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Australian Energy Market Operator
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Submitted by email to ISP@aemo.com.au

Addendum to the Draft 2022 ISP

Snowy Hydro Limited welcomes the opportunity to comment on the Addendum Australian Energy Market Operator (AEMO) 2022 Draft Integrated System Plan (ISP) Consultation.

Executive summary

The addendum to AEMO's ISP, which should be providing clarity through additional information on key inputs and assumptions, has only demonstrated the significant deficiencies that remain unanswered. This publication should underpin the transformation of the power system, giving confidence to investors and consumers. Instead, critical transmission projects are being loaded up with more detailed decision rules that create preconditions for an optimised NEM. One that is cheap, reliable and exists in reality.

Transmission is currently inadequate, yet investors are being faced with further uncertainty around critical transmission projects due to these decision rules. In quarter 4, 2021 the Victorian and NSW transmission was constrained around 45 percent of the time during the day, meaning electrons couldn't get past the congested regions in north-west Victoria and south-west NSW. This congestion will not get better with more renewables coming online. Instead, investors are faced with a plan that will delay the transmission upgrades needed to address this congestion.

AEMO understandably wants to minimise the cost of network upgrades but the costs of imposing decision rules on actionable projects such as HumeLink and VNI West will outweigh the benefits. These costs include investment uncertainty, project delays, higher construction costs and increased risk of blackouts.

If there is any role for decision rules, then the sensible approach is that it should be used at early project concept stages, not in the middle of a Regulatory investment test for transmission (RIT-T) process. For the likes of Humelink, with committed project dependencies, including Snowy 2.0 and Project Energy Connect (PEC), and which were based on prior actionable status, re-imposition of decision rules create chaos and considerable risks that AEMO is not addressing in their addendum. Transmission augmentation that is delayed will only lead to higher prices and slower decarbonisation, but also blackouts and dangerous system instability as noted in our January submission to AEMO.

AEMO's strengthening of the decision rules for Victoria – New South Wales Interconnector (VNI) West and Humelink has clearly shown that the ISP has not acknowledged the realities of project delivery. In particular, AEMO is ignoring the risks

associated with these projects in regards to understanding delivery, operation and maintenance risk. For Snowy 2.0 and all the renewable zones likely to be connected the 2020 AEMO ISP included Humelink as actionable only to change that status in 2022's ISP, which questions the credibility the ISP can have if it cannot be relied on for project decisions.

AEMO's treatment of Snowy 2.0 sends all the wrong investment signals. AEMO is effectively treating Snowy 2.0 as a sunk-cost, degrading its economic feasibility in order to improve the economics of new, as-yet uncommitted dispatchable plant. That is both cynical and amounts to free-riding on Snowy Hydro's decision to take the plunge and invest in Snowy 2.0. Such an approach does not augur well for investment in the NEM.

For industry, AEMO needs to adequately explain how the majority of its inputs and assumptions are impacted by delaying projects with loaded decision rules on critical transmission projects. AEMO needs to acknowledge there is now no question of the need for transmission upgrades: the only question is one of timing and not adding further complexities to the ISP.

This addendum provides additional information on how key inputs and assumptions contribute to the Draft 2022 ISP outcomes. However, it stops short of providing any further clarity to market participants. It is for this reason that AEMO should assess the following details regarding Sections 3 change to the decision rules on Victoria – New South Wales Interconnector (VNI) West and HumeLink decision rules.

- **Dispatchable capacity based decision rules for Humelink/VNI West**

AEMO needs to provide confidence for investors. However, its use of decision rules, in particular for Humelink and VNI West, will have the opposite effect. AEMO's insistence on retaining decision rules for otherwise actionable projects perpetuates the misguided belief that transmission can be planned and constructed on a just-in-time basis, whereas such an approach is likely to result in network upgrades that are both later and more expensive than is necessary.

AEMO's suggestion that an additional 900MW of dispatchable capacity could defer VNI West allows anyone with a vested interest to delay VNI West by making "optimistic commitments" to build new plant. The AEMO model would need to explain how additional firm 900 MW capacity in Victoria or NSW would help the stranded renewables to dispatch and explain the process by which more dispatchable energy would help provide wind and solar transmission access.

In a 50% renewable NEM, ITK Independent¹ modeling assumes storage in EVs, distributed storage, and residual coal plants and new OCGTs making assumptions that the NEM would require:

- 5 times Snowy 2.0, plus
- 2 - 5 times AEMO's current ISP, plus
- Many, many other batteries and pumped hydro schemes with storage.

¹ Source: ITK Services, 2020: Independent modelling of a 100% renewable NEM



Yet we are here discussing whether VNI West is required to connect Snowy 2.0 when we need five times that to meet emissions reductions targets.

AEMO needs to therefore define what constitutes dispatchable capacity, it remains open and itself can be manipulated to delay transmission. In understanding the definitions of dispatchability and flexibility of what constitutes dispatchable capacity are factors such as

- Predictability of the resource;
- The capacity over time
- Location of the resource and;
- The ability of the resource to match load.

What approach is AEMO considering so as to understand flexibility as a subset of dispatchability and whether a particular dispatchable generation source is flexible over sustained periods to replace the need for a transmission line providing long duration storage. The test for flexibility of dispatchable generation should not be confined to tests over a few hours rather the flexibility should also include tests over consecutive hot days as otherwise projects that do not provide the same security and reliability as Snowy 2.0 could put the NEM under stress.

A materiality threshold is a sensible approach, should AEMO continue to pursue decision rules, rather than a fixed number for the decision rules as AEMO correctly highlights that the net market benefits are a function of both variables.

Ignoring the delivery risks and costs of transmission non-completion

AEMO notes that *"the use of decision rules ensures that a project can be delivered when it is needed, with an additional checkpoint before construction"* while at the same time ignoring the delivery risk of transmission. If the ISP is to become a valuable roadmap it must effectively demonstrate if critical transmission projects are delayed and what these costs could mean for the NEM. AEMO as a network planners must consider the impact of project delivery.

It is for this reason, following the recent proposed closure of Eraring power station, that AEMO should seek to address the significant concerns from TransGrid which noted *"adding a decision rule, this late in the overall regulatory and investment process for the project may alter stakeholders' perceptions of the certainty and timing of the project. This will have a detrimental impact on both:*

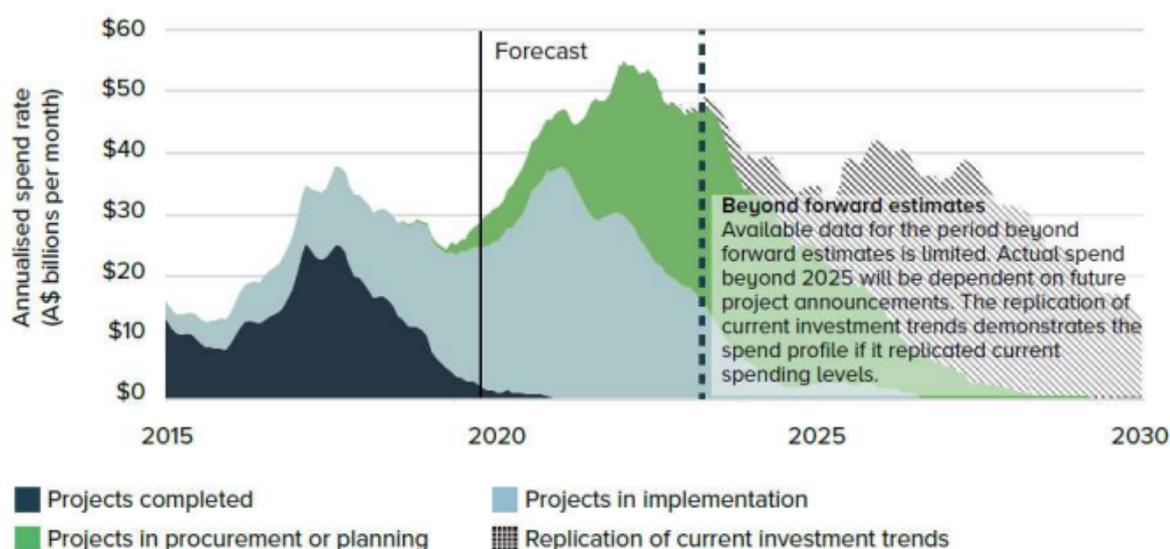
- *consumer outcomes, as it is likely to impact our ability to achieve the presumptive 2026/27 delivery date and potentially increase overall project costs by more than 5%; and*
- *community outcomes, as it is likely to impact our ability to deliver social investment and social legacy initiatives.*

It is for this reason that a continued and consistent delivery date mitigates the risk of schedule slippage and provides greater assurance that the project will be in place by the date that it is needed in the most likely scenario. HumeLink, for example, can provide insurance value and given the accelerating speed of the energy transition there is a very real prospect that there could be more early exits.



Transgrid has indicated that the reduction in contractor interest arising from any perception of increased project uncertainty and the cost of booking production slots are both likely to be exacerbated by the current tight infrastructure resource market. Infrastructure Australia forecasts that infrastructure spending is likely to increase substantially over the next few years, as a range of investment in major projects (both within the electricity sector and across other infrastructure sectors) proceeds.

Figure 1: Investment in Infrastructure²



- **How will State Targets and REZ's connect without critical transmission? Do decision rules assess/consider these requirements?**

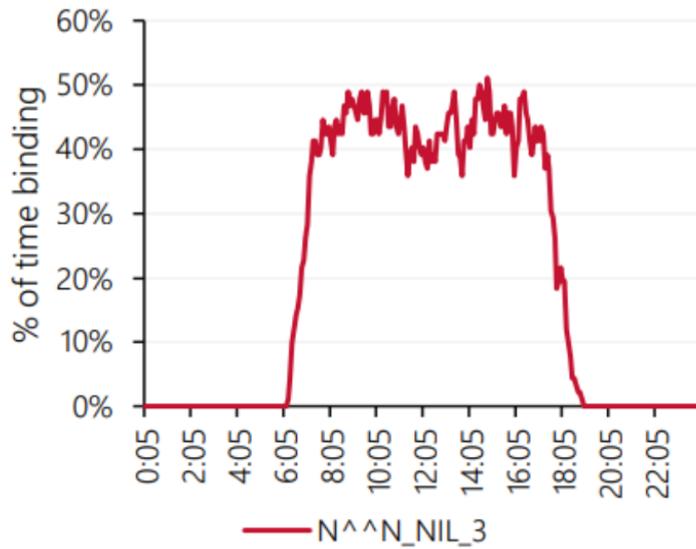
The VNI West commissioning date was expected to align with Victoria's renewable energy targets (VRET) target date. This is expected to provide system resilience to cater for unplanned early exit of coal plant, by allowing Snowy 2.0 to firm VRET output and capture excess or low value generation for discharge during times of energy scarcity, and will facilitate orderly transition to the future renewables dominated power system.

The transmission grid therefore needs targeted augmentation to provide capacity, balance resources and unlock Renewable Energy Zones (REZs) in both Victoria and NSW. The most cost-effective way to provide this required connection capacity for VRE is to develop strategically placed interconnectors in conjunction with REZs. VNI West is critical to the transition. Instead we are seeing a NEM that is already constrained around 45 per cent of the time during the day (as shown below from Q4 2021) and has no room available for renewable investment.

²TransGrid submission Infrastructure Australia, Infrastructure Market Capacity, October 2021, p. 27 Figure 5

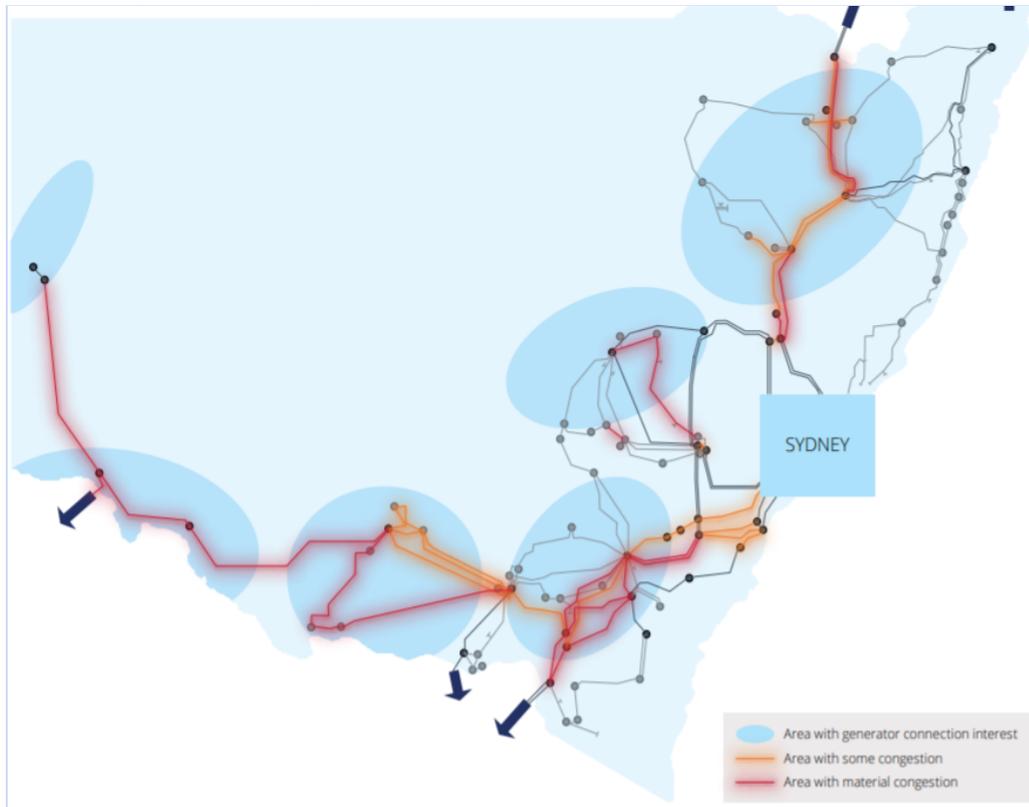
Figure 2: Constraints affecting daytime flows³

% of time N^N_NIL_3 constraint binding by time of day



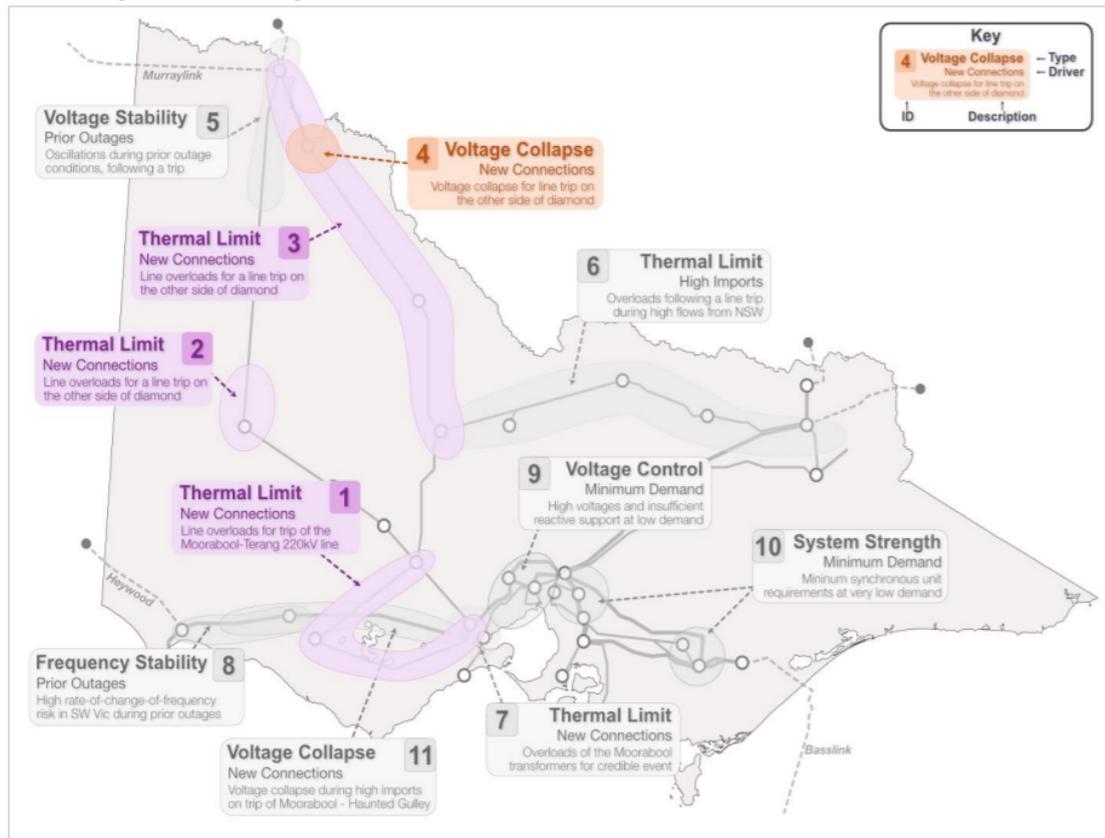
AEMO's ISP is needed now and not in the 2030s. The chart below highlights the risks associated with congestion now in the NEM associated with the areas Humelink and VNI West is expected to improve. There are constraints in all NSW REZs with additional constraints forecast in Wagga and Central West while in Victoria the primary issue is thermal constraints around the "rhombus of regret" in north western Victoria.

NSW Congestion in Regional Areas (REZs)



³ <https://www.aemo.com.au/-/media/files/major-publications/qed/2021/q4-report.pdf?la=en>

VIC Congestion in Regional Areas (REZs)



It is therefore clear, the cheap renewable energy that VNI West and Humelink are expected to unlock will remain congested. AEMO should therefore clarify that without the wind and solar enabled by VNI West how a 50% renewable NEM can happen?

- **Price based decision rules**

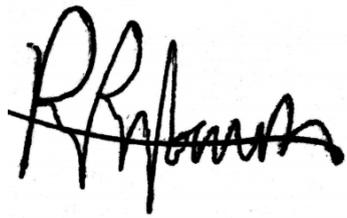
There are supply chain issues occurring around the world, these include COVID-19, war, resource and commodity constraints, which poses the question how a price based rule can work. We need TNSP to get the price certainty for critical transmission projects prior to the 2024 ISP, attempting to have Humelink pass a price-based rule in 2024 if fixed price contracts cannot be obtained, even with a materiality clause, is unlikely.

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 Addendum AEMO 2022 Draft ISP Consultation and any questions about this submission should be addressed to me by email to panos.priftakis@snowyhydro.com.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'P. Priftakis', with a horizontal line drawn through the middle of the letters.

Panos Priftakis
Head of Wholesale Regulation
Snowy Hydro

