

# 2023-27

# POWERLINK QUEENSLAND REVENUE PROPOSAL

Supporting Document – PUBLIC

## Asset Management Strategy

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# Powerlink – Asset Management – Strategy

<b>Policy stream</b>	Asset Management	
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**Version history**

Version	Date	Section(s)	Summary of amendment
1	30/05/11	New	New AM Document Format
2	30/05/11	Title only	Title Updated
3	30/05/11	Whole document	Minor Grammatical errors fixed
4	3/12/12	References	Added AM-STR-0011 as previous document.
5	7/10/14	Whole document	Update with 2014 Business Strategy
6	30/09/15	Whole document	Update AM-STR-1037 with 2015 Business Strategy, stakeholder feedback and new document format
7	24/06/2019	Whole document	Update with new AM policy, Organisational Values, Network Vision Principles, Stakeholder Feedback and new document format
8	04/11/2020	Whole document	Minor revisions



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## 1. Overview

Powerlink Queensland is a Transmission Network Service Provider (TNSP) in the Australian National Electricity Market (NEM) that owns, develops, operates and maintains Queensland's high voltage electricity transmission network.

Powerlink's network operates as part of an energy system that is undergoing its greatest transformation in more than a century. At the centre of this transformation is Powerlink's customers who are taking an interest and playing a leading role in how their electricity is supplied. This has and will continue to change how Powerlink builds, operates and maintains its network.

As a TNSP, Powerlink has specific mandatory obligations under its Transmission Authority, the National Electricity Rules and the Electricity Act 1994 (Qld). The Queensland Government has also appointed Powerlink as the Jurisdictional Planning Body for Queensland to assess the capability of the State's transmission network to meet forecast electricity demand, in accordance with the reliability standards for electricity transmission.

In order to effectively discharge these obligations, Powerlink has developed this Asset Management Strategy for the implementation and documentation of asset management practices, plans and processes within the organisation to manage its assets effectively and efficiently.

Powerlink has adopted a "Distributed Asset Management" model to deliver asset management activities. This means throughout the asset life and asset management cycles every Powerlink division has accountabilities to contribute to the whole of asset management outcomes.

This document has four sections and two appendices.

Section 2 outlines the scope of the strategy as well as references and roles and responsibilities for implementing the strategy. The asset management system is also explained in this section.

Section 3 describes Powerlink's organisational context and mission and vision statements. This section captures the main principles of the asset management system; health, safety and environment, asset risk, asset information, asset innovation as four pillars.

Section 4 of the document focuses on the asset management cycle including asset life cycle activities and how Powerlink develops and implements strategic asset management processes.

The strategy document has two appendices:

- Appendix A provides additional background and explanation of our asset management document suite and explains how the documents reflect a 'line of sight' between overall corporate objectives and day-to-day asset management activities.
- Appendix B defines accountabilities under the "Distributed Asset Management" model at divisional level.

This Asset Management Strategy aligns Powerlink's overarching asset management objectives with its mandated obligations and its commitment to provide customers with a reliable and safe supply of electricity at the lowest asset life cycle cost.

## 2. Introduction

The role of Powerlink’s Asset Management Strategy is to ensure the organisation’s assets are managed in a manner consistent with its mission and vision to enrich lifestyles and power economic growth through electricity transmission and associated solutions. These practices seek to drive efficiency whilst effectively managing safety, reliability, customer expectations and other risks across Powerlink’s portfolio of assets.

Powerlink’s Network Vision and Business Narrative capture the significant external and internal drivers on our business and the network and set out the strategic direction to be adopted by the business. In conjunction with the Asset Management Framework and Asset Management Policy, form the foundation of the Asset Management Strategy with the following main principles.

- Focus on customer value
- Evaluate risk holistically
- Adopt agile practices and culture
- Explore opportunity for partnerships and collaboration
- Value data and leverage it to make better decisions

This document is intended for a diverse audience, providing guidance to Powerlink employees and conveying understanding (with necessary context) to external stakeholders.

The *purpose* of the Asset Management Strategy is to:

- *apply the principles set out in Powerlink’s Asset Management Policy,*
- *incorporate Asset Management Framework,*
- *set out the Asset Management objectives,*
- *explain Powerlink’s operating context and discuss the key business drivers and risks for delivery of safe, reliable and cost effective transmission services, and*
- *ensure alignment and collaboration in asset management practices across Powerlink.*

### 2.1 Scope

This document covers the asset management strategy applied to the life cycle of network assets (including Operational Technology assets) aligning with ISO55000 standards.

The Asset Management Strategy considers a range of matters throughout the life cycle of an asset, including:

- statutory, regulatory, economic, customer and stakeholder requirements that form the services and drive the performance of our business and the network,
- principal strategies associated with Powerlink’s management of network assets,
- optimising asset utilisation,
- efficient allocation of resources,
- mechanisms to monitor performance and achieve continuous improvement in the management of assets over time, and
- the ongoing refinement of the Asset Management Strategy.

Powerlink’s Asset Management Strategy applies to the following network assets as at 30/6/2018

Asset	Quantity
Substations	140
Cable Transition Sites	10

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Communication Sites	85
Underground Cables	23km
Transmission Lines	15,337km

## 2.2 References

Document code	Document title
<a href="#">ASM-FRA-A2300019</a>	Asset Management Framework
<a href="#">Asset Management Policy</a>	Asset Management Policy
<a href="#">The Energy Charter</a>	The Energy Charter
<a href="#">ASM-I&amp;P-FRA-A537590</a>	Transmission Line Asset Methodology Framework
<a href="#">ASM-I&amp;P-FRA-A542372</a>	Substation Asset Methodology Framework
<a href="#">ASM-I&amp;P-FRA-A968358</a>	Land Asset Methodology Framework
<a href="#">ASM-I&amp;P-FRA-A968896</a>	HV Underground Cable Plant Methodology Framework
<a href="#">ASM-I&amp;P-STR-A2331814</a>	Secondary Systems Asset Strategy 2015-2022
<a href="#">RSK-F&amp;BP-STD-A1956394</a>	Powerlink – Risk Management – Standard
<a href="#">Asset Management Plan 2020 Volume 1</a>	Asset Management Plan
<a href="#">ASM-I&amp;P-PRO-A2366170</a>	Portfolio Plan – Procedure
<a href="#">ASM-I&amp;P-PRO-A2412648</a>	Asset Planning Criteria Procedure
<a href="#">ASM-I&amp;P-FRA-A2338088</a>	Joint Planning Framework
<a href="#">ASM-STR-A588431</a>	Asset End of Life Strategy
<a href="#">ASM-STD-A1055515</a>	Asset Maintenance Standard
<a href="#">ASM-STD-A515409</a>	Asset Refurbishment Standard
<a href="#">GOV-F&amp;BP-FRA-A2103734</a>	RAIDE-C Decision Rights Framework
<a href="#">Health, Safety and Environment Policy (HSE-POL-A2720172)</a>	Health and Safety Policy
<a href="#">ASM-FRA-A2417558</a>	Asset Risk Management Framework
STM-POL-A2294087	Stakeholder and Customer Management Policy
STM-FRA-A2389950	Landholder Relations Framework
Land Access Protocol 2020	Land Access Protocol 2020

## 2.3 Roles and Responsibilities

Powerlink has adopted a “Distributed Asset Management” model to deliver its asset management activities, using the RAIDE-C (Recommend, Agree, Input, Decide, Execute and Communicate) accountability framework to communicate roles and responsibilities based on identified activities.

Further information on the RAIDE-C is included in Appendix B.

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Who	What
Chief Executive	Accountable for Powerlink’s overall asset management activities.
Executives / General Managers	Accountable for ensuring that the Asset Management Policy, Framework and Asset Management Strategy are <b>executed</b> within their respective Division / Group.
Executive General Manager Strategy and Business Development	Accountable for ensuring that the Asset Management Policy , Strategy and Framework. Performs the <b>Decide</b> element of RAIDE-C for the Asset Management Policy stream.
Senior Asset Management Strategy Advisor / Manager Network Strategy / General Manager Strategy	Acts as the Policy stream coordinator for the Asset Management Policy, Framework and Strategy and is responsible for: <ul style="list-style-type: none"> <li>- oversight and consistent application of the Framework</li> <li>- oversight and planning of the Asset Management Policy stream</li> <li>- providing advice and guidance regarding the sub-streams e.g. stream, Controlled Document level, type, linked documents, key contacts</li> </ul> Performs the <b>Recommend</b> element of RAIDE-C for the Asset Management Policy, Strategy and Framework.
All Powerlink	Awareness of the Policy stream and obligation to contribute to business activities in a manner consistent with the intent of the Asset Management Policy, Framework, Strategy and sub-stream guidance.



### 3. Powerlink’s Asset Management System

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

The components forming part of Powerlink’s Asset Management System are illustrated within Figure 1. Powerlink’s Asset Management System is informed by four main areas and all of these areas are integrated to each other.

1. Asset Information is essential to monitor the performance and condition of Powerlink’s assets. Asset life cycle decisions are undertaken to maintain, refurbish, upgrade, replace or decommission based on value and asset performance.
2. Asset Risk Management is realised through a “value driven approach” that ensures risk is managed while asset performance is optimised.
3. Safety and Environment principles and requirements are essential to provide safe and environmentally-conscious transmission services.
4. Asset Innovation supports efficient processes, practices and technology to improve asset performance or reduce asset related risks.

Powerlink’s Asset Management System comprises a set of interrelated and interacting elements that provide a systematic approach to effective asset management by identifying and integrating the drivers and enablers of change.

Figure 1 outlines the major elements of the system and their interrelationships.

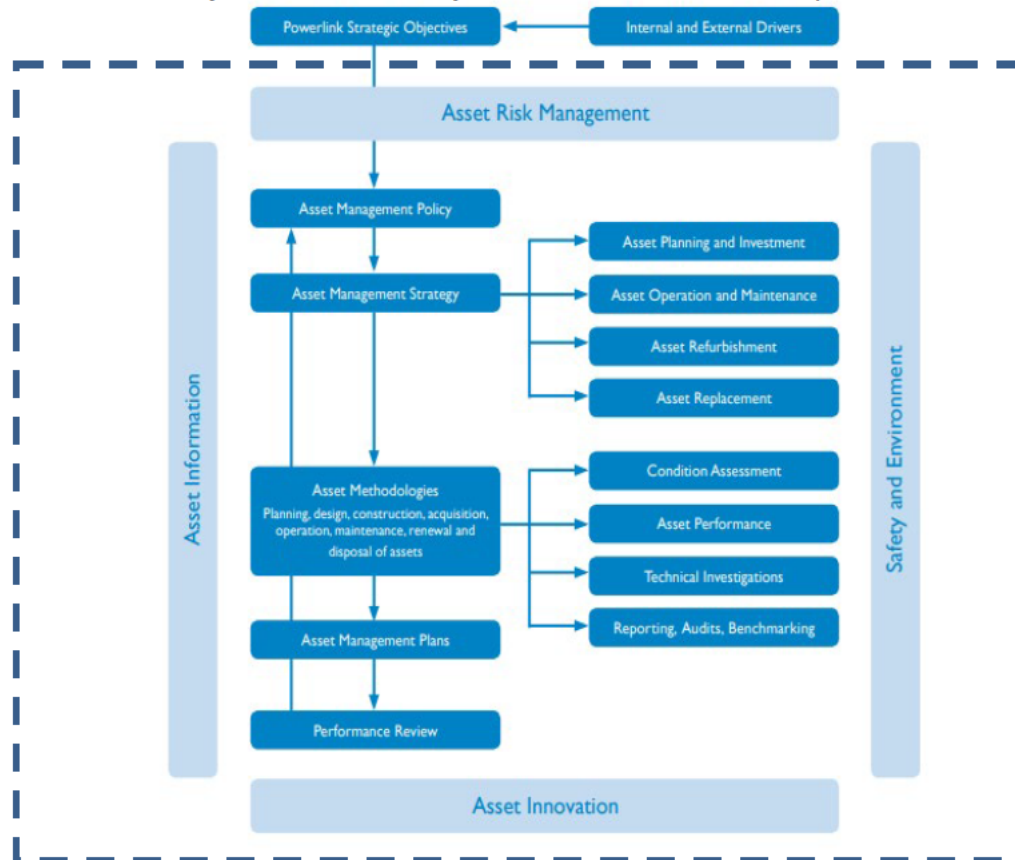


Figure 1: Asset Management System

### 3.1 Asset Management Documentation

Within the Asset Management System:

The **Asset Management Policy** aligns Powerlink’s strategic objectives with its statutory customer, stakeholder and employee requirements, and informs the intent of the Asset Management Strategy.

The **Asset Management Framework** incorporates Powerlink’s policies, strategies, objectives and plans, all of which ensure the appropriateness of asset management activities.

The **Asset Management Strategy** sets the overarching objectives for managing assets, which are reflected in the asset category methodologies. These objectives also consider the need to continually improve asset management practices and achieve greater alignment and collaboration across Powerlink.

The **Asset Methodologies** provide whole of life cycle management for each asset category (they are transmission lines, substations, digital assets, land assets and underground cables). These inform the development of the Asset Management Plan.

The **Asset Management Plan** reflects the “asset need” over a 10 year outlook.

The **Performance Review** monitors and reviews Asset Management performance to deliver effective and efficient services.

These relationships are further explained in Appendix A

## 4. Powerlink’s Asset Management Strategy

Powerlink’s Asset Management Strategy is centred on the Asset Management Cycle, which is used to frame key objectives for each of the asset methodologies below:

- Digital
- Transmission Lines
- Underground Cables
- Substations
- Land

These methodologies specify how each asset category will be managed to ensure Powerlink meets its mandated obligations and is able to provide customers with a safe and reliable supply of electricity at the lowest asset life cycle cost.

The Asset Management Cycle is a continuous improvement model that takes into account customer requirements, regulatory arrangements and stakeholder input, as well as overarching business requirements such as safety and environmental management. It provides a framework to ensure Powerlink’s obligations are delivered safely as effectively and efficiently as possible across the entire organisation.

Embedded in the Asset Management Cycle, as part of the Asset Management Strategies component, is the Asset Life Cycle, which is used to determine the need for, and timing of, asset investment and reinvestment.

By adopting this process, Powerlink is continuously reviewing how to meet its mandated obligations.



Figure 4.1: Asset Management Cycle

### 4.1 Asset Management Cycle – Strategic Alignment

The first step in the Asset Management Cycle involves alignment with Powerlink’s strategic direction. This is captured in Powerlink’s Network Vision and Business Narrative. Further to this, an assessment of Powerlink’s obligations across a wide range of legislation and market requirements, is conducted ascertaining the expectations of customers and stakeholders. Alignment with these drivers ensures Powerlink responsibly delivers electricity transmission services that are valued by customers and stakeholders.

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#### 4.1.1 Requirements

As a Queensland-based Transmission Network Service Provider (TNSP) operating in the National Electricity Market (NEM), Powerlink is required to meet a number of requirements and statutory obligations at both the national and state level.

##### Network operation, maintenance and investment

- Comply at all times with the Electricity Act, the Electricity Regulations and other applicable laws (Transmission Authority, clause 5)
- Plan network development in accordance with our Transmission Authority <sup>1</sup>,
- Operate in accordance with the National Electricity Rules
- Plan to meet mandated reliability of supply obligations<sup>2</sup>
- Ensure reliability and quality of supply is delivered to customers at lowest life cycle cost by managing risk and optimising performance and expenditure
- 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) <sup>3</sup>
- Operate, maintain (including repair and replace as necessary) and protect its transmission grid to ensure adequate, economic, reliable and safe transmission of electricity<sup>4</sup>
- Maintain and upgrade security as necessary to appropriate levels for critical infrastructure

##### Health safety and environment

- Comply with Workplace Health and Safety Act and requirements and legislation
- Comply with the Electrical Safety Act, associated regulations & High Voltage Isolation and Access requirements
- Comply with environmental, planning and cultural heritage legislation, translated into Powerlink's environmental strategy plans
- Maintain an Environmental Management System with regular reporting
- Ensure asset management activities are aligned with Health, Safety and Environment Policy and Procedures

Powerlink drives its health, safety and environment initiatives through the Executive Committee for HSE and has developed an integrated HSE Management System consisting of business wide policies, procedures and incident reporting systems.

##### Customer and stakeholder requirements

- Ensure customer requirements are understood, captured and considered in asset decisions
- Align asset management activities with Powerlink's Customer Service Charter
- Meet the terms of Connection and Access agreements
- Maintain effective NEM participant and customer relationships
- Provide timely and commercially viable connection arrangements for direct connect customers

<sup>1</sup>the Electricity Act and the National Electricity Market (NEM) Rules

<sup>2</sup> Transmission Authority (Power transfer available through the power system will be such that electricity not able to be supplied in N-1 will not exceed 50 MW at any one time or 600 MWh in aggregate (Transmission Authority , clause 6.2(c))

<sup>3</sup> Electricity Act, 34(2)

<sup>4</sup> Electricity Act , 34(1)

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Powerlink has developed a suite of documented processes to help govern customer and stakeholder engagement, including:

- Customer and Stakeholder Management Policy
- Landholder Relations Framework
- Land Access Protocol

Powerlink is also a founding member of The Energy Charter (<https://www.theenergycharter.com.au/>) which is a whole of supply chain initiative in the energy sector that is committed to putting customers at the centre of business decisions.

**4.1.2 Employee requirements**

Powerlink seeks to provide a safe working environment for its employees. Safety is essential for the business and Powerlink has invested in the Safe for Life program to help all leaders and employees focus on the behaviour required to improve performance and move towards developing an interdependent safety culture.

Powerlink’s employees are at the heart of delivering a cost effective, reliable and safe electricity transmission service. Powerlink is continually developing its employees to ensure they have appropriate skills required to continue to meet ongoing and future requirements. This is achieved through nurturing a performance focussed culture underpinned by the Powerlink values of accountability, customer focus, teamwork and safety.

**4.2 Asset Management Cycle – Asset Management Strategies**

The second step in the Asset Management Cycle considers the obligations and needs identified under the Strategic Alignment phase and determines how Powerlink is going to meet or manage these.

Powerlink manages its assets in accordance with ISO55000 Asset Management Standards.

**4.2.1 Asset management activities**

Powerlink’s asset management activities are aligned with the three key stages of the Asset Life Cycle.

The Asset Life Cycle is a critical and commonly applied element of asset management. It deals with the three principal stages in the life of an asset and the interaction of these stages with each other. Powerlink considers the whole life cycle of the asset in its decision making processes.

The three primary stages are:

- (i) **Planning and Investment** – deciding when investment is required, what assets (if any) are appropriate and economic to meet that need and what form those assets should take given the later stages of the asset life cycle.
- (ii) **Operation, Maintenance and Refurbishment** – ensuring each asset remains fit for purpose over its life, including the ongoing assessment of the condition of the assets and review of operating, maintenance and refurbishment strategies.
- (iii) **End of Life** – considering an asset’s enduring need and ongoing fitness for purpose. Any decision to reinvest in assets forms part of the planning and investment phase to ensure optimal economic outcomes.

These stages and the interaction between them over the life cycle of an asset are shown in Figure 4.2. Due to the progressive nature inherent in the development of a transmission system, assets of various types exist in all phases of the asset life cycle.



**Figure 4.2 Asset Life Cycle**

**Stage 1: Planning and Investment (Non-Load and Load Driven, Easements and Connections)**

Investment in network assets is triggered from both load and non-load drivers. Given the current maintained low demand forecast, the majority of Powerlink’s network investments is expected to be driven by non-load reliability needs and requirements.

Powerlink undertakes the AER’s Regulatory Investment Test for Transmission (RIT-T) when potential solutions to replace network assets or help increase the capacity of Queensland’s transmission network are over a \$6 million threshold as defined in the National Electricity Rules.

The RIT-T is the current mechanism by which electricity market participants can propose alternatives to network investment, allowing them to be evaluated alongside the network options. If a non-network option is found to be more cost-effective, Powerlink is required to proceed with this. It is a multi-stage consultation process which Powerlink conducts for all significant projects, as per electricity regulation requirements. The RIT-T now applies to replacement work in addition to augmentation projects.

Powerlink has identified that the transmission network of the future will need to optimise the value of existing assets by:

- adapting to meet changing network conditions by providing flexible and fit for purpose solutions that optimise network utilisation;
- designing and operating the network in a high renewables low system strength environment;
- integrating communication and control systems to increased penetrations of Distributed Energy Resources, Virtual Power Plants and Load Aggregators; and
- Utilisation of the network

**Non Load Driven Asset Replacement**

Non-load driven network investments are predominantly associated with the reinvestment of assets to maintain the capacity or capability of the transmission network, ensure security of the infrastructure, or compliance with legislation and regulation. This approach results in

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investments that are planned against a risk management framework that takes into account asset condition, demand forecasts, reliability of supply obligations and the configuration of the network<sup>5</sup>. Further information about asset compliance is detailed in Powerlink’s Asset Reinvestment Criteria, while the management of Asset risk is governed by Powerlink's Asset Risk Framework and Guideline.

**Load Driven**

Load driven investments are predominantly associated with demand growth. Details of the planning process are contained within Powerlink’s Network Planning Criteria Framework and Joint Planning Framework Procedure.

**Easements**

In order to provide for the construction of new assets, or the refit of existing assets, Powerlink must at times purchase property, extend existing easements or acquire new easements. Detailed planning for future land requirements is carried out against a background of ongoing development around the State, which may impact the availability of suitable land or easements for the construction of transmission infrastructure.

**Connections**

Powerlink is required by the National Electricity Rules to provide access to its transmission network to parties who wish to connect. The connection services include:

- Prescribed Services – provision of connection assets to Distribution Network Service Providers(e.g. Ergon or Energex) or Grandfathered Prescribed connection services;
- Negotiated services – provision of connection assets required to form a connection for any other parties to the prescribed transmission network; and
  - Negotiated connection assets greater than \$10 million in value are subject to contestability whereby a connection proponent can engage a third party (other than Powerlink) to deliver the connection assets. These assets are termed Identified User Shared Assets (IUSAs).
- Non-regulated services – connection assets beyond the transmission network connection point that connect to the negotiated connection assets

Connection assets forming non-regulated services are contestable and generally offered by Powerlink on a build-own-operate-maintain (BOOM) model. Where the connection assets do not form an IUSA, Powerlink adopts a consistent approach to the Asset Management for prescribed and non-prescribed services.

**Stage 2: Operation, Maintenance and Refurbishment**

In accordance with the Asset Management Policy, Powerlink’s operating, maintenance and refurbishment process is driven by the need to provide safe, environmentally conscious transmission services that are cost-effective over whole-of-asset life, meet customer and stakeholder reliability requirements and facilitate the effective operation of the competitive electricity market. Powerlink carefully balances each of these activities in conjunction with consideration of the life cycle of assets through a risk assessment process.

**Outage Management**

Outage management (to facilitate maintenance, refurbishment or capital investment) is critical in Powerlink achieving the following outcomes:

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<sup>5</sup> The transmission network develops over time, which means there may be opportunities for reinvestment to occur in a configuration that is different to the original configuration.



- ensuring compliance with the National Electricity Rules (NER);
- effective work progress against the maintenance plan and capital works program;
- managing outages for projects and maintenance, providing decision support for scheduling;
- reducing system restoration time;
- working collaboratively with customers to reduce impacts on and ensure optimal outcomes for both the network and customers.

In keeping with these objectives, Powerlink has developed a range of systems for works and outage management that allow for the forward projection of future work requirements and the coordination and optimisation of outages on the transmission network.

### **Reliability Centred Maintenance**

Powerlink has utilised the Reliability Centred Maintenance (RCM) approach since 2004 to establish asset maintenance requirements. RCM provides a framework for logically analysing the potential failure modes of asset and systems, as well as the likely effects and consequences. This analysis is used to review and update the responsibilities for, and frequency of, maintenance activities, including the levels of required spares. Powerlink has applied the RCM approach to all critical assets and currently reviewing maintenance strategies to maximise asset reliability and availability whilst optimising ongoing maintenance costs.

### **Value Driven Maintenance**

Powerlink has started to implement Value Driven Maintenance (VDM) to optimise maintenance costs while taking into account health, safety and environment requirements balancing against risk requirements.

VDM provides a risk based framework for quantifying the dominant failure modes (which are identified during RCM analysis in monetary terms). This assists the ranking of failure modes from high to lower risk and then compares this with the maintenance cost spent for each failure mode. This is used to run scenario analysis to find the optimal frequency for a maintenance strategy and identify “high cost- low value” activities for optimisation. VDM is applied to maintenance strategies over the life cycle of an asset, incorporates asset risk quantification and facilitates “what if” analysis based on cost vs benefit principles for different scenarios.

### **Remote Monitoring**

Powerlink adopts a range of technologies that allow it to remotely monitor its assets for the purposes of fault and configuration management as well as condition/performance monitoring.

The use of remote monitoring technologies for fault management helps improve response times and decrease the impact of forced outages. Remote condition and performance monitoring can reduce the need for intrusive local maintenance activities and provide direct performance feedback that can be used to modify or refine scheduled maintenance activities.

Tracking the settings applied to the high voltage transmission network, and those software configurations applied to digital technologies, ensures that Powerlink has consistent data available for the restoration of the network in the event of asset failures.

### **Asset Refurbishment**

Assets within the transmission network may need to be refurbished in order to maintain their capability throughout its life for the provision of network services, and is governed by the Asset Refurbishment Policy. Refurbishment can be triggered by a range of factors and is typically considered when the cost and effort to maintain the plant or equipment is more than normal maintenance expenditure, or when a systematic problem in need of repair has been identified.

Asset refurbishment involves activities that return an asset to its pre-existing condition or function, or activities undertaken on part of an asset to return that specific component to its pre-existing condition or function. In contrast, asset replacement is an activity that involves the complete replacement of a financial asset to achieve an improvement or increase in the

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capacity, capability or compliance of the pre-existing asset or involves extending the life of the asset beyond the financial life it would otherwise have.

Refurbishment plans are developed on an ongoing basis and budgeted for annually. Base data for the refurbishment program is derived from asset condition assessments, maintenance service provider (MSP) feedback and the root cause analysis of asset failures.

**Emergency Response and Network Security**

Cyclones and natural disasters are a part of the climate in which Powerlink operates its assets. For this type of extreme weather events Powerlink develops emergency response strategies.

Network Security is defined as the state of being protected against danger, loss or harm. It is achieved through the mitigation of adverse consequences associated with the intentional or malicious actions of others. Powerlink continues to invest in the physical and cyber security of its critical transmission assets in accordance with Powerlink’s Security Management - Framework.

**Stage 3: End of Life**

The end of life phase of the asset considers an asset’s ongoing fitness for purpose and whether it should be disposed of or if reinvestment should occur. Any reinvestment decision needs to consider the future requirements associated with planning and investment to ensure optimal economic outcomes and aligned with customer requirements.

Asset end of life investment, governed by Powerlink’s Asset End of Life Policy, makes up most projects that are not driven by load growth.

Asset disposal is considered where the asset is not required in the current and future network topology in conjunction with factors including significant performance or reliability deterioration and/or significant ongoing costs for maintenance and refurbishment. Disposal includes strategies to disconnect, decommission and/or demolish an asset.

**4.3 Asset Management Cycle – Resource Alignment**

Resource alignment needs to consider:

- Resource Planning;
- Implementation Strategies; and
- Cost and Resource Management

**4.3.1 Resource planning**

To ensure the asset management objectives are achieved it is important that:

- sufficient resources are made available to achieve the strategies which are to be implemented; and
- the development of the Asset Management strategies has regard for the resource availability

Powerlink uses a range of tools to develop resource plans over different forward planning horizons.

In the medium to long term (5 -10 years), scenario and asset desktop analysis are used to develop capital forecasts that provide macro level indications of longer-term asset investment requirements. This high level forecast is provided in **the Asset Management Plan** and factored into analysis that forecasts the combined capital and operational project workload.

In the shorter term, an integrated capital works plan is developed that provides an indication of future project workload.

Annual operational expenditure is based on a financial year budgeting cycle, which includes the delivery of maintenance plans and activities, operational support and anticipated expenditure on the refurbishment program.

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**4.3.2 Implementation strategies**

Powerlink has adopted implementation strategies across its portfolio of projects and activities aimed at efficiently delivering the overall work program. These strategies are aimed at providing a line of sight from asset need through to project completion to ensure optimal investment. Powerlink recognises that skilled resources are valuable and can be in short demand. Implementation strategies therefore continue to take into account management of resource requirements, particularly human resource requirements. The following strategies continue to be adopted:

- Design standardisation – using standard designs for major elements of substations and transmission lines to minimise the amount of customisation required and take advantage of economies of scale.
- Program management – grouping of projects into bundles of work that can be awarded to major contractors to allow them to plan with certainty and secure their own resources.
- Supply chain management – the establishment of long term panels for design, construct and test contractors coupled with panels for the procurement of standard equipment support both the cost effective and timely delivery of projects.
- Streamlined easement and land acquisition – earlier identification of easement requirements to help ensure access can be provided at the time required by the contractor

**4.3.3 Cost and resource management**

Powerlink targets the efficient implementation of work associated with network operation, field maintenance, refurbishment and project delivery. Wherever practical, performance based agreements are used for managing the relationship between Powerlink and its service providers.

Operational expenditure budgets are developed that reflect the planned and expected work in the categories of field maintenance, refurbishment projects, maintenance support and network operation. These budgets are subject to review to ensure expenditure is within targets and that the work is being conducted in a manner that maintains the reliability and security of the transmission network.

A key component of controlling costs and achieving efficiencies involves the forecasting and management of the routine maintenance workload and refurbishment projects, in conjunction with the ongoing management of non-routine maintenance and Powerlink’s capital project program for the full range of network projects.

Powerlink also continues to pursue innovative work techniques that optimise maintenance or operating costs, reduce risk to personal safety, reduce the requirement for planned outages on the network or allow the organisation to respond faster in restoring the network after faults. Powerlink’s management of field activities includes an audit provision that allows it to ensure compliance with:

- recognised standards of work, including safety and environmental requirements applicable to the area of work
- performance or delivery requirements;
- Powerlink policies and / or procedures;
- the Service Provider’s own internal policies or procedures; and

Powerlink undertakes regular auditing of maintenance service providers (MSPs) against technical and process based performance indicators, and audits service providers for compliance with safety and environmental requirements. Auditing policies, procedures and checklists are maintained to support each of the auditing functions. The outcome from these audits, in conjunction with asset performance information, allows Powerlink to assess the outcomes of its overall maintenance and refurbishment strategies against the desired outcomes. This facilitates the continuous improvement phase of the overall Asset Management Cycle.

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#### 4.4 Asset Management Cycle – Continuous Review

Powerlink continually reports on:

- asset performance including financial and non-financial performance; and
- the effectiveness of the asset management system.

Powerlink reviews the suitability, adequacy and effectiveness of its asset management and asset management system against a range of asset and system performance reporting activities including:

- National Electrical Rules;
- Revenue Metering reporting;
- AER Service Target Performance Incentive Scheme;
- AER Regulatory Information Notice (RIN);
- International Transmission Operational and Maintenance Services (ITOMS) Benchmarking; and
- International Transmission Asset Management Services (ITAMS) Benchmarking.

In order to support advanced system performance monitoring, Powerlink has developed Operational Technology (OT) and Information Technology (IT) strategies to integrate asset management systems and provide reporting and analysis on historical and future asset performance. Where an improvement action is identified, Powerlink's Change Management Framework is applied to ensure the change is implemented in a controlled and effective manner.

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## 5. Distribution List

Internal	Contact Details
<b>Chief Executive Office</b>	<b>Chief Executive</b>
Finance and Governance	Executive General Manager General Manager Finance and Governance General Manager Governance and Business Services
Delivery and Technical Solutions	Executive General Manager General Manager Infrastructure Delivery General Manager Design Solutions General Manager Technology and Planning General Manager Community and Delivery Services
Operations and Service Delivery	Executive General Manager General Manager Field Delivery General Manager Service and Supply Partners General Manager Network Operations General Manager Technical and Network Solutions
Strategy and Business Development	General Manager Network Regulation General Manger Portfolio Management
People and Corporate Services	Executive General Manager General Manager Communications General Manager Health, Safety and Environment General Manager People and Culture General Manager Business IT

## Appendices

### Appendix A – Document Hierarchy

This appendix provides further background and explanation of our asset management document suite and explains how the documents reflect a ‘line of sight’ between overall corporate objectives and day-to-day asset management activities.

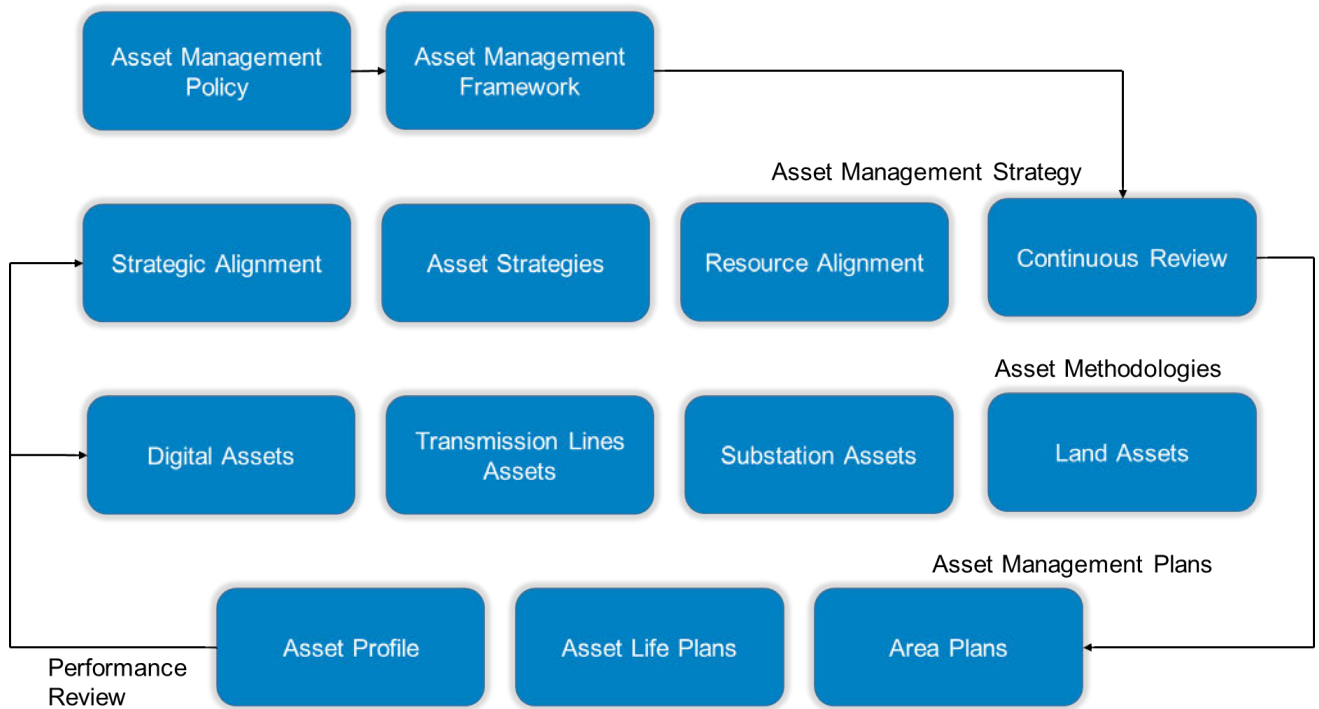
This approach results in the objectives of the Asset Management Policy being distributed across three levels of the Asset Management System.

**Asset Management Strategy** refines the corporate objectives in our Asset Management Policy and expresses these as a number of high-level objectives in four categories. (Strategic Alignment/Asset Strategies/Resource Alignment/Continuous Review)

**Asset Methodologies** expand the high-level objectives (by asset category- digital, transmission lines, substations and land) and provide life cycle strategies for each stage.

**Asset Management Plans** express the objectives (high-level and lifecycle) in terms of the individual assets.

These levels and interrelationships are represented in Figure A1.



**Appendix B: Asset Life Cycle Management RAIDE-C Elements**

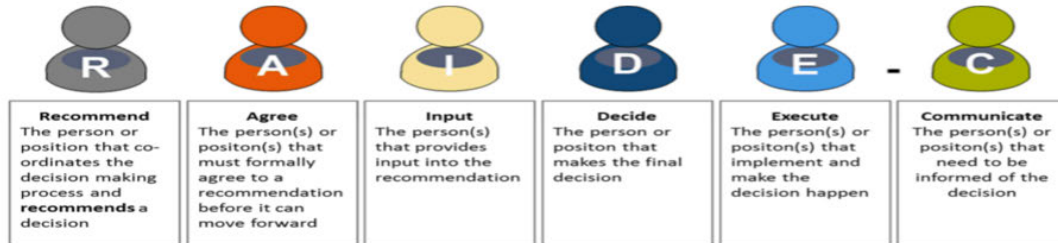
Powerlink has adopted a “Distributed Asset Management” model to deliver asset management activities. This means throughout the asset management cycle (as described in Section 3), every Division has accountabilities to contribute to the whole of asset management outcomes.

Powerlink uses RAIDE-C (Recommend, Agree, Input, Decide, Execute and Communicate) accountability framework to communicate roles and responsibilities based on identified activities.

In the following tables, only “D”, “R” and “I” were populated as “E” and “C” elements of RAIDE-C should be implemented at every step through asset management activities.

Additionally there are only three S&BD (Strategy and Business Development), D&TS (Delivery and Technical Services) and O&SD (Operations and Service Delivery) divisions listed here as these divisions are leading technical asset management activities. The other two divisions (People & Culture, Finance & Governance) also play very important role in the delivery of asset management as enablers to achieve sustainable asset management outcomes.

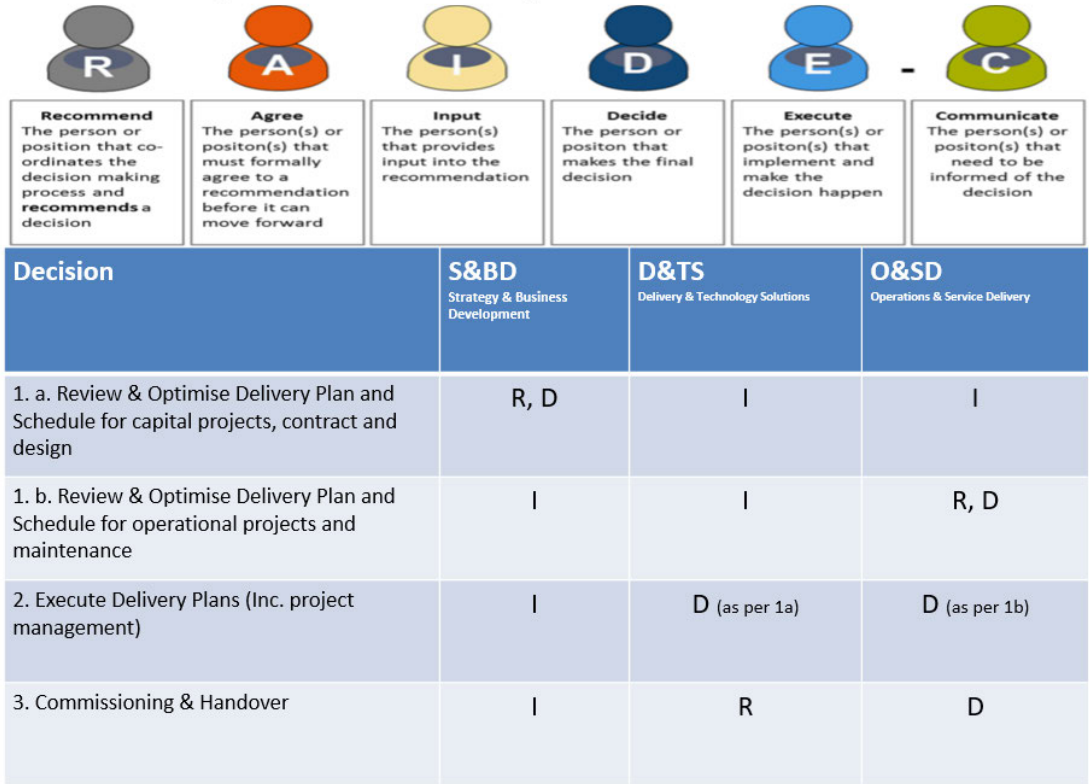
**Strategic Planning**



Decision	S&BD Strategy & Business Development	D&TS Delivery & Technology Solutions	O&SD Operations & Service Delivery
1. a. Strategic* Asset Decision on Maintain/Refurb/Refit/do nothing/replace / decommission	R, D	I	I
1. b. Operational* Unplanned Decision on Maintain/Refurb/do nothing/ replace	I	I	R,D
2. Area Plan & Asset Management Plan	R, D	I	I
3. Portfolio Plan	R, D	I	I
4. Project Approval (CP&OR)	R, D	I	I
5. Maintenance Expenditure Approval (including maintenance projects)	I	I	R, D

\*Strategic = predicted / identified asset decisions  
 \*Operational = unplanned / reactive asset decisions

### Resource Alignment and Delivery



## Operate & Maintain

Decision	S&BD Strategy & Business Development	D&TS Delivery & Technology Solutions	O&SD Operations & Service Delivery
1. Develop Maintenance Strategies (routine maintenance)- setting requirements	R, D	I	I
2. Review & Update Maintenance Strategies	R, D	I	I
3. Review & Update Maintenance plans (routine / non routine)	I	I	R,D
4. Prioritisation of routine / non routine maintenance for implementation	I	I	R,D
5. Works delivery plan	I	I	R,D
6. Execution of maintenance program	I	I	R,D

## Continuous Review

Decision	S&BD Strategy & Business Development	D&TS Delivery & Technology Services	O&SD Operations & Service Delivery
1. Notification Review & Analysis		I	R,D
2. Work Order Analysis		I	R,D
3. Risk Rating (Notifications Priority)		I	R,D
4.a. Asset Risk Register (for C55)	R, D	I	I
4.b. Asset Risk Register (Operational)	I	I	R,D
5. Asset Condition Assessment Report	R,D	I	I
6. a. Health Indices & Needs Analysis (Strategic*)	R,D	I	I
6.b. Health Indices & Needs Analysis (Operational*)		I	R,D

\*Strategic = predictive asset performance forecasting based on historical trends  
 \*Operational = real time asset performance monitoring



