</p>
<p>Question 8: Feedback on wide-reaching constraints</p> <p>Do stakeholders consider that priority access could increase investment risk due to wide-reaching constraints?</p> <p>Do stakeholders consider that there is value in implementing the dynamic grouping option for priority access to mitigate this concern?</p>	<p>Yes, there is a significant concern that the proposal for priority access would increase investment risk.</p> <p>Priority access results in governments assigning winners and losers in the market.</p> <p>Risk is decreased for existing generators and increased for new entrant generators. This presents increased risk for new generators due to concentration of congestion risk on new projects, in an environment where new investment is needed to support the transition to renewable energy.</p> <p>Priority access is a fundamentally flawed concept that inefficiently favours existing generation and potentially less efficient generation in the REZs over competing projects that choose to fund their own transmission and maximising use of the existing share transmission network.</p> <p>No value is seen in refining what is a fundamentally inefficient and undesirable change to market design.</p> <p>See detailed submission below.</p>

Detailed design questions

<p>Question 9: Feedback on detailed priority access design choices</p> <p>What are stakeholder views on the detailed priority access design questions and the AEMC's preferred positions?</p>	<p>The priority access proposal is not supported.</p> <p>See detailed submission below.</p>
<p>Question 10: Feedback on detailed CRM design choices</p> <p>Do stakeholders have further views on the detailed design choices for the CRM that were explored by the ESB? Are these views related to a preference for a two-step or co-optimised implementation approach discussed in Chapter 5?</p> <p>What are stakeholder views on tethering, including the relative advantages and disadvantages of each design and any preference?</p>	<p>Progression of a CRM is supported in principle.</p> <p>No specific comments on the preferred design at this time.</p>

Other comments

<p>Information on additional issues</p>	<p>The CRM model is supported.</p> <p>The priority access proposal is not supported.</p> <p>See detailed submission below.</p>
---	--

Eneflux Submission

Background

The Australian Energy Market Commission (AEMC) Transmission Access Reform Consultation Paper 2024 (The Consultation Paper) [Reference 1] outlines design options for a hybrid model developed by the Energy Security Board (ESB) consisting of two components: Priority Access and Congestion Relief Market (CRM). The supporting materials state that:

- *Priority access: Originally proposed by the Clean Energy Investor Group, priority access provides locational signals for investment efficiency and enables investors to manage congestion risk more effectively.*
- *Congestion relief market (CRM): Originally proposed by Edify Energy and supported by the Clean Energy Council, the CRM allows for operational efficiency and congestion relief through voluntary incentives for market participants.*

The supporting materials note that at the November 2023 Energy and Climate Change Ministerial Council meeting (ECMC), Energy Ministers agreed to progress the agreed transmission access reform and congestion management through further design work, having considered advice from the Energy Advisory Panel (EAP) and stakeholder engagement and that the AEMC will report to Energy Ministers in 2024 with final recommendations. The AEMC notes that its review will further progress the ESB's work on transmission access reform, in collaboration with the Australian Energy Regulator (AER) and the Australian Energy Market Operator (AEMO) and revert to Energy Ministers in September 2024 with final recommendations.

The report states that CRM aims to improve operational efficiency while priority access aims to improve investment efficiency and proposes that: "...by integrating the two, the hybrid model addresses the transmission access reform objectives:

- *Priority access provides a locational signal for investment efficiency and enables investors to manage congestion risk more effectively. A generator or storage facility would be assigned a priority level up front which is factored into the project's investment and siting decision.*
- *The CRM allows for operational efficiency and congestion relief by providing voluntary incentives to generators to bid more cost-reflectively. Storage and demand response providers are incentivised to locate and operate where they can relieve congestion with benefits to the whole system. The CRM also ensures that the access of existing generators is broadly unchanged..."*

The supporting materials for the review state that without reforms to transmission access, as recognised by Energy Ministers, the following problems will continue as the transition to net zero progresses, increasing costs to consumers:

- *solar and wind investments will face increased congestion and not be effectively utilised, which may mean emissions reductions from renewable resources are not fully realised*
- *renewable energy zones (REZs) may be undermined by generators located outside the zone free riding on investments intended for REZ participants*
- *storage (e.g. batteries) and flexible demand (e.g. hydrogen) will not be rewarded for congestion-alleviating behaviour that benefits customers, and their use case will be diminished*
- *the value of investment in interconnectors may not be fully realised*
- *there may be overspend in building additional transmission that customers (or taxpayers) pay for.*

General comments

Congestion Relief Market

The Consultation Paper states on page iv that:

“While each model could be implemented individually, the two are currently being considered together as benefits from their combined implementation exceed either of their individual benefits. It will mean participants have more control over their revenues at the same time as being incentivised to deliver system-wide benefits. Ultimately this leads to more efficient outcomes and prices for customers. We welcome stakeholder comments on how their views may change if only one, rather than both, reforms were to be implemented.”

The Consultation Paper states on page vi that:

“The CRM is a voluntary, opt-in mechanism, where market participants can seek to revise their initial dispatch outcomes that set how much they can sell at the regional price (RRP). It can be more profitable for CRM participants to revise their position by increasing or decreasing their dispatch, as revisions are paid at CRM prices (CRMP), that may differ from the regional price.”

The CRM would appear to deliver clear benefits to the Australian energy market as outlined in the Consultation Report and supporting materials and progress the policy objectives agreed by the ECMC and governments driving these reforms.

Eneflux supports the development and implementation of the CRM.

Priority Access – Policy considerations

The Consultation Paper states:

“...introduction of priority access seeks to address the issue of cannibalisation, by introducing a mechanism where generators are assigned a priority level in the energy market. Cannibalisation is when a new generator locates in a congested area and displaces (or cannibalises) the dispatch of an existing generator. Cannibalisation can increase investment uncertainty, as new entrants may be subsequently cannibalised (and thereby lose revenue) by even newer entrants.”

It is most likely that this policy position will not deliver, and may be contrary to, key policy objectives set by the ECMC and governments driving this work, as outlined below.

At its first meeting on 23 February 2023 the ECMC [Reference 2] agreed five **strategic priorities** for the coming 12 months, including:

“Transforming Australia’s energy system to align with net zero while providing more affordable, secure, and reliable energy to Australians, (including improving regulatory certainty and efficiency for, and accelerating delivery of, dispatchable renewable energy, storage and nationally significant transmission projects);”

The supporting materials for the review state that ESB’s work on the hybrid model was aimed at achieving four reform objectives developed by the ESB in consultation with stakeholders and agreed on by Energy Ministers:

1. *Investment efficiency: Better long-term signals for market participants 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 demand side and two-way technologies to locate where they are needed most and operate in ways that benefit the broader system.*

The Consultation Paper states:

“...the priority level would be assigned to a new entrant generator during its planning and investment period, with the priority level given effect in dispatch, during operational timeframes. Generators assigned a higher priority would be given preference in dispatch over generators assigned a lower priority, improving the access for higher priority generators to be dispatched and paid at the regional reference price (RRP). Importantly, priority access would only have an effect in the presence of congestion, when competing generators bid to the market floor price in order to be dispatched.”

The Consultation Paper states that:

“At this stage, model option 1 (grouping by time-window) is our preferred priority access model. We consider that there could be theoretical merit in dynamic grouping delivering priority access that is stronger, however this option has not been tested yet, or developed in any detail. The Commission is particularly interested in views as to whether stakeholders would see merit in option 4 relative to option 1. There are a number of more detailed priority access design options where we are also seeking stakeholder views.”

While the detail of what constitutes “during its planning and investment period” is yet to be proposed, this is a very broad description given the development of such projects may occur over multiple years, and for competing projects this may result in one project gaining priority over or excluding a potentially better designed and more suitable project simply because a certain as yet undefined step in the project planning or investment was met on an earlier date. In the absence of the theoretical work to determine whether such a framework could indeed be economically efficient, it is difficult to see how any priority access model could be properly assessed to determine its impact on the market generally or on individual industry stakeholders at this time.

The Consultation Paper indicates the detailed work is yet to be done on the dynamic grouping model, while at the same time seeking stakeholder views on the relative merits of this and other models.

Priority Access – Efficiency considerations

Since the Australian National Electricity Market (NEM) commenced in 1998, access for generators (and storage) has been provided on an open access or common carriage arrangement. There are currently no physical or financial transmission rights existing within each pricing region.

There have been numerous reviews of the transmission access arrangements in the last 25 years. A consistent theme of these has been a concern around vested interests, with existing generation regularly and consistently seeking allocation rights or preferential access over the shared transmission system, with transferal of risk and cost onto potential incoming competitors. The shared transmission network has been funded by others, specifically electricity users via network tariffs, and despite this, vested interests consistently seek to convince governments and NEM institutions to transfer rights to these network away to them.

The proposed priority access model outlined in this latest review again favours vested interests (Existing generators and potential REZ generators) to benefit, rather than maintaining the level playing field that currently exists. This would be in clear conflict with one of the four objectives agreed by Energy Ministers, to ‘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.”

The Consultation Paper acknowledges the CEIG as the initiator of the proposed priority access regime. The CEIG, at time of writing, lists on their website a combined member portfolio of \$24 billion worth of existing assets (Reference 3). This suggests that the CEIG membership could have strong characteristics off an incumbent supplier in the Australian energy market. This may create perceptions or concerns that a proposed priority access model may risk being skewed towards vested interests and securing free preferential access rights to the shared network for existing

generation assets, rather than maintaining the current level playing field of the open access regime. It appears the priority access arrangements, as proposed would have this affect.

While much of the logic and narrative within the review relates to external policy settings such as Renewable Energy Zones (REZ), presumably any rule change proposal arising from this review will need to meet the test of the National Electricity Market Objective (NEO), as required by national electricity law.

Eneflux does not support the development and implementation of a priority access model as presented in the Consultation Paper.

The following submissions are made with respect to the priority access component of the “Hybrid Model” referred to in the Consultation Paper.

Cannibalisation verses Overbuild

The AEMC uses the term “Cannibalisation” to describe the situation where new entrant generators connect to the system beyond the capacity of the system to accept the combined output of new entrants and existing generators. The online Oxford English Learner’s Dictionary defines cannibalism as “the practice of eating other people [Reference 4].” The Cambridge online dictionary definition also includes: “to take parts from a machine or vehicle in order to make or repair another machine or vehicle [Reference 5].” In this submission the term “Overbuild” is used, as a more neutral and objective term, appropriate to a dispassionate application of an economic test to a proposal to change important economic regulation.

Overbuild can, and generally will be efficient in a transparent market

It seems that a fundamental premise of The Consultation Paper is that congestion is un-desirable under all circumstances. A parallel of this would be stopping new traffic from new residential, business or industrial development once a highway began to experience congestion.

Overbuild and resultant congestion in the NEM can, and often will be efficient, as outlined in examples below.

i) Reducing cost of new projects can result in efficient curtailment of legacy projects.

Consider a situation where a solar generator connects to a radial transmission line, and utilises 80% of the capacity of the transmission line when operating at rated power. Five years after the solar generator is built, the cost of solar declines and new project is economic with 10% curtailment. Such a project will build over the existing generator to the point where market conditions are such that a second solar power station is economic with 10% curtailment.

The resultant partial stranding of the earlier plant, to the extent that it has a long run marginal cost (LRMC) greater than the later plant, is dynamically efficient.

ii) Superior renewable energy resource in excess of transmission capability.

Consider a situation where a wind generator connects at the end of a radial transmission line, and favourable wind speeds, planning conditions and ground conditions result in the ability to develop wind projects at costs 10% below that of competing projects with less favourable conditions.

These generators present a lower LRMC and hence a more efficient solution to generators with lessor resource to the point where production is curtailed by 10%.

iii) Overbuild of legacy power stations.

Consider a situation where a solar/battery generator connects to the same transmission line as a legacy coal generator, resulting in constraint of the coal generator.

From a static efficiency perspective, the solar/battery generator will have substantially lower short run marginal cost (SRMC) to the coal unit it is displaced. This is because there is no fuel consumption and minimal maintenance cost associated with this new plant. This is in contrast with the coal unit that has substantial operating and management costs in addition to the cost of its fuel.

From a dynamic efficiency perspective, the legacy coal plant is a sunk cost. As such stranding of this sunk cost has no impact on overall market cost and hence dynamic efficiency. Further, a new solar/battery generator would be considered desirable and necessary to support the renewable energy transition.

iv) Constraint of a poorly located solar farm in order to release additional generation to the market.

Consider a situation where a new solar farm connects to a low capacity transmission line in parallel with a much larger transmission corridor (this effect has historically been referred to as 'gate keeping' in previous transmission access reviews).

If the low-capacity transmission line reaches its thermal capacity prior to that of the much larger parallel corridor, unconstrained output from the generator on the low-capacity transmission line will reduce the capacity of the larger corridor to accept other generation. Should the value of the generation on the generators constrained by the poorly located solar farm exceed the value of the energy from the poorly located solar farm, the current AEMO dispatch algorithm will constrain the poorly located solar farm to release a greater amount of low-cost energy to the market on the higher capacity corridor.

From a static efficiency perspective, the value of energy released by constraining the poorly located solar farm exceeds the value of energy lost through curtailment, giving a net positive efficiency outcome.

From a dynamic efficiency perspective, the value of the poorly located solar farm is a sunk cost, and hence the partial stranding of this asset has no dynamic efficiency impact.

The transparency of AEMO market dispatch means the loss of value to the poorly located solar farm is visible to future new entrants. This gives a strong signal to investors to carefully consider network capacity and overbuild risk when developing and constructing new projects. This promotes dynamic efficiency.

v) Transmission is expensive and stranding of new generation can also be dynamically efficient

It is important to consider the relativity of generator vs transmission cost. For example, at an approximate cost of \$600k per km with terminal equipment costs of say \$20M, 100km of line would cost \$80M for a transmission line of approximately 150MW. A solar power station connecting to this line would cost in the order of \$1.2M per MW, or \$180MW.

A scenario where new (equivalent) transmission is being constructed to allow access to new renewable generators, a new generator would have a positive dynamic efficiency effect up to the point at which it strands over 30% of the value of the existing power station. Of course, this situation would only occur if the earlier investors had not heeded or understood established market design and signals associated with overbuild risk.

The proposed Priority Access order allocates transmission costs to maximise the cost of new entry supply and hence maximises price to electricity users

The priority access arrangements prioritise existing generators, REZ generators, then all other generators in descending order. In a freely operating market, prices are set at the margin and in a market where demand exceeds supply, it is the price of the new entrant suppliers (in this case generators) that sets price. It is anticipated the NEM will be operating at the margin for many years, due to relatively static demand in conjunction with the reduction in supply from retiring fossil fuel generators.

By concentrating congestion risk with new entrant generators, the cost of these generators is forced up, through either having to fund the entirety of new transmission or having to internalise the increased risk of curtailment.

Within the two classes of new entrant generators referred to in the proposal, a vague but likely much lower threshold for commitment of REZ generators is proposed by the review. Specifically, generators outside of the REZ will be required to have reached “committed status”, where a project within the REZ will only need to have the REZ reach “some point in the planning process”.

REZ projects generally involve very large and expensive new transmission lines, often with inefficient non-market system strength solutions. As such it is likely that these REZ projects will have higher costs than non-REZ projects with priority access to the existing transmission network via right sized transmission assets. It may be argued that REZ projects will be more efficient due to their scale and centrally planned nature. If this is the case, these projects, which are already treated favourably with compulsory acquisition rights and government procurement processes, should be able to compete on an otherwise level playing field and should not be seeking preferential access arrangements.

More generally, centrally planned projects, or “picking winners” in a mixed economy has a history of extreme inefficiency. A topical historical example is extreme inefficiency (generation overbuild) in the wholesale electricity sector that resulted in creation of the NEM over two decades ago. More recently, Snowy 2.0, is an example of a central government mandated project driving extremely inefficient cost into the electricity supply chain.

How did we get here and where to next - improved awareness of locational signals

There are a limited number of highly constrained solar projects operating in the market today, and it would appear that quite a few investments have been made without careful consideration of the network capacity, and perhaps marginal loss factor (MLF) suppression, that would result from buildout of available renewable energy resource.

The loss of value associated with these projects is now very visible to parties looking to invest in future projects, and it would not be unreasonable to expect new investors to take heed of these examples and be substantially more careful moving forward.

With the rapidly accelerating deployment of new generation, advanced techniques for forecasting curtailment and other grid related value drivers (such as MLF and system strength) are readily available from a range of market modelling consultants. It is also anticipated that sophisticated investors would have developed such capacity in house. Eneflux has extensive first hand experience of sophisticated developers successfully deploying such capacity to guide project origination and development and investment over many years. All the base information necessary for parties to perform this analysis is available from AEMO and the Network Service Providers (NSPs).

As noted above, at the first meeting of the ECMC in February 2023, Ministers agreed to immediately implement ‘enhanced information’ reforms to provide east-coast market participants with better information on the optimal location for new generation and storage.

The importance of fully utilising the existing transmission and distribution networks

The eastern Australian states have extensive transmission networks reaching deep into areas rich in renewable energy resource, as a result of centrally planned electrification initiatives in the 1970s, 80s and 90s. The economic regulation applied in conjunction with creation of the NEM drove further

reinforcement of these networks during subsequent decades with settings that triggered excessive transmission augmentation to match peak load growth from air conditioning.

This existing transmission network has been used to host large amounts of new renewable energy generation, and substantial spare capacity still exists to host batteries in most areas and additional wind and solar in proximity to the 220, 275, 330 and 500kV backbone of the system.

New transmission is proving extremely expensive, and companies both government and private are using compulsory acquisition rights (or the threat of compulsory acquisition) to push through projects. Widespread media reporting suggests that this is often against the wishes of local communities and landowners, and a seemingly increased appetite to push through projects regardless of impacts on environmental cultural values. This creates community hostility to these projects and renewable energy projects generally which are seen as driving this transmission. At the same time it locks energy users into very large costs over long periods of time.

For these reasons, market design settings should be maintained to encourage maximum utilisation of the existing transmission networks and corridors. To the extent that new transmission is necessary, centrally planned solutions should only be used as a last resort, retaining the incentive for private operators to carefully develop projects that maximise acceptability to local communities and land owners, without need for compulsory acquisition rights, exceptional planning rights, or undermining of environmental and cultural protections.

A further consideration is rapid adoption of large-scale battery storage. This creates an opportunity to locate large batteries at terminal and zone substations close to the load in and around metropolitan areas, so enabling roof top and commercial solar to take a much greater share of the overall generation mix moving forward. Indeed, with the declining price of large-scale battery storage, much of the transition to renewable energy could conceivably be achieved most efficiently by means of increased roof top solar and large central batteries located in proximity to the existing substations in and around population centres.

In relation to rooftop solar generation, key statistics from the Clean Energy Council's Rooftop Solar and Storage H2 2023 Report [Reference 7] include that:

- Collectively, rooftop solar is now the second largest source of renewable electricity generation in Australia (behind wind energy generation), and the fourth largest source of electricity generation, providing approximately 11.2 per cent of the country's power supply.
- 2023 saw rooftop photovoltaic ('PV') installations surpassed a total of 20 GW installed capacity in Australia.
- With 970 MW of new rooftop solar systems installed in 2023, New South Wales broke the record for the highest annual installed capacity of any state ever recorded.
- The total number of rooftop solar installations in Queensland surpassed the one million mark, the first state to do so.
- Fifty-seven thousand behind-the-meter batteries were installed in 2023.

As noted above, the ECOM have committed to reforms through developing a National Consumer Energy Resources Roadmap that include to: "deliver...network reforms that will allow consumers to export more solar power to the grid."

A number of straightforward mechanisms would seem to be available to facilitate greater utilisation of the existing transmission and distribution networks.

Firstly, the NSW transmission network appears to be run well below the ultimate capability of the existing assets. Ratings published by AEMO suggest the use of conservative fixed ratings, rather than real time (weather dependant) ratings used in other jurisdictions. Transgrid in particular appear to be applying a policy of resisting new runback or control schemes for thermal loadings, or phase shifting transformers which will limit the capacity of their network to N-1 capability in many areas.

Secondly, Transmission Use of System (TUOS) arrangements for distribution connected batteries create substantial uncertainty around network costs for large scale batteries connected to the distribution systems.

A simple fix would be to treat distribution connected batteries in the same manner as transmission connected batteries. Additional changes to the application of the regulatory test may also be necessary to ensure that these batteries do not trigger inefficient network upgrades, and this could be easily achieved by simply excluding the charging of batteries from maximum demand / value of unserved load calculations, in conjunction with allowing constraint on batteries charging when necessary to maintain reliability of supply to consumer load.

The proposed priority access regime would drive underutilisation of existing transmission networks.

As outlined in the previous sections, in many instances, a level of overbuilt and resultant curtailment is efficient. The proposed priority access regime distorts these economic signals by awarding priority access to the existing shared network to existing generators and REZ projects, so creating an artificial barrier to potentially lowest cost new entrant generators, at the expense of overall system efficiency.

Of particular concern is the application of the proposed Bid Price Floor (BPF), which would allow an incumbent generator to strangle shared network capacity by 80% prior to being displaced by a new entrant generator located so as to maximise utilisation of the existing network.

The proposed differential treatment of REZ developments is unfair, anticompetitive and will act as a barrier to more efficient generation in the system more generally.

The proposed "Option 1 - Grouping by time window" creates unequal playing field by placing a somewhat vague lower threshold of "reached some point in the planning process". This creates the potential for a less efficient REZ project to get preferential access to network ahead of a more efficient project that is not part of the REZ. This is fundamentally contrary to the National Electricity Objective (NEO).

The rationale for a priority access arrangement is given as the 2023 ESB transmission and access work stream. The basic premise of the ESB cost-benefit analysis that underpins this reasoning is fundamentally flawed.

The 2023 ESB cost benefit analysis and conclusions is premised on an increased cost of rolling out the renewable energy generation fleet due to subsequent stranding of projects by overbuild. A number of examples are given of legacy projects that have been overbuilt.

This assumption is fundamentally flawed, in that it assumes that investors will ignore the price and volume signals created by the current mechanisms for allocation of transmission under scarcity. The historical examples of projects that have been overbuilt could be due to a number of reasons. This could include taking a view that build out of competing resource would be slower than that which actually occurred, that projects would provide adequate return prior to being built out, or even that insufficient diligence was applied to assessing overbuild risk at the time of development and subsequent investment.

Irrespective of the reasons, future investors who apply a degree of diligence commensurate with the size of investment being made should now be acutely aware of the need to model, forecast and consider overbuild risk when originating and constructing new generators. As outlined above, one of the features of the NEM is the high visibility of NSP network data and AEMO dispatch processes. In conjunction with a good range of consultants and computational techniques to assess overbuild risk, it would seem highly irrational for future investors not to respond to the locational signals of the current market design and locate so as to minimise inefficient overbuild risk. Similarly, it is extremely inefficient and fundamentally unfair for losses of investors that do not exercise sufficient diligence in responding to current NEM market design to be socialised on to either energy users or the tax payer.

Any proposal for change would need to clearly identify the costs savings that would result from the change.

It is suggested that prior to any subsequent work being performed, objective research should be performed to whether there is indeed potential to reduce the cost of capital for roll out of the NEM renewable energy fleet. Conceivably, this could be done by benchmarking the cost of capital for recent Australian renewable energy projects with equivalent projects in other similar markets with alternative transmission access arrangements. Only if materially higher costs of capital are identified for NEM projects, would more in-depth, investigation into the role of the transmission access regime be justified.

Proposed arrangements favour fossil fuel generators and are likely to gift a substantial proportion of the transmission network to existing fossil generation operators in perpetuity.

Under the priority access proposal, existing generators are given unfair competitive advantage through being allocated transmission rights. No provisions are identified in the proposed reform that would prevent these existing generators from utilising the National Electricity Rules (NER) 5.3.9 process to repurpose their connections for batteries, solar, wind on the end of transmission lines, or even nuclear power. Similarly, an existing solar or wind generator could add batteries to their existing connection, again gaining preferential access to the network due to their legacy generator status.

This is likely to create substantial inefficiency, due to potential lowest cost new generators on new sites being unable to compete on a level playing field with new generators or generation equipment connecting to the connection point of existing generators.

Any proposed reform that would favour existing fossil fuel generators in this way is likely to be inconsistent with the stated objectives of the ECOM and governments regarding the transition to renewable energy generation in Australia.

Under the National Energy Transformation Partnership August 2022 [Reference 9], it is recognised that all governments: [Principle 2]:

“...have committed to reach net zero emissions by 2050 or earlier, and most have interim emissions targets to guide the pathway to 2050...”

Various policy statements and documents of the ECOM and governments reference these and similar targets. For example, the Department of Climate Change, Energy, the Environment and Water's [DECCEW] website states: “The Australian Government's emissions reduction targets are 43% by 2030 and net zero by 2050.” [Reference 10].

Changes to the transmission access arrangements creates unmanageable risk to developers and punishes good developers.

Historically, development of wind and solar in the NEM has been quite slow, with environmental and planning issues taking between 3-10 years depending on the technology and location.

Historically, successful developers have selected sites with good transmission access (including resilience to overbuild), careful assessment of environmental and planning impacts and effective community consultation. This contrasts with less successful approaches which have sought to progress projects based purely on quality of resource, at poor locations in grid, often with adverse environmental and planning considerations or with inability to gain acceptance and support from impacted local communities.

The current open access arrangements encourage good developments, by rewarding patient and sustained investment in creating projects that best balance the grid, environmental, planning, land use and community considerations. Any change to the current arrangements which results in allocation of transmission priority based on external factors will undermine the competitive advantage of these more careful and considered developers. It will also punish this class of investor by stranding high quality projects that have had careful investment over many years, as result of assignment of transmission rights preferentially to others.

Conversely, parties that are able to secure priority transmission rights whether they are based on REZ planning status or legacy connection will have little choice on the location of their new generation project(s). This potentially creates the situation where developers will have little choice but

to attempt to push through projects with adverse impacts on the environment, planning and local communities and landowners. This is likely to result in suboptimal projects and undermine the social license of the renewable energy transition more generally.

See also the above comments regarding ‘improved awareness of locational signals.’

The Consultation Paper states that:

“During the ESB’s work on TAR, stakeholders noted that for priority access to achieve the reform objectives, prospective investors will need to be able to take account of the mechanism when building the business case for new investments. To answer this question, the AEMC has engaged ACIL Allen to complete a piece of work, investigating how congestion modelling contributes to the investment case of an intending participant.”

As noted above, the detailed work has not yet been undertaken to inform the proposed model, resulting in significant uncertainty around the impacts on stakeholders.

Where to from here?

Eneflux supports the progression and implementation of a well designed Congestion Relief Market (CRM). The concept of a Congestion Relief Market promises improved allocational efficiency signals for the development of storage in conjunction with renewable generation that would result in better utilisation of the existing transmission system. Further effort is therefore justified in further developing and refining a proposal of this nature.

Eneflux does not support the proposed priority access reforms. For the reasons outlined above, it is considered the proposed priority access arrangements would be detrimental to the efficiency of the NEM and should not be given further consideration.

The Consultation Report states: *“In February 2023, Energy Ministers agreed to a lead ‘hybrid’ model, that combines the congestion relief market (CRM) (originally proposed by Edify Energy and supported by the Clean Energy Council (CEC) and the priority access model (originally proposed by the Clean Energy Investor Group (CEIG)).”*

However, the ECMC Communique refers to work on a detailed design for consideration, rather than agreeing to a model, and provides this work should be undertaken with Senior Officials and stakeholders. It states:

*“Ministers agreed a way forward on the complex issue of **transmission access reform**. Ministers agreed to immediately implement ‘enhanced information’ reforms to provide east-coast market participants with better information on the optimal location for new generation and storage. Ministers requested the Energy Security Board (ESB) to work with Senior Officials and stakeholders to develop the voluntary Congestion Relief Market (CRM) and the priority access model and to bring forward a detailed design for consideration by ECMC in mid-2023. Ministers decided not to further develop or consider the congestion management model and congestion fee options, ruling out any models using locational marginal pricing. The CRM and priority access model reforms, if approved later this year, are estimated to yield net benefits for industry and consumers of up to \$5 billion (NPV) and lower emissions by 23 million tonnes by 2050.”*

As noted above, the Consultation Paper welcomes stakeholder comments on how their views may change if only one, rather than both, reforms were to be implemented. On this basis, it is proposed the CRM model should be supported and further developed for implementation, while the priority access model should not be pursued at this time.

Attachment 1 - References

Reference 1: 2024 Transmission Access Reform Project Consultation Paper:
<https://www.aemc.gov.au/sites/default/files/2024-04/Transmission%20access%20reform%20-%20Consultation%20paper%20-%20April%202024.pdf>

Reference 2: Energy and Climate Change Ministerial Council Meeting Communiques:
<https://www.energy.gov.au/energy-and-climate-change-ministerial-council/meetings-and-communicues>

Reference 3: Clean Energy Investor Group [CEIG] Website: <https://ceig.org.au/>

Reference 4: Oxford learner's dictionary online:
<https://www.oxfordlearnersdictionaries.com/definition/english/cannibalism?q=cannibalism>

Reference 5: Cambridge online dictionary:
<https://dictionary.cambridge.org/dictionary/english/cannibalize?q=cannibalise>

Reference 6: The Final Report of the Climate Change and Energy "Community Engagement Review" of December 2023 to Minister Bowen, led by Mr Andrew Dyer [The Australian Energy Infrastructure Commissioner (AEIC), and supported by the Department of Climate Change, Energy, the Environment and Water [DCCEEW] [Reference 6]

Reference 7: Article 'Four Reasons Why Rooftop Solar Will Grow to Dominate the Electricity Market'
<https://www.greenmarkets.com.au/articles/four-reasons-why-rooftop-solar-will-grow-to-dominate-the-electricity-market>

Reference 8: Clean Energy Council's Rooftop Solar and Storage H2 2023 Report
<https://apo.org.au/sites/default/files/resource-files/2024-04/apo-nid326439.pdf>

Reference 9: National Energy Transformation Partnership August 2022
<https://www.energy.gov.au/sites/default/files/2022-08/National%20Energy%20Transformation%20Partnership.pdf>

Reference 10: Australian Government Department of Climate Change, Energy, the Environment and Water website: <https://www.dcceew.gov.au/energy/strategies-and-frameworks/powering-australia>

Attachment 2 - Energy and Climate Change Ministerial Council Communique Excerpts

<https://www.energy.gov.au/energy-and-climate-change-ministerial-council>

The Energy and Climate Change Ministerial Council (ECMC) held its first meeting on 23 February 2023. The Meeting Communique states that:

Ministers agreed five **strategic priorities** for the coming 12 months:

1. *Transforming Australia's energy system to align with net zero while providing more affordable, secure, and reliable energy to Australians, (including improving regulatory certainty and efficiency for, and accelerating delivery of, dispatchable renewable energy, storage and nationally significant transmission projects);*
2. *Efficiently and effectively contributing to the achievement of all Australian emissions reduction targets;*
3. *Investing in Australia's adaptation and resilience to climate change;*
4. *Empowering and comprehensively engaging with Australia's regions and remote communities, including First Nations, on the pathway to decarbonization and Australia becoming a renewable energy superpower;*
5. *Delivering a coordinated and strategic approach to achieving improvements in energy productivity across the economy.*

The Meeting Communique also states that:

"Ministers agreed a way forward on the complex issue of transmission access reform. Ministers agreed to immediately implement 'enhanced information' reforms to provide east-coast market participants with better information on the optimal location for new generation and storage. Ministers requested the Energy Security Board (ESB) to work with Senior Officials and stakeholders to develop the voluntary Congestion Relief Market (CRM) and the priority access model and to bring forward a detailed design for consideration by ECMC in mid-2023. Ministers decided not to further develop or consider the congestion management model and congestion fee options, ruling out any models using locational marginal pricing. The CRM and priority access model reforms, if approved later this year, are estimated to yield net benefits for industry and consumers of up to \$5 billion (NPV) and lower emissions by 23 million tonnes by 2050."

The ECMC 7 July 2023 Meeting Communique states that:

Ministers received updates on bodies of work being undertaken to provide investment certainty and security for the future needs of the energy sector including:

- *On Transmission Access Reform, agreeing to proceed with further detailed design of the Voluntary Congestion Relief Market and a market-based 'queue' approach for Priority Access. Ministers tasked the Australian Energy Market Commission (AEMC), in consultation with the Energy Advisory Panel and industry stakeholders, to prepare final policy recommendations for Ministers' consideration at their next meeting.*

The ECMC 24 November 2023 Meeting Communique states that:

Ministers made a range of other decisions to advance bodies of work being undertaken across the climate and energy portfolios, including:

- Progressing the agreed Transmission Access Reform and Congestion Management through further design work, having considered advice from the EAP and stakeholder engagement.

The ECMC 1 March 2024 Meeting Communique states that:

“Ministers committed to undertaking reforms through a National Consumer Energy Resources Roadmap (the Roadmap) that will deliver new consumer protections, network reforms that will allow consumers to export more solar power to the grid, and nationally consistent standards in key areas, including to enable vehicle to grid technologies. These reforms will put downward pressure on both consumers’ bills and overall system costs, as well as contributing to emissions reduction and broadening access to CER across communities...”

“Ministers were briefed by the ACCC, AER and ECA on the findings of their recent reports that there are aspects of the current east coast regulatory framework that could be strengthened to better serve the interests of electricity consumers. They tasked senior officials to work with these bodies to develop a consumer-focused reform package for agreement at the next ECMC meeting in July...”

“Transforming our energy grid to cheaper, cleaner and more reliable power will require supporting all of Australia’s communities to capture the benefits. Ministers agreed to consider actions to address the recommendations of the Australian Energy Infrastructure Commissioner’s Community Engagement Review report. The Review identifies important issues affecting all levels of government, relating to developer performance, planning and environmental approvals, complaints handling, public communication and governance, and community benefits. The Commonwealth will work closely with state and territory governments, industry and councils to respond to the report’s recommendations as part of a broader community engagement strategy that builds on the significant work program already underway through ECMC and within jurisdictions...”

As a priority action, Ministers committed to working together on the options for a national developer ratings scheme. Industry, peak bodies, consumer groups and other stakeholders will be invited to participate in a reference group to contribute to the design of the scheme...”

“Ministers also noted an update on the process for taking forward a review of the Future Market Design of the National Electricity Market. Ministers agreed that the process for designing long term reforms to the wholesale market must be carried out expeditiously, building on the former ESB’s Post-2025 analysis that identified the need for capacity reforms, to bring forward certainty for investors. Ministers agreed the review will be initiated and terms of reference released by no later than April 2024, providing guidance on the direction of the future market design and a basis for launching stakeholder engagement. Ministers also committed to finalising the response to the review – including the final design of any capacity mechanism – by no later than the end of 2025, with senior officials to provide advice on the earliest possible timeframe...”