

31 August 2018

South Australian Energy Transformation PADR Feedback
ElectraNet
Via electronic lodgement
consultation@electranet.com.au

Locked Bag 14051
Melbourne City Mail Centre
Victoria 8001 Australia
T: 1300 360 795
www.ausnetservices.com.au

South Australian Energy Transformation PADR Feedback

AusNet Services welcomes the opportunity to make a submission to the consultation process for ElectraNet's South Australian Energy Transformation (SAET) Project Assessment Draft Report (PADR).

The electricity sector is facing transformation across all parts of the supply chain. New renewable sources of generation are displacing traditional fossil fuelled generation. The Finkel Review found that a more strategic approach is required and identified that planning frameworks need to be capable of facilitating the efficient development and connection of new Renewable Energy Zones (REZs).

ElectraNet published the SAET Regulatory Investment Test for Transmission (RIT-T) PADR in June 2018. The PADR investigates four broad credible options and selected the preferred option, a new 920 km interconnector between South Australia and New South Wales, commonly referred to as RiverLink, that delivers positive net benefits across all reasonable future scenarios, at a cost of \$1.5 billion.

AusNet Services commends the detailed analysis that has been conducted to prepare the SAET assessment and to socialise with relevant stakeholders. As a neighbouring Transmission Network Service Provider (TNSP), AusNet Services has a strong interest in progressing network development to enable the transition to renewable generation across NEM jurisdictions and ensure that the most efficient solutions are delivered for customers.

In this context AusNet Services provides the following feedback on the SAET RIT-T PADR against the broad categories of:

- ◆ Credible Options;
- ◆ Avoided REZ transmission costs; and
- ◆ Alignment with the AEMO 2018 Integrated System Plan's 'RiverLink' variations.

1. Credible Options

The SAET RIT-T PADR outlines four broad credible options (Figure 1), including an option linking South Australia (SA) and Victoria (VIC) via a route from Tungkilllo (SA) via Horsham (VIC) to Ballarat (VIC).

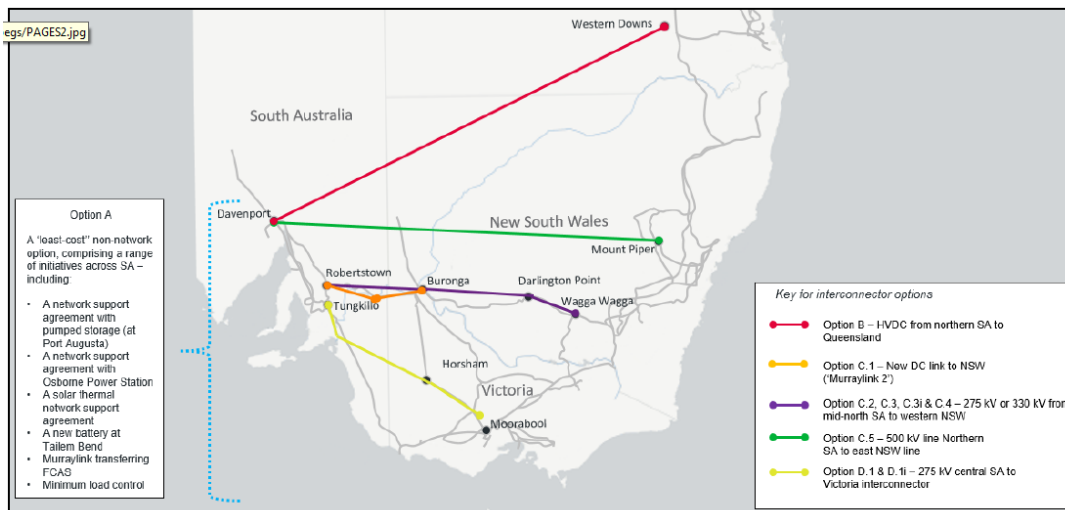


Figure 1 SAET Overview of options (and variants) assessed

<https://www.electranet.com.au/wp-content/uploads/projects/2016/11/2018-07-06-SAET-PADR-Final.pdf>

This Option D (the SA to VIC interconnector) follows a route parallel to the existing Heywood interconnector for a short distance; then diverts to a new route (no existing lines) to Horsham; and follows the existing route from Horsham to Moorabool via Ballarat. The total route length is estimated to be 420 km with an option cost of \$1,200 million.

A significant portion (25%) of the SA-VIC option cost is for a 300 MW Open Cycle Gas Turbine (OCGT) proposed by ElectraNet to mitigate the identified risk of a “severe bushfire that could lead to coincident and widespread damage to both the existing Heywood interconnector and a new interconnector”.

AusNet Services is of the view that the bushfire risk:

- Is lower than has been assessed by ElectraNet; and
- Could be mitigated with less costly solutions.

On bushfire risk, the separation of SA-VIC interconnector due to bushfire risk is not classified as a credible contingency by AEMO. To date, there have not been any separation events of the SA-VIC interconnector resulting from bushfire directly affecting the SA-VIC interconnector. Finally, the risk of bushfire impacting high voltage transmission lines is low due to the tower height and easement clearances.

On mitigation of bushfire risk, the proposed 300 MW OCGT (\$298 million) is an unduly high cost solution. An alternative route from SA to VIC (that avoids line sections where the two interconnectors are in close proximity in SA) will avoid this risk altogether. ElectraNet could

consider a more direct route from Tungkillo to Horsham, avoiding the section in parallel with the existing Heywood interconnector.

A South Australian connection point at Robertstown, instead of Tungkillo, could also be considered, providing even greater physical separation of the new and existing SA to VIC interconnectors. At the Victorian end, a connection to Sydenham (instead of Moorabool) will add diversity and further reduces the risk to faults in the 500 kV network in Victoria.

The two alternative routes for the SA-VIC interconnector are illustrated in Figure 2. Each of these alternatives:

- Mitigates the bushfire risk through selecting an alternative route that separates the new interconnector from the existing SA to VIC Heywood interconnector; and
- May also increase benefits from connection of renewables along the Victorian section of the route.

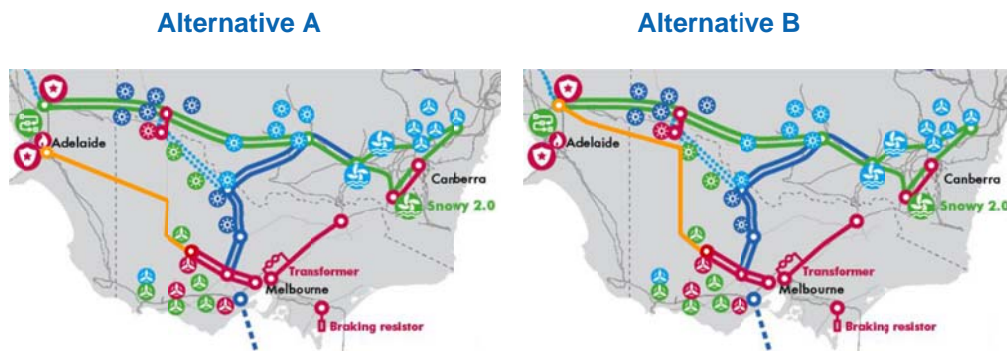


Figure 2 Alternative routes for SA-VIC interconnector

The removal of the \$298 million bushfire mitigation costs would reduce the SA-VIC interconnector cost from \$1,200 million to approximately \$900 million. AusNet Services expects that this would materially affect the cost benefit analysis and comparison of the SA-VIC interconnector with other credible options.

2. Avoided REZ Transmission costs

The SAET PADR highlights a number of categories of market benefits that have been quantified and compared to rank the options.

Avoided REZ transmission costs have been identified as a significant component of the benefits for the SA-NSW interconnector options. It is not clear which specific REZ transmission costs would be avoided in NSW, further detail on this aspect would enhance the credibility of the assessment. In contrast, for both the Queensland and Victorian interconnector options, the avoided REZ transmission component has been assessed as having zero market benefit.

The Western Victorian Renewable Integration (WVRI) RIT-T is in progress and at the time of publication of the SAET, the development of a WVRI solution was in early stages and was treated as a sensitivity in the SAET analysis. This means the full cost of the WVRI solution (estimated \$239 million) was included in the cost of Option D, SA-VIC interconnector, in the comparative analysis with other interconnector options.

Since publication of SAET PADR, AEMO published the 2018 ISP which identifies as a Group 1¹ project, a significant development of new lines between Horsham and Melbourne which indicates this is the likely outcome of the WVRI RIT-T. This development should now be considered in the SAET RIT-T with greater certainty.

The appropriate approach is to reduce the cost of the SA-VIC Options by the amount to be invested in the Victorian network as a result of the WVRI RIT-T. A reduction of \$239 million for the SA-VIC option results in an option cost of \$981 million.

The removal of both the bushfire mitigation costs (\$298 million) as discussed in Item 1 and the WVRI development (\$239 million) reduces the SA-VIC interconnector cost from \$1,200 million to ~\$660 million. AusNet Services expects that the reduction in cost of the SA-VIC option would materially affect the cost benefit analysis and provide a more favourable comparison with other credible options considered in the SAET RIT-T.

3. Alignment with ISP - RiverLink variations

The interconnection of SA to NSW has significant market benefits as demonstrated in the SAET PADR and, despite implications from points 1 and 2 above, may still be the preferred option. The purpose of considering options in the RIT-T process is not only to select an option that provides positive net benefits, but to select the option that provides the maximum benefit to customers.

AusNet Services suggests that there are further variations of the RiverLink SA-NSW interconnector that could provide greater market benefits and greater alignment with the AEMO ISP long term transmission development plan.

A number of variations to the RiverLink are suggested below and warrant further analysis to ensure selection of a preferred option with greatest net market benefit.

3A. SA-NSW interconnector via VIC – “Y” Option

The “Y” Option is an alternative route for the SA-NSW interconnector that follows a route from Robertstown (SA) – Buronga (VIC) – Red Cliffs (VIC) – Kerang (VIC) – Darlington Point (NSW) – Wagga (NSW) as shown in Figure 3.

This option provides most (if not all) of the RiverLink benefits and incorporates ISP Group 1 and Group 3² projects.

The “Y” Option provides additional benefits from avoided REZ transmission costs to support renewable generation developments on the Red Cliffs – Kerang line in Victoria that are forecast by the ISP to connect in the mid-term (2020’s). Renewable generation developments driven by the Victorian Renewable Energy Target (VRET) are well progressed with more than 4,000 MW committed or close to committed status and an even greater capacity at enquiry stage.

The “Y” Option maintains the option for future connection of renewables in NSW and VIC around Buronga and Darlington Point, forecast in the ISP to connect in the long term (2030-2040).

¹ Group 1 projects are defined in AEMO’s 2018 ISP as “Near-term construction to maximise the economic use of existing resources. As soon as practicable”

² Group 3 projects are defined in AEMO’s 2018 ISP as “Longer term developments to support REZs and system reliability and security. To 2040 (indicative)”

Benefits of stronger interconnection between NSW and Victoria through the SnowyLink South would also be brought forward in this option. The “Y” option aligns with the ISP by including the Buronga to Red Cliffs upgrade (ISP Group 1 project) forecast by the ISP to provide benefits as soon as it can be constructed, and parts of the SnowyLink South (ISP Group 3 project).



Figure 3 SA-NSW Interconnector via VIC – “Y” Option

3B. SA-NSW interconnector via VIC – RiverLink + Red Cliffs

A second alternative (Figure 4) is to deliver the RiverLink as outlined in the SAET PADR with the addition of the Buronga to Red Cliffs upgrade forecast by the ISP. The addition of this link to Red Cliffs in the north west of Victoria adds little to the length (25 km) and \$1.5 billion cost of the RiverLink project, and provides additional market benefits as outlined in the ISP. Completion of the RiverLink without the Buronga to Red Cliffs upgrade would be inefficient and result in significant delay to this ISP Priority 1 project being delivered, due to the need to initiate a separate RIT-T process to separately justify the investment.



Figure 4 SA-NSW Interconnector via VIC – RiverLink + Red Cliffs

3C. SA-NSW-VIC interconnector via Horsham

A third alternative is to route the interconnector to Buronga in NSW and then divert through Red Cliffs in Victoria and on through Horsham to connect with the WVRI development between Horsham and Melbourne.



Figure 5 SA-NSW-VIC interconnector via Horsham

AusNet Services is happy to provide assistance with selection, analysis and cost estimation for the alternative routes suggested in this response. Please contact Jacqui Bridge, our Manager Transmission Development, if we can assist with any queries in relation to this submission.

We look forward to the opportunity to provide further input as the ElectraNet SAET RIT-T progresses.

Yours sincerely,



Adrian Hill
General Manager, Regulated Energy Services

AusNet Services