Attachment 3

Summary of the independent assessment of Plan B

March 2024

VicGrid

VICTORIA State Government

Contents

Acknowledgment of Traditional Owners

We acknowledge and respect Victoria's Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partnering and meaningfully engaging with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.

About the independent assessment

On 2 August 2023, the Victorian Energy Policy Centre (VEPC) released a report titled "No Longer Lost in Transmission" which challenges the investment case, scope, and design of Australian Energy Market Operator's (AEMO) Victoria to NSW Interconnector West (VNI-West) transmission project. It includes an alternative project to replace VNI-West called *Plan B*.

In August, VicGrid advised VEPC that it would undertake an independent assessment of the 'Plan B Report'. The independent assessment would assess the claims made about VNI-West in the Plan B Report, analyse *Plan B* and make recommendations as a result of these assessments. VicGrid engaged Jacobs Group Australia Pty Ltd (Jacobs) to undertake the independent assessment.

Jacobs' evaluation finds that VNI-West meets Victorian energy objectives and does not support the Plan B Report's assessment and the report's suggested replacement of VNI-West with the alternative *Plan B* configuration.

About this summary

This document summarises the main findings and the key issues raised in Jacobs' assessment. The full version of the assessment is found on the VicGrid website, **vicgrid.vic.gov.au**

This summary refers to the "No Longer Lost in Transmission" report as the Plan B Report and the proposed projects in that report as *Plan B* (italics for emphasis).

Key issues

This section outlines the key issues identified in Jacobs' assessment of the claims about VNI-West in the Plan B Report and the alternative *Plan B* configuration.

With respect to the Plan B Report's critique of claims about VNI-West, Jacobs finds:

Interconnection between Victoria and NSW is valuable

Jacobs disagrees with the argument made in the Plan B Report that there is no value in the interconnection that VNI-West provides between Victoria and NSW.

Jacobs finds that Victorian energy consumers benefit from greater reliability and lower costs as result of the ability of VNI-West to access generation and storage in NSW when needed and export Victorian energy when it is surplus to our requirements.

The Jacobs review also notes that without VNI-West, other significant renewable energy generation and network projects like offshore wind off the coast of Victoria will be less effective.

AEMO's cost benefit analysis VNI-West is appropriate

The Plan B Report claims that the cost benefit analysis of VNI-West undertaken by AEMO is flawed across several different factors including capital costs, operating costs and interest rates.

Jacobs disagrees with the Plan B Report's assessment of the AEMO cost benefit analysis of VNI-West and supports the overall findings of AEMO's analysis that the project provides value to Victorian energy consumers.

Furthermore, Jacobs notes that AEMO's cost benefit analysis is conservative in terms of its assessment of the full range of benefits of VNI-West, such as improving reliability for consumers through sharing energy reserves and services across the National Energy Market, as well as the benefits it provides to other generation and network projects, including Victorian offshore wind.

Points of failure for VNI-West fits within engineering norms

Jacobs does not support the claim in the Plan B Report that VNI-West has '1000 points of failure' that will necessarily lead to major blackouts in Victoria.

The term '1000 points of failure' describes the claim proposed in the Plan B Report that a single tower failure of VNI-West would certainly lead to a cascading system failure. The '1000' figure refers to the (approximately) 1000 towers that make up VNI-West.

As part of the independent assessment, Jacobs undertook modelling to understand what would happen if both 500 (kilovolt) kV circuits were to have a failure (each tower has a double circuit). The modelling found an acceptable level of risk to energy supply and not a catastrophic system collapse.

The level of risk of this happening is within engineering norms applied in energy systems in Victoria, elsewhere in Australia and around the world.

With respect to the alternative *Plan B* configuration, Jacobs finds:

Plan B is unlikely to be reliable without more investment

Jacobs undertook modelling of *Plan B* and found it is unlikely to deliver reliable energy to Victorian consumers and achieve its generation development objectives without more investment in other infrastructure that has not been costed in *Plan B*. The additional investments expected to be required include some or all the following:

- an amount of battery storage developed across Victoria that is of the order of up to 4 times the Victorian Energy Storage Target for 2035;
- more intra-regional transmission infrastructure to enable more renewable generation than outlined in *Plan B*;
- an increase in the reliance on gas-fired generation, and/or
- upgrading existing interconnection like VNI-West.

As a result, under the approach proposed in the Plan B Report, Victorian energy consumers are likely to suffer from reduced energy reliability or face significant costs rectifying reliability issues. Furthermore, *Plan B* does not enable increased export capacity from Victoria that improves the effectiveness of priority Victorian renewable energy generation development such as offshore wind.

Plan B has its own constructability and project risks

The proposal put forward in *Plan B* to use 'spare easements' and construct new 220 kV circuits next to existing circuits likely underestimates the development and construction risks involved.

Firstly, Jacobs disagrees with the Plan B Report's claim that there are 'spare easements' in which some of the *Plan B* projects can be constructed. This results in *Plan B* requiring roughly the same amount of new easements as the VNI-West and Western Renewables Link projects.

Jacobs' assessment also finds problems with the idea of extending or moving existing easements to accommodate new infrastructure in *Plan B*. While Jacobs notes there could be benefit in using existing alignments in transmission development, the *Plan B* proposal oversimplifies the complexity of doing this.

Jacobs finds that the Plan B Report underestimates the likely cultural heritage investigations required, and potential impacts of the *Plan B* projects. Jacobs also finds potential issues with constructability of some *Plan B* projects, particularly around Ballarat and between Ballarat and Moorabool, including likely impacts on residential properties. These issues are likely to result in higher costs of project delivery and/or the need to develop in new easements.

Overall, Jacobs' assessment concludes that the overall 'constructability and project delivery risk' of the VNI-West project is about the same as the alternative *Plan B*.

Visual impact is dependent on context

The independent assessment does not agree with the Plan B Report claim that the square of tower height is the best way to measure the visual impact of transmission towers.

Visual impact of transmission lines is highly dependent on the context and siting of towers. The visual impact of VNI-West will be different in different locations, depending on the surrounding landscape.

Additional environmental, cultural heritage and community assessment would be required to understand the visual impact of *Plan B*.

Response to Plan B Report author feedback

Jacobs provided a draft version of its assessment to the Review Advisory Committee on 17 November 2023. The Plan B Report authors returned feedback to the draft assessment on 3 December 2023.

This section outlines the Plan B Report authors' feedback to the draft assessment and the response from Jacobs and the Victorian Government. The full version of the Plan B authors' submission and Jacobs' response is found on the VicGrid website, **vicgrid.vic.gov.au**.

Jacobs' assessment of technical issues raised

Feedback Plan B Report authors outlined a number of criticisms of Jacobs' analysis related to: the value of interconnection; the impact of VNI-West on generator curtailment; the completeness of VNI-West; the system stability impacts of VNI-West; the socio-economic impacts of VNI-West and *Plan B*; the deliverability of VNI-West and *Plan B*; and the comparative capital expenditure and price impacts of both projects.

Jacobs considered that there is no reason to make any substantive changes to its assessment after considering the feedback.

Importantly Jacobs notes that it has used analytical tools and assessments that are appropriate to assess the issues raised above, and that are the industry standard and are those commonly used by energy planners across the globe.

The Plan B Report authors, on the other hand, have not presented analysis such as load-flow and transient stability analysis, market modelling or cost benefit analysis to support their own conclusions.

Objectives and policy matters - VRET targets and the value of interconnection

More substantively the Plan B Report authors in response to the draft assessment by Jacobs claim that the review report runs counter to Victorian energy policy by not accepting the objectives of *Plan B* – in particular, not accepting a formulation of the Victorian Renewable Energy Target (VRET) that is based on energy demand rather than energy generation.

In its assessment Jacobs factually notes that the Plan B Report formulation of the VRET is not the same as that legislated by the Government, however the Plan B Report authors claim that by not accepting their version of the target the Victorian Government is accepting policy settings that do not encourage renewable energy generation development in Victoria and result in energy reliance on NSW. The Victorian Government rejects these claims.

The Victorian Government is providing, and will continue to provide, a supportive environment for renewable energy generation in Victoria. It has supported large-scale generation projects through successive auctions under the VRET; has set ambitious renewable energy generation and storage targets and offshore wind generation targets; and established the State Electricity Commission of Victoria to invest in generation and storage across the State. It is also implementing reforms to transmission planning in Victoria which aim to ensure an attractive environment for generation investment as we transition from coal generation over the next decade.

It is important to note that under all scenarios of AEMO's VNI-West regulatory investment test for transmission (RIT-T) modelling, as well as scenarios outlined in the most recent draft AEMO Integrated System Plan (ISP) which includes VNI-West, renewable energy generation development in Victoria continues to grow strongly in the future. VNI-West is an important project in developing this capacity, enabling upwards of 3.4 GW of new renewable energy generation in Victoria's Renewable Energy Zones.

While the Plan B Report dismissed the notion that there are benefits from VNI-West interconnection with NSW, Jacobs, however, found that energy price and reliability benefits for Victorian consumers do exist from VNI-West. Moreover, it is not the case that deciding to invest in VNI-West necessarily locks Victorian into being reliant on NSW energy. Interconnection is an important tool for both managing reliability and price risks from a lack of Victorian-sited generation at some times, making lower cost electricity from interstate available to Victorians at those times, as well as enabling opportunities for the export of Victorian renewable energy (e.g. export of Victorian offshore wind generation) at other appropriate times. This is shown in the modelling of the most recent draft AEMO ISP which shows that under the Central (Step-Change) scenario that includes Victorian offshore wind, Victoria is regularly a net exporter to NSW.

Finally, the review by Jacobs and its findings are not exclusively reliant on comparative analysis of planning objectives between VNI-West and *Plan B*. Importantly, the review found that there were risks that *Plan B* could not achieve its own generation capacity or energy reliability goals without substantial additional investment in storage or transmission infrastructure or more use of gas-fired generation. In making its recommendations Jacobs has looked at a number of other statements in the Plan B Report about VNI-West and *Plan B* which go beyond the question of competing objectives including assessment of: the cost benefit analysis of VNI-West; the security risk of VNI-West; and the project constructability and delivery risk of *Plan B*.

Summary recommendations

Jacobs' evaluation finds that VNI-West meets Victorian energy objectives and Jacobs does not support the Plan B Report's assessment and its suggested replacement of VNI-West with the alternative *Plan B* configuration.

Further Jacobs recommends VicGrid consider the following in the delivery of transmission planning in the future:

1. investigate further augmentations to the west of Bulgana and Kerang to attract new generation development further west in the state;
2. take a long-term strategic view of transmission planning;
3. pursue strong governance and transparency in the development and use of Multi Criteria Analysis (MCA) methods in transmission planning; and
4. undertake early engagement with communities on future transmission planning.

These recommendations are all consistent with, and an affirmation of, the work program of VicGrid.

Over the past 2 years, VicGrid has been consulting with communities across the State and the renewable energy industry on reforms to the way transmission infrastructure is planned in Victoria. These reforms are outlined in the Victorian Transmission Investment Framework (VTIF) announced in June 2023 by the Victorian Government.

At the core of the VTIF is the importance of undertaking long-term strategic planning of the transmission network through early and regular engagement with Victorian communities, as well as transparently incorporating economic, social and environmental considerations into transmission planning.

VicGrid has been given the responsibility of delivering the VTIF reforms through the first Victorian Transmission Plan (VTP), a long-term strategic plan for the Victorian transmission network and the development of Renewable Energy Zones. Consultation with Traditional Owners, landholders, Victorian communities, and industry has commenced as the first step in developing the VTP. As part of this process, VicGrid will consider potential augmentations to the west of Bulgana and Kerang, alongside other potential transmission projects that may be required to deliver the State's transition to renewable energy.

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