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Australian Energy Market Operator (AEMO)
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Submitted by email to VNIWestRITT@aemo.com.au

Victoria to New South Wales Interconnector (VNI) West Consultation Report – Options Assessment

Snowy Hydro Limited welcomes the opportunity to comment on the AEMO Victorian Planning (AVP) and Transgrid VNI West Consultation Report – Options Assessment

The recent system energy stress is not simply the product of unrelated disturbances in the NEM. It reflects a growing weakness in which the transmission network has not kept pace with the structural change now occurring in the generation fleet. It is for this Snowy Hydro submits that VNI West is a critical transmission project that is set to deliver outcomes to meet the needs of the electricity system.

There is growing acknowledgment of the urgency of VNI West. National Cabinet designated the project as nationally significant and the 2022 Integrated System Plan (ISP) removed decision rules from the project so it could be built as soon as possible. Despite the Commonwealth and Victorian governments recently announcing that Rewiring the Nation, through the Clean Energy Finance Corporation, will provide a concessional loan of \$750 million for VNI West to ensure it is completed by 2028 the completion date has not changed, Snowy Hydro is therefore concerned with the earliest completion date of 2031 in the consultation paper.

Timing for VNI West remains the same as under the 2022 ISP which expects the optimal timing for delivery of the project in 2031, with early works to be completed by 2025-26. The completion date should be no later than 2028 so as to provide system resilience to cater for unplanned early exit of coal plant, by allowing Snowy 2.0 to firm Victorian Renewable Energy Target auction (VRET) output and capture excess or low value generation for discharge during times of energy scarcity, and facilitate an orderly transition to the future renewables dominated power system.

The transmission upgrades will improve system security for the NEM by increasing firming capacity from both the existing Snowy Scheme and Snowy 2.0. Snowy Hydro currently has 1,500MW of capacity it cannot deploy in Victoria at times of peak demand. This is recognised by AEMO in the ISP.

As part of the newly proposed route options put forward in the consultation paper, Snowy Hydro supports the options that:

- have the highest net present value (NPV) assessment and therefore deliver the highest net benefits.
- Take into account of a wider range of factors that may impair social licence
- Is completed in a timely manner to account for coal closures and VNI currently being significantly constrained to provide firming capacity to Victoria.

Snowy Hydro therefore supports Option 5 which when considering other potential environment, social and engineering constraints outperforms Option 3A. It is critical however that should Option 5 remain as the preferred option that the project is completed no later than 2028 for reasons outlined above.

Consideration of Option 5 should not be at the expense of significantly delaying the timeframe. Snowy Hydro understands the new route is expected to minimise the social license (landholder) issues, however the consultation suggests changing the route may delay the project until 2031.

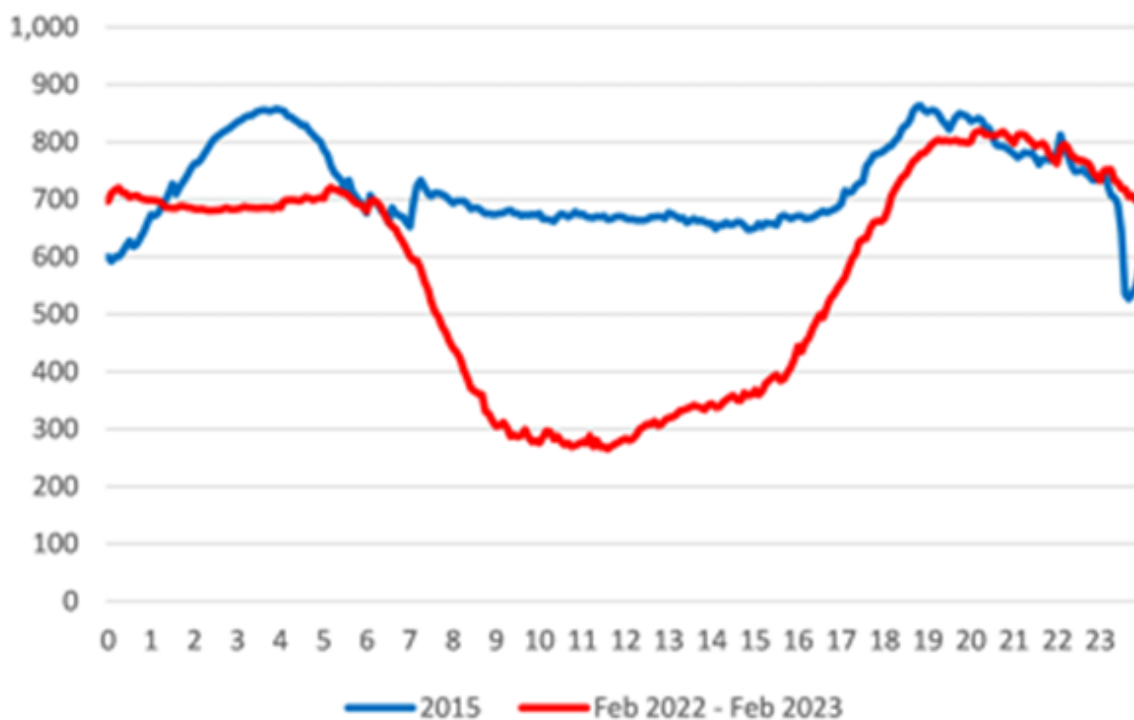
This is in contrast to the Commonwealth funding announcement in October 2022 which was designed to accelerate delivery from 2031 to 2028.

Existing transmission lines are constrained - VNI problems and VNI West the solution

Transmission is currently inadequate between Victoria and NSW. The transmission grid needs targeted augmentation to provide capacity, balance resources and unlock Snowy 2.0, existing Snowy assets and Renewable Energy Zones (REZs) in both Victoria and NSW. VNI West is critical to the transition.

Daytime northern flow limits on the Victoria to NSW Interconnector (VNI) have dramatically reduced. Recent analysis by the Australian Energy Council (AEC)¹ have shown the impact. In 2015 the flow limits peak at around 850 MW in the evenings and then reduce to between 650 MW and 700 MW in daylight hours. During daylight hours between 2022/23 however limits reduce rapidly and range between 300-400 MW over the course of the day. Figure 1 compares calendar 2015 average flow limits by time of day with those for the year from 20 February 2022 to 19 February 2023².

Figure 1: VNI Average Export Limits (MW) by time of day - 20 February 2022 to 19 February 2023³



It has also been acknowledged both by the Australian Energy Regulator (AER) and the Australian Energy Market Operator (AEMO) that VNI is being regularly constrained during the day. AEMO has shown that VNI was constrained over 47 per cent of the time in Q4 2022, as shown in table 2 below⁴. Meanwhile, the AER's equivalent quarterly report also noted poor VNI performance on its

¹AEC, 2023, "Victoria to NSW Interconnector, a functionally impaired asset?", << <https://www.energycouncil.com.au/analysis/victoria-to-nsw-interconnector-a-functionally-impaired-asset/> >>

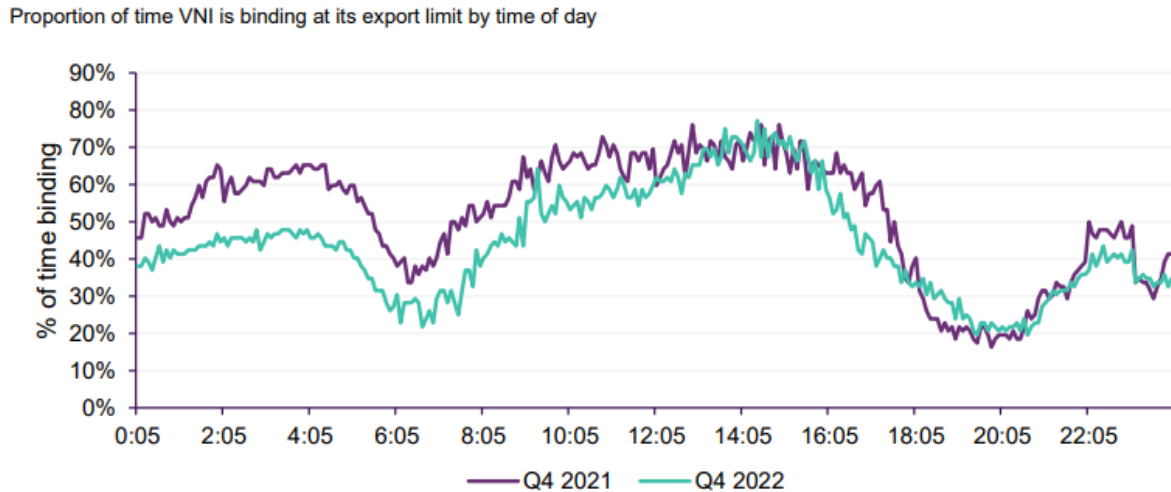
² AEC, 2023, "Victoria to NSW Interconnector, a functionally impaired asset?", << <https://www.energycouncil.com.au/analysis/victoria-to-nsw-interconnector-a-functionally-impaired-asset/> >>

³AEC, 2023, "Victoria to NSW Interconnector, a functionally impaired asset?", << <https://www.energycouncil.com.au/analysis/victoria-to-nsw-interconnector-a-functionally-impaired-asset/> >>

⁴ AEMO, 2023, "Quarterly Energy Dynamics Q4 2022 January 2023", << << <https://aemo.com.au/-/media/files/major-publications/qed/2022/qed-q4-2022.pdf?la=en&hash=9587E5DD6CB1FA1F7514E6B21BD937CF> >>

Q4 2022 report, noting “limited flows on the Victoria-NSW Interconnector during Q4 2022 meant NSW and Queensland were unable to access cheaper southern generation almost half the time”⁵. There is now significant and regular price separation between Victoria and NSW, suggesting inadequate interconnection.

Figure 2: Proportion of time VNI is binding at its export limit by time of day⁶



The best way to address this issue is the timely build of VNI West, which will reduce congestion, connect consumers to renewables, firming and storage, and increase competition. Transmission augmentation is the critical link which will unlock investment in clean energy and reduce reliance on existing fossil fuel technologies.

For Victoria and NSW, VNI West is best placed to address the increasingly precarious reliability and security concerns. It will enable consumers to access lower cost generators across State borders, enable the connection of new generators that will replace those power stations scheduled to retire. This will also provide a more stable pipeline of new renewable electricity projects in Victoria to enable a sustainable renewable energy industry, exactly what the program has set out to achieve. It is for the reason we believe a completion date of 2031 is too late to address these security concerns.

Uncertain transmission access has constrained Snowy Hydro. We have capacity in NSW to be able to assist with Victorian demand but due to transmission constraints it is often unable to be deployed, meaning our power stations sit idle whilst Victorians face a risk of blackouts. This has, in turn, impaired Snowy’s ability to sell price insurance contracts. It is therefore imperative that new transmission lines are constructed in order to address the needs of the current Scheme and to harness the company’s investment in Snowy 2.0. Without timely investment in new transmission Snowy 2.0 risks becoming a stranded asset.

Overview of the options considered

In reviewing the Options presented in the consultation paper, Snowy Hydro considers Option 5 (to Bulgana) as the preferred VNI West option. This option is a 500 kilovolt (kV) double-circuit overhead transmission line between Victoria and New South Wales, connecting WRL (at Bulgana) with EnergyConnect (at Dinawan) via a new terminal station near Kerang.

⁵AER, 2023, “Wholesale markets quarterly Q4 2022 October – December”, << https://www.aer.gov.au/system/files/Wholesale%20markets%20quarterly%20Q4%202022_1.pdf >>

⁶ AEMO, 2023, “Quarterly Energy Dynamics Q4 2022 January 2023”, << << <https://aemo.com.au/-/media/files/major-publications/qed/2022/qed-q4-2022.pdf?la=en&hash=9587E5DD6CB1FA1F7514E6B21BD937CF> >>

With Option 5, Snowy Hydro is concerned that the timing for VNI West remains the same as under the 2022 ISP which expects the optimal timing for delivery of the project in 2031, with early works to be completed by 2025-26. The completion date should be no later than 2028 so as 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 facilitate an orderly transition to the future renewables dominated power system.

A critical part to achieving the appropriate timing for VNI West is from early works. Snowy Hydro supports the early works being completed as soon as possible. This includes critical path investments which are needed to commence construction, such as easement acquisition or acquiring a slot in a manufacturer's queue for long lead time equipment. Early works are critical for VNI West.

The Consultation paper notes that *"early works AVP has estimated the cost of conducting early works as soon as possible to ensure the project can be delivered by July 2031 (the target commissioning date in the most likely ISP scenario)".* If there is a possibility that VNI West can be completed prior to 2030 then early works should be started as soon as possible with construction expected to take five years (excluding time for early works). The proponents should seek to start early works prior to 2025.

Current timing for VNI West means that there is now a real risk that Snowy 2.0 will be commissioned without the ability to deploy its capacity to support the Melbourne load centre. That is a situation Snowy Hydro hope can be avoided with the 'least regret' option, to put in place the connections to fully exploit the capability of Snowy 2.0 from the day it is commissioned and the additional available capacity from existing Snowy assets.

- *Connections to REZ's*

The preferred option will be critical in releasing the significant amount of renewable investment. While Option 5 provides less REZ development potential than Option 3A, it is encouraging that under Option 5, modifications to the existing network have been identified as potential low-cost investments for further investigation in future to harness more renewable generation in Western Victoria, if and when needed.

The Victorian Government's offshore wind policy reduces the expected net benefits of Option 3A and *Option 5*, with the latter less affected by offshore wind developments, because it has less renewable generation development along its route than Option 3A. The modelling in the consultation paper assumes that

- *Developing offshore wind capacity at scale in Victoria reduces the amount of additional new wind, solar and storage investment that is needed in the NEM in the base case; this is particularly true for Victoria and New South Wales.*
- *Including offshore wind is forecast to result in less gas use in the base case, which results in less opportunity for fuel cost savings with VNI West in place.*

Snowy Hydro submits that as part of the offshore wind modelling there is a proper assessment that the benefits of offshore wind are not a replacement for firming into Victoria. In Germany for example, Europe's largest economy with the continent's highest wind power capacity, combined output from both on and offshore wind farms fell around 16 per cent in 2021, relative to 2020⁷. While overall capacity factors will be higher than for onshore wind, there could be significant deficits of offshore wind output on monthly or even seasonal timescales. It will be vital to model

⁷ Reuters, 2021, "Analysis: Weak winds worsened Europe's power crunch; utilities need better storage" << <https://www.reuters.com/markets/commodities/weak-winds-worsened-europes-power-crunch-utilities-need-better-storage-2021-12-22/> >>

these deficits, which are likely to be exacerbated by offshore wind being clustered in only one or two areas.

- *Route diversity/Social Licence*

It is critical that VNI West provides system resilience to events such as bushfires and line diversity and addresses any social licence issues. Snowy Hydro welcomes that this has been considered for all options but specifically for Option 5, which includes:

- The highest likelihood of achieving social licence sufficient to obtain planning and environmental approvals in timely manner
- Minimised area within bushfire management overlay

This will allow VNI West to deliver a more resilient power system, capable of operating more securely and efficiently across future weather conditions,

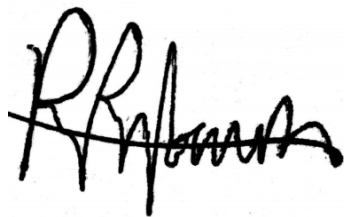
In conclusion we strongly recommend that VNI West be built by 2028. For all of the reasons we have already noted, it is essential for system security and reliability. Electricity consumers will be principal losers if this timing cannot be achieved. It is for this reason the next installment in the RIT-T process considers the earlier timeframes.

About the Snowy Hydro Group

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. Collectively, they retail gas and electricity in South Australia, Victoria, New South Wales, Queensland and the ACT to over 1.25 million customers.

Snowy Hydro appreciates the opportunity to respond to the AEMO Victorian Planning (AVP) and Transgrid VNI West Consultation Report – Options Assessment. Any questions about this submission should be addressed to panos.priftakis@snowyhydro.com.au.

Yours sincerely,



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