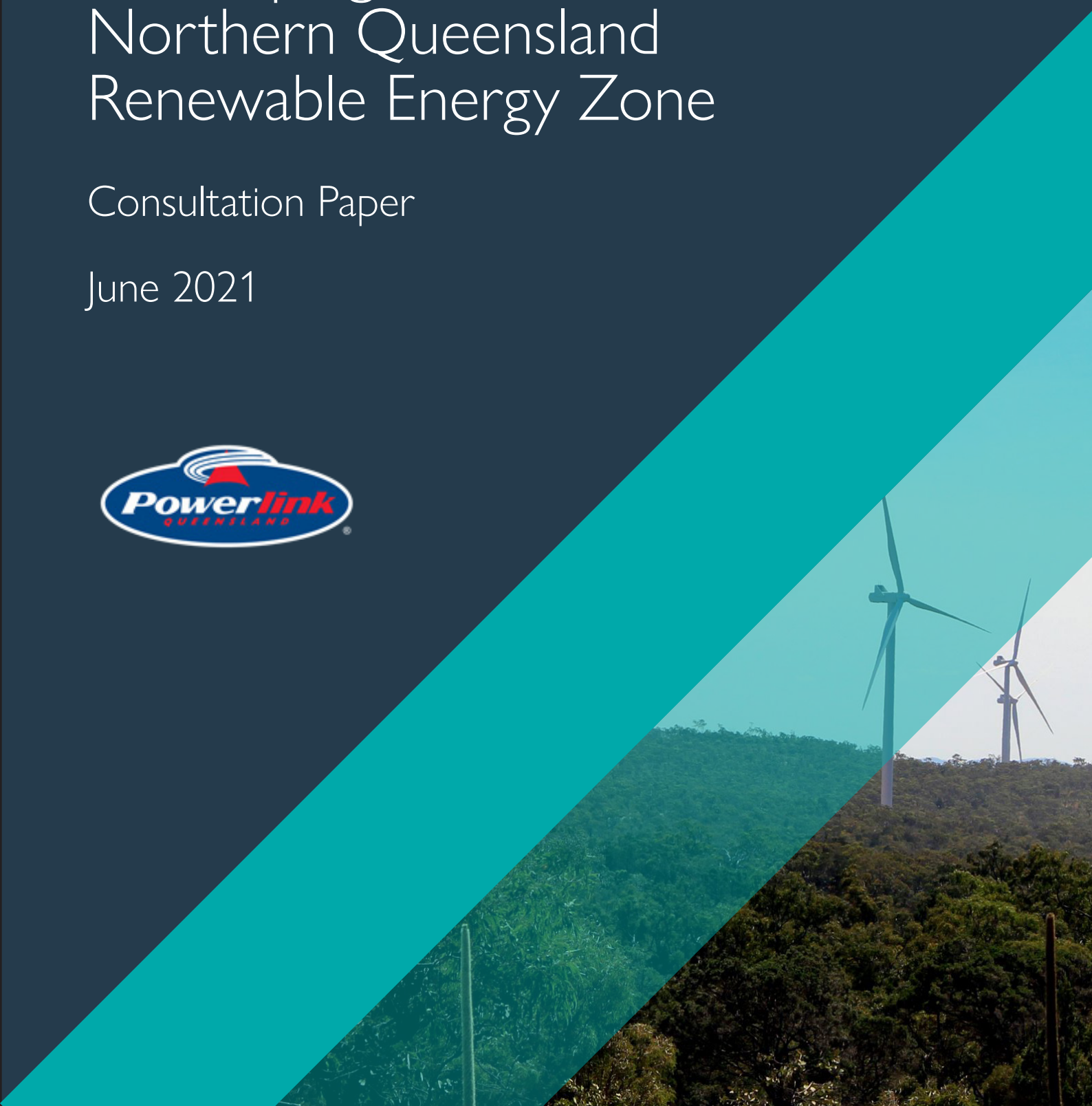
Developing the Northern Queensland Renewable Energy Zone

Consultation Paper

June 2021



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Key highlights

- The development of a North Queensland Renewable Energy Zone (QREZ) will
  - drive economic growth, supporting local communities
  - increase the generator hosting capacity in the region by up to 500MW
  - release the restricted operation of future generation
  - improve reliability of supply to Northern Queensland, including lowering the impacts of cyclonic conditions
  - reduce system losses
  - enable network outages in Northern Queensland
  - safeguard Queensland's future by addressing energy transition and
  - ensure a secure and affordable energy supply to Queenslanders while supporting the Queensland Government's target of 50 per cent renewable energy by 2030.
- As the proposed developmental works are largely funded by the Queensland Government, Powerlink is undertaking a funded augmentation consultation in accordance with the National Electricity Rules.
- This consultation paper, published in conjunction with the Notice of Consultation, commences the first stage of the consultation process.
- Submissions in relation to this consultation are welcomed at 5.00 pm Friday, 6 August 2021.

1. Purpose and scope

A funded augmentation is defined in the National Electricity Rules (Rules) as a transmission network augmentation for which the Transmission Network Service Provider (TNSP) is not entitled to receive regulated revenue. Given the proposed development of a Northern Queensland Renewable Energy Zone falls into this category as it is primarily funded by the Queensland Government, Powerlink is required to and welcomes the opportunity to undertake a public consultation which will be conducted in accordance with the criteria and procedures set out in Sections 5.18 and 8.9 of the Rules.

This consultation falls outside the bounds of the Regulatory Investment Test for Transmission (RIT-T) due to the external nature of the funding provided which will facilitate non-regulated opportunities and developments in Far North Queensland. This, in turn, will support the broader community in the region. Unlike the RIT-T, a funded augmentation consultation does not require a cost-benefit analysis to justify the project nor does it seek non-network or alternate solutions to replace or defer the proposed augmentation given the funding source[1].

In June 2021, Powerlink Queensland (Powerlink) issued a Notice of Consultation "Developing the Northern Queensland Renewable Energy Zone" to the Australian Energy Market Operator (AEMO), Registered Participants and interested parties (Consulted Persons).

In conjunction with the information discussed in this paper, the purpose of the Notice is to invite written submissions from Consulted Persons regarding the matter under consultation as described in Section 4.

Details of the funded augmentation process are discussed in Section 5.

2. Introduction

Our energy system is rapidly transitioning, underpinned by much greater levels of Variable Renewable Energy (VRE) generation which continues to grow as technologies evolve and the uptake of distributed renewable energy resources such as rooftop solar increases.

Queensland is rich in a diverse range of renewable resources – solar, wind, geothermal, biomass and hydro. This makes Queensland an attractive location for large-scale VRE generation development projects, creating considerable interest from all over the world. A more coordinated approach to the development of generation and transmission is the logical next step to more efficiently and economically address the challenge of energy transition.

[1] To enable the technical integration of the proposed QREZ into the transmission network, Powerlink is planning to undertake some capital works, which fall beneath the RIT-T cost threshold of $6 million. The proposed regulated capital expenditure has been assessed as prudent given that the market benefits exceed the proposed expenditure.

2.1 Renewable Energy Zones, a path to the energy future

The Rules describe a Renewable Energy Zone (REZ) as a geographic area proposed for the efficient development of renewable energy sources and associated electricity infrastructure[2]. REZ development may involve expanding the transmission network into a REZ or augmenting the capacity of an existing transmission line to increase hosting capacity. This would then facilitate the connection of multiple VRE projects to the transmission network or enable the development of connection hubs to more economically support clusters of VRE projects through economies of scale.

Identifying optimal locations for potential REZ requires consideration of a range of criteria including:

- energy source potential
- infrastructure availability and access
- stakeholder and local authority support
- environmental suitability
- economic and community benefits

In addition, REZ are likely to be more cost effective than the creation of multiple connection paths to the transmission network as infrastructure sharing reduces the need for asset duplication.

Identifying REZ[3] to establish priority areas for the development of VRE projects will enable transmission networks to better meet the needs and expectations of customers now and into the future.

2.2 Queensland's strategy for developing Renewable Energy Zones

In August 2020 the Queensland Government committed $145 million to establish three REZs in Queensland due to the availability of high quality renewable resources in those regions. The Queensland Renewable Energy Zones (QREZ) will be located in Northern (which includes the Far North Queensland region), Central and Southern Queensland.

Given the quality of wind resources available in Far North Queensland, resulting in high investor interest in the region, a Northern QREZ will encourage economic growth and ultimately assist in putting downward pressure on electricity prices. The strategic development of the proposed Northern QREZ provides an opportunity to optimise and coordinate investment in transmission and generation infrastructure in such a way as to support both industry and local communities in the region.

Moving forward, this strategic and coordinated approach to the development of QREZ will realise previously unidentified synergies between transmission and generation investment in Queensland. In turn, this will ensure a reliable, secure and affordable energy supply to Queenslanders while supporting the Queensland Government's target of 50 per cent renewable energy by 2030.

3. Safeguarding Queensland's future by unlocking renewable energy potential

Powerlink has been working with the Queensland Government on strategies to identify opportunities to unlock renewable energy potential in Queensland. This is expected to facilitate a more diverse generation profile and lower the cost of connecting new VRE projects in the State. Development of the strategy included consideration of the existing transmission network topography in Far North Queensland, particularly the coastal 132kV double circuit transmission line between Ross and Woree Substations which, with modification, has the potential to enable more hosting capacity for renewable generation.

In May 2021 it was announced that the Queensland Government would invest $40 million in transmission line infrastructure in North Queensland to establish a QREZ, with Neoen's Kaban Wind Farm identified as the cornerstone project.

The proposed transmission augmentation works are to energise one side of the existing 132kV coastal double circuit transmission line, originally constructed to accommodate transmission at 275kV. This results in the establishment of a third 275kV transmission line into Woree.

[2] The Rules Version 166, 3 June 2021 page 540.
[3] Although the REZ concept is aimed at identifying priority areas for development, it is not intended to preclude the development of VRE projects outside the targeted zones.

This coordinated approach to transmission and generation infrastructure development will

- safeguard Queensland's future by addressing energy transition
- deliver a reliable, secure and affordable energy supply to Queenslanders and
- support the Queensland Government's target of 50 per cent renewable energy by 2030.

3.1 Widespread benefits are expected from the development of a northern QREZ

There are widespread benefits expected from the proposed coastal 275kV circuit upgrade including:

- releasing restricted operation of future generation
- increasing the generator hosting capacity by up to 500MW, opening up the Far North Queensland region for further investment[4]
  improving reliability to the Cairns area
- safeguarding Far North Queensland's electricity supply from the impacts of cyclonic conditions and
- enabling outages on the existing 275kV transmission lines north of the Ross Substation.

4. Matter for consultation

The matter for consultation is to call for submissions in relation to the proposed augmentation to develop a Renewable Energy Zone in North Queensland and to seek feedback on whether there are any other matters which could reasonably be considered as part of the development of the Northern QREZ.

5. Powerlink has commenced the First Stage of consultation

This consultation is being undertaken in accordance with the Rules consultation procedures[5]. Powerlink as the consulting party must consider all valid submissions within the periods noted in Figure 1. As part of the submission process, Powerlink is required to undertake meetings with Consulted Persons as necessary or desirable, using best endeavours to hold meetings within the required timeframes.

This consultation is an iterative process and Powerlink must publish both a draft and final report including summaries and discussion on:

- the submissions received and any subsequent meetings
- material issues raised
- the conclusions and any determinations made on the matter under consultation and
- procedures followed in considering the matter.

In addition, the consulting party must complete the Rules consultation procedures prior to making a decision or determination.

This consultation paper, "Developing the Northern Queensland Renewable Energy Zone" published in conjunction with the Notice of Consultation, commences the first stage of the consultation process as set out in the Rules consultation procedures, Notice (Refer to Figure 1).

4 Without the coastal 275kV circuit upgrade future VRE generators (post Kaban Wind Farm) need additional investment in remediation to be compliant with their Generator performance Standards. These capital costs will significantly exceed the capital works that Powerlink is required to undertake as part of this upgrade.

5 Refer to Section 8.9 of the Rules.

Figure 1: Funded augmentation consultation process

6. Engaging with our stakeholders and customers

Powerlink recognises the importance of engaging with a diverse range of customers and stakeholders who have the potential to affect, or be affected by, Powerlink activities and/or investments. In particular, Powerlink works collaboratively with its Customer Panel in the normal course of business.

Powerlink's Customer Panel provides a face-to-face opportunity for customers and consumer representative bodies to give their input and feedback about Powerlink's strategic direction, decision making, processes and methodologies. It also provides Powerlink with a valuable avenue to keep customers and stakeholders better informed, and to receive feedback about topics of relevance. While maintaining confidentiality, Powerlink will provide updates to and request input from the Customer Panel throughout the consultation process.

7. Description of the proposed Northern Renewable Energy Zone

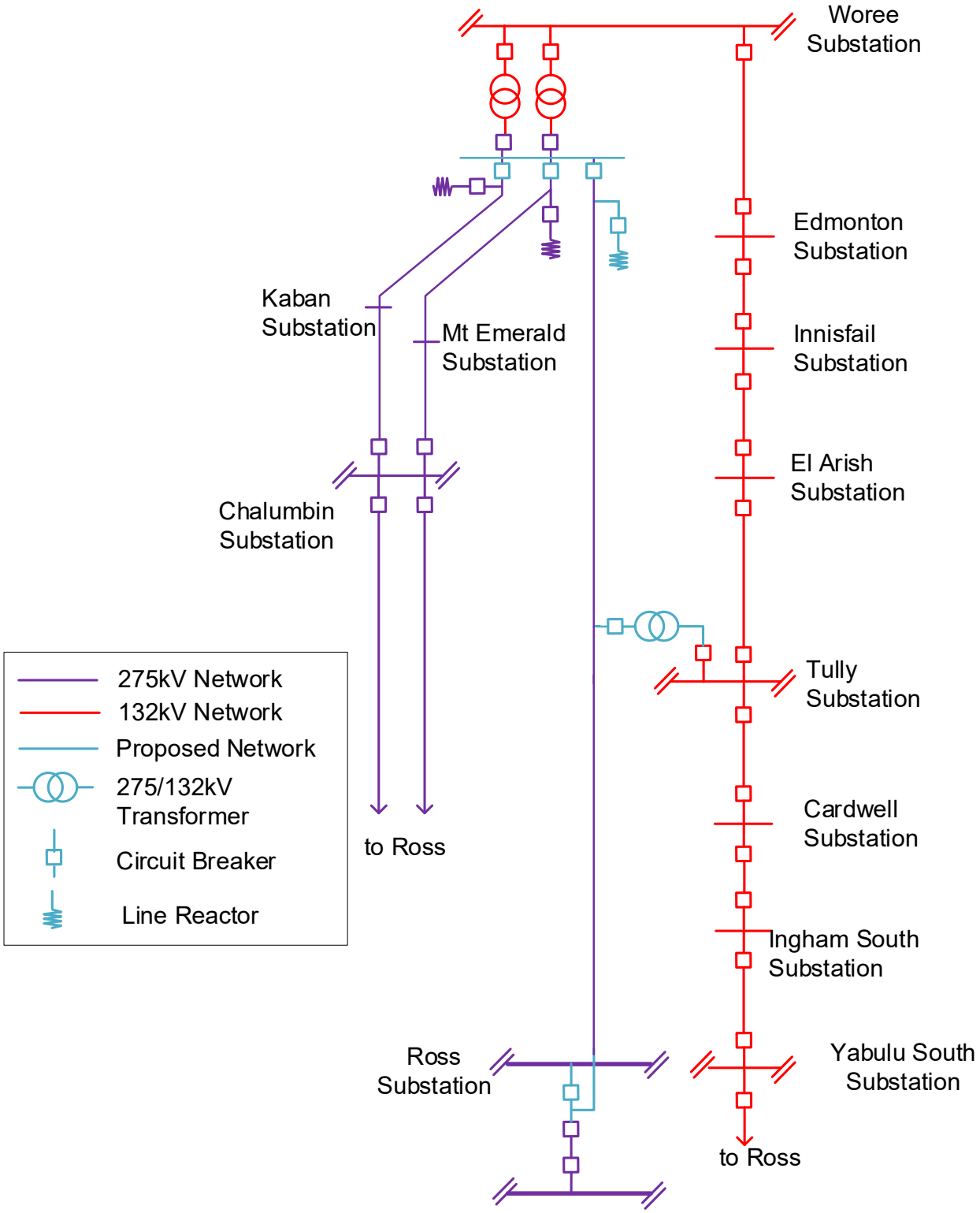
The proposed augmentation to develop the Northern QREZ (Refer to Figure 2) is to establish a third 275kV connection into Woree Substation, with all associated works to commence Quarter 4 2021 and to be completed by November 2023. The scope of work includes:

- Conversion of one side of the coastal 132kV double circuit transmission line to permanently operate at 275kV as the third transmission line between Ross Woree
- Construction of a 275kV bay at Ross Substation
- Installation of a 275/132kV transformer at Tully Substation
- Installation of a 275kV bus at Woree Substation with an associated line reactor.

The proposed transmission network topography is shown in Figure 3.

Figure 2: Proposed Northern Queensland Renewable Energy Zone

Figure 3: Proposed transmission network topography



7.1 The proposed augmentation maintains existing compliance obligations

Powerlink considers the proposed augmentation does not result in non-compliance with obligations in relation to other Transmission Network Users under the Rules[6]. It is expected the Northern QREZ will deliver positive benefits to Transmission Network Users[7] and the broader community by facilitating the development of high quality renewable energy resources and drive economic growth in the region.

7.2 Assessment of internetwork impacts

Powerlink considers the proposed augmentation is not likely to have a material internetwork impact[8] based on AEMO's criteria[9] and discussion with TransGrid. As a result, an augmentation technical report from AEMO is not required as part of Notice of First Stage of Consultation[10].

8. Lodging a submission with Powerlink

Submissions should be presented in a written form and clearly identify the author of the submission, including contact details for subsequent follow up.

As submissions will be made public, any commercially sensitive material, or material that the party making the submission does not want to be made public, should be clearly identified.

Consulted persons, as part of their submissions, may also request a meeting with Powerlink to discuss the matter under consultation. Powerlink may also publish the details of matters discussed as a result of meeting with Consulted Persons.

Submissions close at 5pm **on 6 August 2021**.

Please address submissions to:

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Submissions can be emailed to: networkassessments@powerlink.com.au

8.1 Consultation process

The consultation process and anticipated timeframes are outlined in Table 1.

Table 1: Consultation process

	Date
Publication of notice of consultation	28 June 2021
Closing date for submissions in response to the notice and consultation paper	6 August 2021
Publication of draft report	August 2021
Publication of final report	September 2021

Powerlink reserves the right to amend the timetable at any time.

6 Clause 5.18(b)(2) of the Rules.
7 Refers to those parties such as customers, generators and Network Service Providers directly connected to the transmission network, defined in Chapter 10 (Glossary) in the Rules.
8 Clause 5.18(b)(3) of the Rules.
9 Section 5.7.7 of the Rules.
10 Clause 5.18(b)(3) of the Rules.

Contact us

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