



Virya Energy P.L.

12 April 2023

Submission in response to VNI West Consultation Report – Options Assessment (February 2023) on behalf of Virya Energy and the Meering West Wind Farm

Thank you for the opportunity to provide feedback on the proposed options for the VNI West route. This submission is made in response to the VNI West Consultation Report – Options Assessment published in February 2023 ('the Report').

Virya Energy Pty Ltd (Virya) is an Australian company, based in Melbourne, whose three experienced company leaders have a combined 65+ years in the wind industry. Virya was established by the founder of Germany's largest private renewable energy developer with over 400 staff across 20 offices. Virya is currently developing the 1500 MW Yanco Delta Wind Farm (with an 800MWh Battery Energy Storage System (BESS)), which is the first project in the NSW South-West REZ to submit an Environmental Impact Statement (planning permit application). The project completed public exhibition with zero local objections.

Virya is also developing the 1200 – 1400 MW Meering West Wind Farm (with an 800MWh BESS), between 13 – 35km west-south-west of the Kerang Terminal Station. The 26 landowners selected Virya as their preferred developer after running a tender process with four experienced developers and have been working with us since late 2020, when the site was identified for its close proximity to the proposed 'Kerang-Link' transmission line, low population density and high average wind speed.

Virya Energy, and the other developers progressing the 3-4 GW of renewable energy projects around Kerang, have been making investment decisions on the clear and consistent messaging from both the network operators and the State government, that 'Kerang Link' would run from North Ballarat to Kerang, then across to NSW and would support investment in renewable energy infrastructure in the Murray Renewable Energy Zone (REZ). The Kerang Link announcements also stated that there would be 1.8GW of capacity in the line running back to Melbourne. The preferred option itemised in the VNI West Consultation Report – Options Assessment (the Report), being Option 5, constitutes a reversal of both previous undertakings.

In summary, our submission is as follows:

1. The substation and spur line into Bendigo is not required and should be removed from Options 1-4 to show a fair cost comparison with Option 5. This also reduces the penalties applied to Options 1-4 in the Multi Criteria Analysis (MCA) and renders the currently preferred Option 5 less favourable. Once the estimated \$500 million cost of the Bendigo spur is removed and the maximum capacity of the transmission line is used in the assessment, Option 1 is by far the best value option on a cost per megawatt basis.
2. Any option that increases the Western Renewables Link (WRL) line to Bulgana from 220kV up to 500kV (including the currently preferred Option 5) will destroy renewable energy investment potential in the Murray REZ because all 3.3GW of the WRL transfer capacity into Melbourne will be allocated to projects in the Western REZ in priority to projects in the Murray REZ under the National Electricity Rules (NER). Further, the opportunity for transfer of electricity from Victorian to NSW markets via VNI West has been significantly overstated.
3. The line should be extended all the way to Kerang to support the 3-4GW of projects currently under development. Kerang Link has been supported by the State government and AEMO as a

local Kerang project for many years, and option 5 would effectively make renewable energy investment in the Kerang region unviable.

4. As detailed below, Virya's preferred route is a variation of Option 1, where the spur line into Bendigo is removed and the transmission line extends all the way to Kerang before crossing into NSW.

1. The spur line into Bendigo included in Options 1-4 is unnecessary

The fundamental flaw in the financial assessment supporting Option 5 as preferred option is that all other options canvassed in the Report include an expensive spur line into Bendigo, even though it is implicit in the acceptance of Option 5 as preferred option that a spur line into Bendigo is not necessary. Hence, the comparisons are not 'apples for apples' comparisons. The other options should be re-assessed without the Bendigo spur line as this will save an estimated \$500 million dollars on the cost of each of the other options. As is made clear by the Option 5 proposal, and explained in the simplified Figures 1a and 1b below, the spur line into Bendigo is not required when the VNIW route connects to the existing 220kV line north of Bendigo. Bendigo will receive a capacity boost greater than 200% from VNIW, even without the additional line.

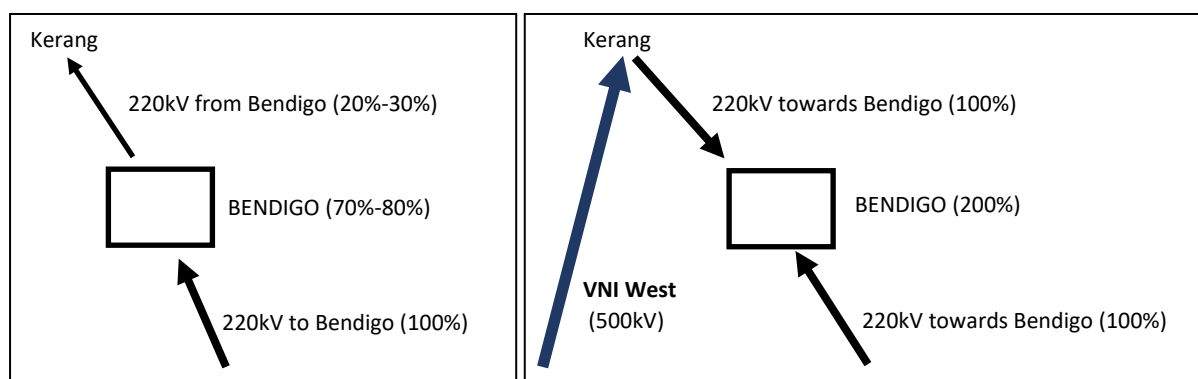


Figure 1a: Existing power flow

Figure 1b: Power flow with VNIW connecting at Kerang

To summarise the diagrams above, most of the capacity of the existing 220kV line is used in the Bendigo region, say 70-80% (exact amounts to be confirmed by AEMO/Ausnet). Then the remainder, say 20-30%, continues north to Kerang, Swan Hill, Mildura, etc. When VNIW bypasses Bendigo and connects at Kerang, the power available in Bendigo more than doubles as there will be 100% of the 220kV line from Melbourne available, as well as 100% of the 220kV line from Kerang, hence a new spur line into Bendigo is superfluous and should be omitted from all options.

The removal of the substation and spur line into Bendigo, as shown in Figure 2 below, will save around \$500 million on Options 1 through to 4. Estimates based on the figures in the Report suggest that the omission of the spur line into Bendigo will save around \$350 million by not requiring a substation (red square) at the point where the Bendigo spur line (red line) would meet the line from North Ballarat (blue line). It would also save at least \$150 million worth of transmission line, however we note that this is based on the cost of \$4mil/km, calculated from average figures in the Report. The real costs are expected to be higher considering the value of lifestyle properties near Bendigo, the urban fringe and the Greater Bendigo National Park. Removing this section will also reduce the social impact penalties assigned to Option 1 through 4 because the Bendigo spur line passes through more densely populated areas, as well as the environmental and cultural heritage penalties for passing through both the Greater Bendigo National Park and the Bendigo Regional Park.

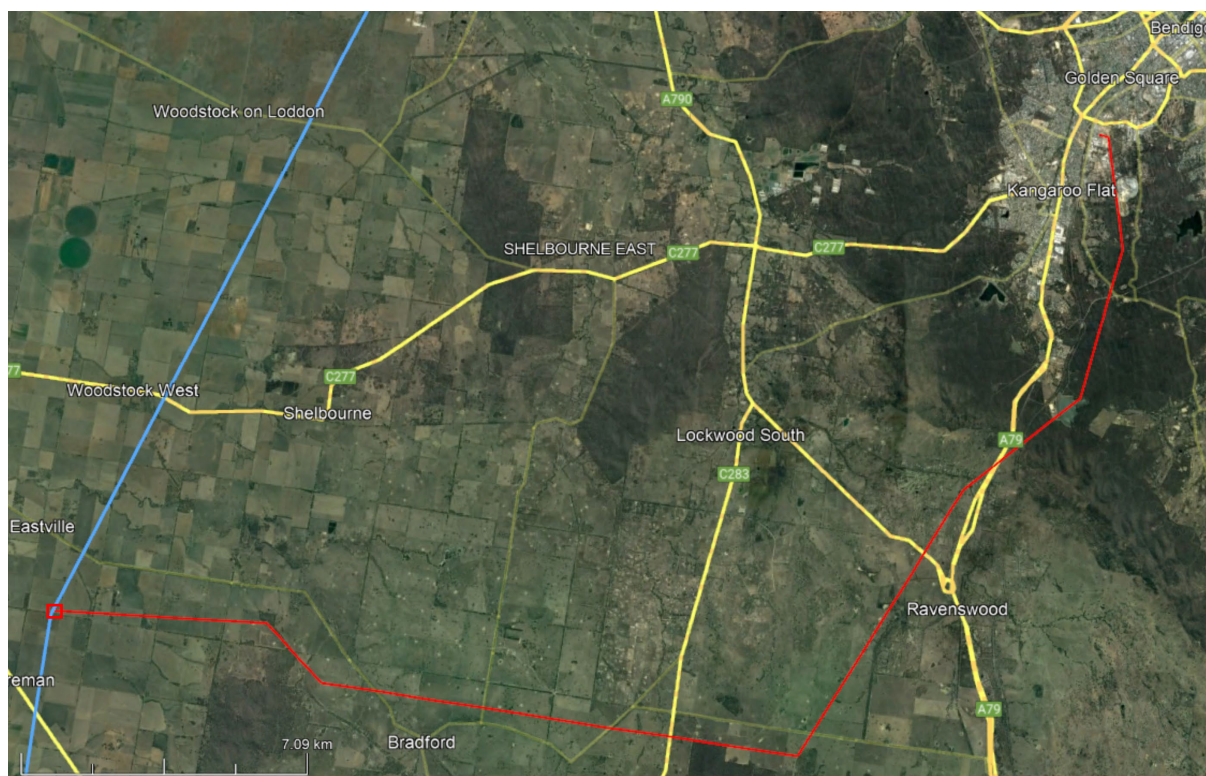


Figure 2: Bendigo spur line as shown in the Report.

The removal of the spur line changes the financial analysis dramatically. The dollar vs megawatts are shown below as per the Report's figures (Note Options 2 & 4 have been omitted). The MCA parameters caused Option 5 to move in front of Options 1 & 3, to match Option 3A, in the Report's recommendations.

Table 1: Figures from the Report	Option 1	Option 3	Option 3A	Option 5
Cost as per VNIW RIT-T	\$ 1,603	\$ 1,788	\$ 2,034	\$ 1,632
Stated capacity of area totals (MW)	3,650	4,150	6,490	3,410
\$/MW	\$ 0.44	\$ 0.43	\$ 0.31	\$ 0.48

The removal of the 'near Bendigo' substation will save around \$350mil and the Bendigo spur-line removal saves around \$150mil, therefore \$500mil should be removed from the costs of Options 1, 3 and 3A. This improves Options 1, 3 and 3A as shown in Table 2 below:

Table 2: Removal of Bendigo spur costs	Option 1	Option 3	Option 3A	Option 5
Cost without Bendigo spur line	\$ 1,103	\$ 1,288	\$ 1,534	\$ 1,632
Stated capacity of area totals (MW)	3,650	4,150	6,490	3,410
\$/MW	\$ 0.30	\$ 0.31	\$ 0.24	\$ 0.48

When the WRL maximum transfer capacity of 3.3GW to Melbourne (as detailed in section 2 below) is used to calculate the real \$/MW benefit, Option 1 is clearly the best value.

Table 3: WRL max. transfer capacity	Option 1	Option 3	Option 3A	Option 5
Cost without Bendigo spur line	\$ 1,103	\$ 1,288	\$ 1,534	\$ 1,632
Max. MW capacity in line to Melbourne	3,300	3,300	3,300	3,300
\$/MW	\$ 0.33	\$ 0.39	\$ 0.46	\$ 0.49

Using these parameters, and comparing the value to Option 1 on a dollars per megawatt basis as per Table 3:

- Option 3 costs 18% more
- Option 3A costs 39% more
- Option 5 costs 48% more

This comparison does not take into account the penalties and multipliers applied in the MCA which make Option 5 appear viable, however in our view these also need to be re-assessed because:

- The removal of the Bendigo connection will decrease the penalties currently applied to Options 1, 3 and 3A for;
 - Environment – due to the removal of the line through the Greater Bendigo National Park and the Bendigo Regional Park
 - Cultural Heritage – due to the removal of the line through the Greater Bendigo National Park and the Bendigo Regional Park
 - Social – due to removing a section that passes by lifestyle blocks and acreage properties
 - Land use – due to removal of the section passing through small blocks and potential forestry and mining tenures
 - Engineering - due to removing a section that impacts on existing infrastructure and an area within a bushfire overlay through the two Parks.
- It is also apparent from recent feedback in the rural media and the formation of anti-powerline groups such as the groups currently organising in respect of Option 5, that the favourable assumptions around 'Social' and 'Land Use' granted to Option 5 may have been significantly overstated. All options may have significant opposition from landowners opposed to the lines crossing their land and the extent of objections will not fully be known until full consultation has taken place.

2. Options 5 & 3A will effectively destroy any renewable energy investment in the Murray REZ

Both options proposing a 500kV line upgrade to Bulgana will destroy investment in the Murray REZ.

Firstly, Option 5 only allocates 0.85 GW, not 1.6 GW¹ as in all other options, to the Murray REZ so it should be rejected.

Secondly, Option 3A and 5 should also be rejected because generators in the Western REZ will be given priority over generators in the Murray REZ, and there will be little or no transfer capacity remaining for Murray REZ generation. This is because of the application of the merit order pursuant to the National Electricity Rules (NER) and the order in which generation is dispatched, as outlined below:

¹ We note that the options canvassed in the Report constitute a reduction of the line capacity that was previously advised would be available to Kerang (Murray REZ). All published material prior to the Report regarding the Kerang Link stated that 1.8GW of capacity would be allocated towards the Murray REZ, but the options in the Report allocate only up to 1.6 GW. Therefore, it is important to not to further reduce the capacity available for projects in the Murray REZ.

- **The maximum capacity of the Western Renewables Link line to Melbourne is 3.3GW.**
 - The 500kV line will have two 2.7 GW circuits, however the maximum output is the rating of one line, plus the largest single contingency (i.e. point of failure) on the network, which is a 600MW generator from Loy Yang B (Latrobe Valley)
- Option 3A allocates;
 - **3.99GW to V3**, the Western REZ (i.e. Waubra and Bulgana)
 - **1.6GW to V2**, the Murray REZ (i.e. Kerang/Pyramid Hill)
- According to the National Electricity Rules generators are ‘dispatched’ in their ‘merit order of generation’.
- The merit order prioritises generation with the lowest Marginal Loss Factor (MLF), which is to say those with lower transmission losses (i.e. shorter line length)
- The line from Waubra to Bulgana is around 65km. The line from Waubra to Kerang around 190km
- Therefore, when there is generation in the Western REZ, **the Western REZ generation will always be allocated in priority to any generation in the Murray REZ, and given that the Western REZ generation is likely to take up all 3.3GW capacity in the VNI West line, there will be no certainty of transmission access for any Murray REZ generators.**

This would make investing in the \$4-5 billion of potential generation in the Murray REZ almost impossible, because any time there is generation at Bulgana or in the Western REZ, the capacity will be taken away from Kerang.

Further, the anticipated benefits of transfer capacity from Victoria to NSW markets is significantly overstated. The transfer capacity of renewable energy into NSW along VNI West should effectively be considered very low, or zero. This is because at the NSW end of the interconnector is the NSW South West REZ. This REZ currently has at least 20GW of renewable energy projects being actively progressed, for a 2.5GW connection between Dinawan and Wagga/Sydney. Virya is aware from our monitoring devices at both Dinawan and Kerang that there is effectively no difference in the wind and solar profiles between the Victorian Murray REZ and the NSW South West REZ. Therefore, when generating at full capacity and sending power towards Melbourne and Sydney respectively, there will be no opportunity for interstate transfer.

3. Kerang Link should go to Kerang and support local investment in the Gannawarra shire

Virya would like to object to the proposal that the power line formerly advertised as Kerang Link would, under the preferred Option 5, not come within 45km of Kerang. This has been promoted by the Victorian Government and AEMO Victoria Planning for several years, and many developers have invested millions of dollars based on these announcements. This is a significant change in position after many years of consultation and assertions in respect of Kerang Link and support for the Murray REZ.

The Gannawarra Shire has been keenly promoting renewable energy investment in the region on the back of previous AEMO and state government announcements about Kerang Link, so both local businesses and renewables developers are keen to see the transmission line reach Kerang.

Geographic diversity across the state is beneficial for renewable energy generation, but importantly, it is also very significant from a regional investment point of view. To date the focus on promoting renewable energy investment in Victoria has been around the South-West, Western and Gippsland

regions, so maximising this line's potential capacity in the Murray REZ is important not only for the benefit of the State's generation consistency, but also so that the Murray region can share some of the economic development brought in by renewable energy development that, to date, has been focused on the Western and South Western regions of Victoria.

4. Virya's preferred option is a variation on Option 1

Virya's preferred route is a variation of Option 1, as shown in blue in Figure 3, where the spur line into Bendigo is removed and the transmission line extends all the way to Kerang before crossing into NSW².



Figure 3: Virya's preferred route

Thank you for considering our submission. We would welcome the opportunity to meet with you to discuss our submission.

Yours Sincerely,

Virya Energy Pty Ltd

² This route could also share the easement with the existing 220kV for up to 100km, as shown by the yellow dashed line. This would reduce the 80m easement by 30m, which equates to 300 hectares less easement to purchase.