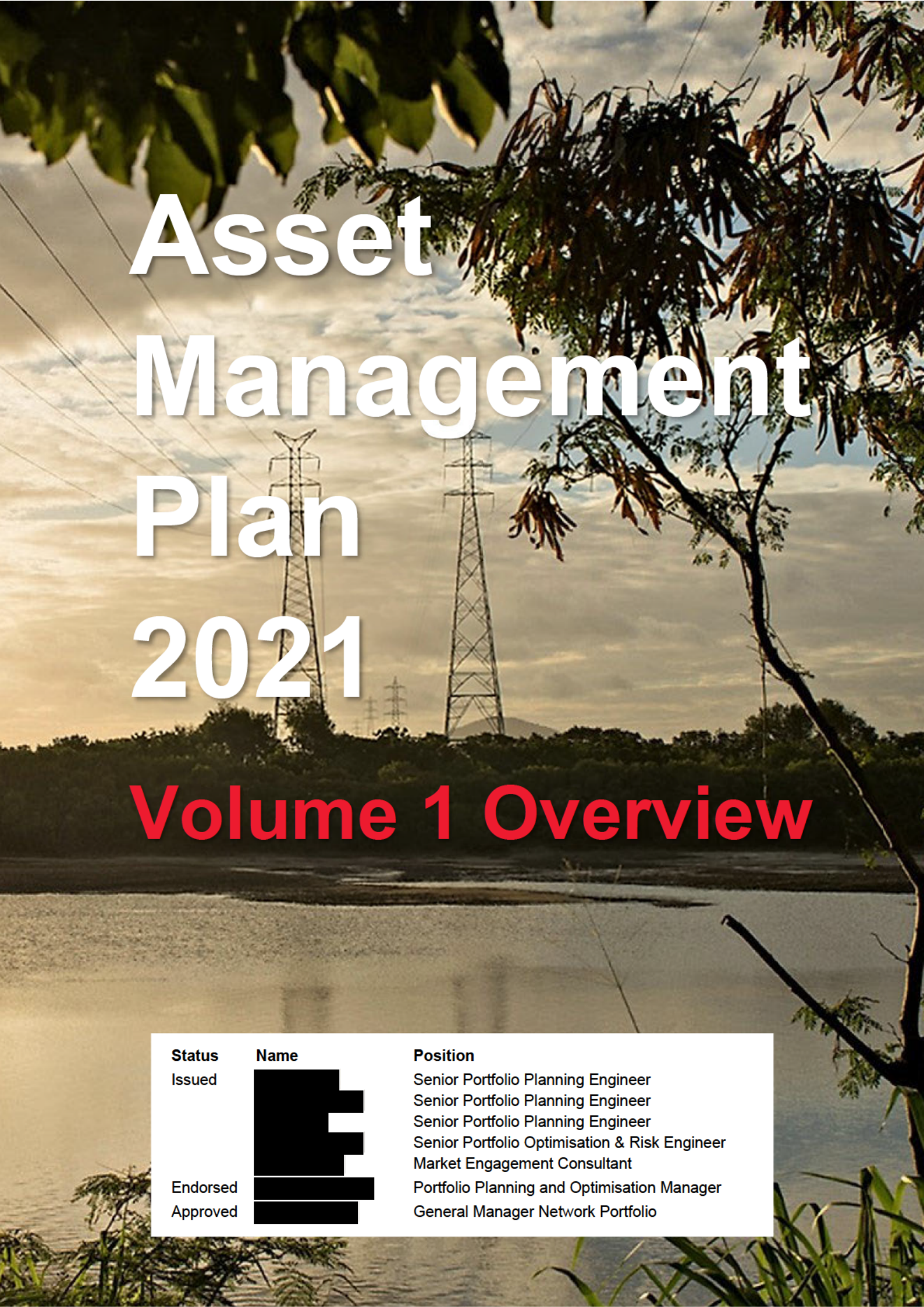
2023-27
POWERLINK QUEENSLAND REVENUE PROPOSAL

Supporting Document – PUBLIC

Asset Management Plan 2021
Volume 1 Overview



Asset Management Plan 2021

Volume 1 Overview

Status	Name	Position
Issued	[redacted]	Senior Portfolio Planning Engineer
		Senior Portfolio Planning Engineer
		Senior Portfolio Planning Engineer
		Senior Portfolio Optimisation & Risk Engineer
		Market Engagement Consultant
Endorsed	[redacted]	Portfolio Planning and Optimisation Manager
Approved	[redacted]	General Manager Network Portfolio

Contents

ABBREVIATIONS

AEMO	Australian Energy Market Operator
AMP	Asset Management Plan
CQ-SQ	Central Queensland to South Queensland
DNSP	Distribution Network Service Provider
ESOO	Electricity Statement of Opportunities
IASR	Input, Assumptions and Scenario Report
ISP	Integrated System Plan
kV	Kilovolt
LNG	Liquefied Natural Gas
NER	National Electricity Rules
NNESR	Non-network Engagement Stakeholder Register
OR	Operational Refurbishment
RIT-T	Regulatory Investment Test for Transmission
TAPR	Transmission Annual Planning Report
TNSP	Transmission Network Service Provider

REFERENCES

The following references are relevant in relation to this volume of the Asset Management Plan.

- Asset Management Policy
- Asset Management Strategy
- Asset Management Framework
- Asset Risk Management Framework.

1. INTRODUCTION

The 2021 Asset Management Plan (AMP) forms an integral part of Powerlink's overall asset management framework, providing a clear line of sight between business strategy, asset management policy and strategy and integrated network investment plans over a 10-year outlook period.

Asset investment planning assesses the value, risk and change in cost to potential investments over time in order to meet an identified need. This assessment may include new investment strategies, or provide the potential for alternative or substitute investments which deliver positive outcomes for customers. Powerlink uses a flexible and integrated approach to develop the AMP, which ultimately acts as an enabler to inform and help Powerlink achieve broader business and other goals.

In particular, the purpose of the Asset Management Plan is to:

- deliver value to our customers and stakeholders by optimising whole of lifecycle costs, benefits and risks while ensuring compliance with relevant legislation, regulations and standards;
- apply the principles set out in Powerlink's Asset Management Policy, Framework, Strategy and related processes to guide the development of investment plans for the network, including such factors as expected service levels and risk management;
- provide an overview and analysis of the factors impacting network development, including policy and regulatory change, energy and demand forecast, generation development, network performance and the condition and performance of the existing asset base;
- provide a view of asset condition, health, life cycle plans and emerging risks related to factors such as safety, network reliability, resilience and obsolescence;
- provide an asset management strategy that delivers safe, reliable and cost efficient outcomes which are aligned with good industry practice; and
- act as an input into plans for longer term network investment and provide an integrated annual snapshot of the forward plan of investments on a needs basis required to manage identified network risks and limitations.

2. ASSET MANAGEMENT SYSTEM

Powerlink's Asset Management System ensures assets are managed in a manner consistent with the Asset Management Policy and overall corporate objectives to deliver cost-effective and efficient services.

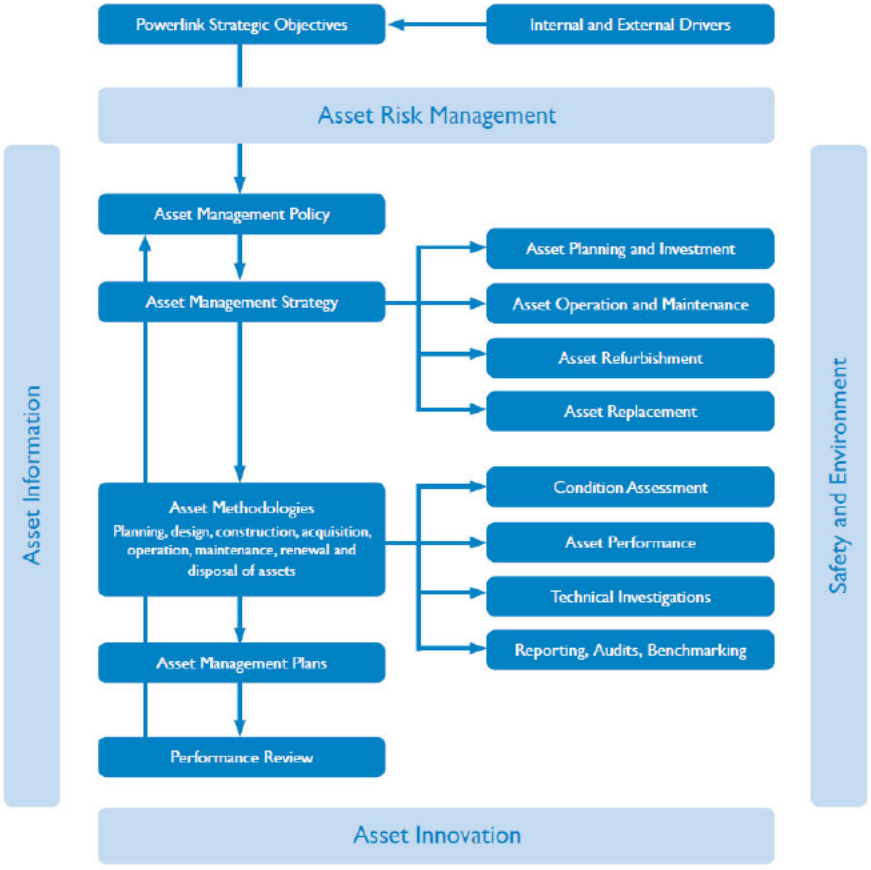
The principles set out in the Asset Management System (refer to Figure 2.1) and Asset Management Policy guides Powerlink's analysis of future network investment needs and key investment drivers.

Powerlink's Business Strategy planning process captures the significant external and internal drivers on our business and sets out key strategic themes and initiatives to be adopted by the business over a three year outlook period. The Business Strategy, when considered in conjunction with the Asset Management System and Asset Management Policy, forms the foundation of the Asset Management Strategy.

The Asset Management Strategy is a core document that identifies the principles and the approach that guides the development of investment plans for the network, including such factors as expected service levels, technological changes, investment policy and risk management.

The components forming part of the Powerlink's Asset Management System are illustrated within Figure 2.1. This Asset Management Plan is a key document in Powerlink's Asset Management System.

Figure 2.1 Asset Management System

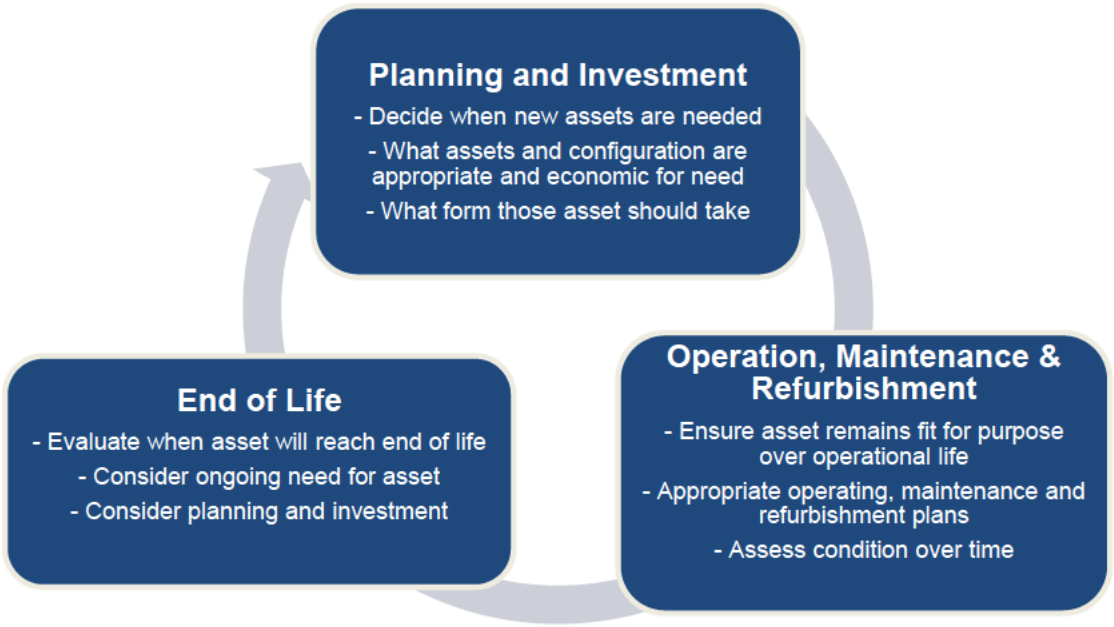


The Asset Management Policy is approved by Powerlink's Board and sets out a commitment to sustainable asset management practices that ensure Powerlink provides a valued transmission service to its customers by optimising whole of life cycle costs, benefits and risks while ensuring compliance with applicable legislation, regulations, standards, and other relevant instruments. The policy includes principles that are applied to manage Powerlink's entire transmission network, including telecommunications and infrastructure assets.

Powerlink's Asset Management Strategy is based on two parallel aspects:

1. Asset life cycle, which considers assets on a 'whole of life' basis (refer to Figure 2.2).

Figure 2.2 Asset life cycle



2. Asset management cycle (refer to Figure 2.3), which considers the broader business environment including continuous improvement from the review of evolving factors.

Figure 2.3 Asset management cycle

Together, these complementary systems:

- enable a process of continuous improvement which focuses on providing valued services to customers by taking into account evolving internal and external factors; and
- provide a framework to ensure Powerlink's obligations are able to be effectively and efficiently delivered.

2.1 Asset management methodologies

In terms of managing the development and ongoing operation of the high voltage transmission network, Powerlink has a number of service levels derived from our strategic drivers, statutory authorities, transmission licence and relevant operating obligations. These are also set out in the Asset Management Strategy.

The Asset Management Strategy is supported by a range of internal and external documents which are considered in relation to how Powerlink plans, develops and manages transmission network assets, including The Australian Energy Market Operator's (AEMO) Electricity Statement of Opportunities (ESOO), Input Assumptions and Scenario Report (IASR) and Integrated System Plan (ISP), Joint Planning Process, Asset Planning Criteria, and Asset Reinvestment Process.

Powerlink's Risk Management Policy requires the adoption of a structured approach to risk management, applying consistent and transparent methods for the assessment and treatment of risk. Powerlink appraises and manages asset risks in accordance with Powerlink's corporate risk management standard and procedures, and the Asset Risk Management Framework.

Powerlink has been progressively enhancing methodologies and techniques to assess and evaluate strategic asset risks in accordance with a roadmap that is focused on achieving the following key objectives:

- at a corporate level, building knowledge of Powerlink's corporate risk management framework, risk assessment philosophy and techniques;
- developing and where necessary expanding the corporate risk matrix so that parameters applied to determine likelihood, consequence and overall risk levels are aligned with asset management decision making;
- developing a detailed first principles model for asset risks that drive a significant component of Powerlink's expenditure, focusing on failure modes, probabilities, exposure factors and consequences; and
- developing risk metrics and scoring methodologies calibrated across the different classes of network assets so that investment proposals and timings can be more effectively ranked and prioritised.

Powerlink has been progressively implementing a value approach to assessing the relative merits and priority of investment proposals and timings. This approach aims to maximise value for Powerlink's customers by assessing the relative value which investments are anticipated to deliver across a range of measures. For assets experiencing condition and/or obsolescence issues resulting from equipment reaching the end of life, the mitigation of asset related risks in a cost effective and optimal manner is an integral component of delivering value to customers (refer to section 3).

Similarly, Powerlink has been developing a portfolio risk information technology system to facilitate a structured, transparent and consistent approach to assessing optimal reinvestment strategies for equipment approaching end of life across a range of asset classes. This system performs predictive analytics to forecast the need for intervention using equipment condition and performance degradation models, supportability and obsolescence projections, and other criteria. The application provides decision making support to inform the optimal need and timing for reinvestment to ensure that the value customers' gain from Powerlink's investment program is maximised and delivers positive outcomes for customers.

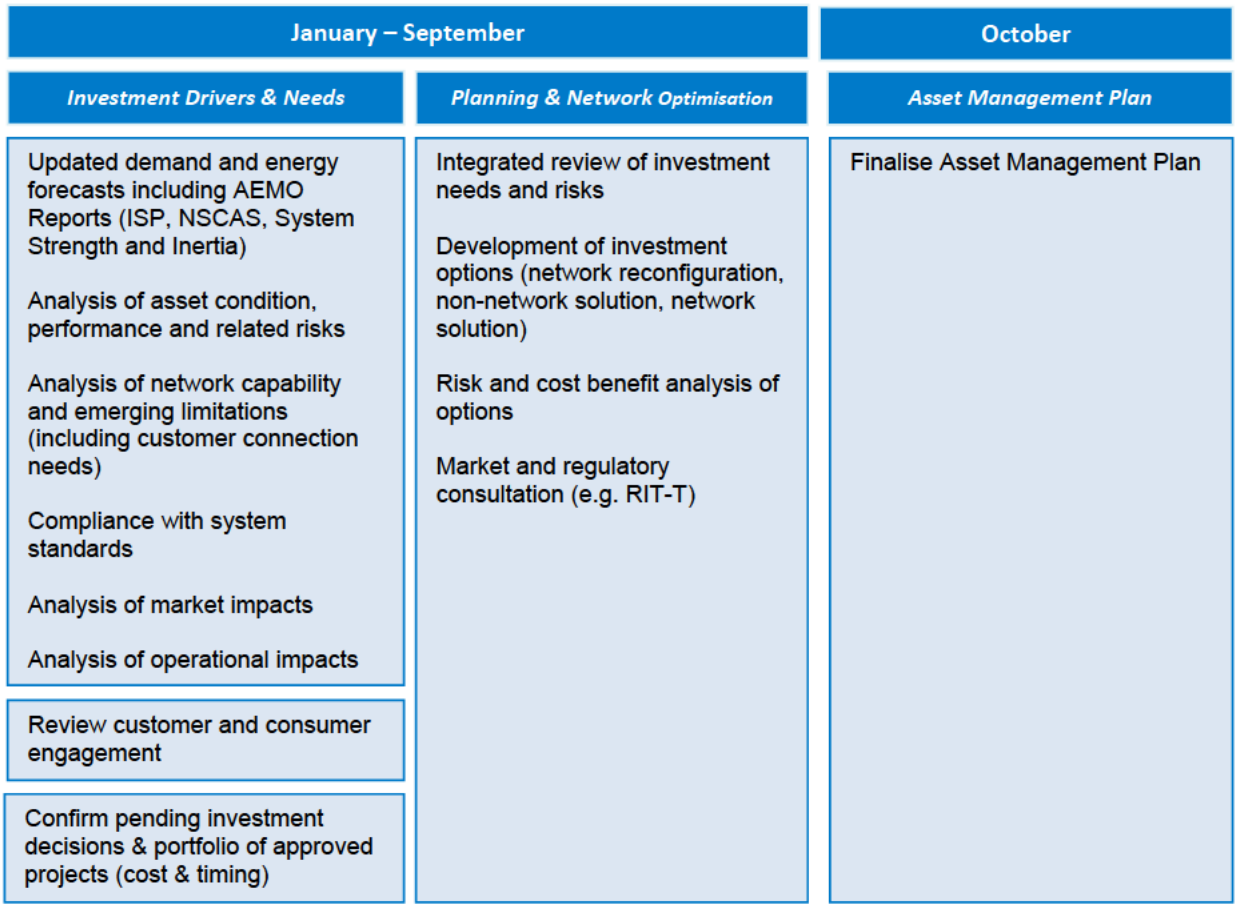
3. ASSET MANAGEMENT PLAN DEVELOPMENT

The development of the Asset Management Plan is conducted on an annual basis commencing in the second quarter of the preceding calendar year to which it is applicable. However the 2021 Asset Management Plan publication has been expedited to October 2020 to inform Powerlink's 2023-2027 Revenue Submission.

The development of the plan involves inputs from a number of disciplines including asset strategy, network planning, network customer management, portfolio management and network regulation. Inputs from other parts of the organisation are sought and considered in the development of the asset management plan process where relevant and applicable.

The timeline and process for development of the 2021 Asset Management Plan is shown in Figure 3.1.

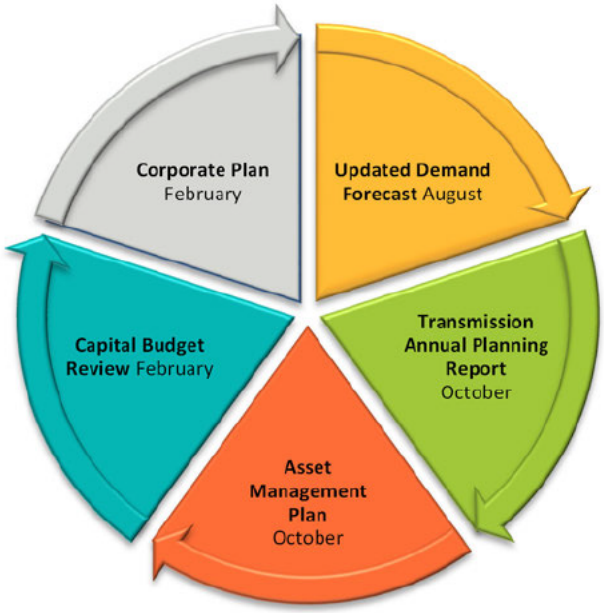
Figure 3.1 Asset Management Plan Development Process



The Asset Management Plan is part of an annual cycle of network assessment and investment review. Following publication of the plan, the investment works and projects identified through the Asset Management Plan are used as inputs to the related capital budget review and corporate planning processes as well as Revenue Proposals when they occur.

The annual investment planning process is outlined below in Figure 3.2.

Figure 3.2 2021 Annual Investment Planning Process



The objective of the AMP is to provide a forecast of the identified quantum of investment needs, timings and approximate costs over a 10-year outlook.

Key assumptions:

- Needs timing is based on an assessment of risks by asset strategy and not based on quantitative risk cost in absolute terms. Unlike augmentation investments, condition based reinvestment timing is less clear and often portrayed as a one to three year window span. This is because forecast of condition is not an exact science and at the same time Powerlink's understanding of risk is evolving and maturing. On this basis, it is reasonable to assume that some movement in the need timing of investments (both forward and backwards) may occur although every effort is made to minimise this.
- Costs are based on estimates where available, otherwise a combination of unit rates, historical information and high level understanding of scope.

4. ASSET MANAGEMENT DRIVERS

Dynamic externally driven changes are reshaping the operating environment in which Powerlink delivers its transmission services. Advances in technology, ongoing policy and regulatory change as well as changes in consumer behaviour have become strong influencers, impacting the:

- planning and development of the transmission network as it transitions to a low carbon future; and
- level of transparency required around NSP asset management practices and network investment decision making processes.

4.1 Maximising Stakeholder Value

Working with stakeholders to understand what they value about Powerlink's transmission service is a fundamental component of Powerlink's mission and business strategy. Powerlink has established a number of channels for stakeholder engagement in order to seek input on our asset management planning and future investment decisions.

Powerlink recognises that electricity price is a major focus of both electricity consumers and directly connected customers. Powerlink endeavours to ensure that its asset management planning and investment strategies maximise value for our customers, and deliver value through the provision of safe, reliable, secure, environmentally conscious and cost efficient transmission services.

The AER also recognises that network investment decisions affect a wide range of individuals, businesses and organisations. As a result, the AER has in place Consumer Engagement Guidelines and a Stakeholder Engagement Framework that provide guidance to NSPs to improve the quality of engagement generally and embed a consistent approach across NSPs around communicating and engaging with stakeholders. In addition, the Regulatory Investment Test for Transmission (RIT-T) Application Guidelines (for non-ISP projects) recommend network businesses engage in best practice with consumers as well as other stakeholders through their TAPRs and more specifically, prior to and during any RIT-T consultation process, including discussion on consumer engagement activities in each of the three RIT-T reports.

To enhance the value and outcomes of the RIT-T consultation process, Powerlink has developed and implemented a RIT-T stakeholder engagement matrix, using a proportionate approach, which sets out activities that may be undertaken on a case-by-case basis. To complement the matrix, Powerlink has developed a Stakeholder Engagement Toolkit to assist in the assessment, planning and undertaking of engagement activities prior to and during the RIT-T process.

4.2 Asset Condition and Risks

The Queensland transmission network experienced considerable growth in the period from 1960 to 1980. Many transmission network assets constructed over this period are approaching the end of their technical service life. Reinvestment in these assets in some form is required within the outlook period of the Asset Management Plan in order to manage emerging risks related to safety, reliability, obsolescence and other factors.

Notwithstanding projects which are identified as actionable in the ISP, under the current demand growth outlook, reinvestment in the transmission network to manage identified risks associated with these end of life assets will form the majority of Powerlink's capital expenditure program of work moving forward. In addition, there are also some future network investments required to meet overall power system performance standards and support the secure operation of the transmission network as a result of the transforming energy system such as minimum demand and system strength. Powerlink's asset management methodologies are therefore fundamental in supporting the appraisal of future investment needs, particularly: the monitoring and analysis of asset health, condition and performance; risk assessment methodology; and whole of life cycle planning. For some classes of assets, the systematic appraisal of strategic value and business utility is also required to support investment decisions.

Powerlink is also focused on ensuring asset reinvestment needs are not just considered on a 'like-for-like" basis, with substantial focus on integrated analysis of asset condition and network capability in order to bring about optimised solutions that deliver better value for Powerlink's customers. These optimised solutions may involve network reconfigurations, retirement and/or non-network solutions.

The outcomes of this integrated approach form an integral part of the investment approach detailed within Volume 2 of this Asset Management Plan, and are core considerations in ensuring that asset reinvestment and management services are delivered to our customers in an efficient, timely and cost effective manner.

4.3 Demand and Energy Growth

Based on AEMO's Central scenario forecast, the 2020 TAPR indicates that energy consumption will decrease and summer maximum demand will maintain low growth over the next 10 years. The decline in energy consumption is due to the committed and uncommitted solar and wind farms connecting to the distribution and transmission networks and uptake of rooftop PV. While there has been significant investment in the resources sector, further developments in the short term are unlikely due to low global coal and gas prices.

The progressive installation of rooftop PV solar systems and distribution connected solar farms has seen a continued decrease of demand during the day time periods. This has led to the characteristic duck curve shape for the daily demand, which is more evident during winter and spring seasons. The Queensland delivered demand during the day is now lower than night times for a significant part of the year, and voltage control devices historically installed to manage light load during the night may no longer be sufficient to manage voltages during day. The installation of reactive control devices or non-network solutions are likely to be required to manage voltages during day time minimum demand periods.

The uptake of embedded PV solar installations is expected to continue, and this will present further challenges to the energy system. Decreasing minimum demand may lower the amount of synchronous generation that is on-line and this could further impact on voltage control and system strength. There may be opportunities for innovative technologies and storage solutions to assist with smoothing the daily load profile. These type of services could offer a number of benefits to the energy system including reducing the need for additional transmission investment.

4.4 Emerging Technologies and Renewables

Powerlink is committed to understanding the future impacts of emerging technologies so that transmission network services are developed in a way that provide value to customers. For example, future developments in distributed storage and micro-generation technologies could change electricity usage and load profiles, which may mean a change in the way that assets are planned, operated and managed. Powerlink continuously monitors the changing external environment to ensure that asset expenditure and management practices take into account external technological trends and changes.

The Queensland Government has established the Renewable Energy Expert Panel to provide advice on credible pathways to achieving a 50% renewable energy target for the State by 2030. The potential for significant levels of uptake of large scale renewable generation within Queensland could:

- alter power flows and capacity requirements across the Powerlink high voltage network
- require Powerlink to invest in new power system infrastructure to provide frequency stabilisation and network support services.

Further, generators compete for dispatch in the NEM. A generator's dispatch level depends on its bid in relation to other generators' bids demand and available transmission capacity. Congestion occurs when transmission capacity prevents optimum economic dispatch. Affected generators are said to be constrained by the amount unable to be economically dispatched. There is no load at risk associated with these constraints; however they serve as a trigger for the analysis of the economics for overcoming congestion.

All of these potential impacts are considered when examining the need and timing of future network investments within the Asset Management Plan and this is discussed in more detail in Volume 2.

5. OPTIMISED NETWORK SOLUTIONS

5.1 Overview

Powerlink is responsible for planning the shared transmission network within Queensland. The National Electricity Rules (NER) sets out the planning process which requires consultation with AEMO, Registered Participants and interested parties, including customers, generators and DNSPs. Significant inputs to the network planning process are:

- the forecast of customer electricity demand (including demand side management) and its location;
- location, capacity and arrangement of new and existing generation (including embedded generation);
- condition and performance of assets and an assessment of the risks associated in allowing assets to remain in service;
- an assessment of future network capacity to meet the required planning criteria;
- an analysis of the impacts of dynamic changes in network behaviour in order to ensure network resilience as the power system transitions to much greater levels of VRE generation; and
- AEMO's ISP.

As part of the annual planning review, Powerlink examines the capability of its existing network and the future capability following any changes resulting from committed projects. This involves consultation with AEMO and 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 order to identify the most cost effective solution, regardless of asset boundaries, including potential non-network solutions.

In addition to meeting forecast demand, Powerlink must maintain its network so that the risks associated with the condition and performance of existing assets is appropriately managed. Powerlink routinely undertakes an assessment of the condition of assets and identifies potential emerging risks related to factors such as safety, reliability and obsolescence. In conjunction with these routine assessments, Powerlink has adapted its approach to investment decision making due to fundamental shifts in the external operating environment. There is a greater emphasis on assessing whether an enduring need exists for assets, and investigating alternate network reconfiguration opportunities to manage asset risks.

Planning of the network focuses on optimising the network topology as assets reach the end of their technical or economic life so that the network is best configured to meet current and future capacity needs. Individual asset investment decisions are not determined in isolation. Powerlink's integrated planning process takes account of both future changes in demand and the condition based risks of related assets in the network.

Furthermore, in accordance with the NER, information regarding proposed transmission investments within the 10-year outlook period must be updated and published in the Transmission Annual Planning Report (TAPR) annually by 31 October. More broadly, this provides information to National Electricity Market including AEMO, registered participants and interested parties (including non-network providers) on Powerlink's planning processes and decision making on possible future investments.

As a result, the Asset Management Plan and TAPR processes have the potential to deliver new information and may provide Powerlink with an opportunity to improve and further refine options under consideration or consider other options from those originally identified. Subsequent to a network need being identified in the TAPR, network reinvestments and augmentations over the RIT-T cost threshold undergo public consultation. In turn, the RIT-T process may lead to consideration of other investment options and opportunities which may influence the topology of the future transmission network.

5.2 Area Plans

Powerlink develops Area Plans for collective groupings of assets to co-optimise future network capability requirements with end of life and condition related issues. For example, an integrated approach is considered where there are opportunities for optimising or consolidating the network where changing load consumption and/or generation patterns, coupled with how the network has developed over time, have changed the forecast network capability requirements.

Area Plans verify the enduring need for network assets taking into consideration current and future network capability, asset condition, performance and other factors. Where reinvestment drivers are identified, strategies including extended maintenance, asset decommissioning, replacement with lower rated plant, or consolidation of existing assets to improve utilisation are considered (depending on the circumstances). These plans are regularly reviewed as improved condition data becomes available combined with an evolving understanding of risk.

Examples of feasible options considered within Area Plans to address identified needs are shown in Table 5.1.

Table 5.1 Examples of Asset Planning Options

Option	Description
Augmentation	Increases the capacity of the existing transmission network, e.g. the establishment of a new substation, installation of additional plant at existing substations or construction of new transmission lines. This is driven by the need to address prevailing network capacity limitations and customer supply requirements.
System services	The assessment of future network requirements to meet overall power system performance standards and support the secure operation of the power system. This includes the provision of system strength services and inertia services.
Reinvestment	Asset reinvestment planning ensures that existing network assets are assessed for their enduring network requirements in a manner that is economic, safe and reliable. This may result in like-for-like replacement, network reconfiguration, asset retirement, asset life extension or replacement with an asset of lower capacity. Condition and risk assessment of individual components may also result in the staged replacement of an asset where it is technically and economically feasible.
Network reconfiguration	The assessment of future network requirements may identify the reconfiguration of existing assets as the most economical option. This may involve asset retirement coupled with the installation of plant or equipment at an alternative location that offers a lower cost substitute for the required network functionality.
Asset de-rating or retirement	May include strategies to de-rate, decommission and/or demolish an asset and is considered in cases where needs have diminished in order to achieve long-term economic benefits.
Line refit	Powerlink utilises a line reinvestment strategy called line refit to extend the service life of a transmission line and provide cost benefits through the deferral of future transmission line rebuilds. Line refit may include structural repairs, foundation works, replacement of line components and hardware and the abrasive blasting of tower steelwork followed by painting.
Non-network alternatives	Non-network solutions are not limited to, but may include network support from existing and/or new generation or demand side management (DSM) initiatives (either from individual providers or aggregators) which may reduce, negate or defer the need for network investment solutions.
Operational measures	Network constraints may be managed during specific periods using short-term operational measures, e.g. switching of transmission lines or redispatch of generation in order to defer or negate network investment.

Powerlink has identified 12 geographical areas with the potential for Area Plan development. At present, nine Area Plans are under investigation within the outlook of the 2021 Asset Management Plan, namely:

- North Queensland
- Northern Bowen Basin
- Mackay
- Gladstone
- Rockhampton
- Surat
- Tarong
- Greater Brisbane Metro and
- Gold Coast.

A detailed list of the 12 Area Plans and a description of the corresponding geographic boundaries are detailed within Volumes 2 and 3 of the AMP.

6. NON-NETWORK SOLUTIONS

Powerlink has established processes for engaging with customers for the provision of non-network services in accordance with the requirements of the NER in relation to the TAPR and the RIT-T. In particular, the RIT-T process centres around publishing relevant information on the need and scope of viable non-network solutions to emerging network limitations and network assets requiring replacement.

For over a decade, Powerlink has implemented a range of non-network solutions in various areas to assist or augment the power transfer capability of the high voltage transmission grid. In 2002, Powerlink commenced a regulatory consultation to address emerging network limitations within the transmission network between central and north Queensland. As part of the suite of recommended works, Powerlink entered into contractual arrangements with several power stations located within the north Queensland area to provide network support services to economically defer significant transmission network expenditure.

In 2014, as part of the solution to address forecast emerging limitations in the Northern Bowen Basin area, Powerlink entered into a two year network support agreement with a proponent who was able to provide grid support.

Powerlink is committed to the ongoing development of its non-network engagement processes and where possible and economical expand the use of non-network solutions:

- to address future network limitations within the transmission network; or
- more broadly as part of an integrated solution to complement an overall network reconfiguration strategy.

During 2020, Powerlink has engaged with non-network solution providers to address the fault level shortfall in north Queensland at the Ross node which was notified by AEMO in April 2020. Non-network services have been contracted in the short term to address the immediate requirement to meet system strength in North Queensland. This allows time to undertake a full evaluation of the technical and economic viability of the non-network services offered compared to a potential network option in order to identify the solution which most prudently addresses the need in the long term.

Other initiatives and measures undertaken by Powerlink to further develop processes for the consideration of non-network solutions include:

- Ongoing engagement with non-network providers in line with Powerlink's Stakeholder Engagement Framework principles and processes;
- Focussing on enhanced collaboration with primary stakeholders to assist in realising non-network outcomes – DNSPs, directly connected customers & major non-network providers (including webinars);
- Cultivating a stronger working relationship with DNSPs associated with the provision of non-network solutions, placing demand side and generation on equal footing with network joint planning; and
- Enhancing business accountability and process, key stakeholder relationships and information systems to enable a high state of readiness to acquire demand response when needed.

7. CUSTOMER AND STAKEHOLDER ENGAGEMENT

Powerlink defines a customer i.e. someone who receives or consumes a good, service, product or idea, into two categories.

Direct Customers include generators, business with large loads that connect directly to the transmission network, Network Service Providers (such as Energy Queensland and Ergon), telecommunication companies and anyone to whom Powerlink provides consultancy and other services.

More broadly, playing a central role in the Queensland economy, Powerlink considers Indirect Customers as the five million Queenslanders and 236,000 Queensland businesses who depend on Powerlink's performance.

A stakeholder is someone who can affect or be affected by, an organisation's actions, objectives and policies, including non-network solution service providers.

Powerlink proactively engages with customers and stakeholders and seeks their input into Powerlink's business processes and objectives. All engagement activities are undertaken in line with our Stakeholder Engagement Framework that sets out the principles, objectives and outcomes Powerlink is seeking to achieve in our interactions with stakeholders. The framework aims to achieve greater stakeholder trust and social licence to operate, better business decision making and improved management of corporate risks and reputation.

The Stakeholder Engagement Framework also aligns with industry best practice, the AER's Consumer Engagement Guideline and Stakeholder Engagement Framework (revised in 2017). In late 2018 the AER also recommended in the RIT-T Application Guidelines that network businesses take 'a best practice approach to consumer and non-network engagement'.

Furthermore, the National Electricity Objective[1] requires "network businesses to operate their networks in the long term interests of consumers". The AER has put in place Consumer Engagement Guidelines and a Stakeholder Engagement Framework that provide guidance to NSPs, the purpose of which is to improve the quality of engagement generally and embed a consistent approach across NSPs around communicating and engaging with stakeholders.

7.1 Engagement approach

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.

Guided by the AER's Consumer Engagement Guidelines and Stakeholder Engagement Framework, Powerlink undertakes a customer focussed and strategic engagement approach as part of its network investment decision making process in order to better understand and respond to customer views:

- through regular discussions with Powerlink's Customer Panel;
- as part of TAPR information provision and associated engagement activities; and
- prior to undertaking and during the RIT-T process.

7.1.2 Engagement processes

Powerlink has:

- a well-established engagement process to consult with customers and stakeholders with regard to its transmission network planning and direction-setting for the future through the TAPR (as the first step in the public consultation process) and TAPR forum.
- implemented a RIT-T stakeholder engagement matrix using a proportionate approach, which sets out activities to guide the development of individual Stakeholder Engagement Plans that are developed on a case-by-case basis for each RIT-T. These Stakeholder Engagement Plans are specific strategies and actions for each identified stakeholder group with the aim of ensuring that targeted engagement is tailored to each group, improving the experience that group of external stakeholders has with Powerlink.
- processes in place to keep Powerlink's Customer Panel informed on RIT-T progress on a regular basis as well as regular interactions with the Customer Panel to further engage on current RIT-T consultations.
- activities for internal customers to broaden awareness, foster mutual understanding and gain feedback on Powerlink's planning processes.

[1] *National Electricity (South Australia) Act 1996*, section 7

7.1.3 Engagement activities

A number of customer engagement activities specifically influence Powerlink's network investment processes.

Transmission Network Forum

In September 2019, customer and industry representatives attended Powerlink's annual Transmission Network Forum focussing on key industry topics, an update on the state of the network and TAPR highlights. This provided stakeholders with an avenue to provide input and feedback on pertinent matters such as using non-network solutions to reduce short-term demand peaks and managing renewable connections in the future transmission network. This information will be used to inform, further develop and respond where possible to improve Powerlink's practices.

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 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 has established a customer panel in order to provide a face to face forum for our stakeholders to give input and feedback to Powerlink regarding our decision making, processes and methodologies. Comprised of members from a range of sectors including the 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. It also provides Powerlink with another avenue to keep our stakeholders better informed about current network investment decisions and regulatory processes (in particular RIT-Ts). Key topics for discussion during 2020 included the upcoming Revenue Determination process, transmission pricing consultation and Powerlink's Energy Charter Disclosure Statement to customers and stakeholders. The panel was also engaged to provide input on the asset reinvestment criteria outlined in Volume 2, which enabled Powerlink to refine the criteria with customer input.

Joint Planning Forums

Powerlink routinely convenes joint planning forums in collaboration with AEMO and network service providers to ensure effective coordination of the joint response to network needs and solution development. These forums have seen a general shift in focus to joint optimisation of network reinvestment decisions as well as discussions on the impact of minimum demand and the impacts of voltage fluctuations on the electricity system during this period of energy transformation.

Non-network Engagement Stakeholder Register (NNESR)

As a result of the establishment of the NNESR in 2014, Powerlink has well established processes in place for the purposes of enhancing engagement with non-network providers in line with its Stakeholder Engagement Framework principles and processes, and to optimise opportunities for the provision of non-network solutions where they are technically and economically feasible. Powerlink also has established processes for engaging with customers for the provision of non-network services in accordance with the requirements of the TAPR, RIT-T consultations and for other Rules driven consultation processes such as Expressions of Interest for system strength services.

RIT-T Stakeholder Engagement

To enhance the value and outcomes of the RIT-T process, Powerlink has developed a RIT-T Stakeholder Engagement Matrix. The matrix uses a proportionate approach to stakeholder engagement activities which broadly aligns to the complexity of a RIT-T and cost of the possible network solution. As a minimum, Powerlink's Customer Panel, NNESR, AEMO, Registered Participants and the Australian Energy Regulator (AER) are advised of all RIT-T consultation document publications as they occur.

Market driven consultations driven by AEMO's ISP may also be undertaken in conjunction with other TNSPs. These consultations are managed in line with the National Electricity Rules in relation to *actionable ISP projects*, the associated approach set out in the AER's Cost Benefit Assessment Guidelines and are managed at Powerlink's corporate level due to their significance and public profile.