

## CHAPTER I

# Introduction

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## Key highlights

- The purpose of Powerlink's Transmission Annual Planning Report (TAPR) under the National Electricity Rules (NER) is to provide information about the Queensland transmission network.
- Powerlink is responsible for planning the shared transmission network within Queensland.
- Since publication of the 2019 TAPR, Powerlink has continued to proactively engage with customers and stakeholders and seek their input into Powerlink's network development objectives, network operations and investment decisions.
- Powerlink is focussed on taking an integrated approach to long-term planning in response to the challenges of transitioning to an energy system with much greater levels of variable renewable energy (VRE) generation.
- The 2020 TAPR identifies key areas of the transmission network in Queensland forecast to require expenditure in the 10-year outlook period and considers matters relevant to the Queensland transmission network highlighted in the Australian Energy Market Operator (AEMO)'s 2020 Integrated System Plan (ISP).
- Based on Powerlink's most recent planning review and information currently available, the 2020 TAPR also provides substantial detailed technical data (TAPR templates), available on Powerlink's website, to further inform stakeholders on potential transmission network developments.

## I.1 Introduction

Powerlink Queensland is a Transmission Network Service Provider (TNSP) in the National Electricity Market (NEM) and owns, develops, operates and maintains Queensland's high voltage (HV) transmission network. It has also been appointed by the Queensland Government as the Jurisdictional Planning Body (JPB) responsible for transmission network planning for the national grid within the State.

As part of its planning responsibilities, Powerlink undertakes an annual planning review in accordance with the requirements of the NER and publishes the findings of this review in its TAPR and TAPR templates.

This 2020 TAPR includes information on electricity energy and demand forecasts, the existing electricity supply system, including committed generation and transmission network reinvestments and developments, and forecasts of network capability. Risks arising from the condition and performance of existing assets, as well as emerging limitations in the capability of the network, are identified and possible solutions to address these are discussed. Interested parties are encouraged to provide input to identify the most economic solution (including non-network solutions provided by others) that satisfies the required reliability standard for customers into the future. As in previous years, and through the information and context provided, the 2020 TAPR continues to support the connection of VRE generation to Powerlink's transmission network, enabling the transition to a low carbon future.

Powerlink's annual planning review and TAPR play an important role helping to ensure the transmission network continues to meet the needs of Queensland electricity customers and participants in the NEM into the future.

## I.2 Context of the TAPR

All bodies with jurisdictional planning responsibilities in the NEM are required to undertake the annual planning review and reporting process prescribed in the NER<sup>1</sup>.

Information from this process is also provided to AEMO to assist in the preparation of its ISP which focuses on managing Australia's transition to a renewables-based energy system. The ISP integrates generation and grid development outlooks and incorporates components of the superseded National Transmission Network Development Plan (NTNDP).

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<sup>1</sup> For the purposes of Powerlink's 2020 TAPR, Version 149 of the NER in place from 27 August 2020.

The ESOO is the primary document for examining electricity supply and demand issues across all regions in the NEM. The ISP attempts to identify the optimal development path over a planning horizon of at least 20 years for the strategic and long-term development of the national transmission system. The ISP identifies actionable and future projects, and informs market participants, investors, policy decision makers and customers on a range of development opportunities. For the 2020 TAPR, Powerlink has transitioned to using AEMO's demand and energy forecasts, consistent with those published for the 2020 ESOO.

The primary purpose of the TAPR is to provide information on the short-term to medium-term planning activities of TNSPs, whereas the focus of the ISP is strategic and long-term. Further, the ISP, Network Support and Control Ancillary Service (NSCAS Report), Inertia Report, System Strength Report and TAPR are intended to complement each other in informing stakeholders and promoting efficient investment decisions. In supporting this complementary approach, the current published versions of these documents and reports are considered in this TAPR and more generally in Powerlink's planning activities.

Interested parties may benefit from reviewing Powerlink's 2020 TAPR in conjunction with AEMO's 2018 EFI and the 2020 ESOO which was published in August 2020. The Final 2020 ISP was released on 30 July 2020.

### 1.3 Purpose of the TAPR

The purpose of Powerlink's TAPR under the NER is to provide information about the Queensland transmission network to those interested or involved in the NEM including AEMO, Registered Participants and interested parties. The TAPR also provides customers and stakeholders with an overview of Powerlink's planning processes and decision making on future investment.

It aims to provide information that assists to:

- identify locations that would benefit from significant electricity supply capability or demand side management (DSM) initiatives
- identify locations where major industrial loads could be connected
- identify locations where capacity for new generation developments exist (in particular VRE generation)
- understand how the electricity supply system affects customers and stakeholders needs
- understand the transmission network's capability to transfer quantities of bulk electrical energy
- provide input into the future development of the transmission network.

Readers should note this document and supporting TAPR templates are not intended to be relied upon explicitly for the evaluation of participants' investment decisions.

### 1.4 Role of Powerlink Queensland

Powerlink has been nominated by the Queensland Government as the entity with transmission network planning responsibility in Queensland, known as the JPB as outlined in Clause 5.22.14 of the NER.

As the owner and operator of the transmission network in Queensland, Powerlink is registered with AEMO as a TNSP under the NER. In this role, and in the context of this TAPR, Powerlink's transmission network planning and development responsibilities include:

- ensuring the network is able to operate with sufficient capability and if necessary, is augmented to provide network services to customers in accordance with Powerlink's Transmission Authority and associated reliability standard
- ensuring the risks arising from the condition and performance of existing assets are appropriately managed

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- ensuring the network complies with technical and reliability standards contained in the NER and jurisdictional instruments including the requirement to maintain minimum fault levels as prescribed by AEMO
- conducting annual planning reviews with Distribution Network Service Providers (DNSPs) and other TNSPs whose networks are connected to Powerlink's transmission network, that is Energex and Ergon Energy (part of the Energy Queensland Group), Essential Energy and TransGrid
- advising AEMO, Registered Participants and interested parties of asset reinvestment needs within the time required for action
- advising AEMO, Registered Participants and interested parties of emerging network limitations within the time required for action
- developing recommendations to address emerging network limitations or the need to address the risks arising from ageing network assets remaining in-service through joint planning with DNSPs and TNSPs, and consultation with AEMO, Registered Participants and interested parties, with potential solutions including network upgrades or non-network options such as local generation and DSM initiatives
- examining options and developing recommendations to address transmission constraints and economic limitations across interconnectors through joint planning with other TNSPs and Network Service Providers (NSP), and consultation with AEMO, Registered Participants and interested parties
- assessing whether a proposed transmission network augmentation has a material impact on networks owned by other TNSPs, and in assessing this impact Powerlink must have regard to the objective set of criteria published by AEMO in accordance with Clause 5.21 of the NER
- undertaking the role of the proponent for regulated transmission augmentations and the replacement of transmission network assets in Queensland.

In addition, Powerlink participates in inter-regional system tests associated with new or augmented interconnections.

## 1.5 Meeting the challenges of a transitioning energy system

Powerlink is focussed on taking an integrated approach to long-term planning, including the development of suitable Renewable Energy Zones (REZ) in Queensland and associated network reinforcement.

Powerlink continues to adapt and respond to the current challenges of a rapidly changing operating environment which is transitioning to an electricity system with much greater levels of VRE generation. Broadly these challenges include:

- system strength (refer to Chapters 3, 5, 6 and 8)
- network congestion on the transmission network as generation patterns change (refer to Chapters 5, 6 and 7)
- Marginal Loss factors (MLF) (refer to Chapter 8)
- minimum demand (refer to Chapters 2, 3, 5, 6 and 7)

To ensure positive outcomes for customers, Powerlink is responding to these challenges holistically in undertaking long-term network planning to ensure the optimal performance and utilisation of the transmission network in Queensland.

As well as responding safely to the ongoing impacts of the COVID-19 pandemic in 2020 while maintaining reliability of supply, Powerlink is also continuing to:

- undertake ongoing active customer and stakeholder engagement for informed decision making and planning
- implement and adopt the recommendations of various reviews
- adapt to changes in customer behaviour and economic outlook
- ensure its approach to investment decisions delivers positive outcomes for customers
- place considerable emphasis on an integrated, flexible and holistic analysis of future investment needs

- support diverse generation connections
- ensure compliance with changes in legislation, regulations and operating standards
- focus on developing options that deliver a secure, safe, reliable and cost effective transmission network.

## 1.6 Overview of approach to asset management

Powerlink's asset management system captures significant internal and external drivers on the business and sets out initiatives to be adopted. The Asset Management Policy forms the foundation of the Asset Management Strategy. Information on the principles and approach set out in these documents which guide Powerlink's analysis of future network investment needs and key investment drivers is provided in Chapter 4.

## 1.7 Overview of planning responsibilities and processes

### 1.7.1 Planning criteria and processes

Powerlink has obligations that govern how it should address forecast network limitations. These obligations are prescribed by *Queensland's Electricity Act 1994 (the Act)*, the NER and Powerlink's Transmission Authority.

The Act requires that Powerlink 'ensure as far as technically and economically practicable, that the transmission grid is operated with enough capacity (and if necessary, augmented or extended to provide enough capacity) to provide network services to persons authorised to connect to the grid or take electricity from the grid'.

It is a condition of Powerlink's Transmission Authority that it meets licence and NER requirements relating to technical performance standards during intact and contingency conditions. The NER sets out minimum performance requirements of the network and connections, and requires that reliability standards at each connection point be included in the relevant connection agreement.

New network developments and reinvestments are proposed to meet these legislative and NER obligations. Powerlink may also propose transmission investments that deliver a net market benefit when assessed in accordance with the Regulatory Investment Test for Transmission (RIT-T). The requirements for initiating solutions to meet forecast network limitations or the need to address the risks arising from ageing network assets remaining in-service, including new regulated network developments or non-network solutions, are set down in Clauses 5.14.1, 5.16.4, 5.16A, 5.20B, 5.20C and 5.22.14 of the NER.

While each of these clauses prescribes a slightly different process, at a higher level the main steps in network planning for transmission investments subject to the RIT-T can be summarised as follows:

- Publication of information regarding the nature of network limitations, the risks related to ageing network assets remaining in-service and the need for action which includes an examination of demand growth and its forecast exceedance of the network capability (where relevant).
- Consideration of generation and network capability to determine when additional capability is required.

Consultation on assumptions made and credible options, which may include:

- network augmentation
- asset replacement
- asset retirement
- network reconfiguration and/or local generation or DSM initiatives
- together with classes of market benefits considered to be material which should be taken into account in the comparison of options

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- analysis and assessment of credible options, which include costs, market benefits, material inter-network impact and material impact on network users<sup>2</sup> (where relevant)
- identification of the preferred option that satisfies the RIT-T, which maximises the present value of the net economic benefit to all those who produce, consume and transport electricity in the market
- consultation and publication of a recommended course of action to address the identified future network limitation or the risks arising from ageing network assets remaining in-service.

## 1.7.2 Integrated planning of the shared network

Powerlink is responsible for planning the shared transmission network within Queensland, and inter-regionally. The NER sets out the planning process and requires Powerlink to apply the RIT-T to transmission investment proposals for augmentations to the transmission network and the replacement of network assets over \$6 million. Powerlink continues to publish information and consult with potential providers of non-network solutions for the provision of system strength and inertia network services as notified by AEMO. Planning processes require consultation with AEMO, Registered Participants and interested parties, including customers, generators, DNSPs and other TNSPs. Section 5.6 discusses current consultations, as well as anticipated future consultations, that will be conducted in line with the relevant processes prescribed in the NER.

Significant inputs to the network planning process are the:

- forecast of customer electricity demand (including DSM) and its location
- location, capacity and arrangement of existing, new and retiring generation (including embedded generation)
- condition and performance of assets and an assessment of the risks arising from ageing network assets remaining in-service
- assessment of future network capacity to meet the required planning criteria and efficient market outcomes, including limiting transmission losses to the extent possible, system strength and the potential to facilitate future storage requirements to help address minimum demand.

The 10-year forecasts of electrical demand and energy across Queensland are used, together with forecast generation patterns, to determine potential flows on transmission network elements. The location and capacity of existing and committed generation in Queensland is sourced from AEMO, unless modified following advice from relevant participants and is provided in tables 6.1 and 6.2. Information about existing and committed embedded generation and demand management within distribution networks is provided by DNSPs and AEMO.

Powerlink examines the capability of its existing network and the future capability following any changes resulting from:

- committed network projects (for both augmentation and to address the risks arising from ageing network assets remaining in-service)
- the impact of coal-fired generation retirements on transmission network power flows
- existing and future renewable developments including REZ
- anomalies in Powerlink's operating environment or changes in technical characteristics such as minimum demand and system strength as the power system continues to evolve.

This includes consultation with the relevant DNSP in situations where the performance of the transmission network may be affected by the distribution network, for example where the two networks operate in parallel.

Where potential flows could exceed network capability, Powerlink notifies market participants of these forecast emerging network limitations. If the capability violation exceeds the required reliability standard, joint planning investigations are carried out with DNSPs (or other TNSPs if relevant) in accordance with Clause 5.14.1 of the NER. The objective of this joint planning is to identify the most cost effective solution, regardless of asset boundaries, including potential non-network solutions (refer to Chapter 3).

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<sup>2</sup> NER Clause 5.16.3 (a) (5).

Powerlink must maintain its current network so that the risks arising from the condition and performance of existing assets are appropriately managed. Powerlink undertakes a program of asset condition assessments to identify emerging asset condition related risks.

As assets approach the end of their technical service life, Powerlink examines a range of options to determine the most appropriate reinvestment strategy, applying a flexible and integrated approach which takes into account multiple factors. Consideration is given to optimising the topography and capacity of the network, taking into account current and future network needs, including future renewable generation.

In many cases, power system flows and patterns have changed over time. As a result, the ongoing network capacity requirements need to be re-evaluated. Individual asset reinvestment decisions are not made in isolation, and reinvestment in assets is not necessarily undertaken on a like-for-like basis. Rather, asset reinvestment strategies and decisions are made taking into account enduring need, the inter-related connectivity and characteristics of the high voltage (HV) system, and are considered across an area or transmission corridor. The consideration of potential non-network solutions forms an important part of this flexible and integrated planning approach.

The integration of condition and demand based limitations delivers cost effective solutions that address both reliability of supply and risks arising from assets approaching end of technical service life.

Powerlink considers a range of strategies and options to address emerging asset related condition and performance issues. These strategies include:

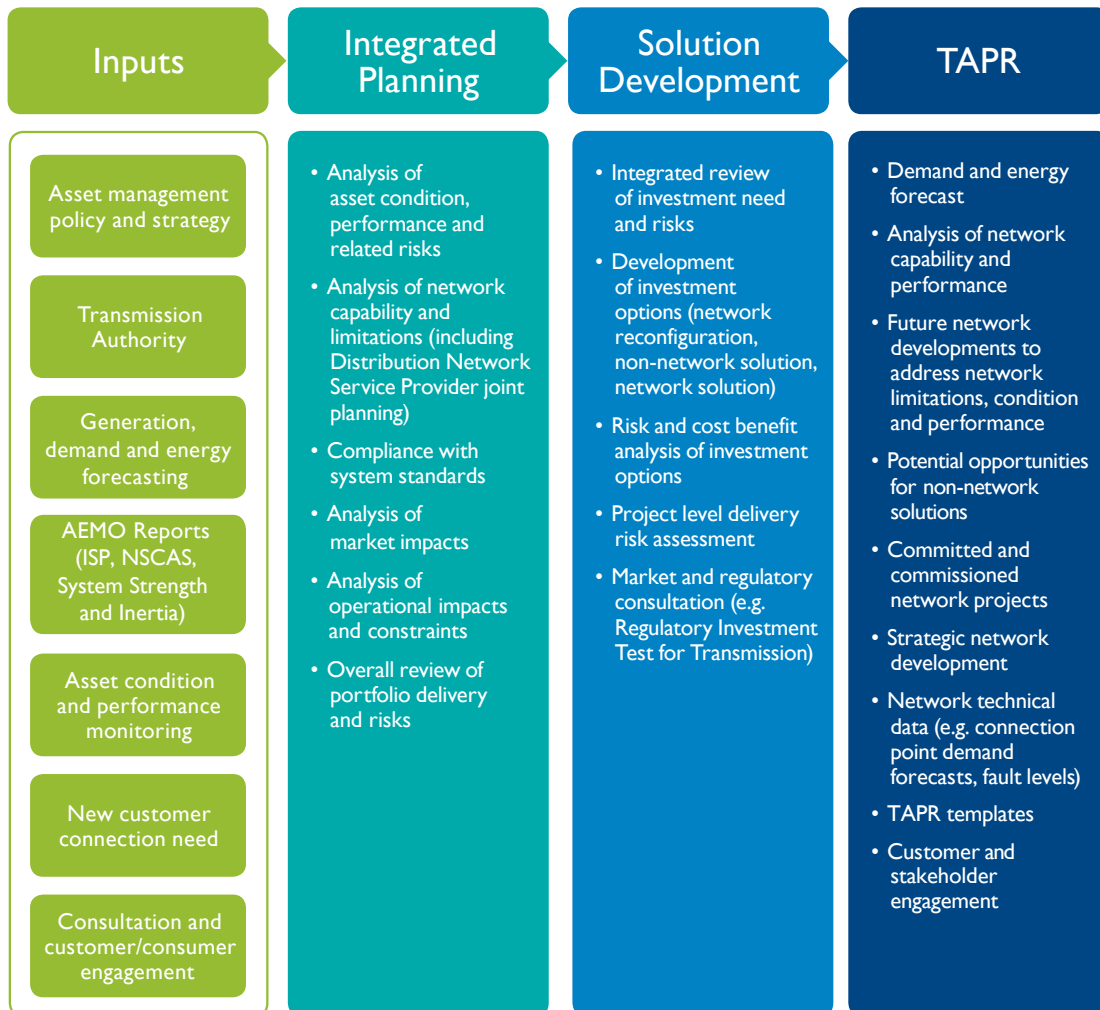
- retiring or decommissioning assets where there is unlikely to be an ongoing future need
- reinvesting to extend the service life of assets
- replacing assets of different capacity or type
- changing the topography of the network
- implementing non-network solutions.

Each of these options is considered in the context of future capacity. In accordance with the NER, information regarding proposed transmission reinvestments within the 10-year outlook period must be published in the TAPR and TAPR templates. More broadly, this provides information to the NEM, including AEMO, Registered Participants and interested parties (including non-network providers) on Powerlink's planning processes, anticipated public consultations, and decision making relating to potential future reinvestments. Further information is provided in Section 5.7 and Appendix B.

A summary of Powerlink's integrated planning approach that takes into account both network capacity needs and end of technical service life related issues is presented in Figure I.1.

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Figure I.1 Overview of Powerlink's TAPR planning process



## 1.7.3 Joint planning

Powerlink undertakes joint planning with other NSPs to collaboratively identify network and non-network solutions, which best serve the long-term interests of customers, irrespective of the asset boundaries. This process provides a mechanism for providers to discuss and identify technically feasible network and non-network options that provide lowest cost solutions across the network as a whole, regardless of asset ownership or jurisdictional boundaries.

Powerlink's joint planning, while traditionally focussed on the DNSPs (Energex, Ergon Energy and Essential Energy) and TransGrid, also includes consultation with AEMO, other Registered Participants, load aggregators and other interested parties.

Joint planning with AEMO is critical to ensure the best possible jurisdictional inputs are provided to the ISP process in the long-term interests of customers. These inputs include condition drivers for significant intra-regional infrastructure, possible development options and cost of options that increase capacity of critical intra and inter-regional grid sections, together with the associated capacity improvement.

Also, Powerlink undertakes joint planning with AEMO to periodically assess the minimum fault level and system strength requirements for the Queensland jurisdiction. A review undertaken in April 2020 concluded that there was an immediate fault level shortfall at the Ross fault level node in Queensland. As the Queensland TNSP and JPB, Powerlink is the system strength service provider and is responsible for meeting this identified shortfall. Further information is provided in sections 5.7.1. and 8.4.



Information on Powerlink's joint planning framework, and the joint planning activities that Powerlink has undertaken with other NSPs and AEMO since publication of the 2019 TAPR is provided in Chapter 3.

#### 1.7.4 Connections

Participants wishing to connect to the Queensland transmission network include new and existing generators, major loads and other NSPs. New connections or alterations to existing connections involves consultation between Powerlink and the connecting party to negotiate a Connection and Access Agreement (CAA). Negotiation of the CAA requires the specification and then compliance by the generator or load to the required technical standards. The process of agreeing to technical standards also involves AEMO. The services provided can be prescribed for DNSPs (regulated), negotiated or non-regulated services in accordance with the definitions in the NER or the framework for provision of such services.

From July 2018 new categories of connection assets were defined, namely Identified User Shared Assets (IUSA) and Dedicated Connection Assets (DCA). All new DCA services, including design, construction, ownership and operation and maintenance are non-regulated services. IUSA assets with capital costs less than \$10 million are negotiated services that can only be provided by Powerlink. IUSA assets with capital costs above \$10 million are non-regulated services. Powerlink remains accountable for operation of all IUSAs and any above \$10 million must enter into a Network Operating Agreement to provide operations and maintenance services. Further information in relation to the connection process is available on Powerlink's website (refer to Chapter 8).

#### 1.7.5 Interconnectors

As outlined in Section 1.2, the purpose of the ISP is to establish a strategic whole of system plan for a 20-year planning horizon for efficient power system development in the long-term interests of customers. The ISP also serves the regulatory purpose of identifying actionable projects to meet power system needs. These projects may relate to the potential development of new interconnectors or expanding the capacity of existing interconnectors. For actionable projects the responsible TNSPs are required to undertake a Regulatory Investment Test for Transmission (RIT-T) and publish a Project Assessment Draft Report (PADR) by a specified date. Under the NER, TNSPs also retain the ability to conduct RIT-Ts outside the ISP framework.

Information on the preliminary activities required for the potential interconnector upgrade and/or new interconnectors is provided in Chapter 7. This includes details in relation to the future RIT-T to be undertaken by TransGrid and Powerlink to consider further expanding New South Wales (NSW)-Queensland transmission transfer capacity as identified in the 2020 ISP as a future ISP project.

### 1.8 Powerlink's asset planning criteria

The Queensland Government amended Powerlink's N-1 criterion in 2014 to allow for increased flexibility. The planning standard permits Powerlink to plan and develop the transmission network on the basis that load may be interrupted during a single network contingency event. The following limits are placed on the maximum load and energy that may be at risk of not being supplied during a critical contingency:

- will not exceed 50MW at any one time
- will not be more than 600MWh in aggregate.

The risk limits can be varied by:

- a connection or other agreement made by the transmission entity with a person who receives or wishes to receive transmission services, in relation to those services or
- agreement with the Queensland Energy Regulator (QER).

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Powerlink is required to implement appropriate network or non-network solutions in circumstances where the limits set out above are exceeded or when the economic cost of load at risk of not being supplied justifies the cost of the investment. Therefore, the planning standard has the effect of deferring or reducing the extent of investment in network or non-network solutions required. Powerlink will continue to maintain and operate its transmission network to maximise reliability to customers.

As mentioned, Powerlink's transmission network planning and development responsibilities include developing recommendations to address emerging network limitations, or the need to address the risks arising from ageing network assets remaining in-service, through joint planning (refer to Section 1.7.3).

Energex and Ergon Energy were issued amended Distribution Authorities from July 2014. The service levels defined in their respective Distribution Authority differ to that of Powerlink's authority. Joint planning accommodates these different planning standards by applying the planning standard consistently with the owner of the asset which places load at risk during a contingency event.

Powerlink has established policy frameworks and methodologies to support the implementation of this standard. These are being applied in various parts of the Powerlink network where possible emerging limitations are being monitored. For example, based on AEMO's Central scenario forecast discussed Chapter 2, voltage stability limitations occur in the Proserpine area within the outlook period. However, the load at risk of not being supplied during a contingency event does not exceed the risk limits of the planning standard. In this instance the planning standard is deferring investment and delivering savings to customers.

The planning standard will deliver further opportunities to defer investment if new mining, metal processing or other industrial loads develop (discussed in Table 2.1 of Chapter 2). These new loads are within the resource rich areas of Queensland or at the associated coastal port facilities but have not yet reached the development status necessary to be included (either wholly or in part) in AEMO's 2020 ES00 Central scenario. The loads have the potential to significantly impact the performance of the transmission network supplying, and within, these areas. The possible impact of these loads is discussed in Section 7.3. The planning standard may not only affect the timing of required investment but also in some cases affords the opportunity for incremental solutions that would not have otherwise met the original N-1 criterion.

## 1.9 Powerlink's reinvestment criteria

Powerlink is committed to ensuring the sustainable long-term performance of its assets to deliver safe, reliable and cost effective transmission services to customers, stakeholders and communities across Queensland. Powerlink demonstrates this by adopting a proactive approach to asset management that optimises whole of lifecycle costs, benefits and risks, while ensuring compliance with applicable legislation, regulations, standards, statutory requirements, and other relevant instruments.

The reinvestment criteria framework defines the methodology that Powerlink uses to assess the need and timing for intervention on network assets to ensure that industry compliance obligations are met. The methodology aims to improve transparency and consistency within the asset reinvestment process, enabling Powerlink's customers and stakeholders to better understand the criteria to determine the need and timing for asset intervention.

The reinvestment criteria framework is relevant where the asset condition changes so it no longer meets its level of service or complies with a regulatory requirement. This category of reinvestment is triggered when the existing asset has degraded over time and no longer provides the required standard of service as prescribed within applicable legislation, regulations and standards.

The trigger to intervene needs to be identified early enough to provide an appropriate lead time for the asset reinvestment planning and assessment process. The need and timing for intervention is defined when business as usual activities (including routine inspections, minor condition based and corrective maintenance and operational refurbishment projects) no longer enable the network asset to meet prescribed standards of service due to deteriorated asset condition.

Powerlink’s asset reinvestment process (refer to Figure 1.2) enables timely, informed and prudent investment decisions to be made that consider all economic and technically feasible options including non-network alternatives or opportunities to remove assets where they are no longer required. An assessment of the need and timing for intervention is the first stage of this process.

**Figure 1.2 – Asset Reinvestment Process**



## 1.10 Stakeholder engagement

Powerlink shares effective, timely and transparent information with its customers and stakeholders using a range of engagement methods. Customers are defined as those who are directly connected to Powerlink’s network and electricity consumers, such as households and businesses, who are supplied via the distribution network. There are also stakeholders who can provide Powerlink with non-network solutions. These stakeholders may either connect directly to Powerlink’s network, or connect to the distribution networks. As an example, during April/May 2020 Powerlink participated in a large number of informal discussions with potential non-network solution providers in relation to the Expression of interest (EOI) for system strength services in Queensland to address the fault level shortfall at Ross. This process assisted in providing clarification and support to providers prior to the lodgement of formal submissions.

The TAPR is just one avenue that Powerlink uses to communicate information about transmission planning in the NEM. Through the TAPR, Powerlink aims to increase stakeholder and customer understanding and awareness of our business practices, including load forecasting and transmission network planning.

### 1.10.1 Customer and stakeholder engagement

Powerlink is committed to proactively engaging with stakeholders and customers and seeking their input into Powerlink’s business processes and decision-making. All engagement activities are undertaken in accordance with our Stakeholder Engagement Framework which sets out the principles, objectives and outcomes Powerlink seeks to achieve in our interactions. A number of key performance indicators are used to monitor progress towards achieving Powerlink’s stakeholder engagement performance goals. In particular, Powerlink undertakes a comprehensive bi-ennial stakeholder survey to gain insights about stakeholder perceptions of Powerlink, its social licence to operate and reputation. Most recently completed as a ‘pulse check’ survey in November 2019, it provides comparisons between baseline research undertaken in 2012 and year-on-year trends to inform engagement strategies with individual stakeholders. The latest survey also sought specific insights from existing directly-connected customers and renewable proponents on aspects of customer service and delivery, and Powerlink’s responsiveness.

#### *2019/20 Stakeholder engagement activities*

Since the publication of the 2018 TAPR, Powerlink has engaged with stakeholders and customers in various ways through a range of forums as outlined below.

#### *Transmission Network Forum*

In September 2019, more than 100 customer, community advocacy group, government and industry representatives attended Powerlink’s annual Transmission Network Forum. The forum provided updates on the state of the network and 2019 TAPR highlights, followed by interactive breakout sessions on using non-network solutions to reduce short-term demand peaks and managing renewable connections in the transmission network of the future.

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The 2020 Transmission Network Forum was held in an online format in early September to seek customer and stakeholder input on longer term power system planning and the challenges of the energy transition. A key focus of discussion at the 2020 forum was also focussed on the Queensland Government announcement in early September of \$500 million in funding to support REZ development, in addition to \$145 million previously announced for REZ support. Stakeholders and customers support Powerlink continuing to work closely with Government in relation to allocation of this funding, which will play a key role in driving economic recovery post the COVID-19 pandemic.

## ***Customer Panel***

Powerlink hosts a Customer Panel that provides an interactive forum for our stakeholders and customers to give input and feedback to Powerlink regarding our decision making, processes and methodologies. Comprised of members from a range of sectors including industry associations, resources, community advocacy groups, directly connected customers and distribution representatives, the panel provides an important avenue to keep our stakeholders better informed about operational and strategic topics of relevance. The panel met in July and February 2020, and December, August and June 2019. Key topics for discussion included the upcoming Revenue Determination process, transmission pricing consultation and Powerlink's first Energy Charter Disclosure Statement to customers and stakeholders. The panel was also engaged to provide input on the asset reinvestment criteria outlined earlier in this chapter, which enabled Powerlink to refine the criteria with customer input.

## ***2020 TAPR webinar***

Powerlink intends to host a webinar in late 2020 to share the TAPR's highlights and key updates with customers and stakeholders.

## ***Stakeholder engagement for RIT-Ts***

Powerlink recognises the importance of transparency for stakeholders and customers, particularly when undertaking transmission network planning and engaging in public consultation under the RIT-T process.

In relation to engagement activities for RIT-Ts, Powerlink is committed to a balanced approach in the public consultation process as determined with its Customer Panel. In addition, Powerlink will utilise and be guided by the Australian Energy Regulator (AER)'s Stakeholder Engagement Framework and Consumer Engagement Guideline for Network Service Providers as the benchmarks when consulting as part of the RIT-T process.

Taking this into account, the appropriate level of engagement for RIT-Ts may most easily be identified through feedback received from stakeholders on proposed investments identified in the TAPR, discussion and consideration of the context of the proposed investment. Engagement activities for RIT-Ts are assessed on a case-by-case basis. This includes consideration of the:

- potential impacts on stakeholders
- opportunities for network reconfiguration or asset retirement
- estimated capital cost
- type of RIT-T process being undertaken (refer to Section 5.6.1).

Detailed information on proposed engagement activities for RIT-Ts can be found on Powerlink's website.

Powerlink and TransGrid held a joint webinar in October 2019 to share the findings contained in the PADR, Expanding NSW-Queensland Transmission Transfer Capacity 'minor' Group 1 2018 ISP actionable project, as the second stage of the RIT-T process. The webinar provided an opportunity outside of the formal consultation process to engage with and respond to questions from a wide range of stakeholders including consumer advocates, customer representatives, and market participants. This RIT-T has since been completed (refer to Section 5.7.14).

It is anticipated that the provision and exchange of early information through engagement activities will generate more opportunities for interactions with our customers and stakeholders, during formal or informal consultation processes.

More information on Powerlink's engagement activities is available on our website.

### 1.10.2 Non-network solutions

Powerlink has established processes for engaging with stakeholders for the provision of non-network services in accordance with the requirements of the NER. These engagement processes centre on publishing relevant information on the need and scope of viable non-network solutions to emerging network limitations and more recently, in relation to the replacement of network assets. For a given network limitation or potential asset replacement, the viability and an indicative specification of non-network solutions are first introduced in the TAPR and more recently, in TAPR templates. As the identified need date approaches and a detailed planning analysis is undertaken, further opportunities are explored in the consultation and stakeholder engagement processes undertaken as part of any subsequent RIT-T.

In the past, these processes have been successful in delivering non-network solutions to emerging network limitations. As early as 2002, Powerlink engaged generation units in North Queensland (NQ) to maintain reliability of supply and defer transmission projects between central and northern Queensland. Powerlink also entered into network support services as part of the solution to address emerging limitations in the Bowen Basin area, ending these in 2016.

Non-network solutions such as DSM will be essential in future years to avoid or delay the need to augment the transmission network in response to any increase in maximum demand.

Powerlink is committed to the ongoing development of its non-network engagement processes to facilitate the identification of optimal non-network solutions:

- to address future network limitations or address the risks arising from ageing assets remaining in-service within the transmission network
- more broadly, in combination with network developments as part of an integrated solution to complement an overall network reconfiguration strategy
- to address voltage instability, inertia and system strength requirements, ensuring the secure operation of the transmission network
- to provide demand management and load balancing.

Powerlink's 2020 TAPR includes a compendium for non-network providers that highlights possible future non-network opportunities in key areas of the transmission network in Queensland forecast to require expenditure in the next five years (refer to Appendix F). In addition, the TAPR templates published in conjunction with the 2020 TAPR provide detailed technical data on Powerlink's transmission connection points and line segments. This data may be of value to non-network providers when considering opportunities for the development of potential non-network solutions (refer to Appendix B). Powerlink will continue to engage and work collaboratively with non-network providers during the RIT-T or other consultation processes to arrive at the optimal solution for customers.

Powerlink will continue to hold webinars on an ongoing basis as relevant and topical issues arise that are likely to be of interest to non-network providers and other stakeholders. In addition to enabling the delivery of information and providing a discussion platform, other benefits provided through informal activities, such as webinars, include a broadening of communication channels to reach a wider audience and as an aid to fostering positive relationships with non-network providers.

Since publication of the 2019 TAPR, Powerlink has continued its collaboration with Energy Networks Australia (ENA) and the Institute for Sustainable Futures<sup>3</sup> regarding the Network Opportunity Mapping project. This project aims to provide enhanced information to market participants on network constraints and the opportunities for demand side solutions. These collaborations further demonstrate Powerlink's commitment to using a variety of platforms to broaden stakeholder awareness regarding possible commercial opportunities for non-network solutions.

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<sup>3</sup> Information available at [Network Opportunity Mapping](#).

## ***Non-network Engagement Stakeholder Register***

Powerlink has a Non-network Engagement Stakeholder Register (NNESR) to inform non-network providers of the details of emerging network limitations and other future transmission network needs, such as the replacement of network assets, which may have the potential for non-network solutions. The NNESR is comprised of a variety of interested stakeholders who have the potential to offer network support through advancement in technologies, existing and/or new generation or DSM initiatives (either as individual providers or aggregators).

Potential non-network providers are encouraged to register their interest in writing to [networkassessments@powerlink.com.au](mailto:networkassessments@powerlink.com.au) to become a member of Powerlink's NNESR.

### **1.10.3 Focus on continuous improvement**

As part of Powerlink's commitment to continuous improvement, the 2020 TAPR focuses on an integrated approach to future network development and contains detailed discussion on key areas of the transmission network forecast to require expenditure.

In conjunction with condition assessments and risk identification, as assets approach their anticipated replacement dates, possible reinvestment alternatives undergo detailed planning studies to confirm alignment with future reinvestment, optimisation and delivery strategies. These studies have the potential to deliver new information and may provide Powerlink with an opportunity to:

- improve and further refine options under consideration
- consider other options from those originally identified, delivering positive outcomes for customers.

Information regarding possible reinvestment alternatives is updated annually within the TAPR and includes discussion on the latest information available as planning studies mature.

The 2020 TAPR:

- discusses emerging challenges as the network transitions to much greater levels of VRE generation (refer to Chapters 2, 5 and 7)
- provides information in relation to joint planning and Powerlink's approach to asset management (refer to Chapters 3 and 4)
- discusses possible future network asset investments for the 10-year outlook period (refer to Chapter 5)
- includes the most recent information for the proposed replacement of network assets which are anticipated to be subject to the RIT-T in the next five years (refer to Chapter 5)
- discusses the potential for generation developments (in particular VRE generation) and the challenges related to the management of system strength (refer to Chapter 8)
- contains a quick reference guide on where to locate information on potential non-network opportunities in the TAPR, grouped by investment type (refer to Appendix F) and discusses Powerlink's approach to assisting the development of non-network solutions – specifically, through the ongoing improvement of engagement practices for non-network solution providers and provision of information (refer to sections 1.9.2 and 5.7)
- includes links to the 2020 TAPR templates and discusses the context, methodology and principles applied for the development of the Queensland transmission network data (refer to Appendix B).