

**WESTERN RENEWABLES LINK INQUIRY & ADVISORY
COMMITTEE ENVIRONMENT EFFECTS STATEMENT**

JOINT EXPERT STATEMENT

of

Mr Leslie Neil Brand

and

Mr Rodney Touzel

23 October 2025

Meeting Details:

Participants:

- Mr Leslie Neil Brand, Managing Director, Amplitude Consultants Pty Ltd.
- Mr Rodney Touzel, Principal, Worley Consulting.

Location:

- Worley Consulting's Office
- Level 34, 385 Bourke St
- Melbourne Victoria

Date and Time:

- Date: Friday 17 October 2025
- Start time: 12:00 hrs
- End time: 16:35 hrs

Introduction:

A joint expert meeting was held between Mr Les Brand of Amplitude Consultants and Mr Rod Touzel of Worley Consulting on Friday 17 October 2025, at Worley Consulting's offices at Level 34, 285 Bourke St, Melbourne.

The meeting commenced at 12:00hrs and was adjourned at 16:35hrs.

The purpose of the meeting was to discuss key points raised in the expert reports submitted by each participant and to discuss points of agreement and any points of disagreement.

At the commencement, it was agreed that there will be no points discussed related to the full undergrounding option (Attachment II of the EES) and subsequently there will be no discussion on HVDC technology or HVDC cables. This is because Mr Touzel had not been requested to and had not addressed these matters in his report.

Discussion was focused on matters of overlap from the respective expert reports, specifically:

- Relative environmental effects of undergrounding and overhead lines; and
- Costs, technology and scheduling (timing) associated with partial undergrounding.

Points of Agreement:

Table 1 presents points that both Mr Brand and Mr Touzel agree.

Table 1 – Points of Agreement

Item	Statement
<i>General</i>	
1	Attachment I of the EES repeatedly states that partial undergrounding is not feasible for cost and schedule reasons but does not attempt to demonstrate feasibility or non-feasibility through the comparison of the additional cost and schedule with expected benefits.
<i>Relative Effects between Undergrounding and Overhead</i>	
2	The expected operating easement for the HVAC partial undergrounding will be between 22m and 30m, depending on number of cables and location of access roads. The operating easement quoted in the reports for the HVAC overhead line is 70m – 100m.
3	That vegetation / crops, and grazing land may be cultivated within the operating easement including above the cables. No deep-rooted vegetation (e.g. trees) can be grown in this area.
4	That HVAC underground cable sections are less impacted by the effects of climate change than HVAC overhead lines.
5	That overhead HVAC transmission lines and towers present a potential ignition source (bushfire) that is not present with underground cables.
6	That overhead HVAC transmission lines and towers are more of an impediment to fire-fighting activities, i.e. aerial water bombing and access for fire crews, than underground cables.
7	That overhead HVAC transmission lines are more impacted by bushfires, including potential flashover due to pollution on the insulators, than underground cables.
8	That underground HVAC cables will result in significantly more ground disturbance during construction. There may be some ground disturbance during operation (e.g. fault finding and repair), and potentially more than compared to HVAC overhead lines.
<i>Partial Undergrounding – Technology</i>	
9	That the installation of 500kV HVAC underground cables on sections of the WRL route is technically feasible.
10	That sections of partial undergrounding longer than typically 30-40 km, will require further investigation and are expected to require additional equipment (e.g. reactive compensation) at the terminal stations and/or along the route. This will have an impact of the cost, land usage and visual amenity.
11	That the use of cables installed in conduits is an appropriate assumption to achieve benefits during construction, installation and operation (fault repair/replacement).
12	That HVAC underground cables have lower electrical losses per kilometre than HVAC overhead lines.
13	That the HVAC transition station can be designed with the tower outside of the footprint of the station, to minimise the visual impact of the transition station. The tower can be located outside and away from the transition station to mitigate any visual amenity issues.

Item	Statement
<i>Partial Undergrounding – Costs</i>	
14	That the cost per kilometre for partial undergrounding presented in the RLB report on partial undergrounding ¹ , and referred and relied upon by WRL to determine the cost comparisons presented in Attachment 1 of the EES, is significantly higher than our view of the costs as of 2025.
15	That the actual cost of kilometre for the 500kV partial undergrounding should be within \$30-34 million per kilometre (in 2025 dollars), including allowance for risks, compared to the \$81 million per kilometre (in 2023 dollars) presented in the RLB report.
16	That the estimated per kilometre cost for AC overhead lines presented in the RLB report on partial undergrounding is lower than our view of costs as of 2025.
17	That the ratio of cost per kilometre of 500kV HVAC underground to 500kV HVAC overhead as presented in the RLB report on partial undergrounding is significantly higher than expected.
18	That therefore we expect the ratio of cost of partial underground to cost of full HVAC overhead to be lower than the 1.4 presented on Page 146 in Attachment I of the EES ² .
19	That a more comprehensive and up to date costing exercise of the cost of partial undergrounding should be undertaken.
20	HVAC overhead transmission lines can impact aviation activity, whether that be for aerial services, training, recreational or agricultural purposes. HVAC underground cables have no impact on aviation activity.
<i>Partial Undergrounding – Schedule</i>	
21	That the statement that “ <i>there are a limited number of companies in the world able to manufacture underground cables at 500 kV</i> ” ² is incorrect.
22	That there are a significant number of suppliers who can manufacture and supply 500kV HVAC underground cable of the type anticipated for HVAC partial undergrounding for WRL.
23	That the procurement time for supply of the underground cable from placement of order to delivery to site would be no more than 9 – 12 months and the installation and testing of the cable would be conservatively 24 - 30 months. The commencement of civil works (trenching, conduit installation and backfill) could commence during cable manufacture, meaning that the overall program should be no more than 27 – 33 months.
24	That the implementation of HVAC partial undergrounding on WRL should not delay the current project schedule, however the decision to go ahead needs to be made soon and an early contractor engagement model needs to be implemented.

Points of Disagreement:

There were no points of disagreement raised during the discussion, or in terms of the content of each expert’s reports in relation to HVAC undergrounding.

¹ Rider Levett Bucknall Report for AusNet Services, “Cost Methodology Report – Western Renewables Link (WRL) dated 9 February 2023, Table 6.

² AusNet Report, “Attachment I – Project development and assessment of alternatives”, document no: 1-001-ANS-0000-EAP-RP-0003, Page 146.

Sign Off:

Signatures of participants:

Signed:

A handwritten signature in blue ink, appearing to read 'Leslie Neil Brand', with a long horizontal line extending to the right.

Leslie Neil Brand
Managing Director
Amplitude Consultants

Date: 23 October 2025

Signed:

A handwritten signature in black ink, appearing to read 'Rod Touzel', with a stylized, cursive script.

Rod Touzel
Principal
Worley Consulting

Date: 23 October 2025