GOVERNMENT OF WESTERN AUSTRALIA

Infrastructure Western Australia

# Major Infrastructure Proposal Assessment
# Western Power
# North Region Energy Program 1
# Summary Assessment Report

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**Acknowledgment of Country**

Infrastructure WA acknowledges the Traditional Custodians of Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal communities and their cultures; and to Elders both past and present.

# Major Infrastructure Proposal Assessment Summary Report

## Purpose

This assessment report has been prepared in carrying out Infrastructure WA's (IWA) legislative function to assess and report to the Premier on major infrastructure proposals. The assessment is of Western Power's (WP) Network Investment to support the North Region Energy Program 1 (NREP1) Business Case (business case).

## 1. IWA observations

IWA is encouraged by the initial documentation provided by WP in the current business case. The strategic requirement and rationale for the project has been clearly established in the documentation and through supplementary information provided in response to clarifications sought by IWA.

However, IWA considers that the business case, and supporting information currently contains insufficient information to inform a final government investment decision. This is due to the early-stage project design, cost estimates and delivery schedule that are still under development and require further work. IWA notes that the current business case and expected timing of a government investment decision are impacted by the urgency for grid augmentation works to support additional renewable energy generation and storage capacity across the South West Interconnected System (SWIS), in response to the upcoming retirement of existing coal-fired generation capacity.

It is understood that a more detailed business case is to be developed by WP in early 2024, which will provide a greater understanding of project scope, and a more reliable project cost estimate and delivery schedule. IWA suggests that the Government considers the outcome of this work before committing to key project parameters.

## 2. Context

### 2.1 Project background

The decarbonisation of the energy sector will be a key lever in meeting the State Government's policy mandate to achieve net zero emissions by 2050. Significant transformation of the electricity grid is required to reach these goals, with the need to serve growing load to renewable generation being built in either locations not previously connected to the grid, or otherwise connected but with insufficient capacity to bring renewable energy to customers.

This business case builds upon previous work, including the SWIS Demand Assessment 2022 to 2042 (SWISDA) report. SWISDA sets out range of scenarios of future demand in the SWIS, including a preferred 'future ready' scenario, and the investment required in grid transmission infrastructure to support decarbonisation. Modelling undertaken to support SWISDA focussed on identifying least cost and coordinated transmission and generation infrastructure investments to enable the supply of low-emissions electricity to the SWIS over the next 20 years. NREP1 was identified as an initial priority investment in the North Region of the SWIS.

## 3. Strategic Merit

### 3.1 Alignment

IWA considers that WP's NREP1 proposal is strongly aligned to government policies, including:

- State Government's Climate Policy net zero by 2050 commitment, and whole-of-government interim carbon emissions reduction target of 80% by 2030.
- SWISDA identifies NREP1 as a network augmentation priority.

- State Government Industry development policies such as the WA Renewable Hydrogen Strategy, Future Battery and Critical Minerals Strategy and facilitation of green steel production (WA Green Steel Opportunity report).

The proposal and previous work are also aligned to the State Infrastructure Strategy, including recommendation 43 to evolve the Whole of System Plan, and recommendation 47 to support the development of the State's hydrogen industry.

### 3.2 Problems and opportunities

A number of problems and opportunities are identified relevant to the transmission network within the NREP1 project area.

New wind generation assets have recently been connected to the network at Warradarge and Yandin. These assets are currently operating in a constrained manner and below generation capacity due to current transmission network capacity being largely utilised. Network upgrades are required to enable optimal operation of current and connection of additional generation.

In addition to managing existing constraints, WP has received inquiries regarding new network connections due to the potential of the Northern Region of the SWIS to become a significant energy exporter for new large-scale wind and solar facilities in the northern areas, where wind and solar energy resources and available land is relatively abundant. This will place further pressure on existing transmission infrastructure.

Further, the 2023 AEMO Statement of Opportunities report details the planned retirement of coal fired generation and the need for replacement generation and emphasises the need for additional capacity procurement and expedited progress of capacity projects in the SWIS. The NREP1 helps facilitate new generation investment through the provision of connection capacity.

## 4. Options assessment

The option assessment section provided in the business case was limited to an assessment of shortlisted alternatives to the preferred NREP1 scope. The strategic and longlist options development and analysis has largely been undertaken as part of previous work by government, including through the SWISDA.

IWA considers that further stakeholder engagement should be progressed with local and Aboriginal communities to support further project development and design.

## 5. Societal impacts

### 5.1 Economic and financial assessment

IWA notes the business case does not contain any economic analysis of the proposal. The economic costs and benefits should be included in future business cases to help support a final investment decision.

Cost estimation for NREP1 is based on the AACE International Cost Estimate Class 5 classification, which is effectively an order of magnitude estimate for early-stage proposals. IWA appreciates that these estimates are undergoing further work as more detailed information is established in the lead up to WP's internal investment decision, scheduled for early 2024, which will provide greater confidence in the likely cost of the project.

IWA also notes that the estimated financial impacts of the proposal on the State cannot be detailed until further work on a preferred commercial and capital recovery framework for transmission network works is finalised by Government. Given work on this framework is still underway, IWA considers

that detailed assessment on the NREP1 financial impacts is not feasible at this stage. The financial impacts of the proposal should be provided once a capital recovery mechanism is agreed and refined further when more robust project costings are available.

### 5.2 Social assessment

While there are high-level societal impacts listed in the business case linked to SWISDA, limited societal benefits specifically attributable to NREP1 have been identified. IWA considers this can be further developed as part of the next stage of NREP1 business case development, and that such analysis is also included in future SWISDA related business cases. Further, IWA considers that the calculation, attribution, and communication of societal benefits of SWISDA projects may be better documented through a program business case, rather than on a project-by-project basis, and that this should be given some consideration by Government to support wider program roll out.

IWA considers that the nature of impacts to Aboriginal communities needs to be identified and articulated in future iterations of the business case. WP have noted that approval is required under the Aboriginal Cultural Heritage Act (or applicable legislation at the time), and from the Western Australian Planning Commission.

### 5.3 Environmental assessment

Noting the above, WP states that NREP1 will enable several renewable generation projects currently in the pipeline to progress, and enable 460 megawatts (MW) of solar and 655 MW of wind generation capacity to connect to the grid. Based on the expected 2023 SWIS emissions profile, introducing this volume of renewables into the SWIS would reduce emissions by around 2.4 million tonnes of carbon dioxide annually.

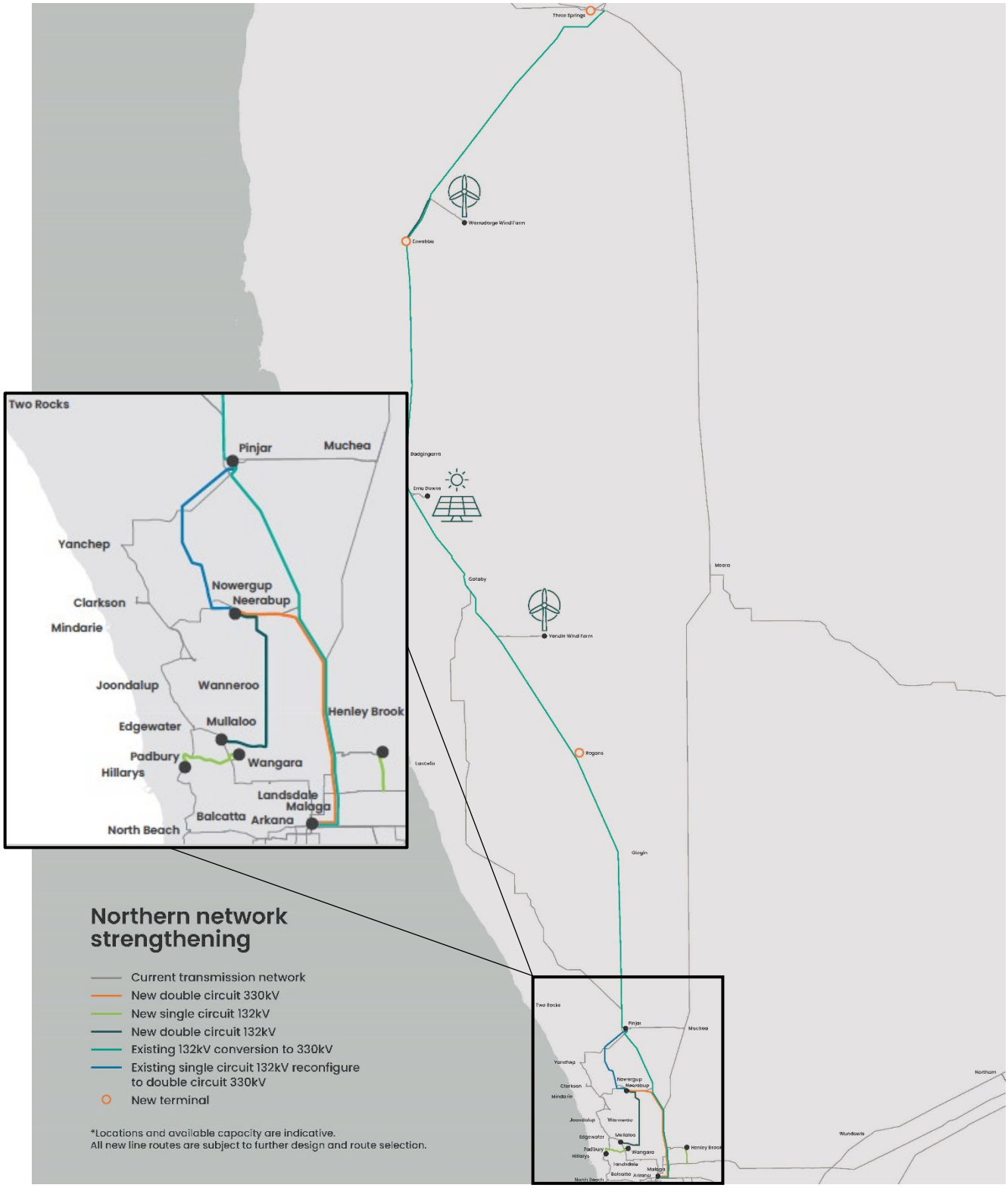
Approval and referrals required to be undertaken are yet to be completed, however WP has identified relevant legislation under which approval will be sought in the business case if further developed. This includes the need to refer the project to State and Commonwealth Governments will be under the Environmental Protection Act 1986 and the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) respectively. WP notes that the findings from initial environmental studies and engagement with the community has identified clear actions for further study.

## 6. Recommended option and project definition

There are three key interdependent components to the proposed investment:

- The conversion of an existing 132kV line that runs from Northern Terminal (NT) to Three Springs Terminal at the higher voltage of 330kV. This duplicates an existing 330kV line.
- Investment in the secondary 132kV network in the North, improving the efficiency of power flows within and out of the region to provide greater capacity.
- Installation of a new 330kV double circuit transmission line from NT to Neerabup Terminal.

As noted above the proposed NREP1 scope and design continues to be refined. See a high-level map of the proposed scope below, as per the NREP1 business case.




## 7. Deliverability

IWA acknowledge that due to challenging delivery timeframes to a 2027 delivery date, (as detailed in the SWISDA), WP have had a short period in which to develop a business case for Government consideration, and as such, a final concept design, and more informed schedule and cost estimate are yet to be completed.

IWA consider a whole of government approach to deliverability is required and note that significant work is occurring from a coordination, approvals, and regulatory framework perspective to facilitate efficient delivery, including the development of a Government Facilitation Vehicle to help coordinate the deployment of energy investments across WA.

Notwithstanding the above, achieving a delivery date of 2027 will be challenging. A more informed delivery timeframe will be available following further project development work to be incorporated into WP's final business case.

IWA also note that WP is progressing engagement with impacted communities and is working to develop a social licence strategy in partnership with government. IWA consider this to be critical to the successful delivery of NREP1 and subsequent transmission works.