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

Victoria to New South Wales Interconnector West Regulatory Investment Test for Transmission (RIT-T) Project Assessment Draft Report (PADR)

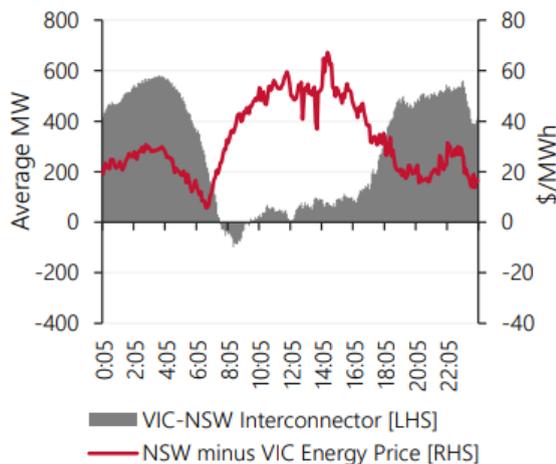
Snowy Hydro Limited welcomes the opportunity to comment on matters raised in the Regulatory Investment Test for Transmission (RIT-T) Project Assessment Draft Report (PADR) from the Australian Energy Market Operator Limited (AEMO) and TransGrid on the Victoria to New South Wales Interconnector West (VNI West).

Transmission augmentation is the critical link which will unlock investment in cheap, 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.

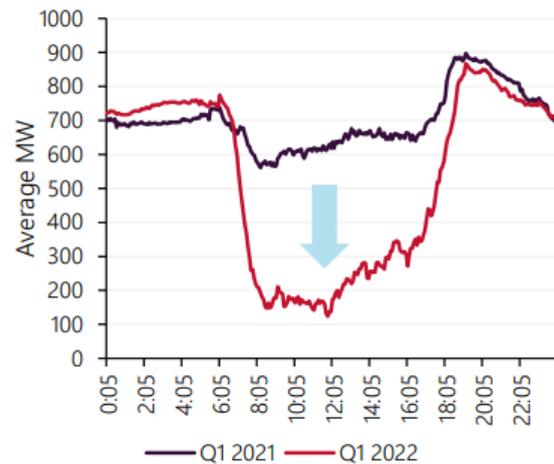
Transmission is currently inadequate between Victoria and NSW. The transmission grid needs targeted augmentation to provide capacity, balance resources and unlock Snowy 2.0, existing Snowy assets and Renewable Energy Zones (REZs) in both Victoria and NSW. VNI West is critical to the transition. As displayed below, we are instead experiencing scenarios such as the current link between Victoria and New South Wales being more significantly restricted by transmission constraints. This is also highlighted by an increasing incidence of price separation between the NSW and Victoria regional reference nodes.

VNI daytime exports collapse/Constraints reduce VNI export limits

VNI interconnector flows and energy price difference⁴¹



Average VNI export limit – Q1 2022 versus Q1 2021



The best way to address this issue is the timely build of VNI West, which will reduce congestion, connect consumers to cheap renewables, firming and storage, and increase competition.

Timely commissioning of VNI West will provide system resilience to cater for unplanned early exit of coal plant and it is for this reason we believe the interconnection should not wait until 2030. Delays could expose the NEM to an unnecessary risk of blackouts and could strand the Victorian capability of Snowy 2.0 for at least five years. We strongly recommend that VNI West be built by 2028-30, which, while still late, is an improvement on AEMO's ISP 2022 timing.

Snowy 2.0 would firm variable renewable output and capture excess or low value generation for discharge during times of energy scarcity, facilitating an orderly transition to the future renewables dominated power system.

In reviewing the Options presented in the PADR, Snowy Hydro considers that Option 1 VNI West, a new high capacity 500 kV overhead double-circuit transmission line to connect the Western Renewables Link (north of Ballarat) with Project EnergyConnect (at Dinawan) via new stations near Bendigo and Kerang as the preferred option. The option will be critical in releasing the significant amount of renewable investment in West Murray which is currently in a remote and electrically weak part of the NEM.

Should Option 2 provide more capacity into Victoria earlier than the completion of VNI West then Snowy Hydro would support greater utilisation of the transmission network to access existing Snowy Hydro assets that could otherwise be constrained off. VNI West path however continues to remain critical to the NEM which is core to Option 1 and 2.

Snowy Hydro supports the early works being completed as soon as possible. Early works are vital in achieving the appropriate timing for transmission projects. Whether 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.

We agree with the PADR report that early works would *"reduce cost uncertainties and provide greater confidence to consumers that they will not be over or under-investing in this key project"*. While some early works in New South Wales are currently underway, via underwriting by the Federal Government, they should be completed earlier than the 3-4 years proposed to be completed to give every possibility for VNI West to be completed earlier.

Identified need for investment

AEMO recently highlighted in their 2022 Electricity Statement of Opportunities (ESOO) there is a critical need to facilitate new development and urgently progress the actionable projects identified in the Integrated System Plan (ISP). AEMO notes *"transmission developments, including ISP actionable transmission developments, need to progress urgently to committed status to address reliability challenges and support the energy transition underway"*¹. One of the key ISP actionable transmission projects being VNI West.

The AEMO ES00 2022 forecasts reliability gaps (ie. breach of reliability standard) in Victoria (2024-2025) and NSW (2025-2026) a significant change since last year, when no reliability

¹https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2022/2022-electricity-statement-of-opportunities.pdf?la=en&hash=AED781BE4F1C692F59B1B9CB4EB30C4C

gaps were forecast until 2027-2028. VNI West could assist in these States with the use of existing Snowy assets and Snowy 2.0.

How delays in transmission timing can impact Victoria

Nexa Advisory recently engaged Endgame Economics to show that timely upgrades to our grid will bring down the average price of electricity. The impact of transmission delay in Victoria is particularly pronounced in the three-year and four-year delay sensitivities. The work assessed VNI West delays in the project could lead to Victoria experiencing high average wholesale prices which result from reduced access to supply from NSW during evening peak periods. Following retirement of their baseload coal-fleet, Victoria relies heavily on wind, gas-fired generation and hydro to meet the demand.

The Endgame Economics² work demonstrated below on Figure 1 and Table 1 is particularly pronounced in the three-year and four-year delay sensitivities, most noticeably in Victoria.

Figure 1 – Change in wholesale and transmission cost (\$/MWh, real 2022 AUD) caused by a two-year delay in transmission³

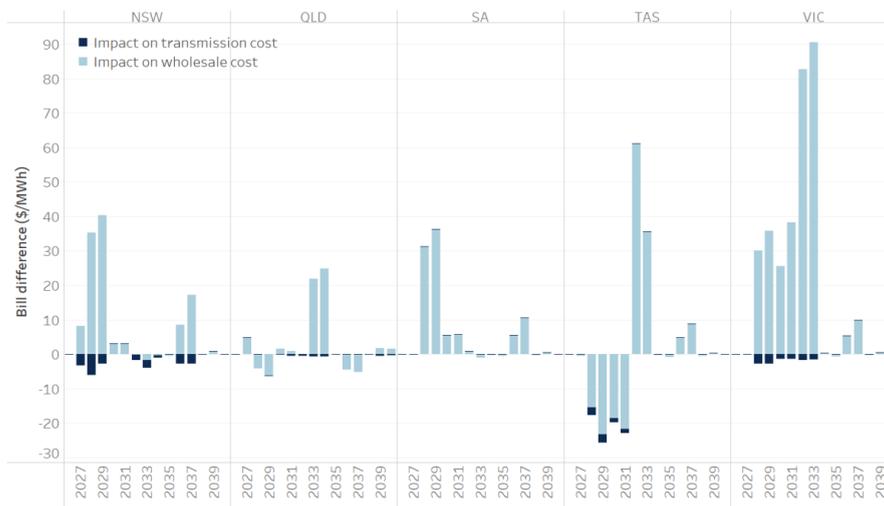


Table 1 - Annual Percentage residential bill impact due to transmission delays (% of May 2022 bill)⁴

Region	1 Year	2 Year	3 Year	4 Year
NSW	1.4%	2.8%	4.7%	6.9%
QLD	0.6%	1.0%	1.6%	7.4%
SA	1.1%	2.3%	3.6%	5.1%
TAS	0.9%	0.7%	0.8%	0.2%
VIC	4.4%	9.6%	17.4%	29.6%
Average	1.66%	3.27%	5.61%	9.84%

² A report for NEXA Advisory, 2022, “Modelling Electricity Bill Impact of Transmission Project Delays”

³ A report for NEXA Advisory, 2022, “Modelling Electricity Bill Impact of Transmission Project Delays”

⁴ A report for NEXA Advisory, 2022, “Modelling Electricity Bill Impact of Transmission Project Delays”

VNI West – Option 1

Snowy Hydro supports Option 1 as the preferred option with the new high capacity 500 kV double-circuit overhead transmission line to connect the Western Renewables Link (north of Ballarat) with Project EnergyConnect (at Dinawan) via new stations near Bendigo and near Kerang. Option 1 delivers \$108 million, or 19%, greater net market benefits than Option 2 that also includes the VTL from 2026 until VNI West is delivered.

The expected positive net market benefit of \$687 million on a weighted basis across the three ISP scenarios investigated is not improved with Option 2 as there is no expected increase in the overall expected net benefit.

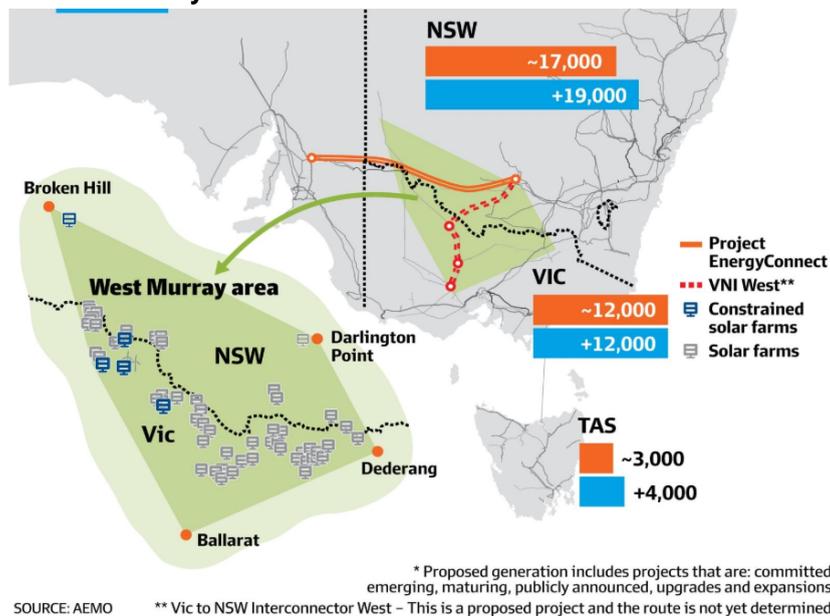
Should Option 2 effectively increase the VNI transfer limit from the existing interconnector by up to 250 MW, in either direction, by allowing higher transfers across highly loaded lines then would welcome that extra capacity accessing existing Snowy Hydro assets.

Unlocking REZ's in Western Victoria and Murray River

VNI West will support the development of additional renewable generation in western Victoria and southern New South Wales, as the NEM transitions to low-emission generation technologies. VNI West allows builds in REZs with increased transmission capacity such as Murray River (V2) and Western Victoria (V3).

As noted in our previous submission to the PSCR this is critical as the area of the Victorian and NSW power system bounded by Ballarat, Dederang, and Darlington Point is known as the 'West Murray' zone has attracted significant investment in grid-scale solar and wind generation, despite being a remote and electrically weak part of the NEM. An important long term solution is Option 1 which will support the West Murray zone as it enables the connection of a significant amount of renewable energy as shown below in Figure 3.

Figure 2: Map of West Murray Zone⁵



⁵ Source: AEMO

Snowy Hydro believes that the estimated notional increases in the export and import transfer capacity of Victoria to New South Wales interconnection (VNI) are very important. It is welcome that Option 1 maintains the 1,930MW VNI export increase and 1,800 MW notional VNI Import increase as proposed in the PADR.

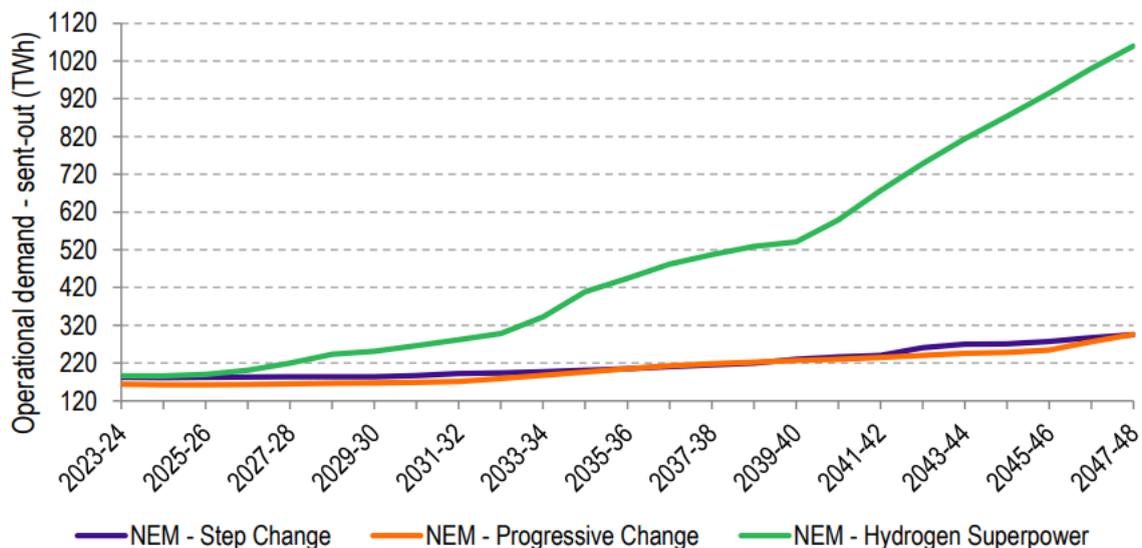
Support for an accelerated delivery of the preferred option - insurance value

The 2022 ISP called for VNI West to be progressed as urgently as possible to provide valuable insurance against faster-than-expected coal closures or slower-than-expected VRE and storage development. The 2022 ISP correctly demonstrated the importance of recognising the insurance benefits of the VNI West and how the value rises given the increasing likelihood of delays to Marinus.

Acknowledging Snowy Hydro's concerns, the ISP now recognises both projects are essential and should be built "as soon as possible". However early works need to be completed sooner if there is any chance of bringing the project timelines sooner. It is for this reason Snowy Hydro believes that TransGrid should seek to carry out early works immediately for completion by approximately 2026.

TransGrid and AEMO modelled demand forecasts following the recent Draft ISP 2022 which demonstrated expected continued growth in demand up until 2047-48 as displayed below. It is therefore critical that VNI West is built on time to prepare for increased peak demand periods.

Figure 4 Annual Operational Demand in the Modelled Scenarios for the NEM



Timing

The need for critical network upgrades has become more pressing in recent months. The 2022 ISP called for VNI West to be progressed as urgently as possible and the recent National Cabinet meeting declared VNI West of national significance to accelerate the timely delivery of the project.

Snowy Hydro continues to have capacity in NSW to be able to assist with Victorian demand but due to transmission constraints is often unable to supply the power, meaning our power stations sit idle whilst Victorians face a risk of blackouts. In addition, Snowy 2.0 will be able to



provide system support and security to several states, provided the transmission network is available.

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.

The PADR notes that *"with support, it may be possible to construct the project earlier"* noting further noting that *"the benefits of doing so have not been assessed in the ISP or this PADR given that any further acceleration of delivery would require additional support outside the current regulatory and planning process"*.

In response, we strongly recommend that VNI West be built by 2028-30, which, while still late, is an improvement on AEMO's ISP timing. For all of the reasons we have already noted, it is essential for system security and reliability. Electricity consumers will be principal losers if the current timetable is not changed. It is for this reason the next installment in the RIT-T process considers the earlier timeframes.

Route diversity

It is critical that VNI West provides system resilience to events such as bushfires and line diversity. The recent bushfires have demonstrated the compelling need for new transmission links and diversity of transmission paths. Snowy Hydro welcomes that this has been considered for all options this PADR. The PADR has importantly noted that *"VNI West will deliver a more resilient power system, capable of operating more securely and efficiently across future weather conditions, including by providing more reserve during Heywood and Dederang-South Morang outages during extreme weather"*.

Undergrounding

The PADR notes that options to underground the lines were raised in submissions to the PSCR, and continue to be suggested by stakeholders and communities as possible solutions that could help minimise social and environmental impacts of the project.

Should the proponents consider seeking an undergrounding option then the learning from Humelink's underground feasibility should be considered. Under the report, the cost of undergrounding was found to be three times more than the project's current cost and could lead to a significant delay in completion of the project by up to five years. It is therefore important to consider the cost and benefits that could be associated with undergrounding.

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.

Snowy Hydro appreciates the opportunity to respond to the PADR and any questions about this submission should be addressed to me by e-mail 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 signature.

Panos Priftakis
Head of Wholesale Regulation
Snowy Hydro

