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Energy Security Board
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ESB Transmission access reform Directions Paper

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the Energy Security Board's Transmission access reform Directions Paper (Directions Paper).

Overview

The NEM is currently undergoing significant change and it is important to always seek improvements that benefit both investors and consumers. As the NEM transitions towards higher levels of renewable energy, substantial new investment in renewables and transmission is needed. To achieve this investment the NEM requires a predictable and stable investment framework.

Instead, the ESB insists on pursuing access reform, which is opposed by industry, offers at best theoretical benefits and does not acknowledge the impact on contract markets and the disincentive to invest that would be created. Industry provided alternatives to the ESB to avoid the very complex changes to the spot market settlements process created by the Congestion Management Model (CMM)/Local Marginal Pricing (LMP's) and firm access rights, but instead these risks and the uncertainties remain in the Directions Paper.

A large part of transmission access reform is aimed at addressing outcomes that occur very infrequently (for example "race to the floor bidding") and have minimal impact on the overall cost of electricity to consumers. Risk is a key consideration in deciding what volume of contracts a generator is willing to supply and through the ESB edited Congestion Relief Market (CRM) and CMM there is the potential for this to reduce the quantity of contracts made available in each region, a detrimental outcome for contract market liquidity and market customers who rely on these contracts for certainty of retail pricing. The contracts market is more important than the spot market in determining the long-run economics of generation but this is not reflected in the Directions Paper.

At no stage does the ESB demonstrate the impact these proposals will have on hedging costs for retailers and ultimately on consumer bills; they are assumed as costless exercises by the ESB, which they are not. Implementation costs and impacts on contract market liquidity are assumed as minimal disruptions.

Governments are already accelerating the delivery of new investment in transmission through programs such as the Commonwealth government's Rewiring the Nation program and various State government initiatives which operate in isolation to the ESB's transmission access reform work and in one sense reduce the need for any further reforms as proposed by the ESB. These programs:

- promote transmission investment which will allow consumers to have access to lower cost generators across State borders;
- enable the connection of new generators that will replace those power stations scheduled to retire; and
- improve the reliability of energy supply.

In doing so, these reforms will improve market participants' access to PPAs, enable C&I electricity users to achieve their sustainability objectives and stimulate a more stable pipeline of new renewable electricity projects.

Introducing transmission access reform would instead erode the full benefits of the Commonwealth government's Rewiring the Nation program and the various State Government initiatives that have been implemented to rectify connection access and investment issues.

We note that the ESB in the Directions Paper highlights that *"NERA modelling undertaken for the AEMC estimates that costs arising from race to the floor bidding could reach up to NPV $1 bn over the period from 2026 to 2040 ($2020)"*[1]. However, they do not highlight what the costs will be to the NEM from introducing LMP's and firm rights.

The previous NERA modelling commissioned for the AEMC, which was specifically for Coordination of generation and transmission investment (COGATI) a reform that the ESB is closely attempting to match, demonstrated that access reform; will result in 20GW less of (mostly solar) capacity being built (and this is supposedly a benefit of access reform). It also showed:

- Australia's emissions trajectory will be higher under access reform than would: otherwise be the place. Given the absence of a price on carbon there are significant unpriced externalities not considered in the NERA report.
- Achieving State-based renewable energy targets, through renewable energy zones or otherwise, will become more expensive under access reform.
- The NERA report argues that access reform will improve consumer outcomes, even though it results in 20GW less of the cheapest generation capacity being constructed in the NEM. NERA's modelling shows that by 2040, spot prices will be higher under access reform than would otherwise be the case ($100/MWh as compared to $90/MWh with no access reform).

The assessment and implementation of transmission access and congestion management measures should therefore be delayed until such time as there is greater certainty in the market so that investors can come forward and build the infrastructure needed to decarbonise the NEM. The ESB has not adequately considered the detrimental impacts LMP's and firm access rights would have on renewable investors. Renewable investors are seeking a simple and transparent route to recover their cost of capital and contracts for certainty of retail pricing.

The proposed transmission access reform will not solve the range of issues noted by the Commission in the Directions paper. However, should it proceed, Snowy Hydro's detailed concerns are as follows:

- The ESB appears to have modified industry proposals to more closely align with CMM and Coordination of generation and transmission investment (COGATI), which is the implementation of LMP's and firm access rights that industry has for years pushed back on.

- The introduction of CMM is considered costless with the ESB only assessing the potential benefits despite having significant issues and detrimental impacts on the market, leaving participants with the costly proposal should CMM fail.

- The purpose of this CRM model was not to introduce any basis risk between the spot market and contracts that have an Energy price at the regional reference node (RRN), and Energy dispatch in their settlement formulas. It is unclear to Snowy Hydro why ESB has in table 13 an "LMP" and an "RRPCRM" as Edify's proposal put forward only one CRM price at each node for each trading interval. Two prices increases the risk on participants and requires costly changes to reopen financial contracts.

- The ESB needs to clarify that Option 2 of CRM is not a voluntary option as identified in table 15. There is no information provided by the ESB on the cost impacts of the legal

[1] *Energy Security Board, 2022, "Transmission Access Reform Directions Paper", << https://www.datocms-assets.com/32572/1667984730-tar-directions-paper-final-for-web.pdf >>, pp26*

costs associated with reopening long-dated hedging contracts to reflect the move away from RRPs to LMPs and increased risks due to a potential reduction in contract market liquidity and imperfect hedging of LMP. It will all lead to an unnecessary increase in consumer bills.

- Should the ESB decide to redefine how the RRP is calculated, it is highly likely to be a cause for reopening long term contracts. Such a change would almost certainly constitute a Market Disruption Event under the ISDA framework, used to trade bilateral hedges. This is not a costless exercise, The tenure of many PPA contracts is 15-20 years and disrupting such contracts would have serious impacts on the counterparties as well as lenders and project financiers. It is incumbent on the ESB to explain how it would address these impacts.

- The queue model has become a closer example of the AEMC's Coordination of generation and transmission investment (COGATI) proposal, which was removed a few years ago, as now it includes rights that would last for a certain period of time and potentially be auctioned.

- Should work continue on the investment time frame models, Snowy Hydro does not support either model being integrated into an LMP-based framework. The ESB should rule out all forms of LMPs in order to provide certainty to investors.

It is concerning that industry has not been given the appropriate time to assess the ESB modeling. This information is critical to the access reform work and industry will be unable to respond to the cost benefit analysis. ESB could be pursuing a reform with little or no demonstrated benefit while costs increase to implement the reform meaning that customers could be paying for a reform that does little to improve the NEM.

The ESB proposed measures to provide prospective investors with information about which parts of the network are available for further development, which parts are reaching capacity, and which parts are already full is sensible and supported by Snowy Hydro. It is the only option that does not disrupt the NEM, is simple and at no stage requires being linked with any of the other disruptive approaches put forward by the ESB.

ISP and Enhanced Information

The ESB claims *"under the NEM's regional pricing model, there is no commercial driver for investors to choose the efficient locations identified in the ISP"*[2] which is the complete opposite to what the intent of the ISP and its support from Re-Wiring the Nation is expected to provide. This statement also ignores the role of loss factors.

AEMO's bi-annual Integrated System Plan (ISP) provides locational signals for prospective new-entrant generators, based on a co-optimised (least-cost) projection of generation and transmission investment both intra- and inter-regionally. By failing to account for the ways in which congestion is currently incorporated into new-entrant decision making, any benefits highlighted by the ESB are grossly overestimated.

What the ESB neglects to mention is that when multiple generators are seeking to connect at a similar point in the grid, even where this outcome is not optimal, it cannot be resolved through nodal pricing. Nodal pricing does little to solve the main objective for what access reform actually was proposed for which is solving for congestion.

While CMM and CRM will not solve congestion, the ESB exploring measures to provide prospective investors with information about which parts of the network are available for further development, which parts are reaching capacity, and which parts are already full is a sensible

[2] *Energy Security Board, 2022, "Transmission Access Reform Directions Paper", << https://www.datocms-assets.com/32572/1667984730-tar-directions-paper-final-for-web.pdf >>, pp15*

approach. Snowy Hydro believes the transmission network service providers (TNSPs) and AEMO are well placed to advise on technical limits of the transmission network, but less well placed to take a position on the commercial prospects of a new project.

ESB claims that *"enhanced information is not proposed as a standalone solution as it does not remove incentives for inefficient investment*[3]*"* but as highlighted above, neither does CMM. The enhanced information proposal should not be seen as an opportunity to link with other ESB radical reforms, it is a proposal that could operate on its own and inform investors with little disruption.

Investment timeframe

The investment time frame models continue to be integrated into an LMP-based framework which is not a prerequisite for the models to operate.

The ESB has in addition made one of the models, the priority access model, to look exactly like COGATI in that they are seeking to implement rights lasting for a certain period of time and potentially auctioning them. This is what the market didn't want to see and pushed back on through the AEMC's consultation on COGATI.

The ESB notes that the design should carefully consider how it could *"include the role of grandfathering, whether rights should be auctioned, the duration of the rights, and whether the level of congestion faced by priority queue rights holders should be designed to increase over time in line with the efficient level of congestion in the system"*[4]*.* The complexity involved in these questions was a key reason why COGATI did not proceed.

At the time, one of the main concerns associated with access rights was that the system operator would have a permanent role in collecting and redistributing congestion rents from system users to rights' holders under congestion contracts. Snowy Hydro noted under COGATI that this would lead to an enormous bureaucratic expansion in the role of the system operator. It will also add additional complexity to participants, who will be forced, in effect, to procure a new type of hedging instrument and to participate in a new auction process. This would then increase costs and create new barriers to entry.

Another major concern was around access rights, with industry at the time seeking a 15-year grandfathering period which may be a reasonable starting point while others proposed grandfathered access only up to a maximum plant life of (say) 20-30 years, reflecting the typical economic life of assets.

Congestion Management Model (CMM)

Snowy Hydro is deeply concerned that the ESB considers that the reform objective for the operational timeframe is one which is or may be supported by industry. CMM has received significant push back from industry but, notwithstanding this overwhelming opposition, the ESB continues to pursue a reform with minimal benefits which will create significant cost and uncertainty for market participants. It needs to be removed from the consultation as a second choice reform.

The ESB notes that if the *"implementation costs for the CRM are too high or other challenges arise with that model, the ESB will continue to develop the CMM in the background as a second choice"*[5]*.*

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[3] *Energy Security Board, 2022, "Transmission Access Reform Directions Paper", << https://www.datocms-assets.com/32572/1667984730-tar-directions-paper-final-for-web.pdf >>, pp30*

[4] *Energy Security Board, 2022, "Transmission Access Reform Directions Paper", << https://www.datocms-assets.com/32572/1667984730-tar-directions-paper-final-for-web.pdf >>, pp30*

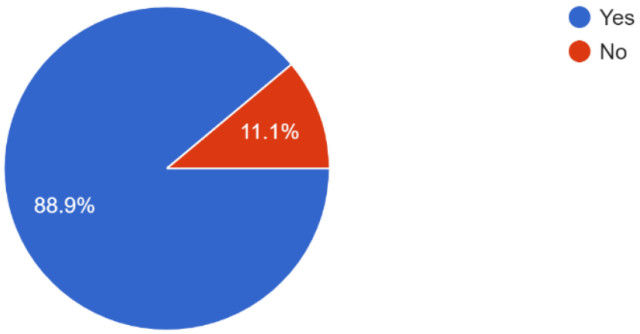
[5] *Energy Security Board, 2022, "Transmission Access Reform Directions Paper", << https://www.datocms-assets.com/32572/1667984730-tar-directions-paper-final-for-web.pdf >>, pp141*

Without considering any type of cost benefit analysis for CMM, the ESB assumes that the CMM model will be a "costless" exercise and does not require a proper cost benefit analysis. Snowy Hydro does not support this approach by the ESB.

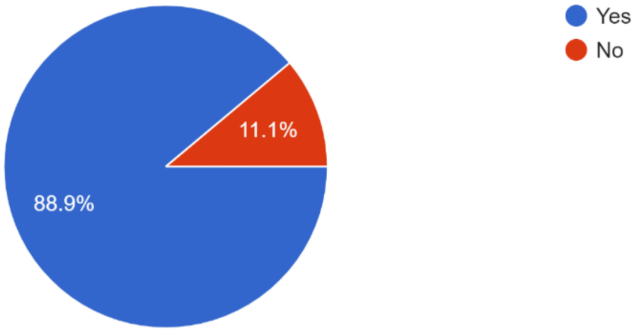
The introduction of CMM is considered costless with the ESB only assessing the potential benefits despite push back from industry. Ignoring costs, or worse assuming no costs will arise from CMM, is at odds with the vast majority of the sector's views on Reform. More focus and consideration of implementation costs is vital. As noted in various and multiple stakeholder forums, the industry remains deeply concerned about the costs and complexity of adopting CMM: costs of IT and other system changes of adopting CMM, as well as the legal costs from reopening long-dated hedging contracts to reflect the move away from RRPs to LMPs, and increased risks due to a potential reduction in contract market liquidity and imperfect hedging of LMPs.

CMM is instead likely to increase the weighted average cost of capital (WACC) for both prospective and existing generators, and deter new investment. There is significant concern by industry that LMP's will disrupt existing contracts and disrupt future business cases which cannot be ignored. Around 10 stakeholders, members of the Clean Energy Council, completed a survey which demonstrates what the majority of investors are concerned about with access reform.

Will the local marginal pricing (LMP) disrupt your existing contracts?



Will LMP disrupt your future projects' business cases?



Congestion Relief Management (CRM) Model

The ESB should not claim the need for CMM due to any similarities it attempts to find with the CRM model. It is for this reason that the industry proposal put forward should not be assumed as support for CMM which has been opposed across industry.

Snowy Hydro submits that *"the CRM shares a lot of the same mathematical foundations*[6]*"* as the ESB's original proposal but not the CRM proposal put forward by Edify Energy. The key difference with LMP for CRM is that it always maintains an energy price at the RRN for energy dispatch. The purpose of this CRM model was not to introduce any basis risk between the spot market and contracts that have an Energy price at the RRN, and Energy dispatch in their settlement formulas. This was expected to minimise the disruption on contracts and the costs on consumers. Option 1 is proposed by the ESB on the RRP is exactly the opposite from the CRM model, proposing basis risk for unconstrained generators.

ESB is instead asking for feedback regarding using existing mispricing procedures as the new LMP, as an alternative pricing mechanism to bidding in CRM. This was not the original proposal by Edify and takes away risk mitigation tools from the hands of participants.

Snowy Hydro is concerned that in table 13 there are "two options for the calculation of RRP", with Option 2 closely linked to COGATI, which was opposed by industry 2 years ago. Option 2 removes the price at the RRN, which was one of the core design principles for the CRM. It is unclear to Snowy Hydro why ESB has an "LMP" and an "RRPCRM" in Table 13 as Edify's proposal put forward that there should only be one CRM price at each node for each trading interval. This needs to be clarified by the ESB as this is a clear difference to what has been proposed by Edify.

Table 13 (of ESB paper): Two options for the calculation of RRP

	Option 1	Option 2
Title	RRP is the marginal cost of an additional unit of load at the RRN in the energy market, as it is currently calculated.	RRP is the marginal cost of an additional unit of load at the RRN in the CRM.
RRP	RRP_{NEM}	RRP_{CRM}
Customer payments	= load x RRP_{NEM}	= load x RRP_{CRM}
LMP	CRM adjustments priced at LMP	Same as Option 1.
Access to RRP	Determined by the energy market based on market participant bids	Same as Option 1
Final physical dispatch	Determined by the physical dispatch including CRM adjustments	Same as Option 1.
Generator revenue (constrained)*	= G_{NEM} x RRP_{NEM} + G_{ADJ} x LMP	= G_{NEM} x RRP_{CRM} + G_{ADJ} x LMP
Generator revenue (unconstrained)	= G_{NEM} x RRP_{NEM} + G_{ADJ} x RRP_{CRM}**	= (G_{NEM} + G_{ADJ}) x RRP_{CRM} = G_{CRM} x RRP_{CRM}
FCAS settlement	= FQ_{NEM} x FP_{NEM} + (FQ_{CRM} – FQ_{NEM}) x FP_{CRM}	= FQ_{CRM} x FP_{CRM}
FCAS dispatch and pricing	Two FCAS dispatches including: • FCAS dispatch and pricing based on the energy market (NEM FCAS prices) • FCAS dispatch adjustments and pricing based on the CRM (CRM FCAS prices)	Two FCAS dispatches including: • FCAS dispatch based on the energy market and pricing from the CRM • FCAS dispatch adjustments and pricing based on the CRM
Where:		
G_{NEM}	dispatch of a unit from the energy market (MWh)	
G_{ADJ}	dispatch adjustments from the CRM = G_{CRM} – G_{NEM} (MWh)	
RRP_{NEM}	RRP from the energy market ($/MWh)	
RRP_{CRM}	RRP from the CRM dispatch ($/MWh)	
LMP	LMP for the unit from the CRM dispatch ($/MWh)	
FQ	quantity of FCAS dispatch (MWh)	
FP	FCAS price ($/MWh)	

[6] *Energy Security Board, 2022, "Transmission Access Reform Directions Paper", <<* https://www.datocms-assets.com/32572/1667984730-tar-directions-paper-final-for-web.pdf *>>, pp11*

While Snowy Hydro agrees that pricing loads at common regional price will help maintain liquidity compared to pricing load at each local price, an effective primary market is dependent on a liquid, efficient secondary market, and this in turn depends on minimising basis risk for market participants. Snowy Hydro is concerned that forced exposure to face basis risk will disrupt the contract market. We believe the volume of contracts offered at the regional node will be lower than under the status quo as it will lead to either less contracts being offered, or some contract volume being offered at the local node price, fracturing liquidity. We have historical evidence that this is a likely outcome, as Snowy Hydro was subject to local node pricing until the Snowy node was abolished in 2007. When the Snowy node was in place, a percentage of our contracts were referenced to that local node due to the risk we faced between generation plus Settlements Residue (FTR) revenue and payouts under Victorian and NSW contracts.

Since the abolition of the Snowy node, Snowy Hydro have been able to offer additional contracting volume against the Victorian and NSW reference prices, providing market participants with hedging products aligned to their own retail exposure. We are willing to discuss this in more detail with the Commision. Generators may respond to this increased basis risk by contracting only at their generation node which will transfer the basis risk to counterparties who may not be best placed to manage this risk. This is in complete contrast to current NEM market design that has delivered liquid financial contracting markets and facilitated the entry of small retailers and generators leading to increased the level of competition to consumers for the supply of electricity.

ESB provides an opportunity for participants to opt out of basis risks though it is not made clear why market participants would choose to willingly face basis risk, The incentive has not been demonstrated by the ESB and it's unclear whether it would be there for the marginal generators. We submit that the ESB should consider the original proposal from Edify on CRM, if there is a determined need, and not modify the proposal so that it closely resembles the heavily opposed CMM proposal.

Option 1 of table 13, where the price is at the Regional reference node remains as it is formulated now, should it remain the preferred option the ESB need to continue to make the proposal "market ready" with the FCAS settlement needing further simplification.

Option 2 of CRM in table 15, shown below, completely undermines the voluntary and optional aspect of CRM and is expected to lead to unintended consequences the ESB has not considered. The paper notes that Option 2 may require the reopening of long term contracts and that the formulation of payments could impact financial contracts. Snowy Hydro confirms that under Option 2 if "*all participants are likely to have some exposure to LMP*" then it is not a voluntary option.

Table 15 (of ESB paper): Description of design choices for the settlement of metered output

Option	Description	Pros	Cons
1. **Metered output is priced at RRP**	Metered output is paid at the RRP i.e. including dispatch deviations. The participant is paid LMP less RRP for its CRM adjustments between the target dispatch outcomes of the CRM and energy market.	Participants that opt out continue to have no exposure to LMP. It treats the incremental CRM dispatch as analogous to the approach used for FCAS settlement i.e. paid on dispatch.	As with the current market, it creates incentives to not follow dispatch instructions when the RRP is high. This risk is currently mitigated by AEMO's non-conformance monitoring.
2. **Metered output is priced at LMP**	Metered output is paid at the LMP. The participant is paid RRP less LMP for its energy market dispatch.	It removes incentives for generators to deviate from their target dispatch. It aligns the generator's incentives with AEMO's objective for system security. Participants receive LMP at the margin so are incentivised to bid and operate according to their actual costs which should improve efficiency.	All participants are likely to have some exposure to LMP relating to their dispatch deviations, even if they opted out of the CRM. Formulation of payments in this way could impact financial contracts. This risk may be low given the materiality of dispatch deviations and given that generators have existing processes and systems to manage them.

The ESB needs to clarify that Option 2 of CRM is not a voluntary option and is therefore materially different from the model proposed by Edify. There is no information provided by the ESB on the cost impacts of the legal costs associated with reopening long-dated hedging contracts to reflect the move away from RRPs to LMPs and the increased risks due to a potential reduction in contract market liquidity and imperfect hedging of LMP. It will all lead to an unnecessary increase in consumer bills.

In addition, for Option 2, the marginal cost of an additional unit at RRN in the CRM may not be the highest priced bidder and this could create issues, as participants may be dispatched in the energy market at a price below their bid price.

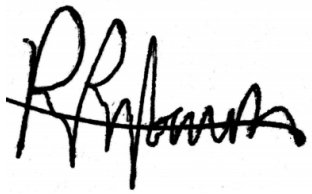
Should the ESB decide to redefine how the RRP is calculated, it is highly likely to be a cause for reopening long term contracts, particularly contracts drafted after COGATI was first floated. Even if it doesn't lead to changes in contracts, it creates dispute risks which are very costly to market participants.

About Snowy Hydro

Snowy Hydro Limited is a producer, supplier, trader and retailer of energy in the National Electricity Market ('NEM') and a leading provider of risk management financial hedge contracts. We are an integrated energy company with more than 5,500 megawatts (MW) of generating capacity. We are one of Australia's largest renewable generators, the third largest generator by capacity and the fourth largest retailer in the NEM through our award-winning retail energy companies - Red Energy and Lumo Energy.

Snowy Hydro appreciates the opportunity to respond to the Energy Security Board on the Transmission access reform Directions Paper. Any questions about this submission should be addressed to panos.priftakis@snowyhydro.com.au.

Yours sincerely,



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