ESB's Transmission Access Reform Consultation Paper

Neoen response

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About Neoen

Neoen is one of the world's leading and fastest-growing independent producers of exclusively renewable energy. Our total capacity in operation or under construction is currently over 6.6 GW, and we are aiming for more than 10 GW by the end of 2025.

Neoen has around 3 GW of renewable assets in operation or under construction in Australia, spanning across Wind (1090 MW), Solar (918 MW) and Energy Storage (976 MW / 1679 MWh). This represents over 3.5 billion Australian dollars in investment. Neoen intends to reach 5GW in Australia by 2025.

Importantly, Neoen is a long-term owner and operator of assets. This means our focus necessarily extends beyond short-term fixes that merely improve project development prospects and includes consideration of the implications for new and existing renewable generation and storage throughout its full lifecycle.

Summary

The timeline is remarkably tight when we consider the immaturity of Priority Access (PA) and its low levels of support.

We do not support the queue/tier models as they are unsuitable mechanisms for transmission access. Reworking the parameters for these models is unlikely to yield a suitable solution. The mechanisms are fundamentally flawed in that they introduce massive dispatch inefficiency and heavily discourage new entrants to an efficient level. We should consider a completely new mechanism or discard Priority Access.

We recommend that the ESB take note of the progress on REZ access made in NSW by EnergyCo. We believe NSW is better targeting the problem by measuring curtailment outcomes, aiming for an efficient amount of curtailment, and directly blocking inefficient investments that would cause excessive curtailment. However, NSW needs the holistic view that the ESB can provide – optimisation for local outcomes necessarily leads to suboptimal global outcomes.

Greater weight should be placed on CRM and Enhanced Information where we can get easy wins and support is high.

Settlements and dispatch

Solving/Clearing

- Don't create bidding rules or obligations for CRM. It is overreach to interfere in generator bids. If CRM does not solve or clear that is fine (assuming we don't use queue/tier).
- With regard to infeasible dispatch – use a very weak violation factor for solving CRM. Without queue/tier, CRM is not necessary to effectively dispatch the NEM. CRM should be the lowest priority in constraint violation so that is swiftly ignored when infeasible.

- We agree that storage should not be settled at the Load CRM price.
- The settlements calculation should be simplified:

Metered Production * RRP + CRM deviation * CRM price

This avoids complicating settlements when considering FCAS energy flows and dispatch conformance. Metered production being settled at RRP is the core philosophy of the commodity market. In this sense, the above represents CRM as an ancillary service similar to FCAS – settled on cleared volumes, without interaction with metering.

Priority Access

We note that the pursuit of PA is due to the NPV modelled by the ESB. The ESB does not understand the mechanisms at work in development, connections, contracting and financing of projects. They have therefore incorrectly assumed that PA creates significant value. We are certain that the opposite is true: significant dispatch inefficiency, combined with a deficiency of new supply capacity can only increase prices for consumers. The avoidance of a couple of inefficient developments is a minor benefit in comparison to the former outcomes.
We therefore believe that it is misleading to state that PA is the most valuable component of transmission access.

The queue/tier model is fundamentally flawed and cannot be fixed through parameterisation. The queue/tier model does not explicitly segregate inefficient investments from efficient ones. It is an indirect mechanism – inefficient investment is still allowed, and punishment thereafter comes as a surprise. It does not share curtailment around, meaning efficient levels of curtailment cannot be reached – rather we get incumbent generators with zero curtailment and underutilisation of the network.

Dispatch Inefficiency

Without PA, and with CRM we begin constraint dispatch by maximising generation output from a constraint. CRM can further improve dispatch efficiency, although in doing so it may reduce flows out of a constrained area.

With PA we commonly begin by *minimising* generation output from a constraint. This reduced supply requires additional generation from elsewhere in the NEM, guaranteeing higher spot prices and increased emissions.
It is not enough to hope that CRM fixes this issue. A generator with a bad coefficient and a good queue number can extract rent from other generators by bidding a high price in CRM, potentially higher than the RRP.
It is clear that PA on it's own cannot meet the NEO, and we believe that gambling on PA+CRM to *perhaps* meet the NEO is grossly irresponsible.

Examples:

Status Quo

	Avail	Coefficient	Dispatch	LHS		RRP	Settlement
Gen1	100	1	40	40		$50.00	$2,000
Gen2	100	0.1	100	10		$50.00	$5,000
		total	140	50			

In the status quo NEMDE maximises production in order to limit the LHS to 50.

Priority Access Only

	Avail	Coefficient	Dispatch	LHS		RRP	Settlement
Gen1	100	1	50	50		$50.00	$2,500
Gen2	100	0.1	0	0		$50.00	$0
		total	50	50			

With only PA, production is massively reduced to the detriment of consumers. Gen1 has a better queue/tier position.

Priority Access + CRM

	Avail	Coefficient	Dispatch	LHS	CRM price	RRP	Settlement
Gen1	100	1	40	40	$499	$50.00	$6,990
Gen2	100	0.1	100	10	$49.9	$50.00	$10
		total	140	50			

Including CRM allows the production to return to the status quo, but only if Gen2 agrees to generate for near zero profit. Gen1 can engage in a novel rent-seeking behaviour.

Both generators may find it preferable to have higher RRP and lower production if total revenue is higher at a portfolio level. Gen2's owner may forgo the negligible profits for Gen2 in order to reduce NEM supply by 90 MW and potentially increase RRP for its other generators.
The scale of these potential supply reductions are significant and can threaten reliability during peak demand periods.

No Access + CRM

	Avail	Coefficient	Dispatch	LHS	CRM price	RRP	Settlement
Gen1	100	1	40	40	NA	$50.00	$2,000
Gen2	100	0.1	100	10	NA	$50.00	$5,000
		total	140	50			

No access + CRM is the same as the status quo in this example because the two generators cannot find a mutually agreeable outcome in CRM in this example.

Discouraging efficient new entrants

PA is a form of "last in first out" access. This puts all of the marginal curtailment on the new entrant, magnifying the impact of constraints. Small increases to aggregate curtailment are also subject to this concentration and could easily lead to a generator defaulting on their debt. This means that any generator without tier 1 access is unlikely to gain finance.

It is impossible to optimise investment with a zone based hosting capacity. This is due to the variation in curtailment impacts dependent upon deployment order, technology, and individual coefficients.
This leads to two potential outcomes:

1. hosting capacity is overestimated, and curtailment reaches inefficient levels, even for generators with tier 1 access.
2. hosting capacity is underestimated, and transmission utilisation is low, requiring additional transmission investment and/or resulting in reduced supply and higher wholesale prices.

Examples:

"Optimal" development

Wind	100	MW	
Solar	50	MW	
Line Rating	100	MW	
Utilisation	49%		
Curtailment	2.19%		
	Wind first	Solar first	Pro-Rata
Wind curt.	2.9%	0.0%	2.0%
Solar curt.	0.0%	8.5%	2.6%

Above is a simple example of an asset combination that achieves good utilisation of network assets with modest aggregate curtailment. The pro-rata curtailment figures approximate real world outcomes because there are no examples of a single generator being burdened with all curtailment. However, the balance of sharing may be skewed to one generator in reality depending on the frequency and coincidence of different constraints. Because of this potential skew risk, the total installed generation has been reduced below the true optimal which would have higher aggregate curtailment.

The intrinsic sharing of curtailment in the status quo (albeit chaotic), has the benefit that greater utilisation can be achieved than with last-in-first-out access. This is directly observable with large numbers of NEM generators having modest, non-zero levels of curtailment. 99% of investments in the past decade have not been inefficient, and have accommodated modest, efficient curtailment. The lower proportion for wind curtailment in the example is because wind has greater overall generation, and in periods where solar is not active.

New entrant burden

Wind	1	MW	
Solar	100	MW	
Line Rating	100	MW	
Utilisation	26%		
Curtailment	0.06%		
	Wind first	Solar first	Pro-Rata
Wind curt.	4.4%	0.0%	0.0%
Solar curt.	0.0%	0.1%	0.1%

If we instead use last-in-first-out access, we cannot achieve good utilisation of transmission assets.

In the above example the solar farm has obtained all the access rights. The wind farm is in the next tier or queue number and will be curtailed first, with an impact of almost 5% curtailment. This small investment with weak economics is not going to be committed.

Compared to the previous example, net generation to the consumer is reduced by almost half, nearly doubling the required transmission capacity investment to meet demand.

Downside risk

Wind	1	MW	
Solar	100	MW	
Line Rating	90	MW	
Utilisation	28%		
Curtailment	3.79%		
	Wind first	Solar first	Pro-Rata
Wind curt.	8.0%	0.0%	0.7%
Solar curt.	3.7%	3.8%	3.8%

If the impact of constraints changes slightly, the queue/tier model puts a greater impact on the new entrant. In this example, we imagine that demand in the region has decreased by 10 MW, reducing headroom for large scale generation.

The impact in relative terms is high on the new entrant, even more so if the starting point had efficient levels of curtailment.

Parameterisation

Despite our preference for a new mechanism to replace the tier/queue model we provide comments on other parameter questions.

- Access by zone is not helpful. REZs are regions where a resource exists and have no relationship to the network characteristics or constraint sets. Constraint sets overlap over great areas and by using zones a generator will be in constraint sets with generators in other zones. Zones do not reflect the total hosting capacity, nor can aggregate curtailment be ascertained, these are dependent on technology and the headroom at each connection point.
- Access rights should be for the life of the asset. It never makes sense to displace an operational solar farm with a new one.
- No auctions for access. We don't want FTRs and people to hog connections.

Grandfathering

Coal generators experience minimal curtailment and are a technology we want to phase out. These generators could receive no access rights, or access rights limited to minimum generation levels for practical purposes.

Learning from NSW

As previously mentioned, we believe EnergyCo in NSW has formed a helpful philosophy on curtailment and access. With some modifications it can be applied to the NEM, and that it will be easier and more effective to take this approach rather than trying to fix Priority Access.

While the ESB's view of the NEM as one inherently interlinked electrical system is the right one, it also takes the approach of imposing financial penalties on generators post construction. It is far more preferable to prevent inefficient investments (i.e., that create excessive congestion) from happening before the capital is wasted on constructing them. The ESB's approach also makes no attempt to measure the size of the curtailment issue. Both aspects serve to make investors and lenders extremely nervous about investing in new projects, particularly in areas already heavy in renewables and where many new projects are being developed (such as SW REZ). It would be far better, in our view, to combine the holistic approach of the ESB with EnergyCo's approach of physical limitation on the number of new connections and appropriate measure of curtailment. As it currently stands, the coincidence of EnergyCo's and ESB's very different approaches captures the worst of both worlds, rather than the best of them.

	NSW Access		Best of both		ESB Priority Access
Measuring curtailment	Network element only	→	Global measurement		NA
Targeting efficient curtailment	Zonal target, with indicative hosting capacity based on technology mix.	→	Global target. Enhanced Info provides headroom data at each node.		Hosting capacity only
Accounting for interconnector flows	Yes, but only on a single network element	→	Yes, calculated in global target		No
Scope of Access	NSW, zonal		NEM wide, iterative	←	NEM wide, zonal
Restrictions on investment	Direct - block inefficient plant	→	Direct - block inefficient plant		Indirect - financial penalties after construction

Yours sincerely,

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