

5 April 2023
Nicola Falcon
Group Manager Victorian Planning
Australian Energy Market Operator (AEMO)

Via email: VNIWestRITT@aemo.com.au

Dear Ms Falcon

VNI West Additional Consultation Report

AusNet welcomes the opportunity to make this submission in response to the VNI West Consultation Report – Options Assessment (the Additional Consultation Report).

AusNet is the largest diversified energy network business in Victoria with over \$11 billion of regulated and contracted assets. It owns and operates three core regulated networks: electricity distribution, gas distribution and the state-wide electricity transmission network, as well as a significant portfolio of contracted energy infrastructure. It also owns and operates energy and technical services businesses (which trade under the name “Mondo”). We are also the project proponent delivering the Western Renewables Link; an ISP project unlocking up to 900 MW of renewable energy capacity located within the same region as VNI West.

In our submission to the Project Assessment Draft Report (PADR), AusNet requested the RIT-T proponents assess additional credible options further west of the then preferred option (Option 1). In our view, a more westerly option could unlock similar wind and solar capacity in Victoria while avoiding areas of high social and environmental constraint, in particular the Ballarat to Bendigo Victorian alignment. We also identified opportunities to provide greater transparency around the benefits, costs and risks of hosting energy infrastructure and how government policies might affect the costs and benefits of VNI West.

The Additional Consultation Report directly responds to our request by assessing a range of more westerly credible options through a multi-disciplinary set of analysis. AusNet's attached submission strongly supports its findings. We:

- **Highlight the importance of VNI West as a no regrets investment to protect Victoria's energy supply.** With Victoria's coal fleet set to retire and rising electricity demand, there are no plausible scenarios where transmission investment is deemed surplus to requirements.

Significant planning and coordination is required to address Victoria's impending supply-gap. VNI West is one of the few advanced transmission projects to connect new renewable generation and storage required. AusNet considers the project a no regrets investment to protect Victorian energy consumers from reliability and resilience risks ahead as coal retirements commence in the mid to late 2020s. It also enables Victoria to take a portfolio approach to secure Victoria's energy supply rather than relying on a single solution.

- **Agree that, of the options presented, Option 5 (to Bulgana) offers the best overall solution when balancing economic feasibility, technical feasibility and community acceptance risks.** Desktop analysis suggests Option 5 provides greater flexibility to accommodate community and landowner concerns, and is therefore more practically deliverable – compared to the other identified options.

Properties within the Option 5 area of interest are generally much larger, less densely populated compared to the other options presented. This provides greater flexibility for transmission and generation infrastructure to be located in way to avoid or best minimise impact to landholders existing operations and land use.

Option 5 contains fewer environmentally or culturally sensitive areas than the other options allowing the project to avoid and minimise environmental impacts, potentially reducing the turnaround time for the environmental approvals process.

Direct conversations with renewable energy developers suggest Option 5 offers the greatest potential to unlock renewables in Western Victoria and is the option most likely to reach its REZ development limit. AusNet is aware of between 3,000-5,000 MW of renewable development (predominantly wind projects) in and around Bulgana.

The Additional Consultation Report notes the REZ limit assumed for Option 5 is a conservative estimate and opportunities have already been identified to optimise this further ahead of the Project Assessment Conclusions Report (PACR). We agree with these observations. AusNet is confident that additional modelling and engineering optimisations can deliver an uplift total hosting capacity of Option 5 and have provided some potential solutions for further investigation.

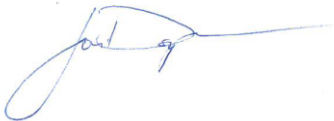
We also strongly support the use of sensitivity analysis, which demonstrates why Option 5 is most robust to capital cost increases and implementation of the Victorian Offshore Wind Policy.

- **Support the use of analytical tools in transmission planning to capture social, environmental and cultural factors.** A multi-criteria analysis (MCA) provides stakeholders with a more holistic assessment of the relevant factors likely to impact the delivery and implementation of energy transmission projects that goes beyond the current RIT-T process. This improves on the robustness of the assessment included in the VNI West PADR by accounting for additional factors that can outline differentiation between the various options.

The MCA is an important starting point for discussions that allow for landowner and community feedback to be factored into the corridor assessment process. The next stages of the MCA process will identify sensitivities within the corridor allowing for the least constrained route to be identified.

If you have any questions regarding AusNet's submission, please contact Jason Jina, Energy Policy Lead by email at jason.jina@ausnetservices.com.au.

Sincerely,



Jon D'Sylva
Chief Development Officer
AusNet

AusNet

AusNet submission in response to the VNI West Additional Consultation Report

Australian Energy Market Operator (AEMO)

Wednesday, 5 April 2023



1. Introduction

AusNet welcomes the VNI West Consultation Report – Options Assessment (the Additional Consultation Report). The report directly responds to feedback provided by AusNet and others in the Project Assessment Draft Report (PADR) and enables a genuine conversation about the scope of benefits, costs and risks of the VNI West Project.

Our submission reinforces the conclusions of the Additional Consultation Paper, and is informed by both internal analysis and our perspective as the primary transmission asset owner and service provider in Victoria. It:

- Highlights the importance of VNI West proceeding in a timely manner and why it is a no regrets investment (Section 2)
- Endorses Option 5 as the best overall solution for Victorians (Section 3)
- Supports the use of analytical tools to capture social, cultural and environmental factors (Section 4).

2. VNI West is a no regrets investment

VNI West is a critical upgrade to protect Victorian energy users from reliability and resilience risks, and deliver lower electricity prices.

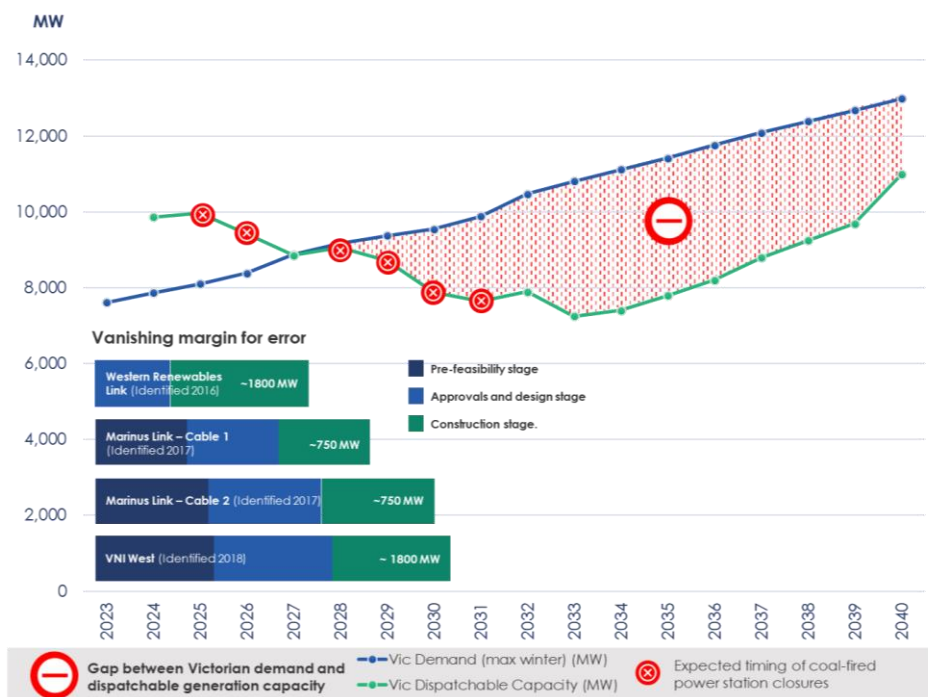
The Additional Consultation Paper rightly calls out the importance of VNI West in the context of the east coast power systems' rapid and complex transition towards net-zero emissions.

In Victoria, there are no plausible scenarios where transmission investment is deemed surplus to requirements. The 2022 Integrated System Plan (ISP) forecasts all 4.8 GW of Victoria coal fleet to retire by 2032, including Yallourn by 2026.¹ At the same time, by 2032 Victorian electricity consumption is expected to increase by 8700 GWh driven by the electrification of homes and carbon intensive sectors, such as transport and industrial processing sectors.

Managing this supply gap requires the timely development of new transmission infrastructure such as VNI West to connect new renewable generation and storage. This is because existing transmission infrastructure is now best described as at capacity and grid constraints are significantly limiting the investment pipeline of new generation projects across the NEM, including in Victoria.

In addition, many of the major transmission projects planned to manage the supply-gap are still within the early phases of their eight plus year development cycle. This means there is limited time between when these major projects are due to be commissioned and required.

Figure 1: Victoria's energy supply gap without new transmission investment



Sources: 2022 ISP – Step Change Scenario; VNI West Additional Consultation Report

Policy makers and industry are working hard to expedite transmission investment to address these challenges. For example, minor upgrades and augmentations in progress by AusNet are expected reduce technical challenges on Victoria's existing transmission network and unlock more than 2000 MW of additional capacity by 2025. This includes projects such as the Mortlake Turn-In project identified in the Victorian Government's Renewable Energy Zone Development Plan (RDP). At the same time, longer-term reforms such as the Victorian Transmission Investment Framework are proposing to introduce a coordinated approach to invest in transmission generation and storage

¹ Note, the 2022 ISP retires all four units of the 1,450 MW Yallourn Power Station by 2026. This differs from EnergyAustralia's publicly announced retirement date of 2028.

infrastructure. While these actions are of high value, there are limits to how much certain aspects of the transmission investment process can be accelerated (e.g. development must be grounded in proactive and respectful stakeholder engagement).

VNI West is one of the few advanced projects available to protect Victorian consumers energy supply. AusNet considers the project a no-regrets investment to:

- **Reduce reliability risks:** The February 2023 Update to the Electricity Statement of Opportunities (ESOO) forecasts a 1200 MW reliability gap for Victoria as early as 2028-29 when Yallourn is expected to retire. The risk posed by this coal retirement has been increasing over time. In 2022 AEMO forecast the same reliability gap as 555 MW, while in 2021 the reliability gap was just 275 MW. VNI West helps reduce these risks by enabling more efficient sharing of renewables between Victoria and NSW.
- **Improve network resilience:** VNI West improves resilience to climate driven extreme weather events by strengthening the backbone of Victoria's transmission system and diversifying generation flow into Victoria's major load centres.
- **Lower electricity prices:** VNI West facilitates efficient development and dispatch of low-cost renewables and storage in the Western Victoria and Murray River Renewable Energy Zones (REZs). Such investments are expected to put downwards pressure on Victorian electricity prices over the long term by displacing higher cost energy sources.

Victoria requires multiple solutions to resolve the impending supply-gap. Relying on a single solution carries significant risk for energy consumers.

It has been suggested that VNI West may not be required, given other energy infrastructure projects proposed (e.g. Victorian Offshore Wind or MarinusLink). AusNet disagrees:

- **No single solution is large enough to resolve Victoria's impending supply-gap challenges** – VNI West is expected to facilitate between ~2.5-5.5 GW of renewable capacity within Victoria by 2031. Transmission infrastructure being planned for Gippsland is intended to facilitate connection of around 2-2.5 GW of renewable capacity by 2032. Given the timing of coal retirements and increased need for firm dispatchable capacity, it is unlikely that any one solution will be sufficient to meet Victorian demand on its own.
- **Credible risks with the development of energy infrastructure can cause projects to arrive after they are needed** – There are credible risks within the transmission planning and delivery process (e.g. community acceptance risks, statutory planning approvals, supply chain risks). These risks can cause project delays and result in a critical transmission project arriving after it is needed, placing Victorians' energy future at risk.

Considering the challenges above a portfolio approach that includes VNI West secures Victoria's future energy supply and offers a more prudent path forward than relying on a single solution. Victorians benefit in the long-term from a more diverse electricity supply – with onshore wind and solar from west of the state, and offshore wind in Gippsland.

3. Of the options presented, Option 5 offers the best overall solution

On balance, Option 5 is the least constrained option, with greater flexibility to accommodate community and landowner concerns.

Stakeholder submissions to the PADR presented concerns that the Ballarat to Bendigo section of Option 1 was highly constrained. AusNet's submission raised similar concerns, suggesting Option 1 was incompatible with greenfield energy infrastructure and offered very few detouring options. For example, our analysis found Option 1 would traverse areas which are environmentally sensitive, and compete with established land uses and existing energy infrastructure. As a result, we considered progressing Option 1 was likely to drive delays and cost increases in delivering VNI West that may be avoided by considering alternative credible options.

The Additional Consultation Report directly supports stakeholder feedback to the PADR by identifying all options except Option 5 as highly constrained when connecting into the existing Bendigo Terminal Station. The Additional Consultation Report also found Option 5 performs the best of all the options considered, across all objectives in the multi-criteria analysis (MCA) making it the least exposed to delivery risk. Option 3A was identified as the second-best performing option.

AusNet agrees with the overall findings from the desktop land use constraints analysis and MCA. Option 5 is expected to be relatively unconstrained compared to Option 3A, with larger properties and fewer environmental and culturally sensitive areas. This is because:

- A large proportion of the Option 5 area of interest is broadacre cropping, grazing and irrigated land. Placement of infrastructure can be discussed with landowners, to avoid or best minimise impact to existing operations and land use, for example minimising impacts to irrigation or cropping functions.
- The properties within the Option 5 area of interest are much larger and less densely populated which may provide more room for the transmission proponent to navigate sensitive areas for example areas of cultural heritage significance or sensitive viewpoints. This allows greater scope for flexibility in order to secure the necessary easements and environmental approvals.

While no greenfield transmission project is likely to proceed without challenges, desktop analysis suggests Option 5 is the solution that is most practically deliverable by the assumed delivery date – 2031.

The next stages of the MCA process will identify sensitivities within the corridor allowing for a robust route to be identified. Landowner and community input to the corridor will further assist in narrowing the corridor to identify the least constrained route. AusNet welcomes further engagement as these investigations continue.

Developer interest suggests Option 5 will unlock the most renewable energy projects in Western Victoria.

The economic benefits of major transmission infrastructure is underpinned by the ability for low-cost renewables to displace (or delay investment in) higher cost generation sources to deliver a net-benefit to energy consumers. Economic modelling typically assumes developers have the social licence to build wind and solar generation at the scale assumed in each REZ limit. For example, Option 3A assumes developers would build ~4 GW of renewables in Western Victoria REZ (V3), predominantly around Waubra terminal station. As noted in the Additional Consultation Paper, this assumption is untested with the market and if community acceptance is challenging, the assumed REZ development potential may not be practically achievable.

Through our ongoing relationships with renewable energy developers seeking to connect to the Victorian shared network, AusNet has a perspective on generation and storage interest across Victoria. Looking at the V3 REZ, many renewable developers have already assessed the viability of planning new generation at a number of locations and chosen sites which, in their view, are commercially viable and practical - given social and environmental factors.

Our engagement has found there are a small number of renewable developers seeking connection to the network near Waubra, and no known interest in renewable development near existing lines between Ballarat and Bendigo. By contrast, AusNet is aware of between 3,000-5,000 MW of renewable development (predominantly wind projects) in and around Bulgana.

The above suggests that the practical REZ development potential of Option 5 is much greater than Option 3A. It also suggests that the practical quantum of renewables developed with V3 under Option 3A may be significantly less than its ~4 GW REZ limit.

AusNet supports the Additional Consultation Report recognising social licence as a constraint on achieving the total REZ limit capacity identified for each option. We welcome the opportunity to share developer insights with AEMO Victorian Planning.

There are opportunities to further optimise the renewable hosting capacity of Option 5 in line with Option 3A.

With respect to Murray River REZ (V2), the Additional Consultation Report notes that under Option 5, the Kerang-Bendigo 220 kV line may overload when supplying the Bendigo area during periods of high load and high generation. In Western Victoria REZ (V3), power systems analysis indicates Option 5 may reach limits before the 500kV VNI West network is fully utilised as a result of parallel flows on the 220 kV network. In addition, Options 1 through to 3A have Waubra Wind Farm decoupled from the existing 220 kV network and connected to a new parallel 500 kV network via a new terminal station. The availability of a terminal station at Waubra 500 kV in Option 3A facilitates the connection of additional renewable generation sources, that circumvent the issue of parallel flows on the 220 kV. Collectively, the introduction of an additional 500 kV point of connection for generation and the transfer of Waubra WF results in higher network utilisation in V3.

These technical complexities mean Option 5 offers less renewable hosting capacity compared to Option 3A, particularly in V2 and V3. This is highlighted in Table 1.

That said, the Additional Consultation Report notes the REZ limit assumed for Option 5 is a conservative estimate and that opportunities have already been identified to optimise this further.

We agree with these observations. AusNet is confident modelling and engineering optimisations that will be undertaken can deliver an uplift total hosting capacity of Option 5 within both V2 and V3.

Table 1: Difference in REZ hosting capacity between Option 5 & Option 3A

REZ	Option 5	Option 3A	Difference
V2	+850 MW	+1,600 MW	-750 MW
V3 (WRL timing)	+1,460 MW	+2590 MW	-1,130 MW
V3 (VNI West timing)	+200 MW	+1,400 MW	-1,200 MW
N5	+900 MW	+900 MW	Nil
Total	+3410 MW	+6,490 MW	-3,080 MW

Sources: VNI West Additional Consultation Report

Our preliminary examination of Option 5 has found:

- **Minor network topology adjustments could address heavy loading that occurs on the existing Kerang-Bendigo 220 kV Line and uplift capacity of Option 5 within V2** – This includes low-cost network solutions such as the introduction of power flow control on the Kerang-Bendigo 220 kV line or non-network solutions in the Bendigo supplied network (e.g. embedded generation, battery storage or demand response). Such solutions are likely to uplift the hosting capacity of V2 under Option 5.
- **Option 5 provides optionality to unlock additional the hosting capacity of V3 when needed (rather than make a higher capital investment upfront as in Option 3A)** – The electrical configuration of Option 5 and Option 3A are quite similar. The key difference is Option 3A has additional capital investment of a new terminal station on the 500 kV at Waubra that bypasses potential constraints on the 220 kV network. Option 5 could achieve a similar uplift in hosting capacity to Option 3A by making the same capital investment, should developer interest to connect in and around Waubra be sufficiently strong.

Similar to V2, there are also relatively low-cost network solutions that could address overloading on the existing 220 kV network in Western Victoria. A potential approach could involve utilising the soon-to-be commissioned Ararat Synchronous Condenser.² While the synchronous condenser provides system strength and voltage support to existing generators on the 220 kV, it may also be part of a solution that optimises power transfer on the 500 kV lines.

As discussed earlier, the Additional Consultation Report found Option 5 performed better than Option 3A across all objectives in the MCA. The above optimisations are likely to help further enhance the overall benefit of Option 5 relative to Option 3A.

Option 5 is the most robust to potential uncertainties.

The Additional Consultation Report has tested all seven options against a range of potential sensitivities including changes in capital cost and government policy – notably Victoria's offshore wind policy becoming a 'committed policy.'

The analysis found that if network capital costs increase by at least 9%, Option 5 is preferred over Option 3A. It also found Option 5 is less affected by offshore wind commitments assuming 9 GW of offshore wind in Victoria by 2040-41, increasing linearly from 2028-29.

As noted in Section 1, there are credible risks in the development of major transmission infrastructure that cannot be completely anticipated or controlled. Sensitivity analysis helps demonstrate why Option 5 is most robust to these uncertainties.

² Note this project is being developed as part of the Victorian Government's Stage 1 REZ Development Plan.

4. We support the use of analytical tools to capture social, environmental and cultural factors

The use of a MCA offers a more holistic approach to assessing the benefits, costs and risks of hosting transmission infrastructure than the RIT-T alone.

In our submission to the PADR, we suggested an MCA and strategic land use assessment (SLUA) is applied to network options included in the VNI West PACR. The objective of these assessment tools is to help identify the least constrained locations for energy infrastructure and support credible options being taken forward to the community for their input.

An MCA provides a more holistic assessment of the relevant factors likely to impact the delivery and implementation of energy transmission projects that goes beyond the current RIT-T process. It allows for credible, feasible infrastructure corridors to be identified that can then be taken forward to communities for more meaningful engagement. For example:

- The MCA provides a starting point for discussions with communities on the need for projects
- Heat maps can be created that communities can provide input to creating opportunities for engagement
- It is an important starting point for discussions that allow for landowner and community feedback to be factored into further refinements, creating a robust route.

The MCA provides a desktop assessment of impacts to land use, visual amenity, design, environment and cultural heritage, which results in feasible corridors that can be taken forward for further investigations. This helps to facilitate smoother statutory planning and environmental approvals by demonstrating that the options considered have minimised land use, social, environmental, cultural and economic impacts whilst meeting the project's objectives. This may reduce the risk of costly scope revisions and project delays prior to construction.




The MCA framework defines 18 criteria across six categories. 17 of the 18 criteria are in addition to that considered within the RIT-T. Given essential infrastructure has community and societal impact wider than typical engineering or economic considerations, an MCA improves on robustness of the assessment included in the PADR by accounting for additional factors that differentiate between the various options.

AusNet supports the use of analytical tools in transmission planning to better respond to stakeholders' values, priorities and concerns.

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