13 September 2022

AEMO Victorian Planning (AVP) and Transgrid

By email: VNIWestRITT@aemo.com.au

RE: VICTORIA TO NEW SOUTH WALES INTERCONNECTOR WEST (VNI West) REGULATORY INVESTMENT TEST FOR TRANSMISSION (VNI West RIT–T)

SUBMISSION ON VNI WEST PROJECT ASSESSMENT DRAFT REPORT (VNI West PADR)

I write on behalf of the Moorabool and Central Highland Power Alliance (**Alliance**), an incorporated association which was formed in mid-2020 to represent thousands of landholders, communities, advocacy groups and businesses potentially impacted by the proposed Western Renewables Link (**WRL**), originally called the Western Victoria Transmission Network Project (**WVTNP**). The Alliance also acts as a representative voice for the numerous member action groups that have formed to advocate for their districts along the more than 190km length of the WRL.

The WVTNP, now WRL, was established on completion of the Western Victorian Renewable Integration Regulatory Investment Test for Transmission (**West Vic RIT-T**). In early 2017, AEMO, in its role as the transmission network planner for Victoria, commenced the West Vic RIT-T '*to assess the technical and economic viability of increasing transmission network capacity to address current limitations in the Western Victoria transmission network, in accordance with the National Electricity Rules (NER)*'[1].

The West Vic RIT-T Project Assessment Conclusions Report (**West Vic PACR**) was published in July 2019 and determined a 'preferred option' known as C2, being a new overhead transmission line from Sydenham to Bulgana, along with a new Terminal Station to the north of Ballarat (**NBTS**). This C2 option was progressed as the WVTNP, now WRL, and the project was contracted to AusNet Transmission Group Pty Ltd in December 2019.

The Alliance has worked diligently, with some expert guidance, to understand the investigation and assessment that was undertaken by AEMO in the West Vic RIT-T process, which resulted in AEMO determining that C2 was the preferred option for that RIT-T's identified need. And the Alliance has also gone to great lengths to understand the VNI West RIT-T (and the ISPs which have given the interconnector project increasing endorsement starting at a 2018 rating of Group 3, longer term, to its present 2022 rating as one of the five most urgent 'actionable' projects) because we realised how significantly the 'need' for the VNI West interconnector influenced the selection of C2 in the West Vic RIT-T.

Around September 2020 the Alliance came to understand that the proposed WRL was inextricably intertwined with the proposed VNI West interconnector (called KerangLink in the West Vic Project Assessment Draft Report [**West Vic PADR**]) via the proposed new NBTS, which was clearly proposed to

[1] From AEMO website accessed 7 September 2022 - https://aemo.com.au/initiatives/major-programs/western-victorian-regulatory-investment-test-for-transmission/about-the-program

be co-located with the existing 220kV transmission line running south to north from Ballarat up to Bendigo (and to Kerang and beyond) to support the interconnector.

The WRL's furtherance of the route of the VNI West interconnector also occurs in the section of the transmission line between the NBTS and Sydenham which is proposed to be 500kV, a higher rating than the 220kV section of the line proposed between the NBTS and Bulgana. The implications of this shared infrastructure (**VNI West Components)** to both the outcome of the West Vic RIT-T and the proposed WRL, and the VNI West RIT-T and the proposed VNI West (KerangLink) interconnector are fundamental to much of our submission.

The Alliance welcomes the opportunity to comment on the VNI West PADR given that throughout the entire West Vic RIT-T process (commencement early 2017) and its progression from tendering to signed contract (December 2019) its members were not aware of this investigation and its outcome. Our members only learned about the proposed WRL, then WVTNP, when letters about AusNet's interest in our members' land appeared in mid-2020. As AEMO and AusNet are well aware, this has caused the WRL to have no social license and be highly contested.

The Alliance will raise and discuss the following issues in this submission:

- The VNI West PADR has confirmed a preferred option and route that is essentially the same as the transmission interconnector proposed in its inaugural 2018 ISP to link up with Snowy 2.0 (a project announced in 2017), with part of its required infrastructure already integrated into the preferred option C2 of the West Vic PADR (Dec 2018) and PACR (July 2019) – this is not considered to be an appropriate application of the RIT-Ts for both West Vic and VNI West.
- The VNI West PADR has not adequately counted the costs for the VNI West components which were brought forward into the West Vic RIT-T and claimed as difference in timing of transmission benefits from VNI West
- The VNI West PADR has not accurately undertaken the present value accounting for the credible options
- The VNI West PADR has not adequately defined a realistic counterfactual in the context of all recent key developments in proposed energy generation or in the context of the WRL not gaining approval

Overall, the Alliance considers that AEMO has incorrectly applied the RIT-T process for both the proposed VNI West interconnector (option 1 as presently proposed in the VNI West PADR) and the proposed WRL (from West Vic RIT-T) in its present form and not made a convincing argument that the construction of either in their intended forms is appropriately evidenced by the modelling and the assumptions made for both.

1.0 Preferred options and routes for the WRL and VNI West

The VNI West PADR states that the VNI West RIT-T is a joint investigation by AEMO Victorian Planning (**AVP**) and Transgrid (in NSW) of options to increase the capacity to share electricity between Victoria and New South Wales because this will '*help harness clean low-cost electricity from renewable energy zones (REZs) in both states* ***and make better use of Snowy 2.0's deep storage****, thereby helping to reduce carbon emissions and improving the reliability and security of electricity supply as ageing coal-fired power stations close.'*[2] (emphasis added)

The Alliance understands that the purpose of the RIT-T process is to:

[2] VNI West PADR, p.3

. . . identify the credible option that maximises the present value of net economic benefit to all those who produce, consume and transport electricity in the market (the preferred option) . . .

And the Alliance also understands that under the NER, the criteria of the RIT-T are objective, and that the RIT-T must (amongst other things):

- *[B]e based on a cost-benefit analysis that is to include an assessment of reasonable scenarios of future supply and demand if each credible option were implemented compared to the situation where no option is implemented; and*
- *[B]e capable of being applied in a **predictable, transparent** and **consistent** manner.* (emphasis added)

Above all, the Alliance is aware that the determination of the *preferred option* in the RIT-T is not a process to confirm the preference of a RIT-T proponent; the identification of the *preferred option* is a consequence of a cost benefit analysis according to law required under the NER.

Instead, the Alliance, through its research of documents published by AEMO and others, believes with a great deal of certainty that, since at least before AEMO's July 2018 publication of its inaugural 2018 ISP, AEMO has consistently advocated the need for a Victoria-NSW interconnector as a link to Snowy 2.0 along a route that is virtually the same as the presently identified preferred Option 1 in the VNI West PADR (July 2022).

The Alliance has outlined this 'journey' between these two points of time below.

In the section 'D1.2 - Staged upgrades between Victoria and New South Wales' of the 2018 ISP Appendices[3], AEMO first proposed the construction of a new high-capacity transmission link (SnowyLink South and North) to '*improve energy security for both Victoria and New South Wales, supporting the long-term energy transition and providing additional transmission access to the proposed Snowy 2.0 scheme*.' This interconnector development was included within the ISP's Group 3 priority investments. For the indicative routes see Figure 17 in the Appendices reproduced below:[4]

Figure 17 Staged upgrades between Victoria and New South Wales

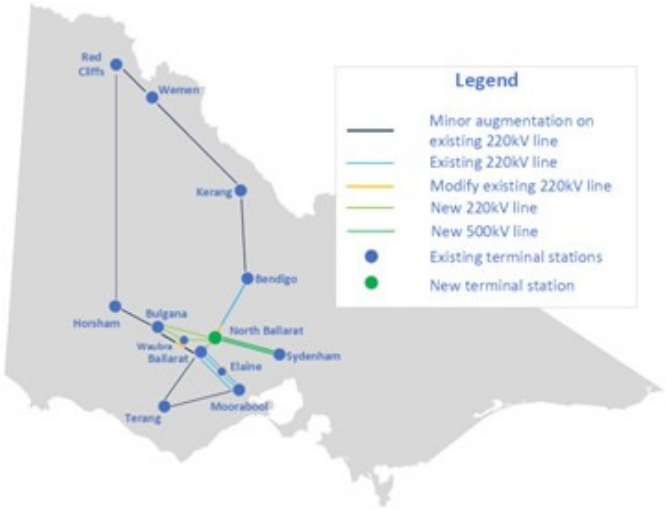
The 2018 ISP proposed that the SnowyLink (South) augmentation would include, along with other infrastructure, the following components (emphasis added):

[3] 2018 ISP, Appendices, pp.61-63
[4] 2018 ISP, Appendices, pp.61

- *Install a **Sydenham–Ballarat**–Bendigo–Kerang–Darlington Point–Wagga double circuit 500 kV line.*
- *Construct **500 kV substations at Ballarat**, Bendigo, Kerang, Darlington Point, Wagga, and Snowy 2.0 (or expand existing substations to accommodate 500 kV plant).*[5]

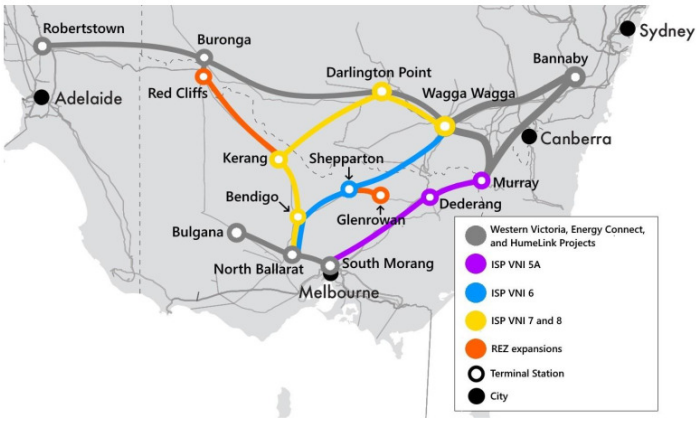
A year on from the publication of its 2018 ISP, AEMO published the West Vic RIT-T PACR (July 2019) and confirmed Option C2 (one of a number proposed in the December 2018 West Vic PADR) as the preferred option. As discussed at the beginning of this submission, this option predominantly comprises a new NBTS with a double circuit 500kV between the NBTS and Sydenham and a 220kV double circuit line between the NBTS and Bulgana. For the option C2 route see Figure 1 reproduced below:[6]

Figure 1 Preferred option for Western Victoria Renewable Integration RIT-T



Given the inclusion of these VNI West Components in the West Vic RIT-T preferred option, and the fact that the WVTNP, now WRL, had been contracted out in December 2019, it is surprising to the Alliance that in the VNI West PSCR published in the same month, a greater range of credible options were proposed to be investigated in the VNI West RIT-T. For the routes of the various credible option see Figure 1 reproduced below.[7] Note that from this point on, the WRL project from Sydenham to Bulgana is shown in all plans as a committed and/or anticipated project.

Figure 1 Map of credible options



[5] 2018 ISP, Appendices, p.61-62

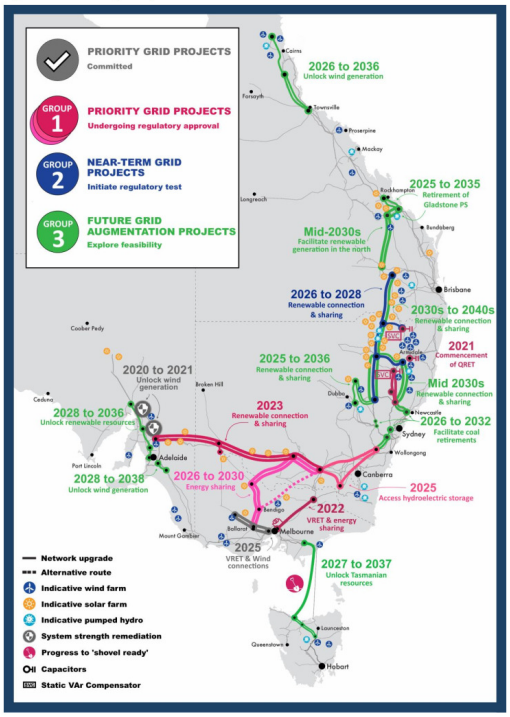
[6] West Vic PACR, p.4. note also that this diagram is consistent with the July 2019 paper called *Building power system resilience with pumped hydro energy storage*, which is referenced and relied on in the West Vic PACR for defining KerangLink.

[7] West Vic PSCR, p.6

And despite the range of credible options proposed to be investigated in the VNI West PSCR, the same indicative route as proposed in the 2018 is also clearly identified (with one possible alternative indicated) in the 2020 ISP, both the draft (December 2019) and final (July 2020). It is also clearly identified (with no alternative and with the route already named as VNI West) in the 2022 ISP, both the draft (December 2021) and final (June 2022).

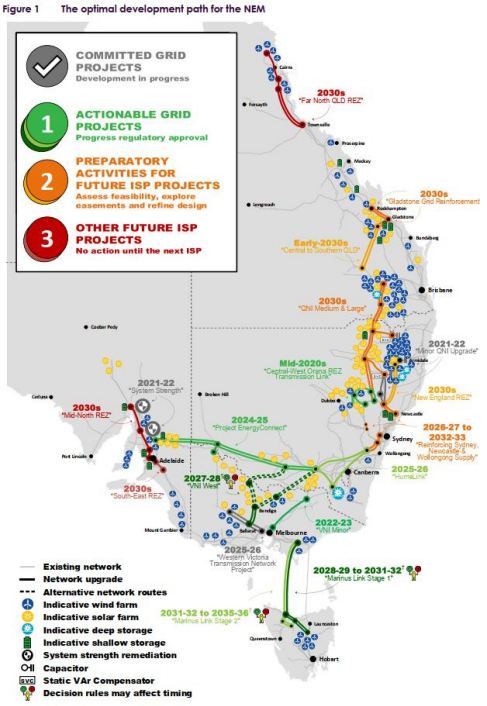
Left below: Draft 2020 ISP - Figure 1, p.14

Figure 1 The development paths for the NEM in the Draft 2020 ISP[17]



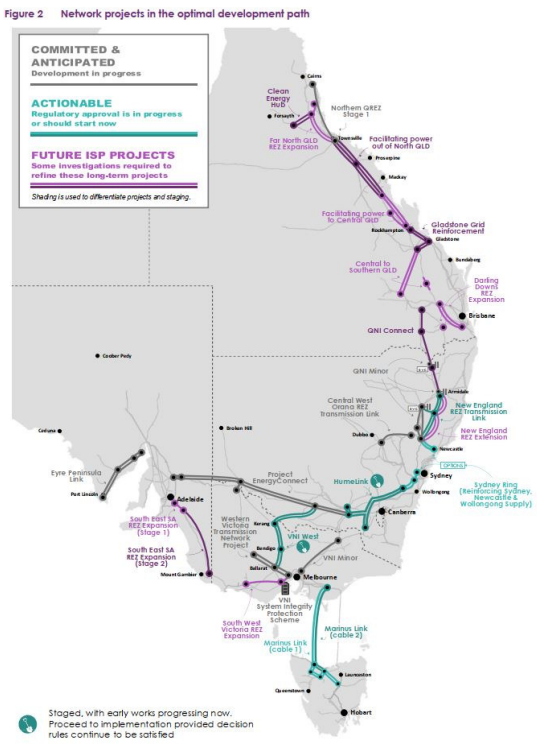
Right below: 2020 ISP - Figure 1, p.19

Figure 1 The optimal development path for the NEM



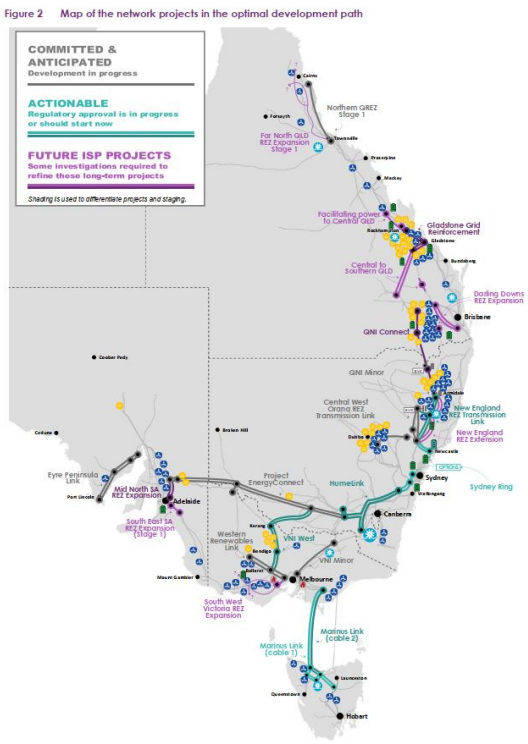
Left below: Draft 2022 ISP - Figure 2, p.14

Figure 2 Network projects in the optimal development path



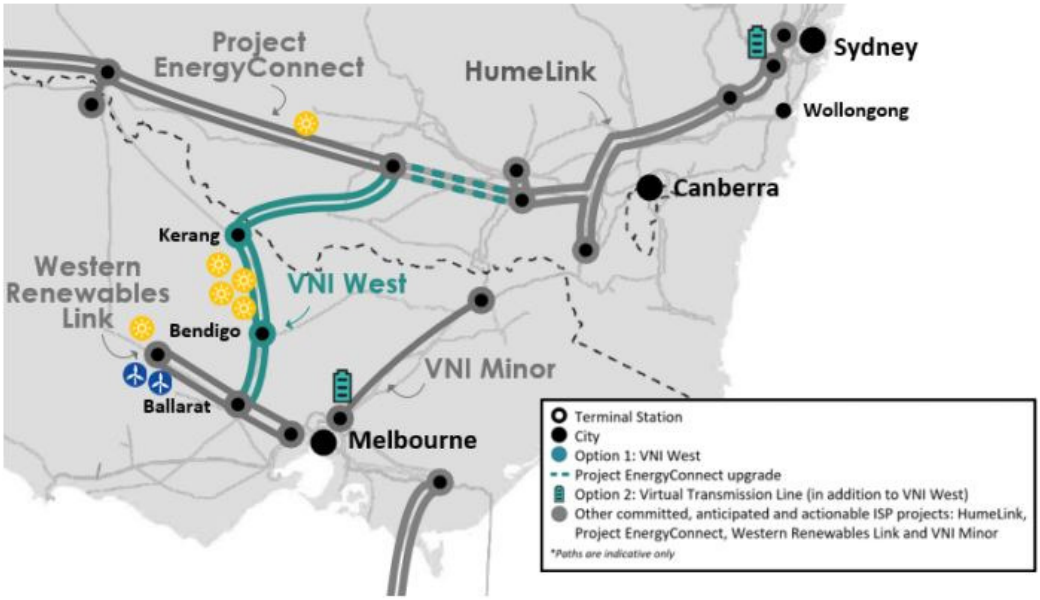
Right below: 2022 ISP - Figure 2, p.14

Figure 2 Map of the network projects in the optimal development path



Now that the VNI West PADR has been published, and in conjunction with our findings outlined over the last few pages, it is evident to the Alliance that the VNI West preferred Option 1 is for the same indicative interconnector route originally proposed as the Snowylink South interconnector in the 2018 ISP, four years ago, and reiterated through subsequent documents until the present. VNI West preferred Option 1 is generally a refinement of the proposed VNI 7 in the VNI West PSCR – described as a new 500 kV transmission line from North Ballarat – Bendigo – Kerang – Darlington Point –Wagga.[8] See Figure 1 as reproduced below:[9]

Figure 1 Credible options assessed



It is clear from this Figure 1 that the VNI West interconnector (for the purpose of the VNI West PADR) commences at the NBTS proposed to be built as part of the WRL (a project that is still in the early stages of the EES approval process) and that it will rely on the double circuit 500kV line proposed to also be built in the WRL to reach Sydenham.

VNI West is intended to run to the state border via new terminal stations proposed to be built at Bendigo and Kerang as part of preferred option 1 in the VNI West PADR. The proposed interconnector then proceeds over the border to a new terminal station at Dinawan to Wagga Wagga via an upgrade of Project EnergyConnect (the stage in which this upgrade is proposed – the line connecting the Buronga and Wagga Wagga substations – is currently progressing through an EIS approvals process).

The eastern end of Project EnergyConnect will then connect to HumeLink (another one of the five most urgent 'actionable' projects int the 2022 ISP) which has received EIS approval but is currently being contested by landowners and communities along the line.[10]

This stacking together of projects, many of which are at early stages of necessary processes, shows an almost ideological determination by AEMO to connect with Snowy 2.0 (a project that is plagued by time delays and cost blowouts as evidenced in numerous credible media reports in this and previous years[11]),

[8] West Vic PSCR, p.5
[9] WNI West PADR, p.9
[10] E.g. https://www.abc.net.au/news/2022-08-30/humelink-energy-transmission-not-going-underground/101381642
[11] It is noted though that AEMO states in footnote 79 in 2022 ISP that '*the 2022 ISP modelling does not apply any change to the Snowy 2.0 project's schedule*'. And in footnote 9 to the 2022 NEM ESOO (August 2022) AEMO states: '*Despite media reports suggesting a delay to the project, Snowy Hydro has not confirmed any adjustment to its previously provided commissioning schedule of between 2025-26 and 2026-27 for the Snowy2.0 project*.'.

that has not wavered for over four years, despite key developments to generation of energy in both states having occurred during the over four year period of time from the 2018 ISP to the VNI West PADR.

The Alliance considers that, so far, the proposed VNI West interconnector is essentially the 2018 ISP SnowyLink South, carried forward in Victoria (particularly of relevance to the Alliance) by two RIT-Ts and two proposed projects – the WRL and the VNI West interconnector – neither of which are certain to be built even though the proposed WRL is carrying infrastructure for the use of the interconnector.

In fact, the VNI West PADR describes both Western Renewables Link and Project EnergyConnect as '*new projects under development*'[12] and '*anticipated projects* . . . [that] *are assumed to be delivered in a timely manner to allow VNI West to connect efficiently to the network*'.[13]

Discussion on AEMO bringing critical VNI West Components into the West Vic RIT-T preferred option C2 in support of the VNI West interconnector and the scoping and costing of these VNI West Components, including if the WRL is not approved in its proposed form, is included in section 2.0 below. Additional discussion on the VNI West PADR not adequately including in its counterfactual that WRL may not gain approval is included in section 4.0.

The Alliance considers that AEMO has placed such over-reliance on delivering an interconnector which will reach Snowy 2.0 that it has long assumed that VNI West would proceed. This determined the PACR outcome of AEMO's assessment of the West Vic RIT-T preferred option C2 and the proposed WRL in its current form.

Added to this, by including VNI West Components in the proposed WRL, AEMO has given itself powerful motivation to deliver an assessment of VNI West that supports the presently proposed preferred option 1 in the VNI West PADR.

The Alliance does not consider this to be a proper and fitting application of the RIT-T according to law required under the NER.

2.0 The interlinking of WRL and VNI West via the VNI West Components – benefits, scope and costs

2.1 Purported benefits

The Alliance is well aware that in the West Vic PADR (published December 2018), there was considerable commentary by AEMO about the proposed interconnector between Victoria and New South Wales and the benefit of including the infrastructure needed for the interconnector into an option in the West Vic RIT-T. AEMO's 2018 ISP rated Snowylink as a Group 3 priority (long term) project because it was not considered to be required until after 2030.[14] Despite this later date having been identified, AEMO decided to consider '*the benefit of bringing forward a portion of what would otherwise from part of this new interconnector*'[15] in the West Vic PADR. This was despite it being a project that was intended to be completed in the medium term – in the PADR AEMO anticipated the 220kV line from Ballarat to Bulgana to be completed by 2024 and the 500kV from Sydenham to Ballarat by 2025.[16]

[12] VNI West PADR, p.53
[13] VNI West PADR, p.7, p.54
[14] Note however that AEMO then began to consider the earlier staging of VNI West in the 2020 ISP, both draft (Dec 2019) and final (July 2020) and upgraded it to an actionable ISP project with decision rules. Following completion of the 2022 ISP it is now an actionable project without decision rules.
[15] West Vic PADR, p.35
[16] West Vic PADR, p.3

AEMO proposed in the West Vic PADR and then subsequently confirmed in the West Vic PACR that option C2 would contain a new terminal station, proposed to be built to the north of Ballarat, and a 500kV double circuit line between the terminal station and Sydenham. Of all the credible options, C1 and C2 were the only ones proposed to contain 500kV lines, and only C2 included a new terminal station. In 'Table 4 – Credible network options' C2 had the highest projected cost[17] but continued to be strongly considered because of its potential 'benefits'.

AEMO's assessment in the West Vic PADR of those benefits included:

> *AEMO's ISP identified that transmission augmentation from Sydenham to Ballarat to Kerang to Darlington Point in New South Wales will be required by 2035. Part of this augmentation is within the study area of this RIT-T. Therefore, the 500 kV Category C options in this RIT-T consider the benefits of reducing the future cost of Snowylink, compared to the 220 kV options, in meeting the identified need of this RIT-T.*[18]
>
> *Option C2 has a higher net market benefit because it supports a greater proportion of the new Snowylink interconnector proposed by the ISP than Option C1.*[19]
>
> *Option C2 has higher net market benefits than Option B3 because . . . it supports the development of the future Snowylink interconnector*.[20]
>
> *Option C2 assumes that a new terminal station will need to be established close to the existing Ballarat Terminal Station to accommodate new 500/220 kV transformers and other 500 kV switchgear, with a 220 kV double circuit connection to Ballarat Terminal Station. . . .* [this option supports] *the development of the new Snowylink interconnector proposed by the ISP, and therefore avoid*[s] *some future cost associated with Snowylink. . . . Although Option C2 has a higher total cost compared to Option C1, more of Option C2's cost is part of the future Snowylink investment*.[21]

And in section '7.2 Other Issues', AEMO stated that:

> *Other factors that may increase the benefit of the preferred option relative to other options, which have been considered but have not been quantified in this PADR, are* [among other matters]*:*
>
> - *Increase in land value – the ISP identified a need for a new Victoria to New South Wales interconnector (Snowylink) by 2035, a portion of which includes the corridor between Ballarat and Sydenham. While the interconnector route is still subject to change, it must provide a connection to the Victorian load centre.*
>
> *Waiting until 2035 to obtain easements and planning/environmental approvals between Ballarat and Sydenham Terminal Stations may present challenges in future as these areas become more built up and land values increase. Bringing forward the Ballarat to Sydenham component of the Snowylink interconnector will result in higher capital costs, however this increase is likely to be less than the increase in land values in this corridor if the augmentation is progressed at a later date.*[22]

In the West Vic PACR (July 2019), of the two options being considered Option C2 was determined as being the preferred option instead of B3 (an option that did not provide a path for the future Snowylink

[17] West Vic PADR, p.21-22
[18] West Vic PADR, p.46
[19] West Vic PADR, p.49
[20] West Vic PADR, p.50
[21] West Vic PADR p.71
[22] West Vic PADR, p.54

interconnector). The interconnector was renamed KerangLink in the West Vic PACR. Keranglink was the name proposed by Snowy Hydro in its 2019 Feasibility Study.[23]

AEMO's commentary in the West Vic PACR on the bringing forward of the VNI West Components of the interconnector into the preferred option served to confirm the earlier claims of its benefits in the West Vic PADR.

Under the heading 'Differences in the timing of transmission investment', AEMO stated that:

> *AEMO's 2018 ISP identified that transmission augmentation from Sydenham to Ballarat to Kerang to Darlington Point in New South Wales will be required by 2035. Part of this augmentation is within the study area of this RIT-T.* ***Therefore, in meeting the identified need of this RIT-T, Option C2 in this RIT-T takes into account the benefits of reducing the future costs of KerangLink, compared to Option B3****.*[24] (emphasis added)

And under the heading 'Comparing Options B3 to C2' AEMO further claimed:

> *Option C2 facilitates the future KerangLink transmission augmentation, and therefore has benefits in changing the timing for transmission investment*.[25]

2.2 Scope

The West Vic PACR[26] describes its preferred option C2 to include the following VNI West Components which are part of the proposed and contracted WRL and are illustrated in the upper figure on p.4.

(a) *Construction of a new North Ballarat Terminal Station, with 2 x 1,000 MVA 500/220 kV transformers;*

(b) *Connecting North Ballarat Terminal Station to the existing Ballarat to Bendigo 220 kV single circuit transmission line; and*

(c) *Construction of a new 500 kV double circuit transmission line from Sydenham to North Ballarat, with 50 MVAr reactors on each end of each circuit.*

As shown in the image on p.6 of this submission, and observed in section 1.0, it is evident that the VNI West interconnector (for the purpose of the VNI West PADR), will commence from the new NBTS proposed to be built as part of the WRL. The interconnector is defined in the VNI West PADR as '*a 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*'.[27]

The VNI-West PADR further states:

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[23] https://drive.google.com/file/d/1F3vGdILZXFO3HllyqRYqL1gEPlWGmTKT/view. Note that on p.35 Snowy Hydro states that:
In the ISP AEMO refer to their interconnector proposal as 'Snowylink south', with the inference being that the new interconnection is solely required for Snowy 2.0. This is misleading as Snowylink south does not directly connect to Snowy 2.0. If it were only required for Snowy 2.0 then Snowy Hydro's Option 1C from the Feasibility Study would suffice and cost less than half of AEMO's ISP proposal.
As such Snowy Hydro is recommending that the AEMO option be called Keranglink, reflecting its route from Sydenham to Wagga Wagga via the inland Victorian township of Kerang, rather than as Snowylink South.

[24] West Vic PACR, p.43

[25] West Vic PACR, p.49

[26] West Vic PACR, p.51

[27] VNI West PADR, p.7

For the purpose of this RIT-T, Project EnergyConnect and Western Renewables Link are treated as anticipated projects and are assumed to be delivered in a timely manner to allow VNI West to connect efficiently to the network. If any modifications are required as a result of the EIS or EES processes, respectively, in order to obtain environmental and planning approvals, the impact of these modifications will be assessed to determine if any consequential changes to VNI West would be required that could materially change this RIT-T assessment. [28]

Thus, the VNI West PADR treats the 'anticipated' WRL as separate infrastructure that is not part of the VNI West RIT-T's scope or costs (the implication of the allocation of costs is discussed in section 2.2 below). Instead the West Vic PADR assumes the VNI West Components, which were brought forward into the WRL, are a sunk cost elsewhere (by the WRL).

In other words, the scope of VNI West assessed in the VNI West PADR does not include the new NBTS, nor does it include the 500 kV double circuit transmission line from Sydenham to North Ballarat.

The *'KerangLink transmission augmentation'* referenced in the West Vic PACR as having '*benefits in changing the timing for transmission assessment*'[29] does not therefore align with the scope of VNI West in the VNI West PADR. The Alliance considers that this redefinition between the West Vic PACR and the VNI West PADR is a significant material change in circumstances for the West Vic RIT-T and has significant implications for the assessed costs in both RIT-Ts.

Amongst other things, the Alliance contends that it invalidates:

(a) The assumption made in the West Vic PACR about the scope of KerangLink, an assumption which was key to the identification of the *identified need* and the *credible options* in the West Vic RIT-T; and

(b) The calculations of net economic benefit in the West Vic PACR which rely on an early build of the VNI West Components and resulted in the choice of C2 as the *preferred option*.

2.3 Costs

The VNI West PADR highlights a further very significant issue associated with the estimated costs of C2 in the West Vic PACR – the failure of the West Vic PACR to recognise and account for the full costs of the WRL's VNI West Components, via the 'offset', in its calculation of net market benefits for C2. This failure is exacerbated by the redefinition of VNI West in the VNI West PADR (see section 2.2 above) so that the costs of the VNI West Components are treated as 'sunk' costs elsewhere by the VNI West RIT-T.

If VNI West had not been considered in the West Vic RIT-T, its assessment and calculations could not have justified the inclusion of a 500kV double circuit line and a new terminal station, and C2 would not have claimed any market benefits for the VNI West Components. In these circumstances, to meet the West Vic PACR's *identified need*, C2 would likely be required to become a 220kV double circuit overhead line from Sydenham to Bulgana without a new terminal station. The 'incremental costs' of the WRL VNI West Components represent the difference in the cost of a 190km double circuit 220kV line between Sydenham and Bulgana versus C2 as proposed in the West Vic PACR.

The Alliance estimates that the incremental costs of the WRL VNI West Components represent more than half of the West Vic PACR's estimate of $285 million capital cost ($215 million PV) for the 80km Sydenham to North Ballarat section of C2 including a new terminal station. This is supported by the West Vic PACR which computed $115 million (PV) in market benefits, the 'offset', for C2 for facilitating the VNI West augmentation. The Alliance contends that these costs (being part of the WRL Project

[28] VNI West PADR, pp.7-8
[29] West Vic PACR, p.49

costs) have materially increased since publication of the West Vic PACR and have engaged experts to validate this analysis.

Based on an extrapolation of the costings in the VNI West PADR, the Alliance estimates the WRL VNI West Components add incremental costs to C2 in excess of $400 million, and possibly more than $500 million that without VNI West would not be required.

In the West Vic RIT-T, the market benefits for the VNI West Components were applied as 'differences in the timing of transmission investment' to 'offset' the capital cost of the VNI West Components, because AEMO considered they belonged to a future VNI West project's *identified need*. Equally weighted, C2 was assigned $92 million (PV) of market benefits from the VNI West Components as part of its overall $301 million (PV) in net market benefits.

2.4 Consequence of failure to appropriately account for costs of VNI West Components in the West Vic RIT-T or the VNI West RIT-T PADR

The RIT-T expressly states that where a market benefit (including a benefit for differences in timing of a transmission investment) is included in the calculation of benefits, the market benefit must not include *the costs which meet the criteria in paragraph 2*. 'Costs' means *the present value of the direct costs of a credible option* which include *costs incurred in constructing or providing the credible option*.

The VNI West PADR makes clear that the costs of the WRL's VNI West Components are to be borne by the WRL and will not form part of VNI West's costs. This is a material change in circumstance to a key assumption in the West Vic PACR. If the status quo were to remain, neither the VNI West RIT-T (when completed) nor the West Vic RIT-T would recognise the cost of the VNI West Components, and the Alliance estimates these are significant (in the order of $500 million). The preferred C2 option in the West Vic RIT-T can therefore no longer claim market benefits from the VNI West Components.

Alternatively, if AEMO asserts that the VNI West Components (to be built in the WRL) are in fact costs of VNI West, then the VNI West RIT-T must be adjusted to include this circa $500 million in costs.

The Alliance considers that this misattribution and overstating of benefits in the West Vic RIT-T and the consequent misattribution and understating of costs in the VNI West PADR invalidates both the West Vic RIT-T (concluded) and the VNI West RIT-T (at the point of PADR completion).

3.0 Errors in Present Value accounting for the Credible Options Capital Costs

The Alliance believes that the issue of cost accounting for the credible options is not limited to the discussion in section 2 above. Capital costs are the costs to build a credible option and referred to below as Capex costs. Operational Costs are the costs to operate a credible option and referred to below as Opex costs.

The Alliance contends, upon analysis of the VNI West PADR RIT-T NPV model,[30] that there are also errors in present value accounting for the credible options.

The table on the following page summarises the present value (PV) of costs for each credible option by each reasonable scenario, plus the weighted result used to offset the gross market benefits in the VNI-West PADR. The preferred option under the RIT-T must be the credible option with the highest net market benefits, derived from the PV of gross market benefits minus the PV of costs (Capex costs plus Opex costs).

[30] https://aemo.com.au/initiatives/major-programs/victoria-to-new-south-wales-interconnector-west-regulatory-investment-test-for-transmission/reports-and-project-updates

VNI-West PADR: Costs Summary by Scenario	Step	Progressive	Hydrogen	Weighted
Weighting	52%	30%	18%	
Year commissioned	2032	2039	2031	
Capex – 2020/21 dollars				
Option 1	3,256,231,000	3,256,231,000	3,256,231,000	3,256,231,000
Option 2	3,874,331,000	3,874,331,000	3,874,331,000	3,874,331,000
Capex - PV				
Option 1	1,718,395,560	1,048,633,942	1,833,076,524	1,538,109,648
Option 2	1,996,471,413	1,326,709,795	2,111,152,377	1,816,185,501
Opex - PV				
Option 1	193,223,915	92,153,991	211,008,625	166,104,185
Option 2	217,293,453	116,223,530	235,078,163	190,173,724
Total Costs - PV				
Option 1	1,911,619,475	1,140,787,933	2,044,085,149	1,704,213,834
Option 2	2,213,764,866	1,442,933,325	2,346,230,540	2,006,359,225

The technical scope of what is being built for each credible option does not change across the reasonable scenarios. The error in PV accounting is that the model assumes that if the commissioning of a credible option is later (eg. Progressive assumes 2039) that the PV must therefore be much cheaper than if built earlier (eg. Hydrogen 2031).

For example, for Option 1, Progressive (2039) has a Capex cost PV of $1,048 million, whereas Hydrogen (2031) is almost double at $1,833 million. As attested to in other RIT-Ts (eg. Project EnergyConnect, Humelink), the PV of a credible option's Capex costs should normally be the same across reasonable scenarios, and if anything, the longer the build is delayed, the larger the potential is for even higher Capex costs, not an almost halving of Capex costs in PV terms.

As defined, the discount rate is:

> *The interest rate at which future dollar values are adjusted to represent their present value (that is, in today's dollars). This adjustment is made to account for the fact that money today is more valuable than money in the future. Cost-benefit analysis should use real social discount rates.*[31]

The RIT-T is a present value analysis that determines the net market benefits (PV) by offsetting the PV of direct costs from the PV of gross market benefits. As shown above, in the VNI West PADR, 'Table 4 – Summary of the credible options assessed in this PADR – capital costs, $m in FY2020-21 dollars' outlines the Capital Costs for the two credible options ***in FY2020-21 dollars*****.** So, this is already the present value of the capital costs – it does not need adjusting or discounting to today's dollars. What the NPV model does in the VNI West PADR is place this 2020-21 value out into 2031, 2032 and 2039 respectively for the 3 scenarios and PV's each back to 2021 (as shown in the table) at the VNI West PADR's discount rate, thus calculating that delaying the project makes it cheapest cost in today's dollars which is completely illogical. As Table 4 is in present value already, it is this cost that should be applied for all reasonable scenarios, it should not be subject to such discounting. Consequently, the weighted average Capex cost (PV) for Option 1 ($1,538 million) should in fact be the FY2020/21 Capex cost ($3,256 million), and so the Alliance asserts that the VNI-West PADR understates Option 1's Capex cost by more than $1,700 million.

4.0 Assumptions – key developments, the likelihood of WRL being approved, and a realistic counterfactual scenario

The Alliance has some observations to make based on our opinion that AEMO has not adequately assessed the credible options, or indeed other possible options, in the context of **all** recent key developments in proposed energy generation (causing the rapidly changing state of the National Energy Market [**NEM**]) or in the context of other anticipated projects not being delivered in a timely manner to enable VNI West to connect efficiently to the network.

Critically for the Alliance this also means we want to know what happens to VNI West if the WRL **does not gain approval**? And what happens to WRL if the VNI West preferred option 1 is reconsidered and significantly altered in its route, or found to not have net market benefits, following assessment of submissions made to the VNI West PADR?

The Alliance finds it unsatisfactory to read AEMO's statement on the WRL and Project EnergyConnect that:

> *If any modifications are required as a result of the EIS or EES processes, respectively, in order to obtain environmental and planning approvals, the impact of these modifications will be assessed to determine if any consequential changes to VNI West would be required that could materially change this RIT-T assessment.* [32]

AEMO first stated in the 2020 ISP[33] that the 'identified need' for VNI West, was *to increase transfer capacity between New South Wales and Victoria to realise net market benefits by:*

- *Efficiently maintaining supply reliability in Victoria following the closure of further coal-fired generation and the decline in ageing generator reliability – including mitigation of the risk that existing plant closes earlier than expected.*

[31] E.g. as per Infrastructure Australia Infrastructure Glossary - https://www.infrastructureaustralia.gov.au/Infrastructure-glossary
[32] VNI West PADR, pp.7-8
[33] 2020 ISP, p. 87

- *Facilitating efficient development and dispatch of generation in areas with high quality renewable resources in Victoria and southern New South Wales through improved network capacity and access to demand centres.*

- *Enabling more efficient sharing of resources between NEM regions*.'

This identified need for the VNI West project remained the same in the 2022 ISP and is restated in the VNI West PADR. There is no argument that the need is valid.

As outlined by AEMO in the VNI West PADR and overviewed by the Alliance in section 1 of this submission, the opportunity to increase interconnection between Victoria and New South Wales was first identified in the 2018 ISP (as Snowylink) and has proceeded to the 2022 ISP where it is called VNI West and given high priority along with four other transmission projects.

The Alliance observes that this unwavering progression of the Snowylink/KerangLink/VNI West interconnector appears contrary to statements made by AEMO with more and more conviction in its ISPs (and other documents) on the changing state of the National Energy Market (NEM), including the following statement from the 2022 ISP (June 2022) that:

> *The National Electricity Market (NEM) is supporting a once-in-a-century transformation in the way electricity is generated and consumed in eastern and south-eastern Australia. It will replace legacy assets with low-cost renewables, add storage and other new forms of firming capacity, and reconfigure the grid to support two-way energy flow. Consumers will be able to draw on low emission electricity for their transport, industry, office and homes, replacing oil, gas and other fuels.*
>
> *Technical innovation, ageing generation plants, economics, government policies, energy security and consumer choice are all driving this transformation, and driving it faster than many anticipated. Some of them form part of the global push for net zero emissions by 2050, while others are independent. All the while, the NEM must continue to meet its objective – to provide reliable, secure and affordable electricity to consumers.*[34]

This transformation is emphatically re-stated in the VNI West PADR (July 2022):

> *The power system in eastern Australia is undergoing fundamental, rapid and complex change. The integration of renewable generation and adoption of new technologies continues to shift the geography and technical characteristics of electricity supply in Victoria and New South Wales, and is essential for the Australian economy to achieve net zero emissions by 2050. Concurrently, the forecast closure of ageing coal-fired generators in Victoria and New South Wales over the coming decades presents a significant challenge to supply reliability for the energy industry.*[35]

In fact, publication of the VNI West PADR was considerably delayed from its originally proposed publication date of March 2021 (firstly extended to December 2021 then extended to by the end of August 2022) based on AEMO having identified a number of key developments since the VNI West PSCR was released in December 2019 and wishing to appropriately reflect them in the VNI West PADR's analysis and conclusions.

Some of these key developments were of AEMO's own making and are consequently self-affirming over ISPs and supporting documents. Others, such as additional early closure of coal power plants and the development and commissioning of the Victorian Big Battery, are well known.

[34] 2022 ISP, p.7

[35] VNI West PADR, p.5 and 18

The Alliance has identified other key developments that we consider are also critical to the future of the NEM and demonstrate the increasing focus of state governments such as Victoria and New South Wales on developing significant renewable energy generation and networks in their own 'backyard', thereby potentially doing away with the need for such an enormous interconnector transmission project which the consumer will have to pay for.

Some key developments, such as the likelihood of Victoria and NSW developing their own strong REZs and networks to support their state's needs should have been included in the counterfactual VNI West PADR. Others are even more recent but are proof that the NEM has changed greatly since 2018.

The use of ISPs to support this project since 2018 is not considered by the Alliance to have provided a '*least-regret, dynamic, resilient and transparent roadmap for the NEM through Australia's energy transition, as well as increase system resilience to better deal with future challenges*' – the purpose of an ISP.

These key developments (in no particular order) that the Alliance believes should have been in the counterfactual and must all be rigorously considered by AEMO in the next stage of RIT-T assessment include, but are not limited to:

- The Victorian State government's progression of VicGrid and the proposed Victorian Transmission Investment Framework (VTIF) and the Victorian Network Investment Test (VNIT) to be used in the development of REZs and the electricity network throughout Victoria.[36] This has been a focus for the government since the **Victorian Renewable Energy Zones Development Plan Directions Paper** was put out for comment in February 2021.
- Offshore wind policies released by both the Victorian state government (Offshore Wind Policy Directions Paper, March 2022[37]) and the Federal government ('Unlocking the power of offshore wind' plan announced 5 August 2022[38]). It is noted that Star of the South, an offshore wind form has just commenced the EES process.
- G-REZ, a Renewable Energy Zone in Gippsland is being privately developed with local government backing to 'unlock 3-4GW of renewable energy by 2027 – enough to power two million homes'. [39]
- Jeeraling battery – announced by EnergyAustralia in early 2021 as Australia's first four hour utility scale battery of 350 MW capacity in the Latrobe Valley (scheduled for commissioning by the end of 2026)
- The New South Wales Electricity Infrastructure Roadmap which was announced by the New South Wales government in November 2020 as the plan to *transform our electricity system into one that is cheap, clean and reliable* and which *coordinates investment in transmission, generation, storage and firming infrastructure as ageing coal-fired generation plants retire*.[40]

The matter of social license for VNI West is clearly an issue for AEMO and Transgrid as joint proponents of this project. It is discussed in detail in the VNI West PADR (it would seem this is the first time that this discussion has been had in a RIT-T) and a $300m contingency sum has been put into the Victorian section of the costs for the following reason (emphasis added):

[36] https://engage.vic.gov.au/victorian-transmission-investment-framework
[37] https://www.energy.vic.gov.au/__data/assets/pdf_file/0016/561400/Offshore-Wind-Policy-Directions-Paper.pdf and https://engage.vic.gov.au/victorias-offshore-wind-policy-directions-paper-developing-the-offshore-wind-sector
[38] https://minister.dcceew.gov.au/bowen/media-releases/unlocking-power-offshore-wind
[39] https://grez.com.au/
[40] https://www.energy.nsw.gov.au/government-and-regulation/electricity-infrastructure-roadmap

> *To allow for potential remediation of **unknown** geological, **environmental and social concerns**, the cost estimates presented in this PADR include an approximate additional $300 million of cost contingency, added to the Victorian component of the estimate, compared to the VNI West cost estimate presented in the 2022 ISP. While AVP and Transgrid will not know specific details until route planning commences, this cost contingency has been added to AVP's Victorian estimate in recognition that, based on recent experience, some level of route diversion, tower redesign, or screening may be required beyond that included in the estimate of the Victorian component of the project presented in 2022 ISP.*[41]

The lack of social license for the WRL has had considerable impact on the timing of its likely approval and potential completion if approved. It is presently still in the Environmental Effects Statement (**EES**) investigation stage and is already some 18 months behind projected timelines. The West Vic PACR stated that C2 would be commissioned by 2025. AusNet's earlier reported position was a completion date around October 2024. The 2022 ISP states the Project 'delivery date' as advised by AusNet is now July 2026. AusNet's most recent update published on its website this month[42] reports that construction will commence in mid-2024 with a completion date around 2026.

If the WRL were not to be approved and consequently the NBTS and the 500kV section between it and Sydenham were not built that would cause these VNI West Components to become costs to the VNI West RIT-T and greatly increase the cost of option 1 – to the tune of circa $500 million in costs as discussed in section 2. This scenario should have been included in the counterfactual.

Alternatively, if AEMO asserts that the VNI West Components (to be built in the WRL) are in fact costs of VNI West, then the VNI West RIT-T must be adjusted to include this circa $500 million in costs.

CONCLUSION

The Alliance supports both the Federal and more specifically Victorian Government's commitment to reducing emissions and building resilience to the impacts of climate change and supports the transition to a clean energy future that will create jobs, cut costs for households and businesses, and strengthen our energy system.

It also acknowledges the significant and central role of AEMO as both the market planner and the West Vic RIT-T and VNI West proponent in Victoria but believes that AEMO undergoes a considerable degree of irreconcilable conflict in these roles.

As the WRL and the Victorian section of VNI West will be paid for by Victorian energy consumers, we consider and require that the quality and rigour of the business cases, power system, market and economic modelling is high and comprehensive.

Over the next few decades Victorian consumers have the prospect of paying for three major transmission projects - WRL, VNI West and MarinusLink - if all are built as proposed by AEMO. This cannot serve to lower our electricity bills as is constantly claimed.

In this submission, the Alliance contends that

- The VNI West PADR has confirmed a preferred option and route that is essentially the same as the transmission interconnector proposed in its inaugural 2018 ISP to link up with Snowy 2.0 (a project announced in 2017), with part of its required infrastructure already integrated into the preferred

[41] VNI West PADR, p.44

[42] https://www.westernrenewableslink.com.au/assets/resources/Updated-proposed-route-overview-August-2022.pdf

option C2 of the West Vic PADR (Dec 2018) and PACR (July 2019) – this is not considered to be an appropriate application of the RIT-Ts for both West Vic and VNI West.

- The VNI West PADR has not adequately counted the costs for the VNI West components which were brought forward into the West Vic RIT-T and claimed as difference in timing of transmission benefits from VNI West
- The VNI West PADR has not accurately undertaken the present value accounting for the credible options
- The VNI West PADR has not adequately defined a realistic counterfactual in the context of all recent key developments in proposed energy generation or in the context of the WRL not gaining approval

Ultimately it is the Alliance's position that the need, costs, and benefit for the preferred option 1 are not proven.

The Alliance considers that AEMO has placed such over-reliance on delivering an interconnector which will reach Snowy 2.0 that it has long assumed that VNI West would proceed. This determined the PACR outcome of AEMO's assessment of the West Vic RIT-T preferred option C2 and the proposed WRL in its current form.

Added to this, by including VNI West Components in the proposed WRL, AEMO has given itself powerful motivation to deliver an assessment of VNI West that supports the presently proposed preferred option 1 in the VNI West PADR.

The Alliance also considers that there has been misattribution and overstating of benefits in the West Vic RIT-T and the consequent misattribution and understating of costs in the VNI West PADR invalidates both the West Vic RIT-T (concluded) and the VNI West RIT-T (at the point of PADR completion). The counterfactual fails to assess the impact of the WRL not proceeding and the VNI West Components not being built. Added to these costing issues are the errors that the Alliance consider are in present value accounting for the credible options capital costs.

The Alliance does not consider the VNI West PADR to be a proper and fitting application of the RIT-T according to law required under the NER.

To discuss any of the matters raised in this letter, please contact me at vj1009@hotmail.com.

Steering Committee member
Moorabool and Central Highlands Power Alliance
on behalf of the Chair, Emma Muir