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Australian Energy Market Commission
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Coordination of Generation and Transmission Investment (COGATI) Access reform Directions paper

Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the Directions Paper from the Australian Energy Market Commission (the Commission) on the CoGaTI implementation - access and charging.

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 does not consider that the case had been made for such a material structural change to the market. This reform would cause significant contract market disruption at a time when multiple, overlapping rule changes are being implemented or are in consultation. Furthermore, regulators are concerned with the need to maintain and improve contract market liquidity. This change would counter existing initiatives to improve liquidity.

This reform would have a severe impact on the contracts market and the NEM as a whole. By design, generators would be denied access to the nodal prices payable by most customers in a given region. A complicated and inadequate system of centrally-managed transmission hedges and redistribution of congestion rents will mitigate but not overcome the proposal's destructive impact on the secondary market. This will create large basis risk for generators, reducing liquidity in the secondary market and ultimately worsening consumer outcomes. Before any such reform could be contemplated, the Commission needs to understand the detrimental impacts on the contracts market, and then establish that those impacts are outweighed by any benefits arising from the reform. The approach contemplated in the Directions Paper is the opposite, with these issues apparently considered of secondary importance.

Today, the fundamental problem in the transmission network is not one of co-ordination but a pressing need for increased transmission capacity. The Commission's concerns with congestion and Marginal Loss Factors (MLF) can be resolved through timely transmission investment. Increased interconnection better facilitates competition between major load centres in the NEM with the current status quo of open access supplemented by more strategic planning of the transmission network. It is for this reason the timelines of interconnection for strategic projects is vital as the NEM transforms with a more actionable Integrated System Plan (ISP), complementing policy changes accepted by the COAG Energy Council. The introduction of access reform will not assist the transmission investment of strategic projects, but would rather undermine years of planning undertaken through the ISP, which was itself a recommendation of the Finkel Review. The ISP

process represents the collective input of all interested stakeholders, and is already influencing participant's long-term investment decisions. It would be a calamity if the ISP were to now be effectively jettisoned (or even delayed) through the access reform contemplated by the Directions Paper. Reform measures should complement existing planning processes.

The proposal is also inconsistent with other reforms such as those aimed at improving liquidity and generation investment. For example, the Market Liquidity Obligation (MLO) cannot effectively operate under nodal pricing.

The current NEM approach on the demand side yields more predictable pricing and more simplicity for the retail market while also facilitating competition. Further, the current NEM approach is also significantly better from a risk management point of view.

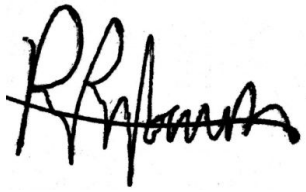
Snowy Hydro therefore strongly opposes Commission's reform proposals and note the following key concerns:

- Access reform would introduce significant amounts of risk, cost and complexity to market participants at a time when industry is working to maximise benefits at lowest cost and risk to consumers.
- Given the geographic spread of the NEM, most nodes under dynamic regional pricing will be highly illiquid and therefore irrelevant for price discovery. Furthermore, this creates opportunities at some nodes for the exercise of significant market power.
- The competitive retail framework, which relies on the ability of 'Tier 2' and 'Tier 3' retailers to buy competitively-priced hedges, will be severely impacted. Generators will be exposed to significant basis risk and will be forced to price this risk into their contracts, increasing costs and barriers to entry.
- The Directions Paper pays little heed to the impacts of the proposal on market liquidity, suggesting merely that there "may be a risk" of "splitting" liquidity and that the AEMC is investigating this issue.[1] In fact, it is unavoidable that splitting the regional reference nodes will fracture contract market liquidity. As a means for determining investment incentives, the contract market is more important than the spot market and must be given due consideration in determining the impact of any change. The Directions Paper has not done this.
- The Commission has not established that transmission hedges will provide an effective means for generators to manage basis risk in the contract market.
- Transmission hedges will lead to a greater role of the market and system operator in the handling of congestion rentals, and a far more involved process for participants in risk management strategies and auction processes all of which will lead to greater risk and costs faced market participants.
- New Zealand has adopted full nodal pricing, and continues to experience low liquidity given generators's inability to offer hedging instruments.
- If transmission planning investment is informed by a generators' purchase of transmission hedges it will delay investment, and would pose a greater risk on consumers if the transmission is not built in time to provide a reliable grid.
- Concerns regarding future transmission congestion should be solved through bringing forward strategic transmission projects. This would improve MLFs and reduce congestion.

Snowy Hydro appreciates the opportunity to respond to the Directions Paper and any questions about this submission should be addressed to me by e-mail to panos.priftakis@snowyhydro.com.au.

[1] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp 52

Yours sincerely,



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DETAILED SUBMISSION

Risks associated with Access Reform

Snowy Hydro believes that predictability and stability are vital aspects for market participants whether they are already in the market or considering entry into the market. Market participants need stability to manage their risk and the NEM represents a simplified nodal pricing framework where participants settle on a single regional price. Changing this design would become a costly and unnecessary burden on all market participants. This reform risks lowering the overall level of competition in the wholesale and retail market.

The Commission has correctly acknowledged that a large-scale holistic reform will introduce some amount of transmission uncertainty into the electricity market[2]. Snowy Hydro believes the Commission should properly assess the risk introduced by this reform at a time when industry is working to maximise benefits at lowest cost and risk to consumers.

Dynamic regional pricing will almost certainly cause the NEM to become highly disaggregated and overly complex. As a result the market will become, at all but a few nodes, highly illiquid, making the price at most nodes irrelevant.

The complexity of nodal pricing will create challenges for participants seeking to manage their risk. For example, independent retailers in New Zealand (which is fully nodal) have difficulty in managing their exposure to the wholesale market. The need to manage this risk has driven a trend of vertical integration, with retailers tending to secure retail customers close to their generation. This has led to several integrated generators/retailers effectively having regional monopolies on supply in their area. This illustrates the problem with and the implications of nodal pricing, namely its tendency to create significant barriers to generators' and retailers' ability to transact hedging instruments, harming competition.

Snowy Hydro is concerned with the Commission's statement that *"the introduction of dynamic regional pricing does not introduce a new net risk to generators"*[3]. Furthermore, the Consultation Paper notes that *"under dynamic regional pricing, generators would no longer face this volume risk, as their volume dispatch would be a direct function of their offer price and the locational marginal price at their transmission node. However, they would face price risk."* [4]

It cannot be assumed that a reduction in volume risk will largely or even significantly neutralise the increase in price risk. Firstly, transmission hedges will not remove volume risk altogether, given the unavoidable presence of physical constraints on transmission lines. Secondly, there is a significant asymmetry of risk between, on the one hand, adjustments in loss factors (which, even in extreme cases, rarely exceed 20%) and, on the other, differential pricing outcomes under a nodal arrangement (where the price at a particular node may be many multiples different from that at another node in a given region). This issue needs to be properly addressed by the Commission.

Snowy has direct experience of the problems that arise for a generator when it receives a different commodity price from other market participants. This was the case when Snowy operated in the Snowy Regional Reference Node; that node was abolished in order to improve liquidity and

[2] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp iv
[3] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp 64
[4] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp 64

competition. The Commission's reform proposal is inconsistent with the decision to abolish the Snowy node.

Issues with Transmission Hedges

The Commission notes that transmission hedging products could be procured through an auction process, given the current level of demand for generators to connect to the network[5]. This alone would require each stage of power flows analysis to be undertaken to evaluate the simultaneous feasibility of power flows and hence the revenue adequacy of the transmission hedge. Furthermore, 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 is concerned this approach 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 will, again, increase costs and create new barriers to entry.

Impact on Liquidity Dynamic Regional Prices

Liquidity in hedging products is crucial for price discovery and risk management, and is ultimately beneficial for investment. The Commission correctly notes that the *"NEM's existing regional pricing model was designed to promote liquidity in forward contract markets by allowing all generators and retailers in a given region to trade with each other on the same basis and facilitate contracting around a common 'strike price' at which all load and generation is settled."*[6] Measures which unnecessarily disrupt the efficiency of the contracts market should therefore be avoided; if participant's ability to manage risk is impaired, increases in risk will ultimately flow through to consumers in the form of higher prices.

Snowy Hydro notes the Commission's statement that *"If (some) load were to face a locational marginal price instead of the regional reference price, there may be a risk of splitting liquidity in the contract market, as forward contracts would potentially instead need to be struck against many different local prices."*[7]

While this statement is true, the implications of nodal pricing for market liquidity are much more severe than is acknowledged by the Directions Paper. The efficiency of the (spot) primary market is directly dependent on having a functioning, effective secondary market. That is precisely why the NEM was designed around regional reference nodes. The contracts market is, in fact, more important than the spot market in determining economic outcomes of market participants. In short, the predominant competitive activity and risk management takes place in the contracts market, with the spot market merely serving as a balancing market for 'unders and overs'.

The fact that the NEM has a liquid, efficient contracts market can be largely attributed to the current system of pricing at RRNs, which provides pricing certainty for market participants. This was a deliberate design feature of the NEM, in recognition of the competitive benefits it promoted. The likelihood is not merely a 'splitting' of market liquidity, but: 1) spreading existing volume over a number of nodes and 2), introducing additional basis risk for buyers and sellers, further harming liquidity.

Under the current market structure, generators have confidence that they are able to defend the pricing outcomes they have insured under their hedging contracts (and so are more willing to offer

[5] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp 72
[6] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp 52
[7] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp 52

those contracts): the pool price received by generators is the same as that paid by the market customers in their region. Nodal pricing would introduce massive basis risk, which would only partially be overcome through transmission hedges.

Today, the majority of investment in new capacity is in variable renewable generation. However, a pre-condition to almost all such investment is securing a long-term power purchase agreement (PPA); without a PPA, most projects will never achieve financial close. Nodal pricing will, therefore, have a detrimental impact on such investment because developers will be forced to take on basis risk (even after acquiring transmission hedges) which will impair lender's willingness to lend the required funds. The proposal would also have harmful impacts on the retail market. The drying-up of liquidity will create barriers for entry for 'Tier 2' and 'Tier 3' retailers, who will find it more difficult to access affordable hedges and so will be less able to impose pricing pressure on large incumbent retailers.

Industry is facing numerous rule changes from the Commission and other regulatory bodies to improve contract market liquidity with the recent MLO implemented to improve liquidity. The MLO is problematic in a nodal market. In addition, industry has worked hard to improve transparency through the Australian Financial Markets Report (AFMR). The AFMR survey provides clear evidence that our markets are performing well and contributing solidly to the growth of the Australian economy. Access reform proposals would contradict the work industry is undertaking to improve liquidity.

The implications of dynamic regional pricing for contract market liquidity need to be properly assessed before any reform proposal can be considered. New Zealand is a market which has full nodal pricing where generation is paid and load pays the locational marginal price and a concerning element of the policy debate has been the problem of large market shares in generation and low liquidity[8]. Compare this to the NEM which has a significantly more liquid financial market offering a range of forward contracts on region prices, and contracts for differences between regions.

Transmission Hedge and Transmission Planning

The Commission notes that transmission planning is informed by generator's purchase of transmission hedges. The financial proceeds from the purchase of a transmission hedge would go towards underwriting transmission investment, as TNSPs would be obliged and financially incentivised to provide a level of network capacity consistent with the amount transmission hedges collectively held by generators. Snowy Hydro, however, believes this approach would delay critical transmission investment and would pose a greater risk to consumers if transmission is not built in time to provide a reliable grid[9].

AEMO's recent submission to the COGATI Access Reform Consultation Paper correctly notes that *"in jurisdictions that have moved to full nodal pricing models, including markets in North America and New Zealand, generator access rights have primarily been used to manage congestion rather than to direct market-led transmission investment. International experience suggests that due to the episodic and lumpy nature of transmission investment, the cumulative decisions of disparate commercial investors have not delivered".* [10]

[8] NERA Economic Consulting, 2017, *"International Experience of Vertical Integration in the Electricity Sector A Report for AGL Energy Ltd",*

[9] AEMC, Coordination of Generation and Transmission Investment - Access reform, Directions paper, 27 June 2019, pp70

[10] AEMO submission, 2019, "Coordination of Generation and Transmission Investment Consultation Paper 2019, << https://www.aemc.gov.au/sites/default/files/2019-05/AEMO.PDF >>

The Commission's approach regarding the use of transmission hedges is concerning when the NEM is transitioning from thermal generation to more renewable. New transmission links are needed to connect renewable energy zones, improve interconnectivity and delivering a reliable, resilient electricity supply for consumers.

Transmission hedges are not required to drive transmission investment in the NEM as the Regulatory Investment Tests for Transmission (RIT-T) is currently used to minimise the risk of inefficient expenditure and assessing the appropriateness of investments. This is coupled with industry working on an actionable AEMO ISP modelling process which is a whole-of-system, least cost optimisation. The ISP is able to show the economic benefits under all scenarios including the timing of some elements under different assumptions, particularly relating to major energy storage initiatives. The Commission's access reform proposal would undermine the work that has been undertaken in actioning the ISP which is to the NEM's energy transformation.

AEMO's recently released Insights Paper[11] recognised the strategic value from bringing forward transmission developments and strategic storage to increase power system resilience against climate change or early exit of coal-fired generation. This would improve MLFs and reduce congestion.

Strategic, low-regrets projects such as Humelink and KerangLink being implemented in a timely manner would support the resilience of the NEM. Bringing Humelink forward to 2022 to coincide with the scheduled closure of Liddell Power Station and aligning KerangLink with the commissioning of Snowy 2.0 in 2024 would increase overall system resilience and insure against the risk of an early exit of coal-fired generation in Victoria and NSW. These proposals alone would significantly reduce congestion between NSW and Victoria, while facilitating greater competition through increased interconnection.

Access Reform Timing and Transmission Investment

The implementation date of the proposal (July 2022) is unreasonably ambitious. The reform proposals in the Directions Paper are among the most significant ever contemplated in the history of the NEM. Should they ever be implemented, a much longer lead time would be needed.

Snowy Hydro asserts that access reform is not required. The ESB Post 2025 Market Design work, which is assessing different market designs, is the most appropriate forum to consider any new access regime.

International Experience

New Zealand and PJM are examples of markets with full nodal pricing with both generators and the demand side are exposed to nodal prices. Care should be taken in assessing the cost impacts of access reform as certain countries have not been required to change from a zonal to a nodal approach, in addition to this the PJM market has had more "additional features" than the New Zealand market. Nevertheless the issues found have been as follows under nodal pricing and firm access (transmission hedge):

- Risk management at peripheral nodes is challenging in nodal markets, particularly for independent retailers. In New Zealand generators and retailers were permitted to

[11] AEMO, 2019, "Building power system resilience with pumped hydro energy storage", <<https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/ISP/2019/ISP-Insights---Building-power-system-resilience-with-pumped-hydro-energy-storage.pdf >>

"reintegrate" in order to cope with the nodal prices. The Australian market has easier risk management for the market participants.[12]

- There are 2-3 nodes that have sufficient liquidity to trade; in the rest of the market liquidity is so limited that it is a challenge for small independent generators or retailers to enter the market or new regions. It is difficult for small market participants in the regions (outside the 2-3 liquid nodes) to find a counterparty for hedging. [13]
- Depending where generation relative to demand is plentiful or in shortage would lead to consumers being net beneficiaries from locational pricing in certain areas and more remote areas would be less well off.
- Locational market power is much more pervasive than zonal market power.

[12] Norwegian Water Resources and Energy Directorate, 2011, *"Mapping of selected markets with Nodal pricing or similar systems - Australia, New Zealand and North American power markets", pp6*

[13] Norwegian Water Resources and Energy Directorate, 2011, *"Mapping of selected markets with Nodal pricing or similar systems - Australia, New Zealand and North American power markets", pp14*