
CENTRALINES
LIMITED
REGULATORY
ASSET
MANAGEMENT
PLAN
2022-32
UPDATE
CENTRALINES
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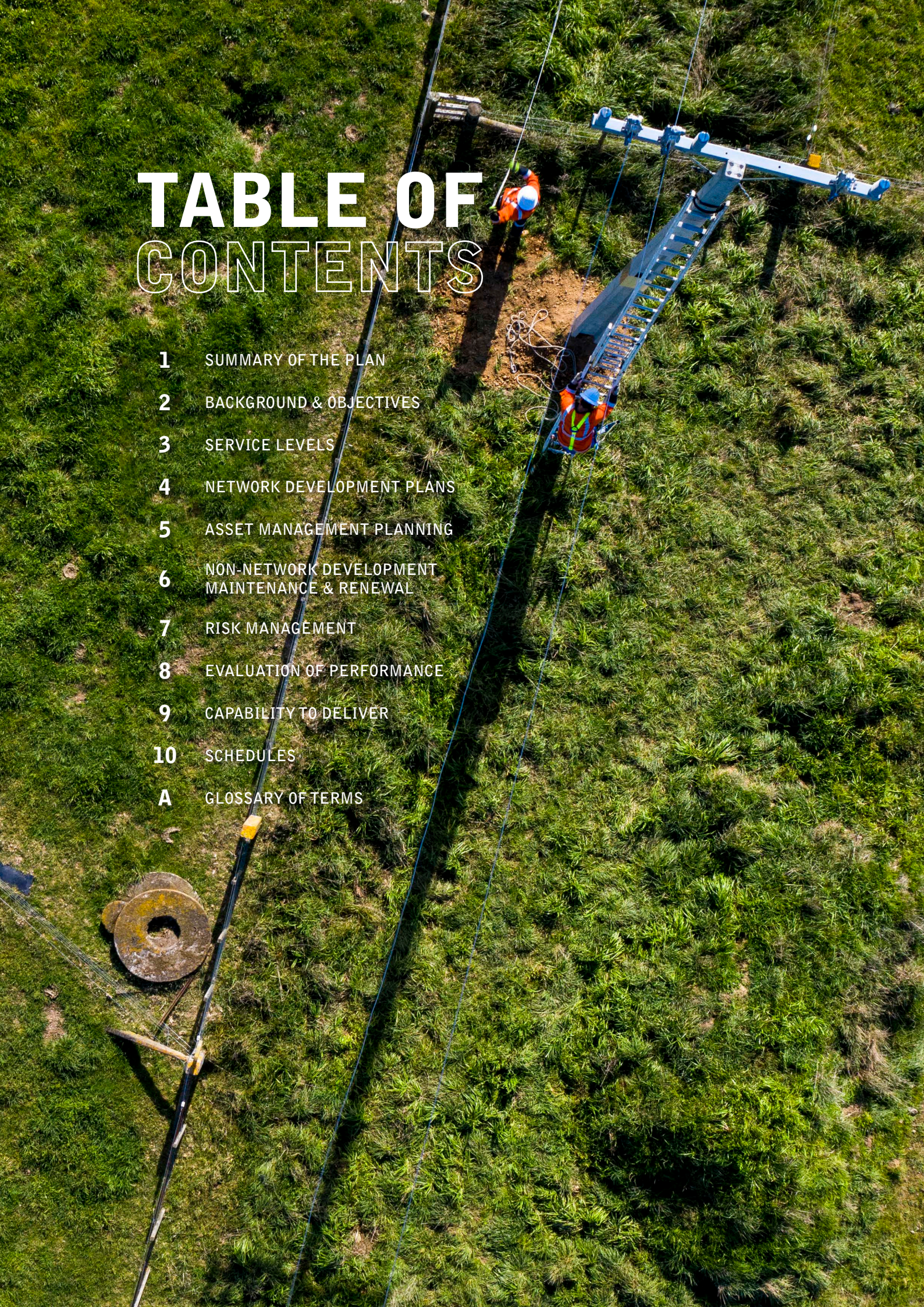
This Regulatory Asset Management Plan (RAMP) Update is available for public disclosure and applies for the period 1 April 2022 to 31 March 2032.



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SUMMARY OF THE PLAN

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1. SUMMARY OF THE PLAN

1.1 New Zealand Electricity Sector Context

Electricity Distribution Businesses (EDBs) are an integral part of New Zealand's electrical infrastructure, forming the physical link between the transmission network and electricity consumers. Centralines owns the distribution network that serves Central Hawke's Bay consumers. The network is managed and operated by Unison Networks Limited under a Management Services Agreement (MSA) with Centralines.

Electricity supply is provided to Centralines predominantly at 33kV from a single Transpower grid exit point (GXP) and is connected by Centralines' sub-transmission network to zone substations. At zone substations, the voltage is converted to 11kV for distribution. Distribution transformers throughout the network then reduce the voltage to 400V for end use. Centralines' role in the New Zealand electricity industry is shown in Figure 1-1.

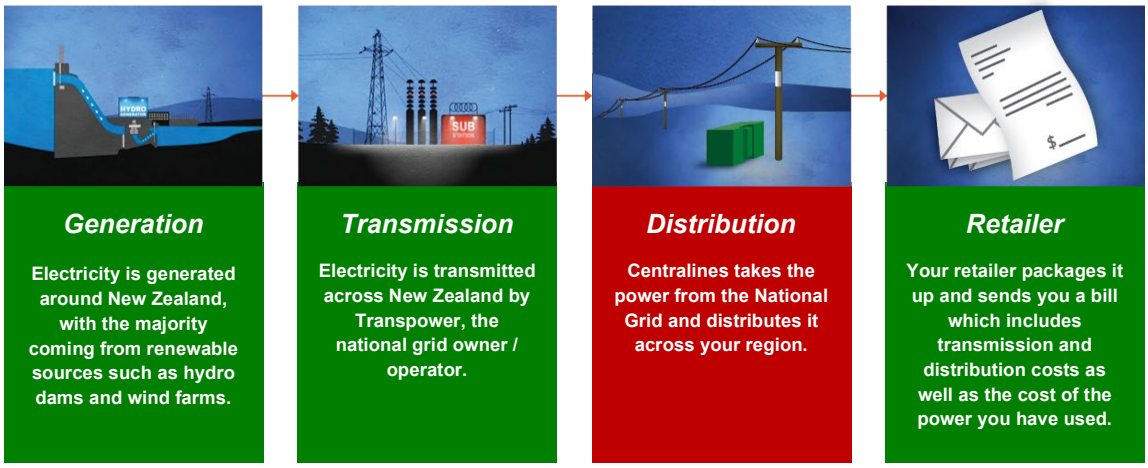

Figure 1-1: New Zealand Electricity Industry Diagram

When taking a supply of electricity, customers deal with electricity retailers like Contact, Genesis, Meridian and Mercury. The bill that customers receive includes the cost of the energy as well as a contribution to the cost of maintaining the electricity distribution network and the National Grid. The electricity distribution component of the typical consumer's bill is around 27%[1].

It should be noted that this legacy structure is beginning to evolve with more and more distributed generation being introduced at both the distribution level and by the end customer. This is resulting in two-way power flows which will be become more prevalent as the penetration of distributed generation increases.

[1] https://www.ea.govt.nz/consumers/my-electricity-bill/

1.2 About Centralines

Centralines is in the business of providing a safe, reliable, and cost-effective supply of electricity to their customers throughout the Central Hawke's Bay region. This is achieved through the provision, operation, and long-term management of their electricity distribution infrastructure, including overhead lines, underground cables, transformers, and substations. Centralines currently supplies electricity to approximately 9,000 consumers. Centralines' supply area is shown in Figure 1-2.

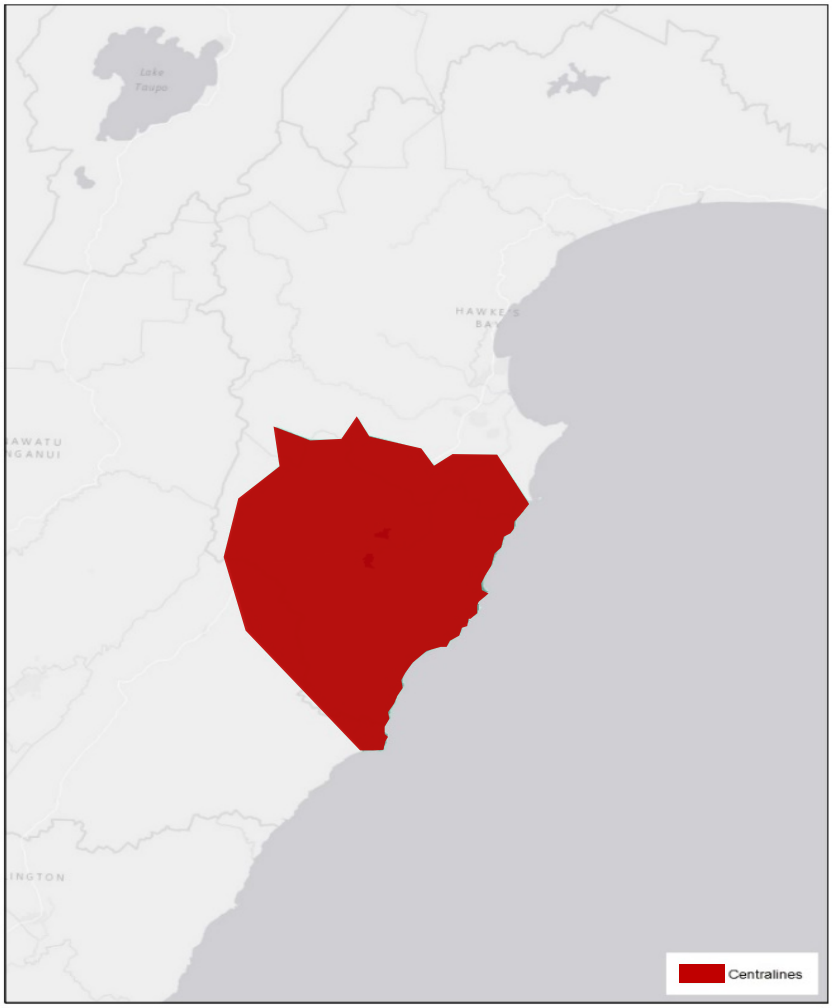

Figure 1-2: Map of Centralines' Network

1.2.1 Ownership and Governance

Centralines is wholly owned by the Central Hawke's Bay Consumers Power Trust (CHBCPT) on behalf of Central Hawke's Bay's electricity consumers. Centralines' Board of Directors is appointed by the CHBCPT.

The electricity distribution sector is regulated by the Commerce Commission to ensure that the long-term interests of consumers are protected. This regulation means that EDBs:

- are limited to what they can charge their customers
- must meet prescribed customer service levels, and
- must regularly disclose certain information about their operations.

In 2021, the High Court granted an application by the CHBCPT to vary its trust deed. This change meant that there would no longer be appointees to the Trust with all Trustees being elected. This satisfied criteria in The Commerce Act for Centralines to be deemed "consumer owned". Being "consumer owned" results in Centralines being subject to lighter regulation which aligns better to smaller, consumer owned electricity distribution businesses.

With this status confirmed by the Commerce Commission, Centralines is now exempt from price and quality regulation but remains subject to information disclosure requirements. The benefit to consumers is less volatility in prices year-to-year and more flexibility for Centralines. This will ensure Centralines can undertake and sustainably fund expenditure at appropriate levels to meet the needs of stakeholders and ensure a safe and reliable network.

Beyond Centralines' customers, shareholders, primary service providers and the Commerce Commission, Centralines has many other stakeholders (refer section 2.7). Centralines is committed to understanding the interests of these stakeholders and ensuring that key requirements are met. The processes Centralines uses to achieve this are discussed further in Section 2.

1.2.2 Organisational Structure

Centralines has adopted the organisation structure outlined in Figure 1-3 below. This structure reflects the significant number of asset management related services that are outsourced to Unison, Centralines' management services provider. There is a Management Services Agreement (MSA) in place between Centralines and Unison which details the requirements of both parties to ensure the effective and efficient management of the network and associated risks.

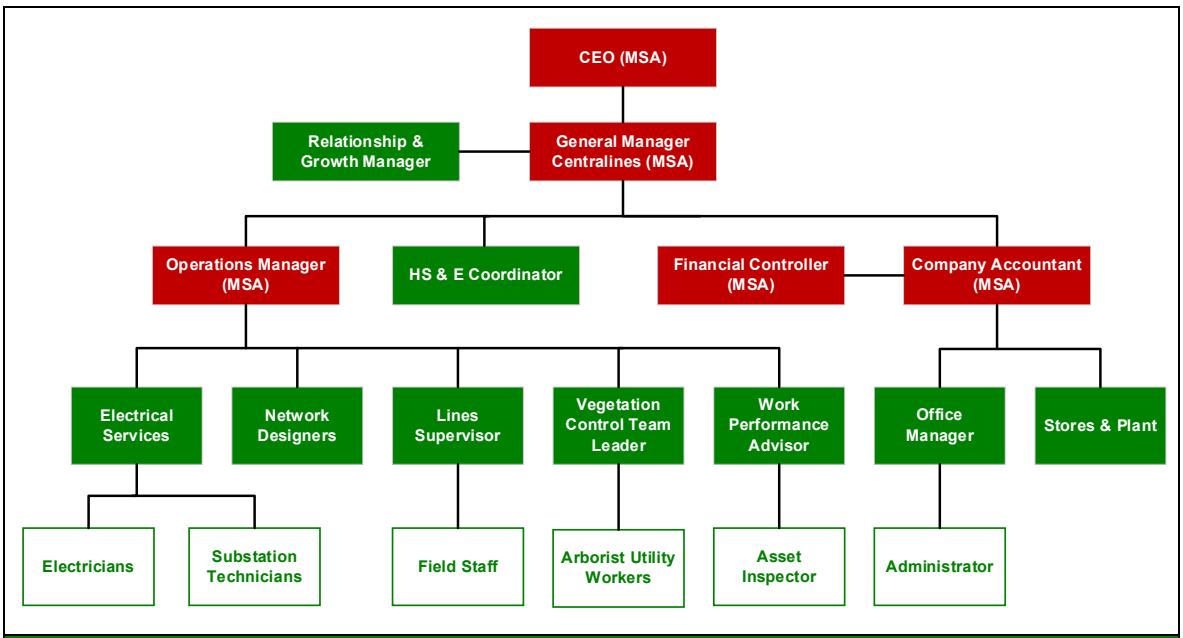

Figure 1-3: Centralines' Organisation Structure

1.2.3 Purpose, Vision and Values

Centralines' purpose is *"to enable long-term prosperity for Central Hawke's Bay through dynamic energy and infrastructure solutions"*.

Centralines' corporate vision is *"a collaborative partner that enables growth and delivers in the new energy economy*".

Values really matter to Centralines and defines Centralines as an organisation. They underpin Centralines' organisational culture and inform the behaviours that are expected of employees.

Centralines' Values are:

- *Safety — Is part of our lives*
- *Teamwork — We are one team*
- *Integrity — Truth, honesty, respect*
- *Openness — We are approachable*
- *Passion — In everything we do*

Centralines' Purpose, Vision and Values influence all components of the Asset Management System (AMS).

1.3 About this Regulatory Asset Management Plan (RAMP)

The Regulatory Asset Management Plan (this document) is Centralines' key external asset management publication. It is designed to meet the requirements of the Commerce Commission's electricity distribution information disclosure framework.

The RAMP is a composite of the many documents that form part of Centralines' AMS and includes the:

- Asset Management Policy — principles that Centralines commits to in asset management
- Asset Management Strategy and Objectives — Centralines' Asset Management Objectives (AMOs), and the strategy to ensure those objectives will be met, and
- Asset Management Plan (AMP) — register of asset related constraints and risks and project proposals to be implemented within the ten-year planning period to manage down those risks.

1.3.1 Structure of the RAMP

The structure of the RAMP is set out in Table 1-1, and includes reference to applicable sections of the information disclosure determination to assist in the assessment of compliance.

1-6 SECTION 1 SUMMARY OF THE PLAN

Section Name	Description	Determination Reference
1. Summary of the Plan	Overview of the RAMP and Centralines' company profile.	3.1
2. Background and Objectives	Centralines' AMOs and the strategy employed to meet them.	3.3 – 3.17
3. Service Levels	The performance measures used to evaluate Centralines' performance against its AMOs.	5. - 10.
4. Network Development Plans	Overview of the assumptions, processes, and systems that Centralines employs to formulate network development plans. Provides a detailed breakdown of network development projects for the planning period.	11.1 – 11.12 4.1 - 4.3 excluding 4.2.6
5. Lifecycle Asset Management Planning	Overview of the assumptions, processes, and systems that Centralines employs to formulate its asset maintenance and renewal plans. Provides a detailed breakdown of maintenance plans and renewal projects for the planning period.	12.1 – 12.4 4.2.6, 4.4 - 4.5
6. Non-Network Development, Maintenance and Renewal	Overview of Centralines' approach to management of non-network assets, including vehicles and buildings.	13.
7. Risk Management	Overview of risk processes of the AMS.	14.
8. Evaluation of Performance	Evaluation of Centralines' asset management performance against the Service Levels disclosed in the 2021 RAMP.	15.
9. Capability to Deliver	Explains how Centralines assures itself that the AMP can be delivered.	16.
10. Schedules	Completed schedules containing required asset management information.	2.6.1 (1) (d), 2.6.1 (1) (e), 2.6.1 (2)
Appendix A: Glossary of Terms	Key technical and industry terms and acronyms.	

Table 1-1: Structure of the RAMP

1.4 Asset Management at Centralines

As discussed in 1.2.2, Centralines, under provisions of a MSA, contracts Unison Networks Limited (Unison) to provide asset management services.

Managing electricity networks is Centralines' Asset Management service provider's core skill set. The service provider sees Asset Management as a long-term undertaking, as a result of the:

- high dependence that Centralines' customers have on the electrical infrastructure now, and for the foreseeable future, and
- the long-lived nature of assets that are managed.

At the heart of Centralines' Asset Management service provider's philosophy is the goal of balancing cost, risk, and performance according to stakeholder requirements. To ensure that this idea is embedded at all levels of asset management, an AMS has been developed. The AMS ties together and aligns all asset management activities.

Core components of the AMS include the Asset Management Policy, AMOs and three key asset management processes:

- Asset Management Planning — development of plans that ensure AMOs will be met, including asset renewal and asset capability improvement
- Lifecycle Delivery — the safe execution of asset management plans, to ensure work is delivered efficiently and in conformance to quality standards, and
- Continual Improvement — to monitor, measure and evaluate the performance of assets and asset management, and actions taken to continually improve how things get done.

1.4.1 ISO 55001 Certification

ISO 55001:2014 is an international standard that specifies the requirements for an AMS. It builds on the management systems approaches utilised in ISO 9001 for quality management and ISO 14001 for environmental management.

Centralines' service provider Unison, was the first company in New Zealand to be certified to this standard which was confirmed in March 2018 through accredited auditor, British Standards Institute (BSI). This certification provides further external scrutiny and validation of its AMS and means, Unison can measure itself up to the best asset managers globally. After successfully passing a full compliance audit in December 2020 and subsequent surveillance audit in October 2021, this certification remains current. While the ISO 55001 certification is specific to the Unison Network, key frameworks and processes developed as part of the certification process have been adopted to manage the Centralines network.

1.4.2 Asset Management Policy

Centralines' Asset Management Policy is detailed in Table 1-2 below. The policy comprises 15 principles that Centralines has committed to in the delivery of asset management. The policy was developed by the management team and approved by Centralines' Board of Directors.

Asset Management Policy
1. Ensuring that our people take personal responsibility for managing risks to ensure the safety of: • themselves • their colleagues • contractors, and • members of the public. 2. Ensuring that our assets are safe, resilient, free from defects and do not impact adversely on the environment. 3. Ensuring compliance with all applicable legislative and regulatory requirements and industry and internal standards. 4. Taking a risk-based, quality systems approach to asset management through an asset management system that is aligned to the principles of ISO 55001. 5. Using data, information, technology, and effective processes to support fact-based and robust decision-making. 6. Implementing asset management plans that: • propose efficient levels of expenditure • manage risk in the Asset Portfolio, and • ensure customer service levels will be met consistently over the long-term. 7. Investing in assets prudently and undertaking asset management in a way that represents value for money for our customers and owners. 8. Working closely with our owners, customers and other stakeholders and being responsive to all feedback, requests, and complaints. 9. Playing a positive, engaged, and communicative role in the development of infrastructure to serve our communities. 10. Acting ethically and transparently to gain the trust and respect of our communities. 11. Providing appropriate levels of resource to enable asset management objectives to be achieved. 12. Monitoring, measuring, and reporting on asset and asset management performance. 13. Developing the capability of our people and teams to enable them to reach their potential in asset management. 14. Fostering a positive, diverse, and inclusive work environment that motivates our people to deliver their best each day. 15. Ensuring that our people are supported and empowered to find ways to do things better and continually improve asset management at Centralines.

Table 1-2: Asset Management Policy

1.4.3 Strategic Asset Management Objectives (AMOs)

Strategic AMOs are identified through the analysis of requirements of, and commitments to key stakeholders. These commitments are contained in a variety of service level agreements, compliance and legislative requirements and Centralines' Corporate Strategic Objectives and Statement of Corporate Intent.

Centralines' Strategic AMOs are detailed in Table 1-3 below. More detailed information can be found in Section 2.3.4.

Strategic Asset Management Objectives
1. Ensure people are safe around Centralines' assets.
2. Deliver a reliable and compliant electricity supply to customers.
3. Improve customers experience in relation to asset management services.
4. Improve the financial performance of the asset management plan without compromising network performance or asset integrity.
5. Improve the delivery performance of the Annual Works Plan.
6. Improve asset management capability to support the development and execution of asset management strategies and plans.
7. Improve the communication of the asset management system and strategy to staff.
8. Improve the environmental sustainability, performance, and resilience of asset management activities.
9. Maintain compliance with all applicable legislative and regulatory requirements.

Table 1-3: Strategic Asset Management Objectives

1.5 Key Stakeholder Information

Centralines firmly believes this RAMP should be accessible to readers of varying levels of technical understanding, and that all stakeholders should be able to extract the information they require. From experience, Centralines recognises that for many stakeholders (including the majority of Centralines' customers), the information of most interest is:

- key information pertaining to Centralines' network
- the level of service and performance that can be expected, and
- projects that have been initiated to improve the quality of electricity supplied.

To this end, this section provides an executive summary of these areas.

1.5.1 *Centralines' Asset Portfolio & Industry Comparison*

Centralines' suite of assets is referred to as the Asset Portfolio. Table 1-4 outlines some of the key statistics (as of March 2020) associated with Centralines' Asset Portfolio, along with a comparison against the industry median for context.

Metric	Description	Centralines	Industry Median
Consumers Connected	Total installation control points (ICP) connected to the network.	8,623	32,156
System Length	Total length of all energised circuits.	1,813km	3,949km
Sub-Transmission System Length	Total length of all energised 33kV circuits.	96km	221km
Distribution System Length	Total length of all energised 11kV circuits.	1,432km	2,132km
Low Voltage System Length	Total length of all energised LV circuits.	285km	843km
Percentage Underground	The proportion of total system length that is undergrounded.	6.8%	22.3%
Asset Value	Centralines Regulatory Asset Base.	$60,538,000	$210,963,934
SAIDI	System Average Interruption Duration Index. A measure of the (raw, non-normalised) number of minutes per year the average consumer is without electricity supply.	159.2 minutes	225.8 minutes
SAIFI	System Average Interruption Frequency Index. A measure of the (raw, non-normalised) number of interruptions per year that affect the average consumer.	2.34	2.34
Electricity Supplied	Electricity entering system for supply to consumers.	111 GWh	548 GWh
Loss Ratio	Proportion of electricity lost on the high voltage network.	8.8%	5.7%

Table 1-4: Network Comparison between Centralines and Industry Median of NZ EDBs

1.5.2 *Performance Measures & Targets*

Centralines' Strategic Asset Management Objectives (AMOs) provide the ability to report on whether the needs and expectations of AMS stakeholders are being met.

The current measures that enable Centralines to monitor and improve performance in relation to these AMOs is provided in Table 1-5 below. More detail on Centralines' objectives and associated performance measures is provided in Section 3 – Service Levels.

Key Result Area	Strategic Asset Management Objective	Measurements	Targets 2022 / 2023
Health and Safety	Ensure people are safe around Centralines' assets.	Asset failures resulting in serious harm or fatality to a member of the public.	0
		Number of severity one, field crew, health, and safety internal audit findings.	0
		Percentage of priority 1, 2, and 3 asset defects completed within required timeframes.	100%
Network Reliability	Deliver a reliable and compliant electricity supply to customers.	Unplanned SAIDI, less than SCI Target (minutes).	<62.83
		Unplanned SAIFI, less than SCI Target (interruptions).	<3.16
		Number of annual, verified power quality complaints.	≤ 5
Customer Service	Improve customers' experience in relation to asset management services.	Percentage of planned shutdowns finishing outside notified outage windows.	< 15%
		Centralines responses not completed within Utilities Disputes (UDL) time limits.	0
		Timeframe to complete standard low voltage customer connection	<15 business days
		Timeframe to complete investigation of power quality issue	<20 business days
Financial	Improve the financial performance of the asset	Total annual network CapEx is within ±10% of total budget.	< ± 10%

Key Result Area	Strategic Asset Management Objective	Measurements	Targets 2022 / 2023
	management plan without compromising network performance and asset integrity.	Total annual network OpEx is within ±10% of total budget.	< ± 10%
Service Delivery	Improve delivery performance of the Annual Works Plan.	Delivery of the annual network capital works programme.	Programme completed in full.
		Delivery of the annual planned network maintenance programme.	Programme completed in full.
		Delivery of non-standard customer projects outside of agreed scheduled date.	0
		Number of severity 1 and 2 work practice and quality outcomes from internal field audits.	0
Innovation and Continual Improvement	Improve the asset management capability to support the development and implementation of the asset management strategies and plans.	Delivery of Asset Management Capability Plan Delivery.	100%
		Centralines' asset management service provider (Unison) maintains ISO 55001 certification.	ISO 55001 Certification
	Improve the communication of the asset management strategy to all Centralines' teams.	Percentage of new Centralines staff who received an asset management induction within three months of commencing employment.	100%
		Percentage of Centralines staff receiving an annual asset management briefing.	100%
	Improve the environmental sustainability performance and resilience of the asset management activities.	Number of environmental breaches resulting in environmental contamination due to the failure or an asset, asset system or associated containment.	0
		Centralines' network resilience maturity is assessed on an annual basis through the EEA's Resilience Management Maturity Assessment Tool (RMMAT).	Completed

Key Result Area	Strategic Asset Management Objective	Measurements	Targets 2022 / 2023
Assurance	Maintain compliance with all applicable requirements.	Percentage of non-compliances identified through Legislative Compliance Programme in relation to Asset Management have a corrective plan in place.	100%
		Number of instances of unanticipated legal challenge or government investigation occurring.	0

Table 1-5: Performance Measures & Targets

1.5.3 Programmes and Projects to Improve Network Performance

The lifecycle asset management and network development plans and options presented in Sections 4 and 5 of the RAMP reflect an asset management philosophy that attempts to balance performance with other considerations including the management of risk and cost. The planning period considered by this RAMP sees a continuation of capital investment in the network to:

- manage any risks associated with Centralines' network assets
- meet customer-driven growth
- maintain network security
- meet customer service levels and network reliability targets, and
- ensure compliance with regulatory requirements, e.g., health, safety and environmental.

Some projects that support the above objectives and are expected to improve network performance are shown in Table 1-6 below.

Year	Project Name	Description
2022/2023	Upgrade transformer capacity of Sub B4/201 and replace aged low voltage copper conductor in Otane	Asset Renewal
	Smedley Road 7/0.064 11kV copper reconductor	Asset Renewal
	Recloser replacement, R44 Farm Road	Asset Renewal
	Maintenance after pole testing (MAPT) Feeder 46 Cooks Tooth / Herbertville Argyll Feeder 3 MAPT Burnside Feeder 4 Te Kura Feeder 91 Feeder 45 11kV Porangahau / Wallingford Stage 2	Asset Renewal

Year	Project Name	Description
	Replace 7/0.064 copper 11kV conductor in Paget Road, Feeder 75	Asset Renewal
	Recloser replacement, R24 River Road South, Centralines	Asset Renewal
	Multiple remote control switch replacements	Asset Renewal
	Reconductor 11kV Squirrel ACSR conductor, Seaview Road, Herbertville	Asset Renewal
	Feeder 91 - Replace ABS 498 with an RCS on Pole 906009	Network Automation

Table 1-6: Projects that will Improve Network Performance

1.5.4 Network Reliability

Network reliability is an important indicator of the quality of service being received by customers from their EDB. A large variety of indices have been developed by industry to provide an indication of network reliability and performance. The most commonly applied measures which are industry referenced and used by the regulator are:

- SAIDI (System Average Interruption Duration Index) — measures, on average, the total number of minutes a customer is without power per annum, and
- SAIFI (System Average Interruption Frequency Index) — measures, on average the total number of interruptions of over a minute, a customer experiences per annum.

The recent attainment of “consumer owned” status, exempts Centralines from these quality thresholds. Centralines however, continues to maintain reliability targets and measures and reports on its performance. This is to provide stakeholders with confidence in the continued performance and reliability of Centralines’ network.

Refer to section 8.5 for a summary and evaluation of Centralines’ network performance for the 2021/22 financial year.

1.6 The Changing Energy Landscape

The electricity system supporting New Zealand’s economy and lifestyle is changing. This change is being shaped by the following key drivers:

1. Decarbonisation

Decarbonisation refers to the elimination of carbon-based fuels for electricity generation and, electrification of demand sources that currently utilise carbon-based fuels, e.g., transport and process heat. While an increase in renewable energy sources will result in a more sustainable grid, renewable generation can be highly intermittent, making the balancing of energy supply and demand significantly more challenging.

2. Decentralisation

Decentralisation is the reduced reliance on a handful of large generating plants and the disbursement of generation across many smaller units. It also refers to the increasing amount of embedded generation and storage coming online including solar farms, batteries, combined heat and power sources on business sites and, residential solar panels.

3. Digitisation

The complex changes occurring in the energy market will require effective network management in real-time. Digitalisation provides the means to achieve this through comprehensive monitoring and control across the entire electricity system from generation to transmission and distribution supply and demand. Digitalisation also provides the foundation for innovation by enabling monitored information to be analysed to identify system efficiency improvement opportunities.

While the transformation of the electricity system will support environmental sustainability and improved energy equity, the system will be significantly more complex than it is today. Many of the techniques currently employed to manage the transmission system may become relevant at a distribution level to deal with the hundreds of thousands or millions of nodes.

In response to the above-mentioned changing environment, Centralines has developed a strategy to build capability to enable the smooth integration of these technologies onto the network. Refer to section 4.2.3 for details of this strategy.

As well as the risks directly presented by the above, there are also potential risks to Centralines in how regulators choose to respond. Centralines will continue to engage with the Commerce Commission and Electricity Authority as to how the regulatory environment can be developed to accommodate changing technology without compromising incentives for excellent asset management.

1.7 Upgrades & Replacements to Key Enabling Systems

1.7.1 Enterprise Asset Management System (EAMS)

Centralines' service provider Unison has numerous systems that enable and support asset management at Centralines. Unison's legacy Enterprise Asset Management System (EAMS) has been replaced as part of the implementation of a companywide Enterprise Resource Planning (ERP) System.

The new OneEnergy (EAMS) module is enabling the following asset management related benefits:

- improved asset condition information and work history, forecasting of risks, forward visibility for resource and material planning, material procurement and availability, and integration with related systems
- automated decision-making
- better information to field staff on work required and asset details, and
- enhanced systems to capture field information through tightly integrated mobility solutions.

The new system has been implemented for Unison's asset management activities during 2021 and is undergoing an optimisation phase to unlock more efficiencies. Following this phase, an implementation plan will be developed to roll the EAMS out to Centralines with completion expected in 2023.

1.7.2 Advanced Distribution Management System (ADMS)

Unison in the 2023 financial year will commence an upgrade to its Advanced Distribution Management System (ADMS) which is the key system utilised to operate Centralines' network.

The key drivers for this upgrade are:

- enhanced functionality
- a technical platform upgrade to maintain operating system support, and
- the integration of complementary business systems.

1.8 Stakeholder Feedback

Centralines encourages feedback on all aspects of the AMP to enable continued improvement in meeting the needs of consumers and stakeholders. Feedback should be addressed to:

Grant Hogan
Operational Asset Manager
c/o Centralines Limited
17 Coughlan Road
PO Box 59
Waipukurau 4200
New Zealand
grant.hogan@unison.co.nz

1.9 Determination Reference Mapping Table

Section 1 Reference		Determination Reference
1.1	New Zealand Electricity Sector Context	3.1
1.2	About Centralines	
1.3	About the Regulatory Asset Management Plan (RAMP)	
1.4	Asset Management at Centralines	
1.5	Key Stakeholder Information	
1.6	The Changing Energy Landscape	
1.7	Upgrades & Replacements to Key Enabling Systems	
1.8	Stakeholder Feedback	

Table 1-7: Determination Reference Mapping Table

TWO

BACKGROUND AND OBJECTIVES

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2-2 SECTION 2 BACKGROUND & OBJECTIVES

2. BACKGROUND AND OBJECTIVES

2.1 Introduction to this Section

Section 2: Background and Objectives provides an overview of the organisation and the Asset Management System (AMS), including the Asset Management Policy and the Asset Management Objectives (AMOs). A statement of Centralines' Asset Management Strategy is provided, along with a summary of the three key processes that ensure the strategy will be delivered effectively.

A table that maps the requirements of the Electricity Distribution Information Disclosure Determination to the information provided is available at the end of the section to support assessment of compliance.

2.2 Context of the Organisation

2.2.1 About Centralines

Centralines is the electricity distribution business (EDB) that serves the communities of Central Hawke's Bay. Centralines is owned by the Central Hawke's Bay Consumers Power Trust (CHBCPT) on behalf of the power consumers it supplies. It is responsible for connecting homes and businesses to its network, safely distributing electricity, and sustainably managing its infrastructure.

Centralines generates revenue by distributing electricity to approximately 9,000 consumers. The organisation also provides other services to its customers including:

- providing new connections to homes and businesses
- cutting and trimming trees near lines, and
- locating underground cables to ensure safe excavation.

Centralines works in partnership with all members of the electricity supply chain including generators, Transpower and retailers to meet the needs of electricity consumers. It also collaborates closely with other stakeholders including councils, government authorities and owners of other infrastructure to promote the effective management of community resources.

Centralines' infrastructure includes a network of lines, cables, transformers, switchgear, and other distribution equipment across the region it serves. These assets are used to distribute electricity to homes and businesses.

Electricity Distribution Businesses (EDBs) are natural monopolies and are regulated by the Commerce Commission, under the Default Price-Quality Path (DPP). The DPP places an upper limit on EDB revenues and sets minimum network performance standards according to the frequency and duration of outages. The Commerce Commission also requires Centralines to disclose certain information including this Regulatory Asset Management Plan (RAMP).

In 2021 the High Court granted an application by the CHBCPT to vary its trust deed. This change meant that there would no longer be appointees to the Trust with all Trustees being elected. This satisfied criteria in The Commerce Act for Centralines to be deemed "consumer owned". Being "consumer owned" results in Centralines being subjected to lighter regulation, which aligns better to smaller, consumer owned electricity distribution businesses. With this status confirmed by the Commerce Commission, Centralines is now exempt from price and quality regulation.

Centralines, under provisions of a Management Services Agreement (MSA), contracts Unison Networks Limited (Unison) to provide asset management services including:

- planning
- acquisition and construction
- livening
- operation and maintenance
- renewal and modification, and
- disposal.

A broad range of people with diverse skills are engaged in carrying out these asset management activities.

In March 2018, Unison became the first New Zealand organisation to be certified to ISO 55001. ISO 55001 is the international global benchmark for asset management capability and contains the requirements specification for an integrated, effective management system for asset management. While the ISO 55001 certification is specific to Unison and its own distribution network, key frameworks and processes associated with their Asset Management System (AMS), including asset management planning, developed as part of this certification process have been adopted to manage Centralines' distribution asset portfolio.

Centralines typically undertakes the majority of its own capital projects, asset maintenance and vegetation management activities through a small team of in-house resources. Some large, technically complex projects mainly associated with zone substations are managed on Centralines' behalf by Unison.

Recently, driven by high levels of population growth resulting in an unprecedented surge in customer-initiated work for new connections and subdivisions, and COVID related "lockdown" restrictions, Centralines' limited resources have been unable to deliver the complete capital works programme. To mitigate risks associated with this, Centralines has embarked on a works delivery initiative that includes productivity improvements, recruitment, and development programmes, and the securing of additional external contracting resource. Concurrently, an updated risk-based assessment of projects in the capital works programme including all deferred projects has been undertaken. This has resulted in a revised and smoothed forward works programme that addresses the highest network risks and is aligned to the available resource capacity.

COVID remains a disruptive influence and has the potential to have further impacts on resource and material availability in the new financial year.

Centralines is a responsible corporate citizen and responds to customer feedback. It takes a proactive stance on health and safety of employees, contractors, and the public, and takes responsibility for the effective management of environmental impacts of its operations.

2.2.2 Purpose Vision and Values

Centralines' purpose is *"to enable long-term prosperity for Central Hawke's Bay through dynamic energy and infrastructure solutions"*.

Centralines' corporate vision is *"a collaborative partner that enables growth and delivers in the new energy economy*".

2-6 SECTION 2 BACKGROUND & OBJECTIVES

Centralines is instrumental to the region's social and economic wellbeing, by ensuring one of the country's most sparsely populated regions has access to affordable and reliable electricity. Through the safe distribution of electricity to homes and businesses in Central Hawke's Bay, Centralines enables its community to prosper.

As a collaborative partner in the developing energy economy, Centralines continues to evolve to meet its customers' and wider stakeholders' changing needs, while embracing major changes in the strategic environment. This includes climate concerns and advances in technology which in the future will change the way energy is produced, stored, and used.

The energy value chain is in the early stages of a significant transformation from a system that was "centrally planned" to an "internet of energy", which will see consumers in control. With policy and regulation response, Centralines will shape the scope of its electrical distribution business while opening opportunities for new services and business models.

By remaining close to its customers, Centralines will continue to build insights and understanding of their changing needs. At the same time, it is crucial that Centralines engages the diverse talents of its people and the wider community to harness new ideas. With a focus on delivery, Centralines will do whatever it takes to find solutions for its customers and the community it serves.

A realistic view of the future is being developed to determine where and in what role(s) Centralines is going to play. Incremental changes in what Centralines does and how it invests will form part of this journey, which is not without risk. Centralines will explore and assess opportunities relating to the new energy economy and infrastructure services in other markets.

Continued provision of a valued and evolving customer service proposition will see Centralines play its part in enabling long-term prosperity and success for the community it serves.

Centralines understands the importance of people, culture, and climate to enable effective asset management. The behaviours and attitudes that Centralines is committed to and expects of its people are encapsulated within its five organisational values presented in Figure 2-1. Asset management is aligned with these values through the Asset Management Policy.

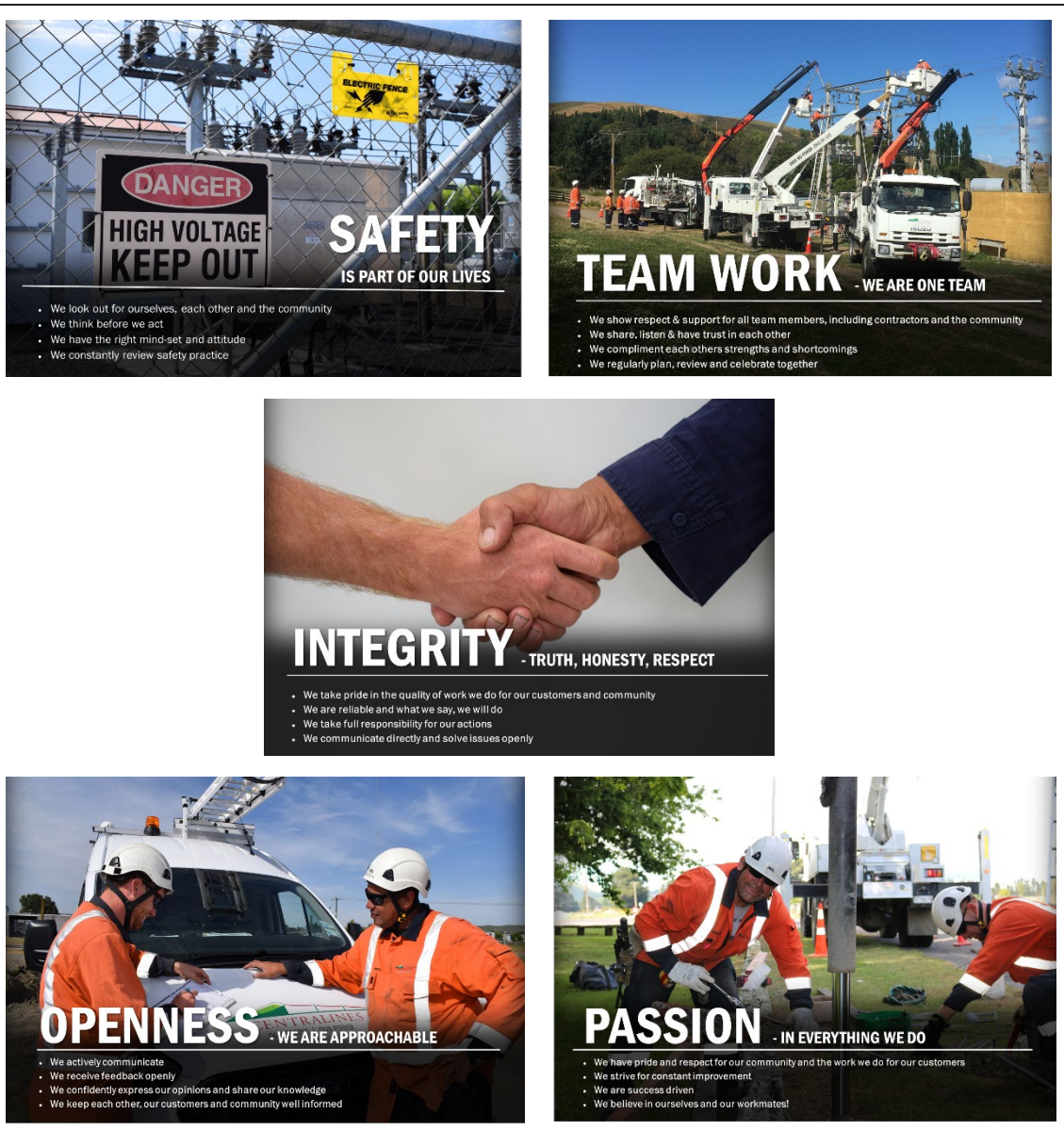

Figure 2-1: Centralines' Values

Centralines' people understand that the term 'best practice' is context-dependent, and is influenced by factors including the demographics, economies, and geographies of the region it serves and the scale of the business. For Centralines, in the asset management domain, best practice is about making optimal trade-offs between asset lifecycle cost, performance and risk that best reflect the needs of their customers and other stakeholders.

2.3 Overview of Centralines' Asset Management System (AMS)

A key pillar of Centralines' Asset Management service provider's corporate strategy is to establish a strong competence in asset management. This is supported through the implementation of an Asset Management System (AMS). Through this process they are committed to:

- developing asset management plans that optimise investment on a total lifecycle basis
- ensuring all teams are clear in their responsibilities and are appropriately empowered
- making decisions about priorities through consideration of relative risk
- using data and information to support fact-based decision-making
- communicating to all stakeholders on asset management issues relevant to their role
- continually improving in all facets of asset management, and
- implementing novel and innovative asset management solutions where this will best support achievement of the Asset Management Objectives (AMOs).

Centralines' AMS has been established based upon existing:

- asset management capabilities
- processes and procedures
- standards
- practices, and
- institutional knowledge in the management of electricity distribution networks and assets.

Its primary function is to provide structure and connectivity to ensure that asset management is in all cases delivered in alignment with:

- stakeholder requirements
- Corporate Strategic Objectives, and
- the Asset Management Policy.

An overview of the key elements of Centralines' current and future AMS, which is yet to be fully developed to the ISO 55001 standard, is provided in Figure 2-2 and the following sections.

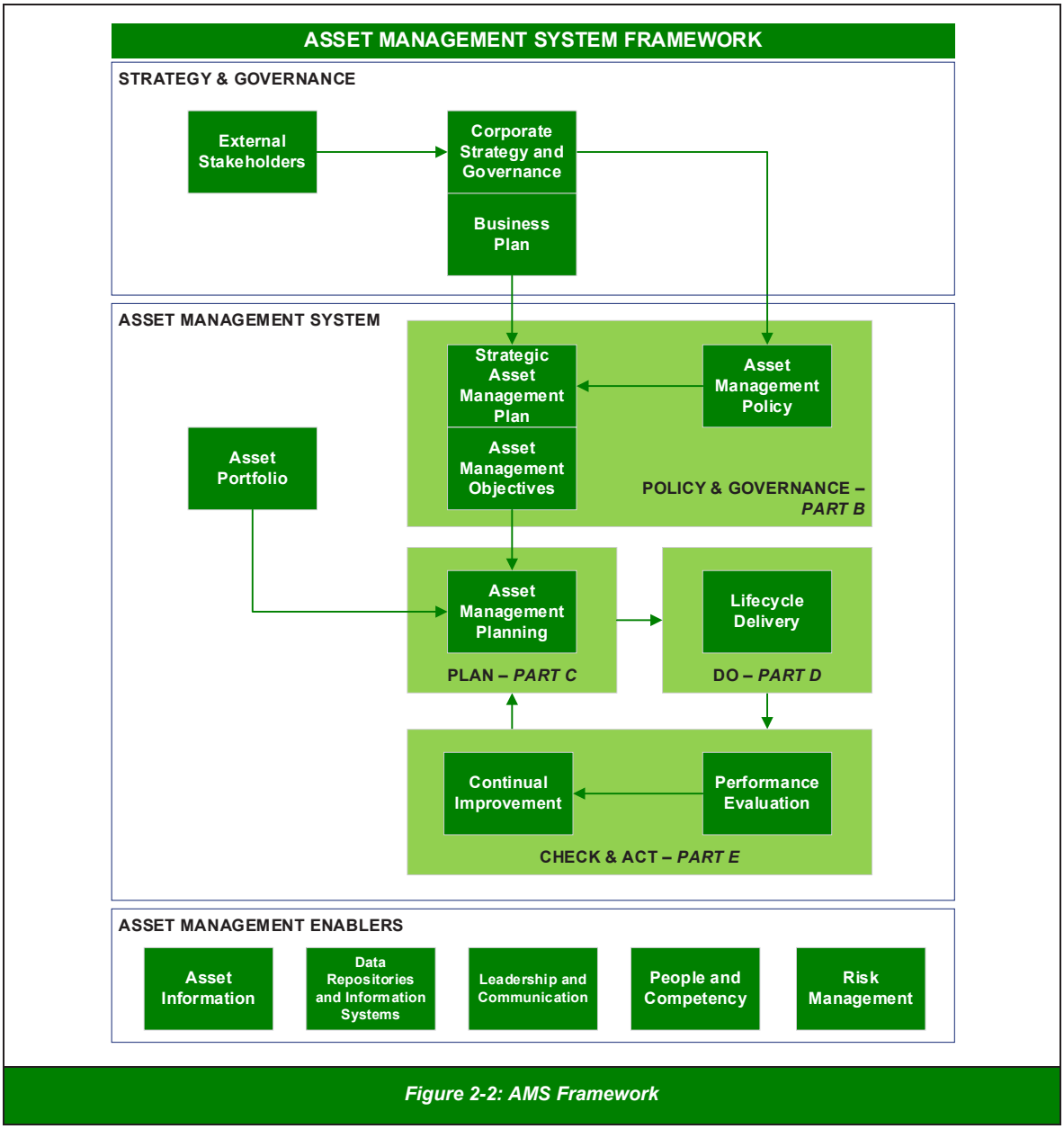

Figure 2-2: AMS Framework

2.3.1 Corporate Strategy

Centralines' strategy and corporate governance processes integrate strategic decision-making with the requirements and expectations of external stakeholders. This results in the annual development and Board ratification of the Business Plan which contains Centralines' Corporate Strategic Objectives.

The AMS is one of the key organisational systems supporting the delivery of the portfolio of Corporate Strategic Objectives. Other systems include customer service processes, environmental management processes, and health and safety management processes. These business systems are supported by the Integrated Management System (IMS) which includes specification of processes that are applicable across the business, such as documentation control, internal audit, and risk management (refer to Figure 2-5).

2.3.2 Asset Management Policy

In October 2021, the Centralines Board approved the adoption of a revised Asset Management Policy. This policy articulates Centralines' commitment to principles-based asset management. In this way it can be thought of as a translation of Centralines' purpose, vision, and values into an asset management context.

Centralines' Asset Management Policy (CL-AMS-0001) is a foundational, stand-alone controlled document in the AMS. It ensures that asset management is aligned and connected with the purpose, vision and values of the organisation and is displayed in Centralines' office to promote awareness. The Policy is:

- reviewed at least every two-years
- authorised by Centralines' General Manager, and
- approved by the Board and Centralines' Chief Executive.

The Policy comprises 15 principles that Centralines has committed to in the delivery of asset management, as set out in Table 2-1. Centralines' AMOs are linked to these policy principles.

Asset Management Policy Principles
1. Ensuring that our people take personal responsibility for managing risks to ensure the safety of: • themselves • their colleagues • their contractors, and • members of the public.
2. Ensuring that our assets are safe, resilient, free from defects and do not impact adversely on the environment.
3. Ensuring compliance with all applicable legislative and regulatory requirements and industry and internal standards.
4. Taking a risk-based, quality systems approach to asset management through an asset management system that is aligned to the principles of ISO 55001.
5. Using data, information, technology, and effective processes to support fact-based and robust decision-making.
6. Implementing asset management plans that: • propose efficient levels of expenditure • manage risk in the Asset Portfolio, and • ensure customer service levels will be met consistently over the long-term.
7. Investing in assets prudently and undertaking asset management in a way that represents value for money for our customers and owners.
8. Working closely with our owners, customers and other stakeholders and being responsive to all feedback, requests, and complaints.
9. Playing a positive, engaged, and communicative role in the development of infrastructure to serve our communities.
10. Acting ethically and transparently to gain the trust and respect of our communities.
11. Providing appropriate levels of resource to enable asset management objectives to be achieved.
12. Monitoring, measuring, and reporting on asset and asset management performance.

Asset Management Policy Principles
13. Developing the capability of our people and teams to enable them to reach their potential in asset management. 14. Fostering a positive, diverse, and inclusive work environment that motivates our people to deliver their best each day. 15. Ensuring that our people are supported and empowered to find ways to do things better and continually improve asset management at Centralines.

Table 2-1: Asset Management Policy Principles

2.3.3 Asset Portfolio

The Asset Portfolio is the comprehensive inventory of assets which must be managed in accordance with the AMS. Asset information associated with individual assets and asset systems comprising the Asset Portfolio is a key enabler of decision-making processes throughout the AMS. The Asset Portfolio is defined below.

Inclusions (the Asset Portfolio)	Exclusions
• All assets comprising Centralines' electricity distribution networks. • Assets comprising Centralines' Regulatory Asset Base (RAB). • Conductive assets, e.g., wires, cables, switch-gear, and transformers. • Non-conductive assets, e.g., poles, stay wires and substation buildings. • Assets permanently installed to monitor the operating environment, condition and other information relating to the asset, e.g., weather stations, oil condition monitors and meters. • Overhead assets, e.g., conductors, insulators and crossarms, ground mounted assets, e.g., ring-main units and pedestals, and underground assets, e.g., cables. • Operational land holdings used for electricity distribution. • Asset information systems and supporting IT infrastructure. • Some assets located on customer premises as defined within Line Function Services Agreements. • Low voltage streetlight circuits, fuses, and ripple relays up to the base of streetlight poles where these are owned by Centralines.	• Personal Protective Equipment (PPE) used by Centralines' employees. • Vehicles and tools owned by Centralines. • Non-network buildings and land owned by Centralines. • Portable test equipment that is not permanently installed on the network, e.g., power quality loggers, distributed temperature sensing equipment and oil spectroscopy testers. • Customer service mains, i.e., electrical infrastructure beyond the fuse located inside pedestals and on private property (not within council owned road reserve). • Electricity meters, smart meters, and ripple relays at customer premises. • Some assets energised at 11kV located on customer premises as defined in relevant schedules of Line Function Services Agreements, ownership agreements or Memorandum of Understandings (MOUs). • Streetlight poles and associated hardware.

Table 2-2: Asset Portfolio

2.3.4 Asset Management Objectives

In 2021, Centralines reviewed and documented its process used to form and review its strategic Asset Management Objectives (AMOs). This was to ensure full alignment with strategic business drivers and to enable the development of tactical AMOs for inclusion in fleet strategies and other processes. This process is detailed in Figure 2-3.

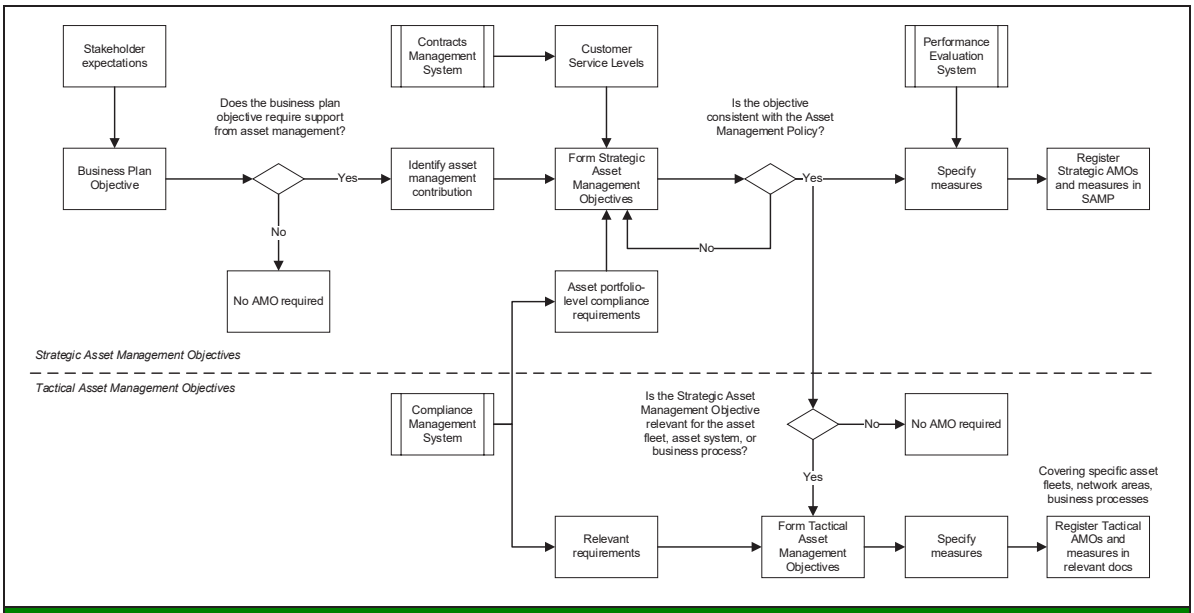

Figure 2-3: AMO Development Process

Strategic AMOs are identified through the analysis of commitments to customers contained in service level agreements, compliance requirements and the Corporate Strategic Objectives. These are then validated for consistency against the principles of the Asset Management Policy. This check ensures:

- selected objectives are aligned with asset management principles, and
- each asset management principle is reflected in at least one objective.

Measures are then developed for each objective to ensure they are specific, measurable, achievable, relevant and timebound (SMART). To maintain flexibility and focus, the key results and measures may be reviewed and adjusted periodically. Feedback from performance evaluation processes guide their selection.

This process supports formation of aligned tactical AMOs. These objectives exist at lower levels of the AMS, for example for asset fleets, asset systems and business processes.

Centralines' Strategic AMO's are set out below in Table 2-3 below.

Strategic Asset Management Objectives
1. Ensure people are safe around Centralines' assets.
2. Deliver a reliable and compliant electricity supply to customers.
3. Improve customers experience in relation to asset management services.

Strategic Asset Management Objectives
4. Improve the financial performance of the asset management plan without compromising network performance or asset integrity.
5. Improve the delivery performance of the Annual Works Plan.
6. Improve asset management capability to support the development and execution of asset management strategies and plans.
7. Improve the communication of the asset management system and strategy to staff.
8. Improve the environmental sustainability, performance, and resilience of asset management activities.
9. Maintain compliance with all applicable legislative and regulatory requirements.

Table 2-3: Strategic Asset Management Objectives

Summary descriptions and justifications of Centralines' Strategic AMOs is outlined in Table 2-4 below.

Asset Management Objective	AM Policy Principle	Description / Justification
1. Ensure people are safe around Centralines' assets.	1, 2, 3	The most important asset management priority is to ensure the safety of Centralines' staff, contractors, and members of the public. This objective complements and aligns with the objectives of Centralines' Health and Safety Management System (HSMS) and Public Safety Management System (PSMS).
2. Deliver a reliable and compliant electricity supply to customers.	3, 4, 5, 6, 7	The supply of electricity is an essential service. Centralines' customers and stakeholders expect a reliable supply that meets acceptable service levels and are aligned to any legislative quality requirements.
3. Improve customers experience in relation to asset management services.	8, 9, 10	Customers expect Centralines to be responsive, easy to deal with and meet the commitments it makes to them. These expectations are increasing as digital technologies and service delivery capabilities continue to evolve.
4. Improve the financial performance of the asset management plan without compromising network performance or asset integrity.	5, 6, 7	The investment requirements of Centralines' AMP have a direct link with the cost and affordability of the service. Accordingly, all network investment must be prudent and efficient.
5. Improve the delivery performance of the Annual Works Plan.	2, 11, 12	The safe, efficient, and cost-effective delivery of Centralines' Annual Works Plan ensures that risks in the asset portfolio will be mitigated, and assets and asset systems will be fit for purpose and available to deliver a safe and reliable electricity supply.
6. Improve asset management capability to support the development and execution of asset	4, 5, 13, 15	Appropriate asset management maturity and capability is required to achieve AMOs. Continually improving Centralines' asset management maturity is necessary to be able to respond to the challenges and opportunities created by a changing electricity sector.

Asset Management Objective	AM Policy Principle	Description / Justification
management strategies and plans.		
7. Improve the communication of the asset management system and strategy to staff.	13, 14, 15	Centralines' people and key stakeholders need to better understand its Asset Management System (AMS) and strategy, which drives asset management decision-making and outcomes. Centralines believes providing this "line of sight" will support the engagement and commitment of its people and assist in continuously improving its asset management performance.
8. Improve the environmental sustainability, performance, and resilience of asset management activities.	2	Environmental sustainability is of increasing interest to Centralines' stakeholders, especially with respect to climate change. In Centralines' most recent Business Plan, improving its environmental sustainability performance has been introduced as a strategic objective.
9. Maintain compliance with all applicable legislative and regulatory requirements.	3	Centralines is committed to being a good corporate citizen and compliance with all legislation and regulation represents a minimum threshold.

Table 2-4: Strategic Asset Management Objective Descriptions

The current measures that enable Centralines to monitor and improve performance in relation to these AMOs are detailed in Section 3: Service Levels.

2.3.5 Asset Management Plan

The Asset Management Plan (AMP) is the specification of major work to be undertaken on or in association with the assets over a ten-year period to enable AMOs to be achieved. Decisions about priorities are enabled through application of the risk management processes defined in the Centralines Risk Management Framework and translated for specific use in asset management in the AMS Risk Management Guidelines discussed in Section 7 – Risk Management.

2.3.6 Lifecycle Delivery Processes

Centralines' Lifecycle Delivery processes include:

- the real-time network management performed by Unison's Network Operations Centre (NOC)
- management of the capital works programme
- asset maintenance and inspection programmes
- construction and livening of new assets
- vegetation management, and
- associated configuration management and transactional processes essential to ensure assets are safe and fit to deliver the AMOs.

2.3.7 Performance Evaluation

Evaluation of the performance of the AMS is accomplished through:

- measurement against performance indicators related to AMOs
- the achievement of specified business outcomes, and
- the internal audit of processes and systems of the AMS to assure conformance to requirements.

2.3.8 Continual Improvement Process

The feedback generated through the processes specified above is a primary input into Continual Improvement (CI) processes, and includes feedback on:

- both asset capability and condition, and
- the organisation's asset management capability.

The CI processes utilised by the AMS are consistent with the organisational approach to continual improvement provided in Centralines' IMS.

2.3.9 Asset Management Enablers

All asset management processes are enabled by:

- appropriate asset management information which is stored and accessible from fit for purpose data repositories and information systems
- effective leadership and communication processes
- a well-defined organisational design
- people who have appropriate skills, competencies, and qualifications, and
- processes that utilise risk management concepts and principles to support effective decision-making.

2.4 Purpose of the Regulatory Asset Management Plan (RAMP)

2.4.1 Purpose Statement

The purpose of this Regulatory Asset Management Plan (RAMP) is to publish information about Centralines' AMS, and the asset management plans that are developed to manage down risks and secure opportunities, in support of the AMOs. This enables interested stakeholders to make an informed judgement about the appropriateness of Centralines overall approach to asset management and to learn of changes in the Asset Portfolio that may impact them. In addition to this, the RAMP ensures that Centralines is compliant with the requirements of the Electricity Distribution Information Disclosure Amendments Determination 2017.

The purpose of asset management planning is to ensure that the AMOs specified in Table 2-3 are achieved by the organisation for the benefit of all stakeholders.

2.4.2 Documented Plans

Figure 2-4 provides a hierarchical view of the documented plans produced as outputs of the annual business planning processes utilised by Centralines, and their relationship with the RAMP.

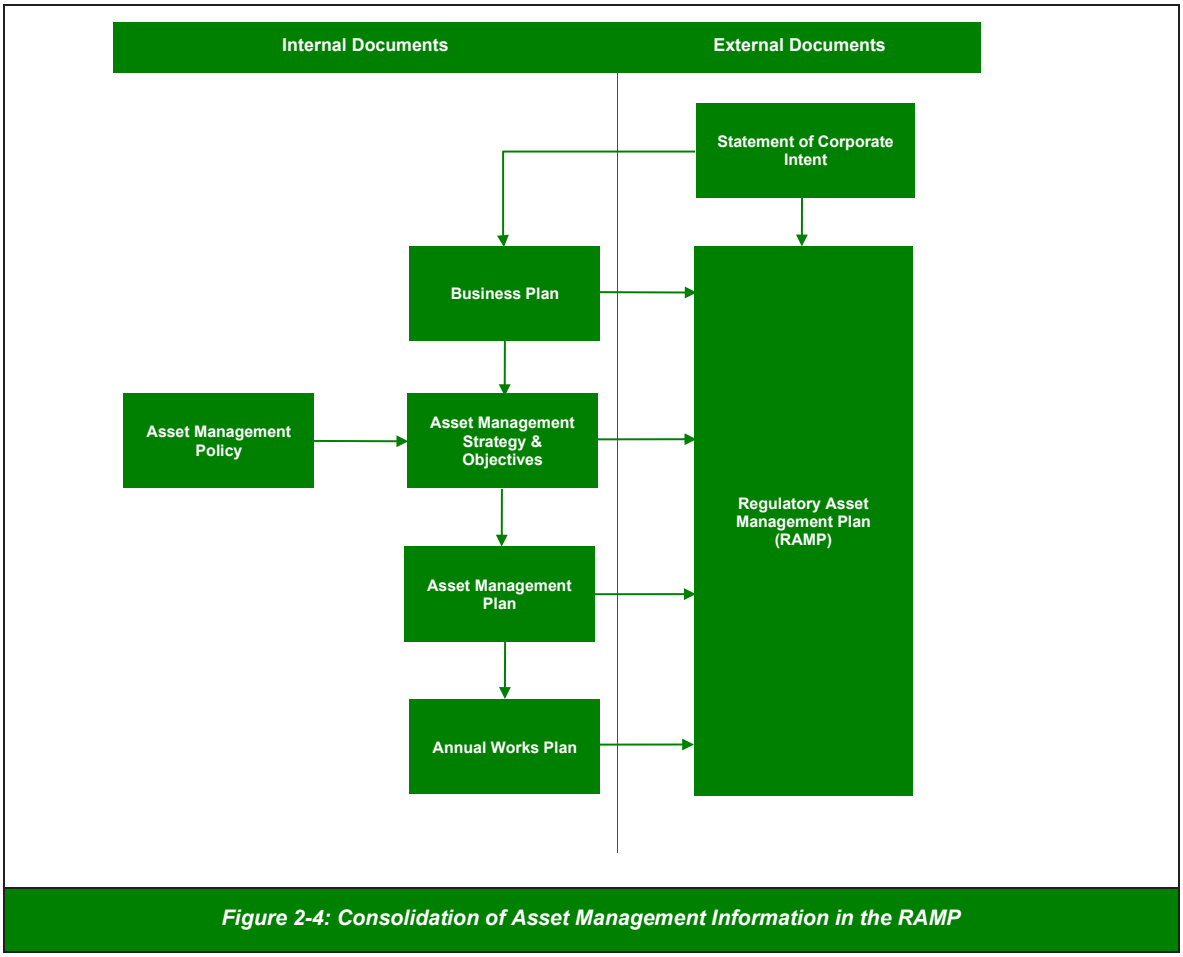

Figure 2-4: Consolidation of Asset Management Information in the RAMP

2.4.2.1 Statement of Corporate Intent

The Statement of Corporate Intent (SCI) sets out the Centralines scope of activities and strategic aims as well as the key performance targets for the next three financial years. It is a requirement of the Energy Companies Act 1992 and is refreshed and published annually on Centralines' website. The SCI provides top-level guidance to the development of the Asset Management Policy and strategy, and although rare, significant changes to the SCI requires a detailed review of subordinate plans.

2.4.2.2 Business Plan

The Business Plan is Centralines' key strategic plan and therefore is highly influential in driving the Asset Management Strategy. The Business Plan contains the following elements:

- a review of Centralines' strategic context both internally and externally
- Centralines' Corporate Strategic Objectives
- a review of Centralines' performance in past periods against Corporate Strategic Objectives, and other goals and targets
- financial information including capital and operating expenditure forecasts, revenue forecasts and a summary of the company's financial position, and
- an overview of key strategic initiatives for the organisation in the next period.

The Business Plan is reviewed and approved annually by Centralines' Board of Directors.

2.4.2.3 Asset Management Policy

The Asset Management Policy specifies Centralines' commitments in the delivery of asset management. It is reviewed at least every two years to ensure continued alignment with the SCI and Business Plan.

2.4.2.4 Asset Management Strategy and Objectives

The Asset Management Strategy is a container for Centralines' AMOs, as well as the documents that record Centralines' strategies for achieving the objectives.

2.4.2.5 Asset Management Plan

The Asset Management Plan (AMP) is the register of the major work required in the Asset Portfolio to ensure that AMOs are met. Most of the work registered in the AMP is capital work, however major non-routine maintenance programmes may be included. It has a ten-year horizon, where:

- the first two-years are well-defined proposals of work ready to be actioned
- the next three-years are plans with high levels of confidence, and
- the remaining five-years are speculative, but represent the best plan based upon available information.

For all work registered in the AMP the following information must be provided:

- the assets to be worked on
- the issue driving the requirement for work
- an assessment of the level of risk associated with the issue utilising the Risk Management Framework, and
- the proposal of work required to manage down the risk, including:
    - the recommended timing and estimated cost
    - any risks in delivering the work
    - shutdown windows required, and
    - contractor resource requirements.

2.4.2.6 *Annual Works Plan*

The Annual Works Plan (AWP) is the consolidated programme of work to be conducted on the Asset Portfolio in a given financial year. This includes the following types of work:

- major capital projects from the AMP, including any large customer driven projects
- preventive maintenance programmes including inspections
- provisions for small scale customer driven projects
- provisions for minor asset replacements, e.g., pole replacements following inspections, and
- provisions for reactive maintenance, e.g., fault response.

The AWP is compiled and scheduled collaboratively by both Unison and Centralines' Operations Team.

2.4.3 Business Management System

The AMS is aligned with Centralines' Business Management System Framework (BMSF) which has been adopted from Centralines' service provider to enable its effective implementation and sustainment. The BMSF supports Centralines' three primary management systems. The supporting processes within the IMS are outside the scope of the AMS but must be available to enable the AMS to function as required. These include:

- Controlled Document System and associated processes
- Internal Assurance Framework
- Legislative Compliance Programme
- Emergency/crisis management processes
- Competency management systems and processes
- Complaints management processes
- Records management systems and processes
- Incident management processes, and
- Continual improvement.

Centralines' BMSF is represented in Figure 2-5 with the red outline representing the scope of the AMS in this context.

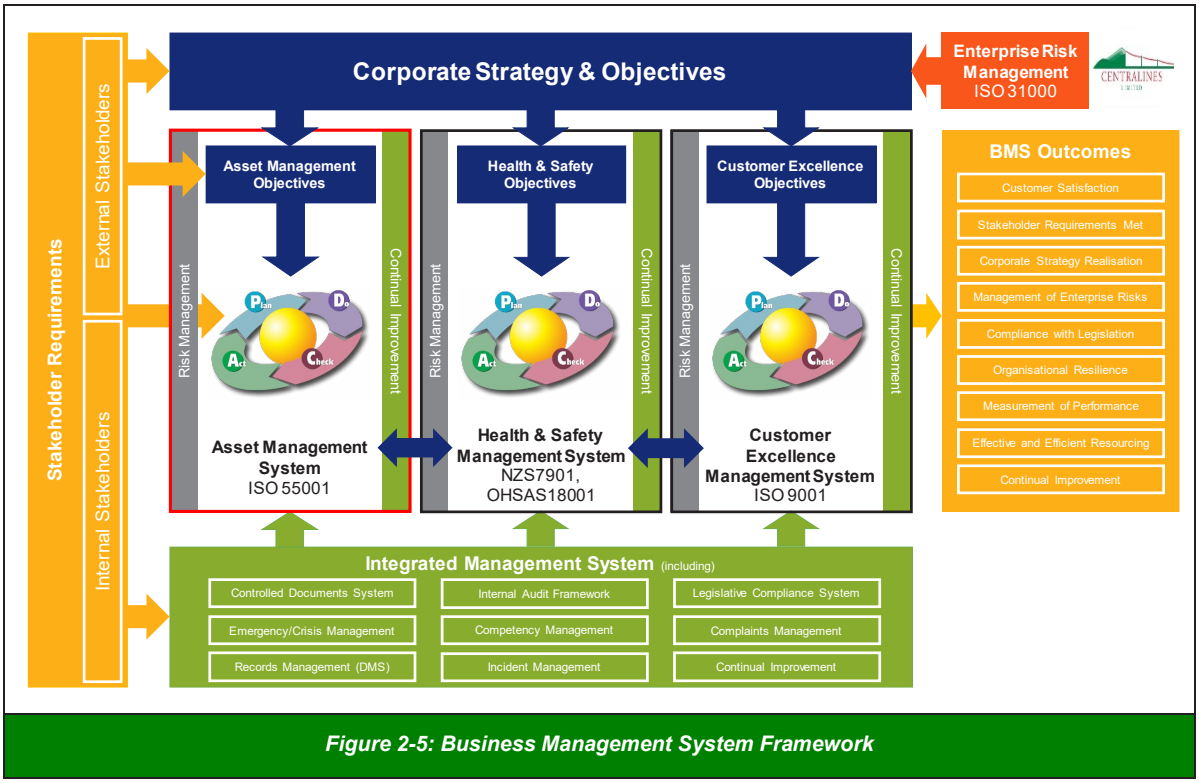

Figure 2-5: Business Management System Framework

2.5 Planning Period of the Regulatory Asset Management Plan

The RAMP Update covers the period from 1 April 2022 to 31 March 2032. Necessarily all prospective information is provided based upon the currently best assumed future. As for any long-term planning, uncertainty increases the further forward in the future it is looked. This is due to factors including the condition of assets, growth of demand, the cost and availability of contracting resources, technology changes, and stakeholder expectations.

Accordingly, for the first five-years of the planning period, more detailed information in respect of asset management plans is provided. In the second half of the planning period, plans are presented in less detail reflecting increasing uncertainty.

2.6 Date of Director Approval

The RAMP was approved by Centralines' Board of Directors on 29 March 2022.

2.7 Centralines' Stakeholders

The requirements and expectations of stakeholders are strongly influential in Centralines' Asset Management Strategy and decision-making processes.

Table 2-5 and Table 2-6 set out Centralines' key external and internal stakeholders respectively. The Stakeholder Interests column provides the key expectations of the stakeholder in relation to Centralines' operations, including the information, notification and coordination required by the stakeholder from Centralines.

2.7.1 External Stakeholders

Table 2-5 summarises Centralines key external stakeholders, how their interests are identified, and what their interests are.

External Stakeholder	Role / Relationship	How Stakeholder Interests are Identified	Stakeholder Interests
Electricity consumers	Customers of the overall electricity supply chain	• Customer surveys • Customer enquiries • Customer feedback and complaints	• A reasonably priced service that meets performance expectations. • Infrastructure is safe, environmentally sustainable and supports local amenity. • Information about changes to prices is effectively communicated. • Notification of planned outage windows and conformance to these windows by Centralines. • Planned outages minimised on especially cold days of the year. • Information about restoration following unplanned outages is available.
Household consumers	End recipient of distribution service. Pay costs of service	• Customer surveys • Customer enquiries • Customer feedback and complaints	• On demand and reliable access to as much electricity as they need – 24/7. • Infrastructure that keeps their families, home, possessions, and streets safe from harm. • Minimal disruption to their daily lives — including from planned or unplanned electricity outages or field works. • Energy and infrastructure that is environmentally sustainable and supports the drive for zero carbon. • A network that anticipates, is ready for, and incentivises their future energy and technology needs. • Empathetic and customer centric handling of any complaints. • Simple, convenient operational processes for contacting and dealing with their distributor. • Assistance in upgrading/changing the energy infrastructure at their homes. • Pricing where all customers can afford power, they reasonably need without causing physical deprivation or financial duress.

External Stakeholder	Role / Relationship	How Stakeholder Interests are Identified	Stakeholder Interests
			• Information that gives them transparency and certainty about network actions and expectations, especially during times of outage.
Major customers	Industrial customers supplied at HV who have a contract with Centralines	• Customer surveys • Customer enquiries • Customer feedback and complaints • Relationship Meetings	• Expectations as for general electricity consumers. • Changes to Line Function Service Agreements are well managed. • Engagement around planned outage requirements.
Electricity retailers	Customers, downstream participant in electricity supply chain	• Relationship meetings	• Effective communication on transactional matters, including new connections, outages, and billing submissions. • Effective engagement and negotiation of changes to pricing structures, tariffs, and Use of System Agreements. • Centralines meeting its requirements under Use of System Agreements, including network performance requirements.
Transpower	Upstream asset owner in the electricity supply chain	• Relationship meetings • Engagement through projects • Transpower disclosures and planning documents	• Effective communication on transactional matters, including planned work, billing submissions and account management. • Sharing of long-term planning information including demand forecasts. • Coordination of planned work and associated outage management. • Coordination between service provider's Network Operations Centre and Transpower System Operator, especially in grid emergency situations.
Councils (District, City and Regional)	Territorial authorities, local government, local infrastructure owner	• Relationship meetings • Engagement through projects • Planning documents issued by Councils	• Infrastructure is sensitive to local amenity, compliant to planning requirements, such as District Plans, and are environmentally sound. • Sharing of long-term planning information to support synergies. • Project coordination to ensure effective service corridor management and minimal disruption to communities.

External Stakeholder	Role / Relationship	How Stakeholder Interests are Identified	Stakeholder Interests
			• Coordination of civil defence and emergency management. • Notification of environmental issues.
Landowners	Individuals, iwi, and businesses with interests in land	• Engagement through projects • Enquiries, feedback, or complaints	• Engagement and negotiation on access requirements and the location of new infrastructure. • Local infrastructure is safe, tidy, and well-maintained. • Notification of vegetation management issues and plans to address these issues. • Engagement on asset related issues in proximity to land holdings. • Understanding, sensitivity, and respect towards cultural issues in relation to land.
Electricity Networks' Association	Industry association	• Involvement and participation	• Regular management engagement with the Association and its members to support industry collaboration and advance the interests of the industry. • Involvement and support in regulatory submissions. • Participation on industry working groups.
Other electricity distribution businesses	Industry peers	• Information sharing forums • Asset Management Plans	• Collaboration on issues of mutual interest, including information sharing, joint projects, and trials, and associated commercial arrangements. • Contracting resource support for businesses affected by major events such as storms and natural disasters.
Electricity Engineers' Association	Industry association	• Involvement and participation on working groups	• Involvement in working groups, sharing of knowledge and best practices. • Funding support for initiatives including research and working groups. • Promotion of Electrical Engineering as a career pathway for young New Zealanders.
Commerce Commission	Economic regulator	• Regulatory requirements • Documents issued by the Commission • Engagement processes	• Disclosure of information including Regulatory Asset Management Plans in conformance with requirements. • Compliance with the Default Price Path.

External Stakeholder	Role / Relationship	How Stakeholder Interests are Identified	Stakeholder Interests
		coordinated by the Commission	• Submissions and feedback on proposed changes to regulatory framework.
Electricity Authority	Electricity market regulator	• Regulatory requirements • Documents issued by the Authority	• Compliance with market rules, associated electricity industry legislation, regulation, and codes. • Consultation and issues-based correspondence. • Participation and cooperation with investigations.
WorkSafe New Zealand	Health and safety regulator	• Regulatory requirements • Engagement on specific issues • Documents issued by the Authority	• Engagement in working groups and consultation processes. • Notification of incidents and near misses. • Compliance with legislative and regulatory requirements.
Office of the Auditor-General	Independent regulator	• Engagement during audits • Review of documents issued by the OAG	• Efficient use of electricity bill payers' funds through effective asset management. • Participation and cooperation with audit processes initiated from time to time.
Utilities Disputes Commissioner	Industry regulator	• Cooperation in any investigations • Review of decisions by the Commissioner	• Participation in dispute resolution processes. • Provision of information and records to support dispute resolution processes. • Adherence to rulings not found in Centralines' favour.
New Zealand Police	Partner agency	• Relationship meetings • Information sharing	• Notification of accidents involving Centralines' assets. • Coordination of responses to incidents and compliance with incident management processes. • Response capability from Centralines' first responders.
Fire and Emergency Response New Zealand	Partner agency	• Relationship meetings • Information sharing	• Notification of fires and emergencies involving Centralines' assets. • Coordination of responses to incidents and compliance with incident management processes. • Response capability from Centralines' first responders.

Table 2-5: Centralines' External Stakeholders and their Interests

2.7.2 Internal Stakeholders

Table 2-6 summarises Centralines' key internal stakeholders, how their interests are identified, and what their interests are.

Internal Stakeholder	Role/Relationship	How Stakeholder Interests are Identified	Stakeholder Interests
Central Hawke's Bay Consumers Power Trust (CHBCPT)	Owner of Centralines on behalf of power consumers	• Annual General meeting • Meetings between Trustees, Directors and Executive Management	• Reporting of performance against Statement of Corporate Intent (SCI). • Effective and efficient asset management performance. • Prompt resolution of issues raised by Centralines' power consumers.
Board of Directors	Corporate governance Strategic direction	• Monthly Board meetings	• Performance against the Corporate Strategic Objectives. • Regular reporting on the health of the AMS and performance against AMOs. • Effective management of the organisation, especially relating to health and safety performance.
Executive Management	Governance Policy and strategy Enterprise risk management	• Business Plan • Communication and engagement with staff	• Regular management review of the health of the AMS and performance against AMOs. • Escalation of strategic risks in the Asset Portfolio and the AMS where necessary, especially relating to the impact of DER. • Quarterly reports on progress towards the implementation of the AMS.
Centralines employees	Internal customers Users and advocates Implementers	• One-on-one discussions with managers • Satisfaction surveys • Training and development processes	• Awareness of the AMS and its implications for roles and responsibilities, and how teams work together. Providing a basis for understanding why certain actions are important. • Awareness of significant risks and potential consequences of deviating from defined asset management practices. • Training and education on asset management, the AMS and role specific skills and competencies. Professional development. • A secure role in a respected and professionally managed organisation.

Internal Stakeholder	Role/Relationship	How Stakeholder Interests are Identified	Stakeholder Interests
			• Information about asset management risks, particularly relating to health and safety.
Centralines Operation Teams	Primary supplier of contracting services	• Relationship meetings • Collaboration on projects	• Awareness of the AMS and why particular actions are important. • Visibility of the asset management plan to support business planning. • Information about asset management risks, particularly relating to health and safety. • Effective collaboration in work management including project delivery. • Two-way feedback on performance and areas for improvement. • Minimised churn in the work programme to drive efficiency and support schedule compliance. • Quality technical standards and operating procedures.
Other contractors and vendors	Supplier of goods and services	• Relationship meetings • Contract negotiation processes	• Information about asset management risks, particularly relating to health and safety. • Adherence to terms and conditions of trade and contractual obligations. • Two-way feedback on performance and areas for improvement. • Quality technical standards and operating procedures.

Table 2-6: Centralines' Internal Stakeholders and their Interests

2.7.3 How Stakeholder Interests are Accommodated in Asset Management Practices

The importance of accommodating stakeholder interests in asset management is recognised in the Asset Management Policy, and this flows through into the AMOs, and the design of the business processes utilised in the AMS.

Centralines' performance against the AMOs is measured and reported monthly to provide an overview of how effective Centralines is in meeting stakeholder interests. Where gaps are identified between actual and targeted levels of performance, opportunities for improvement are considered and actions are put into place through the continual improvement process of the AMS.

2.7.4 How Conflicting Interests are Managed

Situations sometimes arise where Centralines must make asset management decisions that bring interests of different stakeholders into conflict. Once such a situation has been identified, Centralines endeavours to work with each of the parties to ensure that their respective interests have been properly and fully understood.

Often through this process a solution that is acceptable to each party can be identified. If such an outcome is not possible however, Centralines uses a set of guidelines and principles of natural justice, fairness, and equity to come to a decision. The guidelines applied in order of importance are:

- health and safety of Centralines' employees, contractors, and the public
- compliance with statutory and regulatory requirements
- congruence with the SCI
- congruence with Centralines' Asset Management Policy
- reasonable needs of customers
- synergy with asset management plans
- lowest lifecycle cost, and
- congruence with other stakeholder interests.

In all cases the reasons for the decision will be communicated openly with all parties.

2.8 Accountabilities and Responsibilities for Asset Management

2.8.1 Corporate Governance

Leadership and commitment to the AMS starts at the corporate governance level of the organisation. Centralines' governance level is represented by the Board of Directors. Directors have ultimate accountability for approving the strategic direction of the business as proposed by the Chief Executive and the Management Team. Once the Organisational Strategic Plan is approved, it is the responsibility of the Management level to implement it. The Organisational Strategic Plan has a strong influence on Centralines' Asset Management Strategy and Objectives and the *line of sight* that runs through the AMS.

2.8.1.1 *Approval for Asset Management Decisions*

Enterprise-wide strategic initiatives relating to asset management are approved by Directors as part of the Business Plan in Centralines' annual planning processes.

As well as asset management strategic initiatives, approval from Directors is also required in respect of network projects costing more than $500k. When the need for such a project has been identified through asset management planning processes, a Board Report is compiled. The structure of the report includes:

- an explanation of the constraint motivating the project
- the possible options for addressing the constraint
- selection of the optimum option with justification from both a technical and commercial perspective
- identification of any risks associated with the selected option, and
- a disaggregated costing for the project, and an estimated timeframe for delivery.

2.8.1.2 *Reporting on Asset Management Outcomes*

Performance against the AMOs specified earlier are reported to Directors at the monthly Board meeting. Explanations are provided by senior management in respect of deviations from expected performance.

Asset management related outcomes including network reliability, progress in the execution of asset management plans, network CapEx and OpEx budget management and health and safety outcomes are all reported on.

Progress against asset management strategic initiatives is typically reported quarterly. At the conclusion of these initiatives an internal review of the organisation's performance in executing the project is furnished to the Board with opportunities for improvement identified.

Performance against measures underpinning the AMOs that are not part of standard Board reporting are reported at the end of the financial year as part of the annual business planning process.

Each year a detailed Board report is prepared on network performance. This report includes in-depth analysis that:

- examines network performance from a range of perspectives
- critically probes underlying trends
- highlights areas where improvement is required, and
- provides an update on changes to the quality regulatory framework.

2.8.2 Leadership Processes

Unison's Executive Management Team (EMT) and the General Manager Centralines initiate and lead the implementation, utilisation, and sustainment of Centralines' AMS. These are driven by the following top-level processes:

- establishment and communication of Centralines' Asset Management Policy
- annual management review of Asset Management Strategy and Objectives
- communication to all members of the organisation on asset management performance, and the extent to which this supports the Corporate Strategic Objectives
- consolidation of all legacy asset management processes, practices, plans and other material into the AMS
- annual delivery and disclosure of either a full Regulatory Asset Management Plan (RAMP) or RAMP Update documents that are compliant with the Electricity Distribution Information Disclosure Amendments Determination 2017
- planning and implementation of AMS Capability Projects by Centralines' Management service provider to drive continual improvement and build asset management capability
- ongoing internal assurance, management review and external audit of the AMS, and
- engagement by Centralines' Management service provider with external groups and subject matter experts in certain domains to augment and grow capabilities, including:
    - the Institute of Asset Management (IAM)
    - the Electricity Engineers' Association (EEA)
    - the New Zealand Organisation for Quality (NZOQ)
    - the EPE Centre of the University of Canterbury, and
    - Gatland Consulting.

2.8.3 Leadership Responsibilities

In accordance with their defined Position Descriptions and authorities, all Centralines' executive managers, line managers and team leaders are required to:

- model the company values in leadership actions, decisions, and communications
- encourage and coach people to apply the company values in their day-to-day work and challenge behaviours that do not match Centralines' values
- communicate clear performance expectations to people so that they understand how their role contributes to the achievement of Centralines' vision
- coach and support people to:
    - identify their personal development needs
    - formulate and implement an individual development plan, and
    - assess its impact on results and relationships.
- inspire and motivate teams by leading, guiding, and providing motivational and developmental feedback to build a high performing team and individuals
- cultivate an environment of continuous improvement, innovation, and initiative by facilitating an open exchange of ideas
- take a long-term view and formulate effective strategies consistent with the business strategy, and
- develop and build relationships, engage in cross-functional activities, collaborate across boundaries, and utilise contacts to build and strengthen internal processes.

2.8.4 Organisational Structure

Centralines' asset management organisation is led by Centralines' Asset Management service provider, which includes six groups tasked with managing the functional activities required to deliver Centralines' corporate objectives. Each group is led by an Executive Manager reporting to the Group Chief Executive, as shown in Figure 2-6.

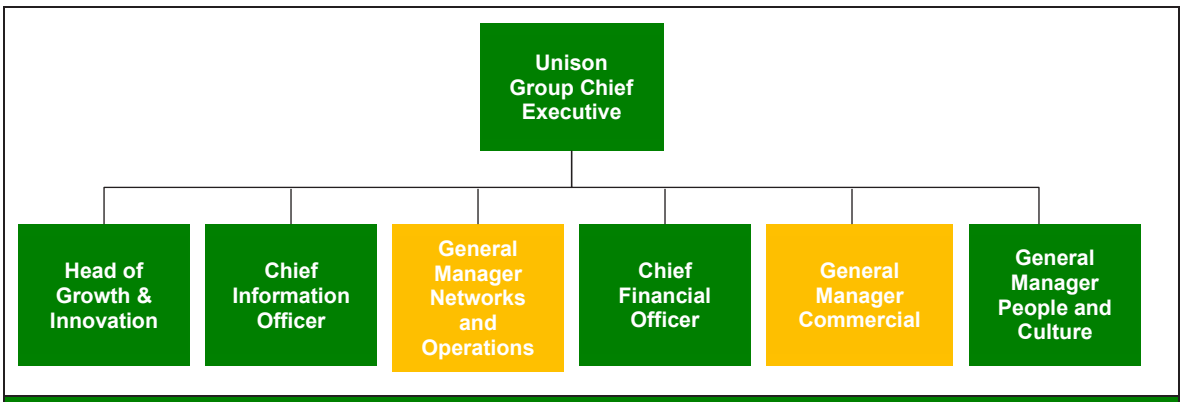

Figure 2-6: Management Structure of the Asset Management Organisation

2.8.4.1 General Manager Commercial

The General Manager Commercial ensures that the Management service provider delivers the asset management outcomes as outlined in the Management Services Agreement.

2.8.4.2 General Manager Networks and Operations

The General Manager Networks and Operations is assigned responsibility for the AMS, which includes:

- coordinating review of the Asset Management Policy
- aligning the AMOs with the Corporate Strategic Objectives
- overseeing and coordinating the asset management plans, and
- organising management review and external assessment of the AMS.

2.8.4.3 Management Responsibilities

The Board delegates financial approval of up to $500k to the Chief Executive and the General Manager Centralines in respect of network CapEx projects.

While the Management service provider's General Manager Networks and Operations has primary responsibility for implementation of the AMS, each of the other Management service provider's General Managers has an important role to play in the asset management organisation, as shown in Table 2-7.

General Manager	Key Accountabilities
Information Management	• Enterprise asset management systems (information systems) • Infrastructure and communications hardware • Business analysis
Networks and Operations	• Facilitate development of Asset Management Strategy and Objectives • Lead execution of asset management strategies • Asset management planning including network development planning • Asset information management • Real-time operation of the network
Chief Financial Officer	• Treasury and financial control • Procurement and logistics
Commercial	• Customer projects • Customer engagement and service levels • Billing • Risk management and review • Internal audit • Legal and regulatory compliance • Pricing
People and Culture	• Human resources and organisational culture • Health and safety

Table 2-7: General Manager Key Accountabilities within Asset Management System

2.8.4.4 *Responsibility for Asset Management System Processes*

The service provider's Networks and Operations Group, reporting to the General Manager Networks and Operations has the primary responsibility for the AMS. The structure of the group is represented in Figure 2-7. It indicates the primary areas of responsibility of each Line Manager in the key processes of the AMS.

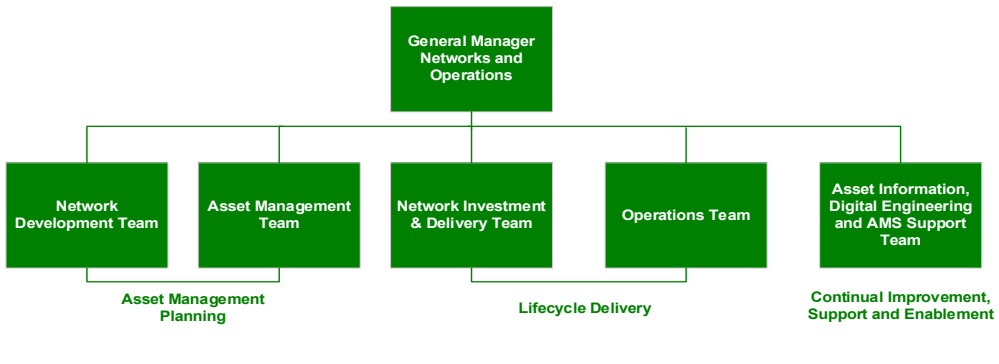

Figure 2-7: Management of the Asset Management System

Further detail on the key processes that each team is responsible for is provided in the following tables.

Planning Processes	Responsible Team
Network Development Planning	Network Development
Contingency Planning	Asset Management
Asset Renewal Planning	Asset Management
Maintenance Planning	Asset Management
Works Planning and Consolidation	Network Investment and Delivery
CapEx Programme Establishment	Network Investment and Delivery

Table 2-8: Responsible Teams for Planning Processes

Lifecycle Delivery Processes	Responsible Team
Work Management	Network Investment and Delivery with field work undertaken by Centralines
Switching and Outage Management	Operations with field work undertaken by Centralines
Asset Portfolio Control	Asset Management
Asset Information Management	Asset Management

Table 2-9: Responsible Teams for Lifecycle Delivery Processes

Continual Improvement Processes	Responsible Team
Performance Evaluation	Asset Management
Internal Audit	AMS Support Team
Coordination of Management Review	AMS Support Team
Coordination of Capability Projects	AMS Support Team
Continual Improvement	AMS Support Team

Table 2-10: Continual Improvement Processes

2.8.4.5 Responsibility for Field Operations

The field delivery of asset lifecycle activities that are specified in the RAMP including design, construction, inspection, maintenance, refurbishment, fault response and repair, vegetation management, replacement and disposal is the responsibility of the Centralines' Operations Manager.

The vast majority of this work is carried out by Centralines' field staff who work out of the Centralines' Waipukurau depot. The field staff report to the Centralines' Operations Manager who in turn reports to the Management service provider's General Manager Centralines, as shown in Figure 2-8. Collaboration takes place between Centralines staff and the Management service provider's Networks and Operations Teams to ensure the efficient and effective delivery of projects.

An example of this is the close collaboration for work taking place in the field between the Operations Manager and the Management service provider's Network Operations Centre (NOC). This collaboration ensures:

- the network is configured in a way that allows work to proceed
- the impact of outages is minimised
- safety protocols relating to access to the network are observed, and
- Centralines' field staff have the information that they require about the state of the network to work safely.

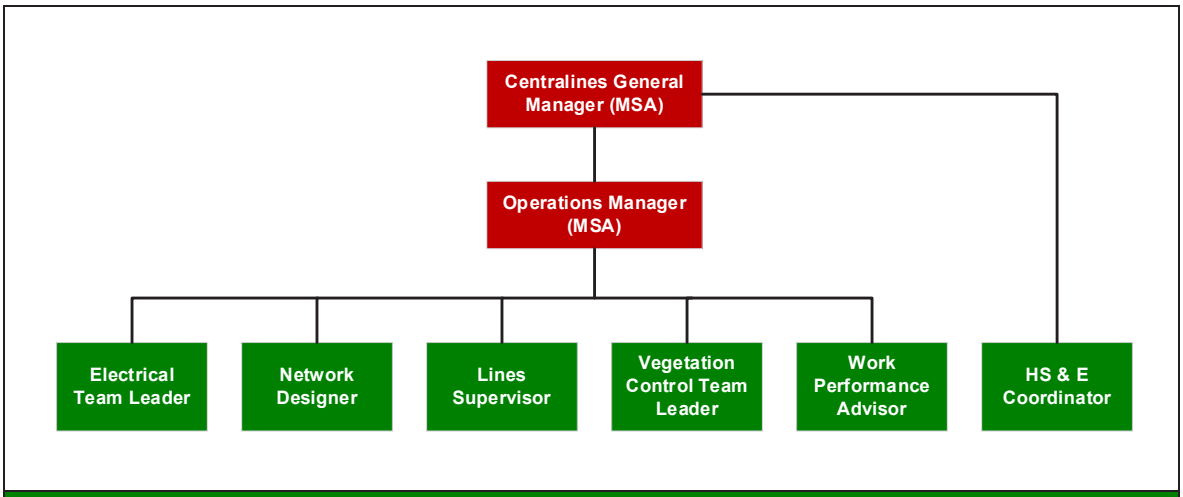

Figure 2-8: Field Leadership Structure of Centralines

2.8.4.6 *Outsourcing of Field Operations*

Centralines on occasions subcontracts work during times when demands on contracting resources cannot be met by the company's existing capacity. From time-to-time Centralines also directly engages other contractors when specialist capabilities are required. An example of this is substation design and related project engineering functions which are performed by the Management service provider's Network Investment and Delivery Team, when required.

2.9 Significant Assumptions made in the AMP

In preparing the AMP for a ten-year planning period, it is necessary for a number of assumptions to be made. Centralines' planning assumptions fall into five main categories:

- macro-environmental assumptions
- assumptions about actions of regulatory bodies and other external entities
- governance and ownership assumptions
- asset management planning assumptions, and
- price inflator assumptions.

The significant assumptions under each of these categories are described below.

2.9.1 Macro-environmental Assumptions

Assumption	Significance of the Assumption
No change to the structure of the electricity industry	Centralines' Organisational Strategic Plan and AMS are premised upon the assumption that the current industry structure will not change and that Centralines will remain a regulated electricity distribution business. Change to the structure of the industry could alter one or more of the input parameters to the AMP which would have a fundamental impact on the plans disclosed.
No discontinuous change in customer demands for power quality and reliability	Centralines' Customer Service Levels are an important input into the AMP. They have been formulated based upon Centralines' understanding of customer needs through quality regulation and Centralines own customer engagement. Discontinuous change in the needs of customers in relation to power quality and reliability due to a societal or technological shift could result in Centralines' AMOs and Customer Service Levels becoming out-of-date. A change to these would necessarily have an impact on the AMP.
No material uptake of distributed energy resources on Centralines' networks over the planning period	Technologies such as solar photovoltaic (PV) cells and batteries have the potential to reshape the electricity industry if they reach a level of efficiency that makes them complementary to or even a credible alternative to centralised generation, transmission, and distribution. Research on these technologies strongly suggests that they will have an impact on the business, but that material uptake will occur beyond the planning period of the AMP within Centralines' network footprint. Most of the assets that will be installed during the ten-year planning period will however last far beyond that time (some assets have a life of up to 80 years). It is therefore essential that the asset investment decisions being made now consider the prospect of future uptake of distributed energy resources. Research in this area is discussed further in the context of constraint forecasting in Section 4: Network Development Plans.

Table 2-11: Macro-Environmental Assumptions

2.9.2 Assumptions About Actions of Regulatory Bodies and Other External Entities

Assumption	Significance of the Assumption
Industry regulators employ and strengthen incentives for innovation and excellence in asset management	Centralines strongly believes that best-practice asset management combined with an appropriate regulatory framework will lead to long-term benefits for electricity consumers. Industry regulators should therefore incentivise EDBs to innovate and continuously improve asset management outcomes. Centralines continues to invest in innovation which will generate long-term asset management benefits in the form of reduced capital expenditure with the potential for improvements in service quality for consumers. Current regulatory settings and approaches are ineffective in promoting businesses to take a long-term view. Additional short-term costs associated with innovation and research and development are not rewarded by long-term payoffs to the regulated business. Accordingly, Centralines' innovation and research and development activities are undertaken despite regulation, not because of it.
The regulatory environment provides sufficient investment certainty for Centralines	To make the decision to invest, Centralines requires sufficient certainty that we will be able to make a return on that investment over the asset life (up to 80-years). Industry regulators have an important role to play in balancing the long-term interests of consumers with creation of a regulatory environment that is sufficiently certain for businesses to invest. The AMP assumes that the regulatory environment will adapt to threats posed by consumer uptake of alternatives, such that this uptake does not result in undue risk to Centralines.
Availability of field personnel capability and capacity to deliver the AMP	Suitably resourced and competent field personnel, both in-house and external, will be necessary for the delivery of the AMP. It is assumed that such a resource will continue to exist within Centralines' network footprint during the planning period. It is recognised however that increased demand from unprecedented customer connection growth means Centralines will need to augment its current workforce capability through productivity improvement, recruitment and contracting in external resource. In Centralines' estimation there are two main sources of uncertainty relating to this assumption. Firstly, will the industry continue to be able to attract people into electrical, line mechanic, fitting and technician apprenticeships at a rate that keeps up with people leaving the workforce? Secondly, will contracting businesses be able to match the pace of change in electricity distribution network technology and upskill and supplement their existing workforce?

Table 2-12: Assumptions about Actions of Regulatory Bodies and other External Entities

2.9.3 Governance and Ownership Assumptions

Assumption	Significance of the Assumption
Centralines remains wholly owned by the Central Hawke's Bay Consumers Power Trust (CHBCPT)	A key assumption in Centralines' Organisational Strategic Plan is that the business remains wholly owned by the CHBCPT. This assumption is therefore also relevant in the AMS and asset management planning. A change in ownership or ownership structure could alter key input parameters to the AMS including the: • Asset Management Strategy and Objectives • availability of funding to deliver on asset management plans, and • risk appetite. It is likely that asset management plans would need to be re-formulated entirely. Under the Trust Deed of the CHBCPT, every five-years the Trustees are required to initiate a review of ownership of shares in Centralines. The next review will be required in 2024.
Constant appetite for risk at a corporate level	Risk to the business is an input into all decision-making. Risk associated with decisions is assessed against the Company's risk appetite which is managed across the following categories: • financial • legal and contractual • reputational and customer • business operations and disruption, and • people, staff, and contractors. Centralines' risk appetite is premised upon the Company's internal and external environments. Changes in these environments could result in a shift to a more aggressive or conservative stance. A material change to Centralines' risk appetite would systematically affect Centralines' asset management plans.

Table 2-13: Governance and Ownership Assumptions

2.9.4 Asset Management Planning Assumptions

Assumption	Significance of the Assumption
Accuracy of constraint forecasts	Constraint forecasting provides a view of the expected future outputs required of Centralines' assets. It is therefore a fundamental part of both the Asset Management Strategy and Objectives, and asset management planning elements of the AMS. Traditionally, the key uncertainty in constraint forecasting has been the rate of growth in the number of dwellings and businesses of different types connected to the network. To address this type of growth Centralines has drawn upon demographic and economic data and projections to create constraint forecasts down to the level of 11kV feeders to enable development of robust asset management plans. This is the approach that has been taken in formulating the AMP and it is assumed that this will be fit-for-purpose for the first half of the planning period. Centralines believes that uptake of distributed energy resources (DER) and electric vehicles and ongoing improvements in energy efficiency will render such constraint forecasting approaches incomplete. Future demand forecasting will need to be able to forecast not only the quantity of consumers, but also their energy use intensity by segment, degree of distributed energy resource uptake, and be able to provide information down to the level of low voltage (400V) reticulation.
Situational awareness of the network continues to improve, and this delivers opportunities to defer, curtail or otherwise reduce network expenditure without resulting in increased network risk	Centralines has been installing sensors and automated switches on their network for some time, and Centralines' adoption of their service provider's, Advanced Distribution Management System (ADMS) provides enhanced situational awareness. This, coupled with Unison's maturing asset management capability, is enabling better asset management decisions to be made, and ultimately will result in more efficient and effective asset management. The theme of improved situational awareness leading to better asset management remains a key plank in Centralines' Asset Management Strategy, and it is assumed that progress will continue to be made. The network expenditure forecasts in this RAMP assume that Centralines improved situational awareness does continue to enable the managed deferral of investment. The key factor that could lead to a difference between the expenditure forecasts disclosed and actual information recorded in future disclosures is if the situational awareness developed reveals that Centralines earlier understanding of the condition of a material quantity of assets was optimistic. In such a situation, this would in fact require investment to be brought forward, rather than deferred. Although this would have an unfavourable financial impact, it would mean that underlying network risk would be reduced.

Table 2-14: Asset Management Planning Assumptions

2.9.5 Price Inflator Assumptions

Capital and operational expenditure forecasts reported in the RAMP have been indexed for future years to take into account wage and material price inflation.

The rates used are provided in Table 2-15, presented as a forecast annual rate of inflation.

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CapEx	0%	6.6%	3.2%	2.4%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
OpEx	0%	6.6%	3.2%	2.4%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%

Table 2-15: Price Inflator Assumptions

2.10 Overview of the Asset Management Strategy and Delivery

2.10.1 Strategic Context

The macro-environment that Centralines operates within is changing and this is influencing the organisation's strategy. The key drivers of change and the strategic risk implications are summarised in the PESTEL analysis below.

Category	Driver	Risks and Implications
Political	Increasing requirement to assure a secure electricity supply to customers, retailers, and industry.	Significant external attention would be directed towards any major power interruption or increasing frequencies.
	Prices for power are retained as low as practicable to enable the local economy to grow.	Centralines has external constraints to ensure price efficiencies for delivery of its services and these constraints may be increased over time. Centralines must continue to be, and be perceived to be, prudent in its expenditure and asset management.
	New Zealand's planning for the transition to 100% renewable electricity by 2035, while considering factors including security of supply and affordability.	Centralines must ensure DER has competitive access to the network at a reasonable cost.
	The Electricity Price Review found that the electricity market is not working for everyone, and many households are struggling to pay their bills. The Government will therefore be keen to ensure that electricity prices do not rise.	Centralines must ensure distribution cost structures remain affordable and transparent and work within existing expenditure forecasts that have been published in the Regulatory Asset Management Plan. Proposed work must be prudent ensuring best use of available funding.

Category	Driver	Risks and Implications
		Delivery of work must be efficient.
Economic	The global economic environment was already under significant pressure before Coronavirus emerged as a threat. A prolonged global economic slowdown could have significant negative repercussions for the New Zealand economy and the region Centralines supplies.	Additional pressure could be applied on Centralines to limit price increases, which would in turn impact network investment programmes.
Social	General societal concerns about a lack of affordability of basics including housing, food, and energy.	Substantive price increases even if allowed under the Default Price Path (DPP) will be deeply unpopular.
	Increasing expectations of society for businesses to make decisions that accord with environmental sentiments, whether rational from Centralines' frame of reference.	Effective stakeholder management on decisions that affect or are perceived to affect the environment is necessary in all cases.
	Reducing numbers of young people taking on trades apprenticeships in the electricity industry.	Aging contracting workforce putting pressure on the availability of skilled people to undertake field-based work.
	Engineering skills shortages in New Zealand due to high demand to support economic growth.	Difficulty of attracting skilled and experienced engineers to replace employees retiring or relocating.
Technological	Electric vehicle uptake and their impact on the grid is likely to increase over the next ten years. Significant increases in the rate of DER adoption would be required to justify DSO capabilities like those seen in the UK.	Trends in purchases of EVs in Centralines region need to be monitored to enable capacity issues to be addressed efficiently in asset management plans. Opportunities to work with customers to defer network investment through load control and flexibility should be investigated. These capabilities should be integrated within the asset management system.
	Information security and cybercrime are increasing risks to Centralines.	Loss of control of the service provider's NOC could have major business disruption and health and safety implications, and this risk is costly to manage.
Environmental	The magnitude and velocity of climate change macro-trend is the single biggest change in Centralines' external environment over the last 12 months ago. This impacts the business in two key areas: 1. Stakeholder expectations of the business 2. Climate change adaptation and resilience.	A clear understanding of the environmental impacts of Centralines' asset management activities is required. Network resilience should be reviewed based upon climate change projections.
Legal/Regulatory	Key regulatory issues are yet to be resolved, including:	Regulatory developments need to continue to be monitored, and submissions should be made with asset

Category	Driver	Risks and Implications
	• The full scope of how the Electricity Authority will respond to the IPAG Equal Access work. • How the Commerce Commission will enable electricity distributors to recover the costs of implementing Electricity Authority's requirements. • Low fixed charge regulation reform.	management data and case studies where applicable. Unison's DSO-Readiness Roadmap could be implemented, with new systems and capabilities integrated with the asset management system where appropriate.

Table 2-16: PESTEL Analysis

2.10.2 Strategy Overview

The focus of Centralines' strategy is aligning and keeping abreast of the changing energy landscape. The accelerating drive for decarbonisation combined with improving economics of DERs, such as solar photovoltaics and batteries as well as managing the organisation sustainably are the key factors on which Centralines' strategy is based. Centralines believes that the timing and magnitude of the impact that DER will have is inherently unknowable. However, it is clear widespread uptake of these technologies would impact the organisation's existing business model.

Centralines' Management service provider has aligned their business with ISO 50001 through the development of an AMS. In their view this represents best practice and will support Centralines' overall asset management aspiration of delivering best practice asset management decisions. This will allow Centralines to respond to the changing environment with flexibility and ease.

The Strategy Framework presented in Figure 2-9 represents the current practice, which:

- AMOs are established based upon external and internal context and alignment with the principles of the Asset Management Policy is ensured.
- Measures are developed to quantify the gap between where current asset performance and asset management capability levels lie in relation to where they must be for the AMOs to be realised.
- Asset management strategies are developed to close gaps, taking into account the lifecycle of the assets.
- Strategies are implemented in asset management plans as well as through separate improvement initiatives.
- Implementation progress is reported on as required, and major projects are reviewed upon completion. Externally conducted assessments of asset management maturity against good practice standards (formerly PAS 55:2008; now ISO 55001:2014), and expert review of key pieces of work are employed as quality assurance mechanisms.

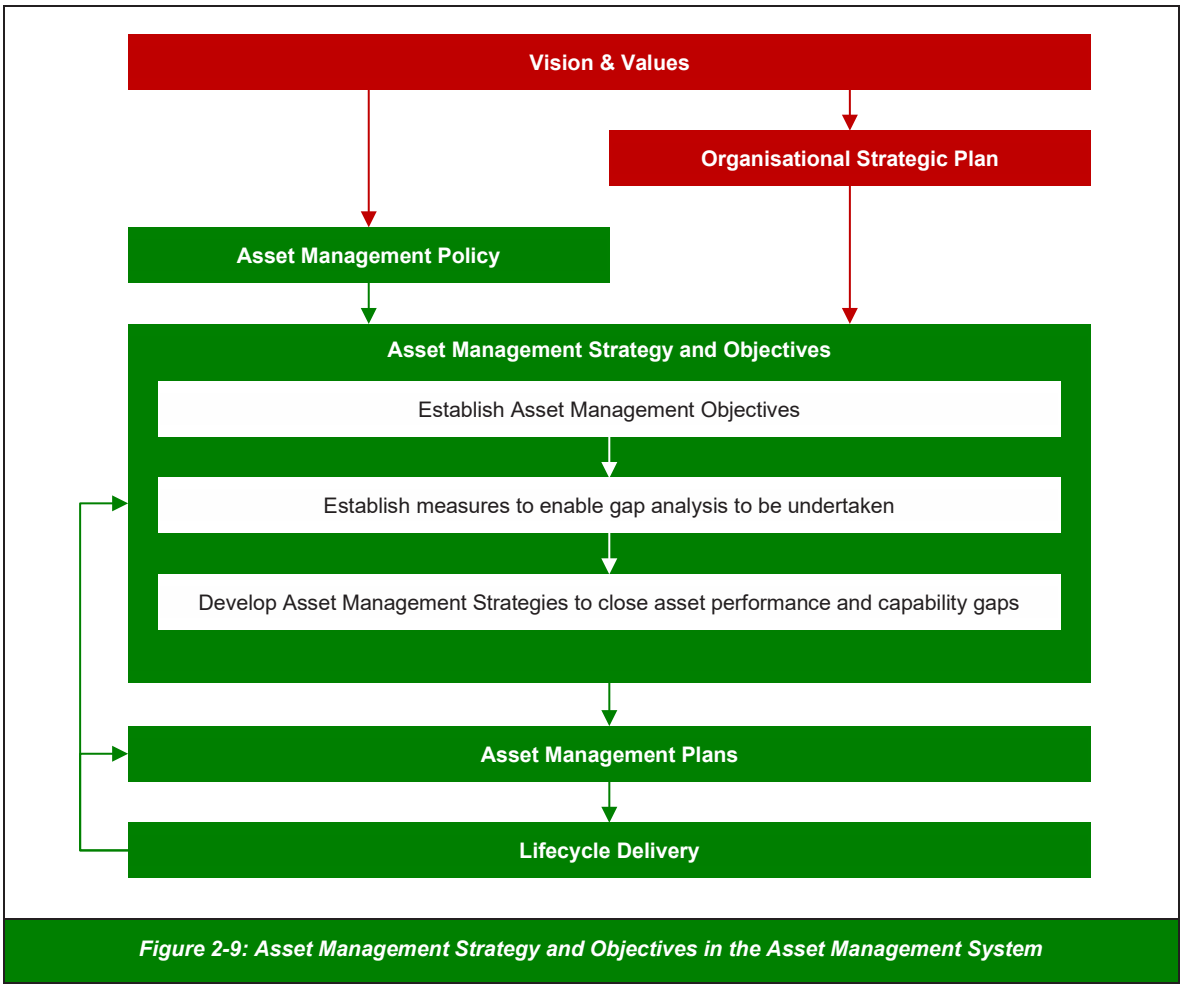

Figure 2-9: Asset Management Strategy and Objectives in the Asset Management System

2.10.3 Processes of the Asset Management System

The AMS ensures the effective implementation of the Asset Management Strategy. The AMS comprises three primary processes:

- Asset Management Planning
- Lifecycle Delivery, and
- Continual Improvement.

These processes ensure:

- the asset strategy considers the lifecycle of the assets
- the AMOs drive investment programmes, including the AMP, and
- costs, risks, and system performance are controlled through the implementation of the AMP.

2.10.3.1 Asset Management Planning

Planning within the AMS is required to provide assurance that:

- risks to the Asset Portfolio are managed, and
- opportunities for improvement are realised.

Centralines' planning processes are well-defined and embedded in the business. They utilise asset information and apply risk management principles to ensure that decision-making is robust and fact-based. The outputs are plans that specify clear tasks and projects to be initiated and scheduled to maximise the efficiency of resource utilisation.

The desired outcome of Centralines' asset management planning is the achievement of the AMOs specified in Table 2-3. These objectives are explicitly selected to align with Centralines' Asset Management Policy and Corporate Strategic Objectives therefore ensuring alignment with Centralines' asset management planning processes

The key output of the planning process is the Asset Management Plan (AMP). This contains the details of all major work required on the Asset Portfolio over a ten-year planning horizon. This work includes:

- Specialist and Complex capital projects
- asset refurbishments, and
- long lead-time corrective work including pole replacements.

All work proposals submitted to the AMP must meet certain information requirements, including assessment against the AMP risk schema. This ensures that an acceptable balance between cost, risk and performance can be reached, and therefore resources are efficiently and prudently deployed.

The AMP is supplemented with other plans including:

- plans for routine asset maintenance and vegetation management, and
- contingency and business continuity plans that are developed collaboratively by Centralines' service provider.

Centralines utilises the majority of their asset management service providers asset planning system which is represented in Figure 2-10 below.

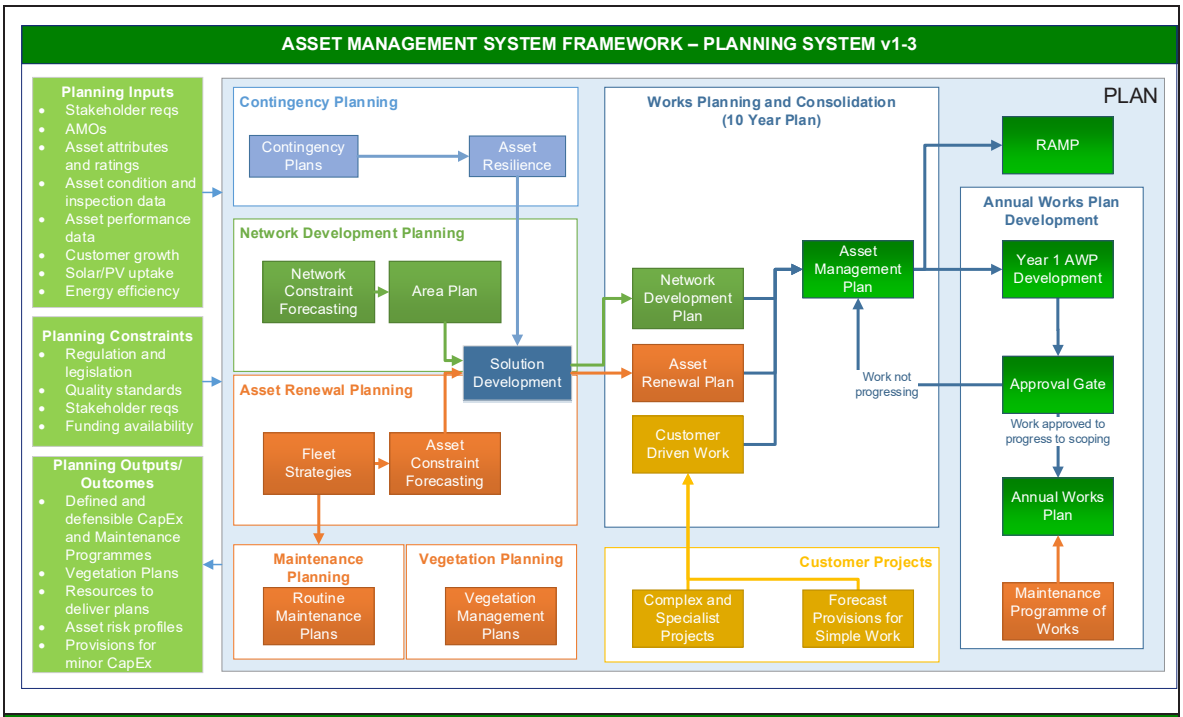

Figure 2-10: AMS Planning Systems

Figure 2-10 identifies eight sub-processes of the planning system, and these are outlined in Table 2-17.

Process	Description
Network Development Planning	• Model a range of possible future demand scenarios and identify the most plausible ones to utilise for planning. • Quantify the risk associated with capability constraints in the asset relating to capacity, security and voltage compliance over a ten-year planning horizon based upon selected demand scenario(s). • Specify project proposals to address high priority risks and submit these proposals to the AMP.
Asset Renewal Planning	• Identify and quantify risks in the Asset Portfolio relating to asset condition. • Specify project proposals to address high priority asset condition risks and submit these proposals to the AMP. • Specify project proposals to improve the resilience of the Asset Portfolio based upon requirements from enterprise risk management and contingency planning processes.
Customer Projects	• Forecast the volume of customer simple work over the planning period and submit proposed provisions to the AMP. • Identify any Complex and Specialist projects requested by customers and submit these proposals to the AMP.
Works Planning and Consolidation	• Coordinate the Annual Works Planning and Consolidation process. • Manage the AMP including supporting teams to provide submissions and closing out completed work. • Quality assure submissions to the AMP to ensure submissions are complete and technically sound. • Manage the optimisation of the AMP to ensure efficiencies in the plan are realised. • Coordinate reporting, management review and approval processes, and provide information to support the formulation of the RAMP. • Provide contracting service providers with a forward view on the required resources and capabilities to deliver the AMP.

CapEx Programme Establishment	• Establish the annual CapEx programme for the following financial year by identifying the CapEx projects and budget provisions required.
	• Introduce fiscal constraints (if any) and strategic investment criteria.
	• Initiate the project scoping process to ensure that work requests are available on a timely basis to:
	  ○ Centralines' Operations Team, and
	  ○ other contracting service providers.

Maintenance Planning	• Establish annual routine maintenance plans including:
	  ○ preventive maintenance programmes, and
	  ○ asset inspection and monitoring programmes.

Vegetation Planning	• Establish the annual plan for the management of vegetation, including trees encroaching on the line corridor, that represent a risk to the Asset Portfolio.
Contingency Planning	• Establish contingency plans to mitigate the impact of high impact, low probability (HILP) events, should they occur. • Through Enterprise Risk Management (ERM) processes supported by AMS stakeholders, identify, and quantify resilience risks in the Asset Portfolio.

Table 2-17: Planning System Sub Processes

2.10.3.2 Lifecycle Delivery

Lifecycle Delivery comprises activities required to support the:

- sustainable operation and technical integrity of Centralines' network, and
- effective and efficient implementation of asset management plans.

In this way, Lifecycle Delivery can be thought of as '*assets doing things and things being done to assets*' through the asset lifecycle. There are three key issues dealt with in Lifecycle Delivery:

1. Specification and Control of Work — the key activities that support network operations and implementation of asset management plans, and how they are controlled, and risks are managed to ensure consistent quality outcomes.
2. Technical Change Management — how change in the Asset Portfolio is controlled and technical integrity is maintained so that assets remain safe and fit to deliver the operational outcomes specified in the AMOs.
3. Outsourcing — the framework by which Centralines assures itself that the Lifecycle Delivery activities that are conducted either in house or in part by third parties meet the quality requirements of the AMS.

Centralines utilises the majority of their Asset Management service provider's Lifecycle Delivery Framework which is shown in Figure 2-11 below.

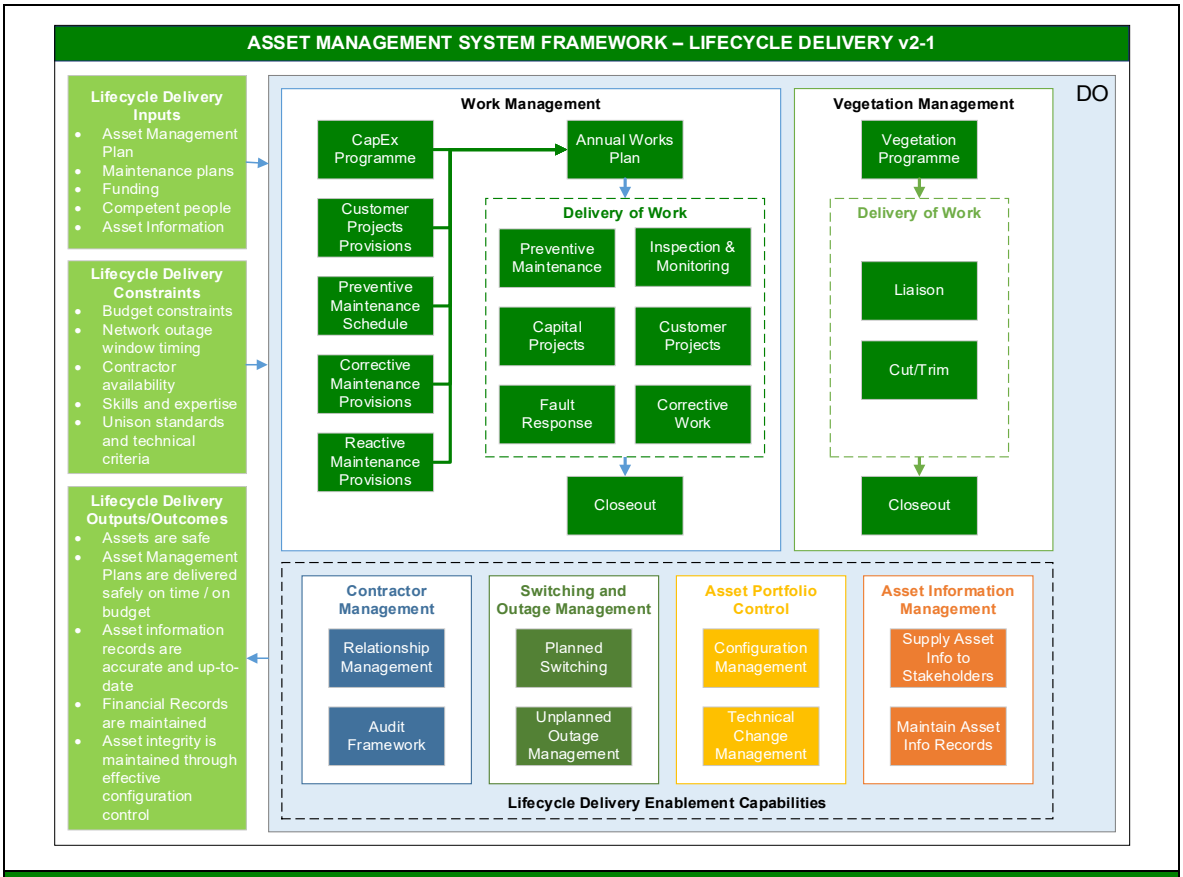

Figure 2-11: Lifecycle Delivery Framework

Further detail on the key processes within the Lifecycle Delivery Framework is provided in Table 2-18.

Process	Description
Work Management	• The process by which project and maintenance work is undertaken across the network. It assists resources to be productive and effective in maximising equipment safety and reliability.
Vegetation Management	• Identification of vegetation issues and securing of landowner consent for cutting work through the liaison process. • Cutting and trimming of vegetation to ensure line corridors are clear.
Contractor Management	• Utilise existing in-house resources or engage appropriately competent and cost-effective, outsourced contracting service providers to undertake work on assets. • Issue work to internal resources or contracting service providers. • Measure performance of contracting service providers under contractual frameworks.
Switching and Outage Management	• Develop switching plans to enable work on the network to proceed. • Identify the occurrence of unplanned outages and coordinate the response, including dispatch of first responder.
Asset Portfolio Control	• Maintenance of the configuration of the Asset Portfolio to ensure integrity. • Technical Change Management processes to ensure that risk of change in the Asset Portfolio is effectively managed.
Asset Information Management	• Record asset information generated from Lifecycle Delivery activities within asset information systems including OneEnergy and GIS. • Respond to requests for asset information from Centralines teams, contracting service providers, and third parties such as other utilities.

Table 2-18: Key Processes in the Lifecycle Delivery Framework

2.10.4 Continual Improvement

To ensure Centralines is well positioned to support the organisation to respond to the possibility of disruption in the electricity sector, continual improvement in all facets of asset management is vital.

The Continual Improvement Framework encompasses the ‘Check’ and ‘Act’ of the PDCA cycle within the AMS. Therefore, the purpose of these processes is to:

- monitor and evaluate the performance of assets, asset management, and the AMS
- deliver corrective action to respond to non-conformity and provide clear guidance on requirements for preventive action, and
- ensure that changes made to the AMS are controlled and result in sustained improvement.

The Continual Improvement Framework developed by their management service provider has been adopted by Centralines and is shown in Figure 2-12 below.

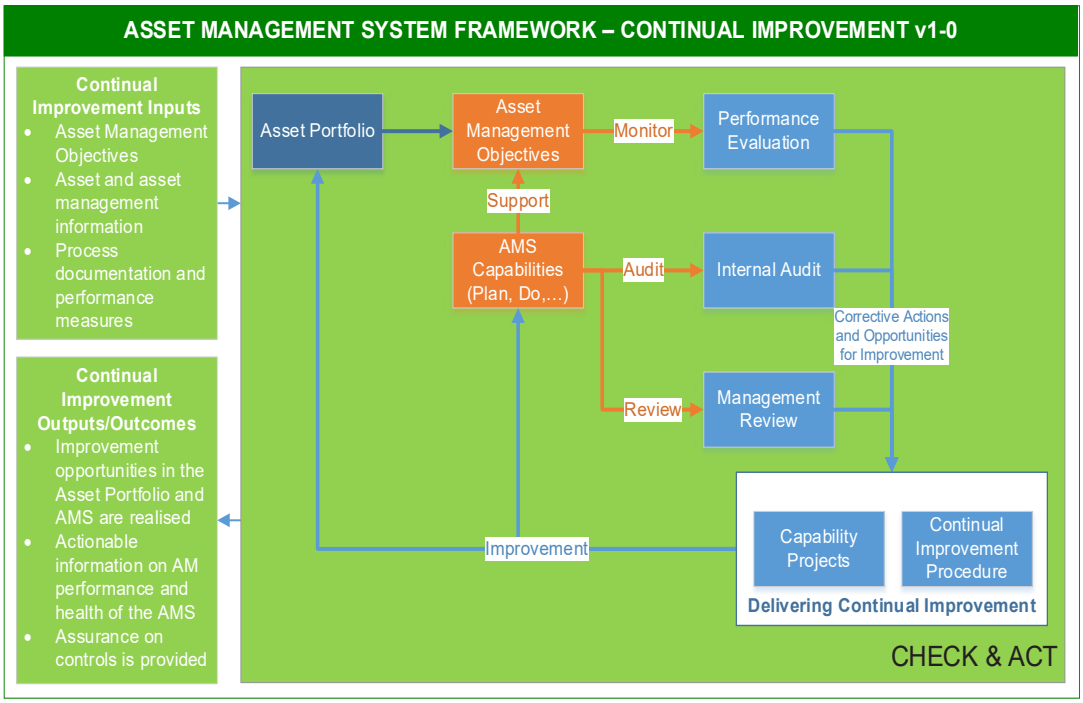

Figure 2-12: Continual Improvement Framework

Further detail on the processes supporting continual improvement is set out in Table 2-19.

Process	Description
Performance Evaluation	• Establish SMART performance indicators based upon the AMOs. • Manage the Performance Evaluation Framework to measure performance against the performance indicators over time. • Report on performance to stakeholders.
Internal Audit	• Deliver a risk-based Internal Audit Programme against the processes of the AMS to ensure that risk controls are effective. • Provide feedback to teams on the alignment of processes with ISO 55001, asset management strategy, and the effectiveness of controls. • Identify corrective actions that are required. • Identify opportunities for improvement.
Management Review	• Systematic periodic review of the status and performance of key elements of the AMS to ensure situational awareness of the management team.

Capability Projects	• Deliver strategic change projects to establish and enhance the capabilities within the AMS.
	• Deliver effective change management including:
	  ○ engagement of people and teams
	  ○ training and competency development
	  ○ controlled documentation, and
	  ○ change to information systems.

Process	Description
Continual Improvement Procedure	• Provide and manage a register of required corrective actions and opportunities for improvement (CI Register). • Risk prioritise work to be undertaken and provide a planning function. • Commission solutions to improve the Asset Portfolio and AMS and close-out projects in the CI Register, including: • improving identification of non-conformity and targeting of corrective action, and • implementing preventive actions to avoid non-conformity in the first place. • Quality assure the work undertaken and verify its effectiveness in addressing the non-conformity or opportunity for improvement.

Table 2-19: Key Processes Supporting Continual Improvement

2.11 Overview of Systems and Information Data Management

2.11.1 Introduction to Asset Information Strategy

Information, including asset information is a key enabler of the AMS, as shown in Figure 2-2. Information is utilised by Centralines to support:

- the delivery of the key processes of the AMS, being
  - planning
  - lifecycle delivery
  - continual improvement, and
  - consequential reporting requirements,
- communication to a range of stakeholders including both internal employees and contractors, and
- awareness of all internal stakeholders of the current performance of both the Asset Portfolio and the AMS, allowing them to be effective in their role as it is relevant to asset management.

Alignment between the key types of information and the asset management processes are shown in Table 2-20.

AM Processes	Information Available
Policy and Governance	Corporate Strategic Objectives Capital Investment Strategy Risk Management Framework Regulatory requirements Asset Management Policy principles Communication Plans
Asset Management Planning	Asset Management Objectives Proposals for work within the Asset Management Plan Asset class strategies including technical standards Asset health reporting and asset risk information

AM Processes	Information Available
Lifecycle Delivery	Asset work histories Geospatial information about assets Asset risks Schedules for work on assets Maintenance programmes and procedures Asset master data and information generated through technical change management processes Budgets for work to be done and project cost information Work delivery reports
Continual Improvement	Continual improvement opportunities registered Performance against Asset Management Objectives Results of internal audits and external assessments Outcomes from management reviews Project Plans for Capability Projects

Table 2-20: Asset Management Processes Alignment to Information Requirements

To ensure that information is fit for purpose to meet the requirements above, Centralines asset management service provider has developed *AMS-0007 AMS Asset Information Strategy.* The strategy has four top-level goals:

1. Know what asset information is important to achieving which business goals.
2. Know what asset information is held and where it is stored.
3. Know the state (quality, completeness, etc) of the asset information held.
4. Make informed decisions about asset information that appropriately balance the trade-off between asset cost, risk, and performance.

There are two main areas that are currently being targeted in the implementation of the strategy:

- identifying and documenting the specific data requirements of key asset management processes, clarifying roles and responsibilities, and establishing a Data Quality Dashboard in respect of these, and
- providing a data assurance framework to Capability Projects to support their successful implementation and sustainment.

2.11.2 Responsibility for Asset Information

Centralines' Management service provider's Asset Information Governance Group (AIGG) is a committee established to implement the Asset Information Strategy. They set direction and priorities for asset information improvement. The AIGG is primarily composed of Centralines' Management service provider's Networks and Operations Managers' and is chaired by their Asset Management Systems Manager.

The transactional processes for managing asset information are the responsibility of the Asset Information Team within the Asset Management Team. This includes:

- the maintenance of asset attribute information following asset change, and
- management of asset location and connectivity data within Unison's geo-spatial information system (GIS).

The responsibility for the maintenance and management of asset information systems and the supporting hardware resides with Centralines' Management service provider's Information Management Group (IMG). There is close collaboration between the Asset Information team and IMG to ensure alignment between the teams. IMG has a representative on the Asset Information Governance Group (AIGG).

2.11.3 Identification of Asset Information requirements

Subordinate to the Asset Information Strategy are the Asset Information Management procedures. These procedures are summarised in Figure 2-13, where each block represents a procedure implemented in the organisation. Together the Asset Information Strategy and procedures represent a well-integrated system for managing asset information to support the achievement of Centralines' AMOs.

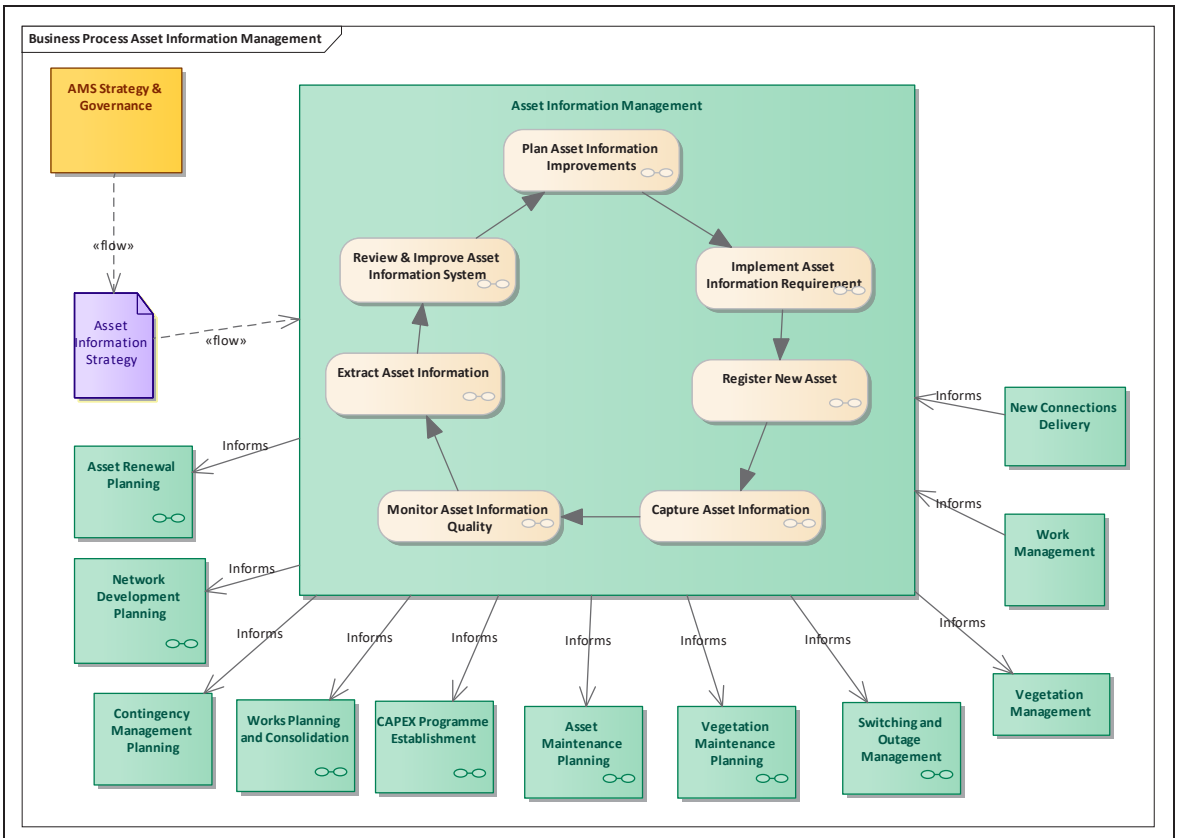

Figure 2-13: Asset Information Management Procedures

The 'Plan Asset Information Improvements' procedure is utilised to identify new asset information requirements to support the lifecycle management of assets. Diagrams for this procedure, and the following procedure that sees new requirements implemented are provided in Figure 2-14 and Figure 2-15.

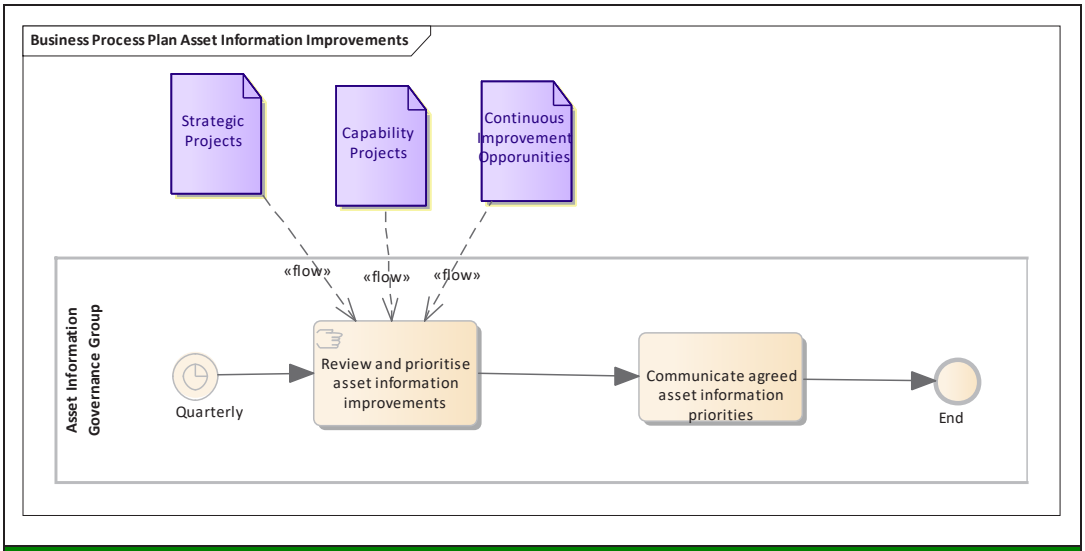

Figure 2-14: Plan Asset Information Improvements

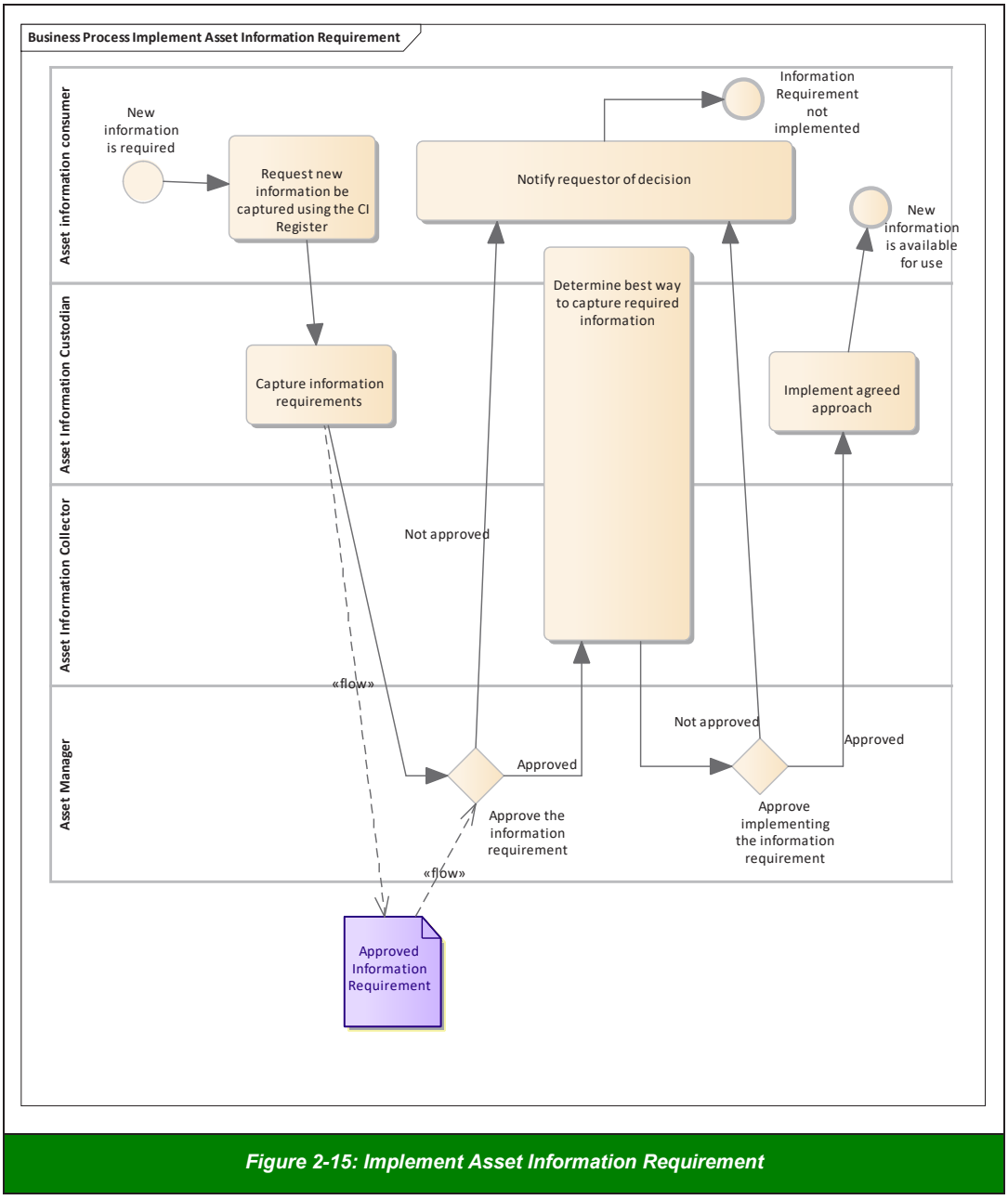

Figure 2-15: Implement Asset Information Requirement

2.11.4 Information Systems

Centralines and their Management service provider utilises a number of systems as repositories for information relevant to asset management, as set out in Table 2-21.

Name of System	Description
OneEnergy EAMS	OneEnergy is Centralines' Management service provider's Enterprise Asset Management System (EAMS). OneEnergy houses the asset register which is the master repository for asset data and stores both current attributes as well as historical information. The asset data that OneEnergy masters is available for viewing within the GIS.

Name of System	Description
	OneEnergy also provides works management functionality. This integrates with the asset register module of One Energy allowing the recording of asset management interventions against asset records.
GE Smallworld GIS	The Geo-spatial Information System (GIS) stores records of network assets according to their location and electrical connectivity. This includes the electrical connectivity within substations. Design and estimation of CapEx projects is mastered in the Design Manager module of the GIS.
Schneider ADMS	The Advanced Distribution Management System (ADMS) integrates SCADA with a suite of advanced distribution management and grid optimisation applications. Network operation and control includes managing and communicating with assets in the field along with tools to enable operators to make informed decisions based on the current network status. ADMS also provides a platform to activate self-healing network schemes. Network optimisation and analysis provides the ability to optimise the state of the network. It identifies the optimal configuration to reduce electrical losses and maximise asset utilisation.
Bentley and Meridian Drawing Management	The Meridian drawing management system integrates with the Bentley Microstation Computer-Aided Design (CAD) tool to manage the versioning and renditions of CAD drawings. It gives CAD technicians the functionality to work on projects and then publish finished drawings. The drawings are discoverable to the business via the Meridian web client.
Master Data Services	Microsoft Master Data Services (MDS) is a system for storing relatively static but important information used by key downstream systems and processes. It is primarily used for storing manufacturers' specifications of electrical and physical characteristics of equipment models.
SharePoint DocStore	Document management system used to track, manage, and store documents while keeping a record of the various versions created and modified by different users. DocStore houses all controlled documents including standards, and capital project files.
OSISoft PI Historian	PI is the primary tool used for the storage and analysis of time series data generated by telemetered network devices. Each data point for each piece of equipment is assigned a unique reference tag against which data is recorded and can be accessed. Interfaces are developed between PI and other applications in use in the business. Examples of data recorded in PI include switching events, transformer oil temperature, and current and voltage values at measuring points.
Exonet	Centralines stand-alone financial system which is totally independent from Centralines' Management service provider's financial system.
Gentrack	Gentrack is Centralines' Management service provider's Customer Relationship Management (CRM) information system. It provides a platform for consumption and ICP based network billing. Gentrack also manages the new connections and decommissioning process, network tariffs and registry updates.

Table 2-21: Information Systems

These systems provide essential data for risk assessments, investment decision-making and performance monitoring functions in the AMS. A range of tools are used to both report from these data sources and to extract data for further analysis. This data and information are of particular importance for Capability Projects.

In addition, staff also manage a number of key spreadsheets with essential asset data, such as issues and future projects to address those issues. Where such spreadsheets are considered critical for the business, then the spreadsheet will:

- have a nominated owner to manage input into the document, and
- be managed within the DocStore system to allow universal internal access to view the data.

2.11.4.1 Integration of Information Systems

The integration of the key information systems set out above is shown in Figure 2-16. The arrows represent the flow of data and information from one system to another.

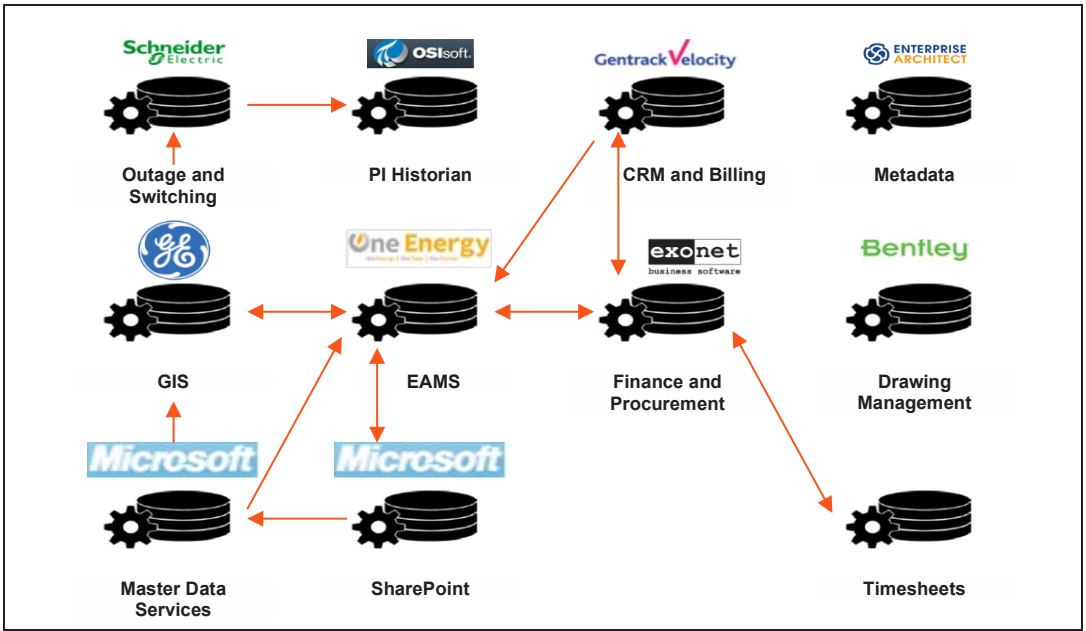

Figure 2-16 Integration of Information Systems

2.11.5 Assuring the Quality and Accuracy of Asset Management Information

To assure that data is suitable for achieving Centralines' business goals, from time-to-time it is necessary to review the state of the data required to support those goals. This requires a series of activities to check, and if necessary, remedy the data quality. Figure 2-17 provides a generic process for completing this data assurance.

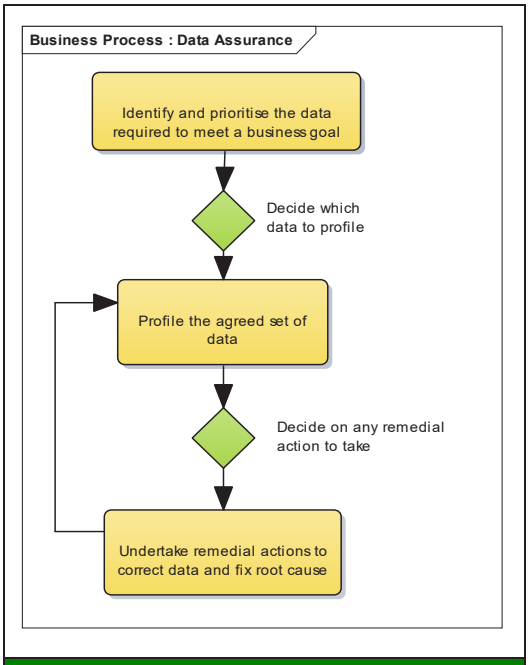

Figure 2-17: Data Assurance Process

When new data requirements are established, part of the procedure for implementing these new requirements is to establish a means of monitoring the quality of the information on an ongoing basis. This is part of the 'Determine best way to capture required information' block in Figure 2-15.

2.11.6 Limitations of Asset Management Data

In order to provide a top-level view of the health of asset information in terms of quality and accuracy, a Data Quality Dashboard (DQD) has been developed. This tool is available on the service provider's intranet and provides a view of the quality of the information supporting each element of the AMS.

The state of asset information is only known for seven of the 14 capabilities under the 'Plan' and 'Do' sections of the AMS. Once all capability areas are completed, then a holistic view of asset information quality will be available to inform decisions about where to focus improvement efforts.

2.12 Asset Management Processes

2.12.1 Asset Inspections

Inspections and Monitoring Programmes involve the acquisition of information about the condition of assets to enable informed, risk-based decisions about their ongoing maintenance and eventual replacement to be made. As well as this, physical inspections are in some cases required by legislation to provide assurance of the safety and integrity of Centralines' network.

The primary objectives of Inspection and Monitoring Programmes are to:

- Ensure the safety of assets:
  - many of Centralines' assets are situated in public areas, meaning regular inspection is required to ensure that assets are free from damage and are secure, and
  - meet legislative requirements.
- Improve network reliability:
  - reduce unplanned/forced outages affecting customers
  - enable planned repairs or replacement prior to an asset failing in service, and
  - improve network performance.
- Extend asset life:
  - reduce permanent damage to parts, components, and equipment, and
  - detect and correct problems as they occur.
- Optimise lifecycle costs and increase return on capital invested:
  - reduce repair and operating costs
  - prevent catastrophic costs
  - reduce overtime
  - reduce parts inventory requirements, and
  - reduce insurance premiums.

Inspections and Monitoring Programmes generate both measurement data as well as metadata, i.e., data about the measurement data. The measurement data may be:

- qualitative data, e.g., condition grades
- single measurements
- tables of measurements, e.g., over an observation period
- commentary about what was observed, e.g., a patch of rust, or
- photographs and other digital imagery.

The metadata may include:

- where the measurements were collected from — this can be either where samples were obtained from or where direct measurements were taken
- when the measurements were collected — the date and time and ambient conditions, and
- who collected the information — the individual, the monitoring device, the specific measurement instrument utilised.

An overview of how an Inspection and Monitoring Programme is developed is provided in Figure 2-18.

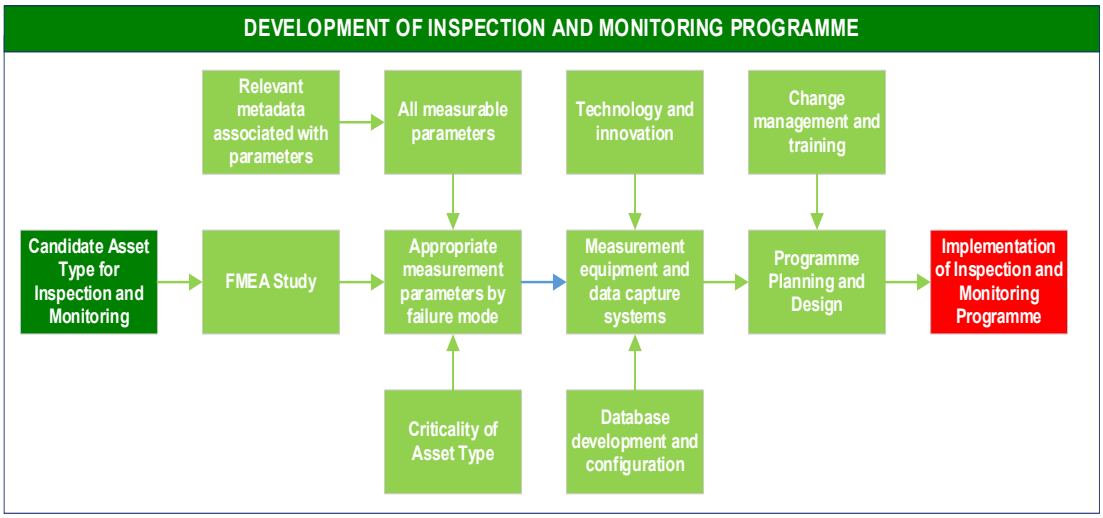

Figure 2-18: Development of Inspection and Monitoring Programme

The Inspection and Monitoring approach for a class of equipment should consider:

- the design and characteristics of the asset, including
  - why inspection and monitoring are required, and
  - what should be monitored in terms of failure modes and consequences
- information about techniques and methodologies that can be used for advanced inspection and condition monitoring, including library information and what is available in the marketplace
- how measurements can be utilised to support
  - condition assessment, and
  - estimation of remaining life, and
- the benefits of the overall approach in terms of
  - return on investment, and
  - savings associated with prevention of failure.

Where people are required to obtain data, they require Standard Maintenance Procedures (SMPs) which specify the:

- tasks
- quality to be achieved, and
- expectations of what they will deliver when undertaking these tasks.

Examples include the need for cleanliness when taking oil samples for dissolved gas analysis and where to position probes for partial discharge assessment.

Centralines' current Inspections and Monitoring Programmes are summarised in Table 2-22.

Programme	Description
Cable Testing	Tan delta equipment is utilised for diagnostic testing of cables.
Earth Testing	Testing of earthing to ensure the safety and compliance of Centralines' installations.
Feeder Patrols	Inspections of 33kV and 11kV feeders to identify asset degradation as well as vegetation encroachment. Feeder patrols may: • utilise thermo-vision and acoustic technology to supplement visual methods, and • be undertaken from the ground (by vehicle or on foot) or from the air by helicopter.
Ground Mounted Inspections (GMIs)	Inspection of ground mounted assets including distribution transformers and ring main units, including partial discharge testing.
Pedestal Inspections	Inspection of pedestals which may house fuses, joints, communications equipment, or sensors to ensure safety and security.
Power Transformer Condition Monitoring	A combination of online monitoring and field-based tests and inspections to maintain awareness of the condition of power transformers.
Zone Substation Inspections	Regular checks of zone substations. There are two levels of inspection that differ in frequency and degree of invasiveness. Techniques including partial discharge testing are utilised.

Table 2-22: Inspections and Monitoring Programmes

2.12.2 Preventative Maintenance

Preventive maintenance is work undertaken to ensure that assets continue to fulfil their intended functions in their present operating context, resulting in their service life being optimised. Preventive maintenance procedures are developed through a well-defined analysis involving considerations of the equipment, how it is being operated, and its environment. The successful implementation of preventive maintenance programmes results in the following benefits:

- assets perform consistently through their service lives
- the rate of unexpected failures is minimised
- the service life of assets is optimised
- safety performance is improved with workplace injuries avoided
- SAIDI and SAIFI performance impacts are minimised, and
- legislative requirements are satisfied, including safety, environment, and sustainability.

The last benefit is a function of not only avoiding unscheduled downtime but also optimising the percentage of time an asset is in downtime.

Preventive maintenance procedures and their application are an essential means for Unison to assure safe and reliable operations.

The development of preventive maintenance procedures requires:

- an assessment of asset criticality that ranks the criticality of individual assets and components, based on relevant financial and non-financial business consequences of failure modes
- a routine means of identifying which procedures need review or assets are missing appropriate tactics, based on the consequences of equipment failure modes
- the ability to track progress on completing and implementing the procedures needed
- an adequate level of expertise to undertake reviews of the procedures
- engagement with field resources and equipment specialists to cross-check and advise improvements to preventive maintenance procedures, and
- a timely and efficient process to update systems with improved procedures.

The effectiveness of preventive maintenance procedures is assessed by equipment work history and considers the:

- rate of urgent repairs and frequency and duration of scheduled downtime
- availability of condition information so that condition-based actions may be triggered as needed, and
- proportion of preventive maintenance is adequate when compared to the need for repairs and condition-based interventions.

2.12.3 Network Development Planning Processes

2.12.3.1 Planning Network Development Projects

The role of Network Development Planning (NDP) is to:

- identify and prioritise risks and opportunities in the network associated with changes in demand, and other customer behaviours and expectations, and
- propose projects to respond in a way that balances these risks and opportunities with cost and performance over the long term.

Network Development Planning (NDP) has both a strategic and tactical dimension.

Strategically NDP ensures:

- the network is developed according to architectural standards that are robust to uncertainty in future electricity use scenarios and balance cost, risk and performance based upon available information
- customer expectations relating to resilience, quality and demand are understood and translated into appropriate planning criteria, and
- demand-side technology trends are understood along with the implications for the network.

Tactically NDP ensures:

- customer demand at peak periods is met without compromising asset integrity, i.e., thermal overload
- Centralines' security standards are met
- customers receive conforming power quality (including both under and over voltage, power factor and harmonics), and

- prudent project proposals are identified and specified according to the information requirements of the AMP including:
  - the work to be done on the assets
  - the timing of the work
  - the estimated cost of the work, and
  - the justification for the work, both tactically and strategically.

NDP has two key components:

1. Constraint Forecasting, and
2. Solution Development.

Constraint forecasting estimates the timing of one or more constraints arising in assets and asset systems and quantifies the impact of the constraint in financial terms. The resulting risk profile supports the Network Planning Team to develop appropriate project proposals to mitigate risks identified.

Solution development is the process for addressing forecast constraints to ensure the Asset Portfolio can continue to meet stakeholder requirements. The process includes:

- verification of the constraint
- root cause analysis, and
- identification, selection and costing of a suitable solution.

Solutions may be:

- network-based, i.e., acquiring new assets or upgrading existing assets, or
- non-network, i.e., identifying alternative means of addressing constraints.

Non-network solutions may include network reconfiguration or demand-side management.

An overview of the Network Development Planning process is provided in Figure 2-19, showing the two key components. This process is discussed in further detail in *Section 4, Network Development Planning*.

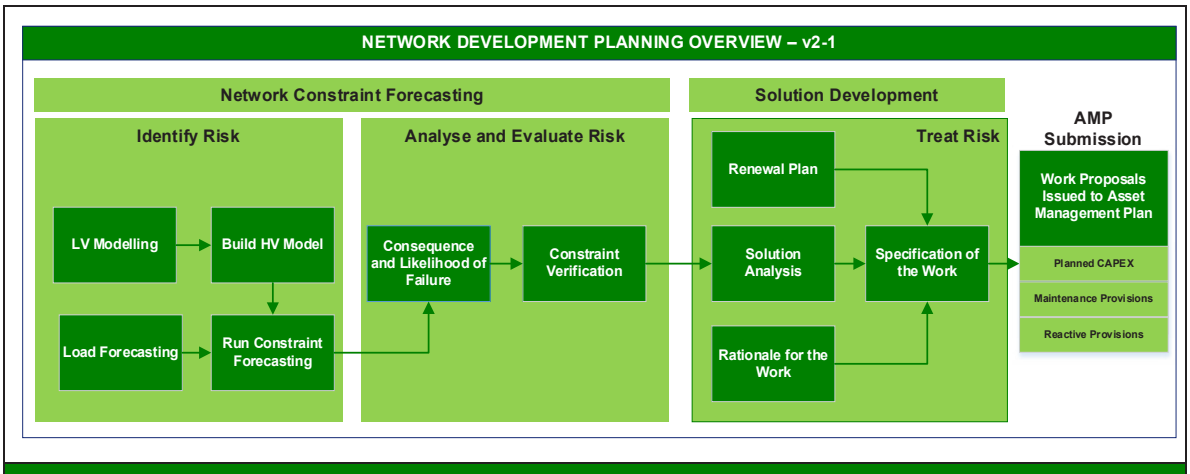

Figure 2-19: Network Development Planning Overview

2.12.3.2 Process for Delivery of Capital Projects

The implementation of Centralines' Capital Projects follows the generic process shown in Figure 2-20.

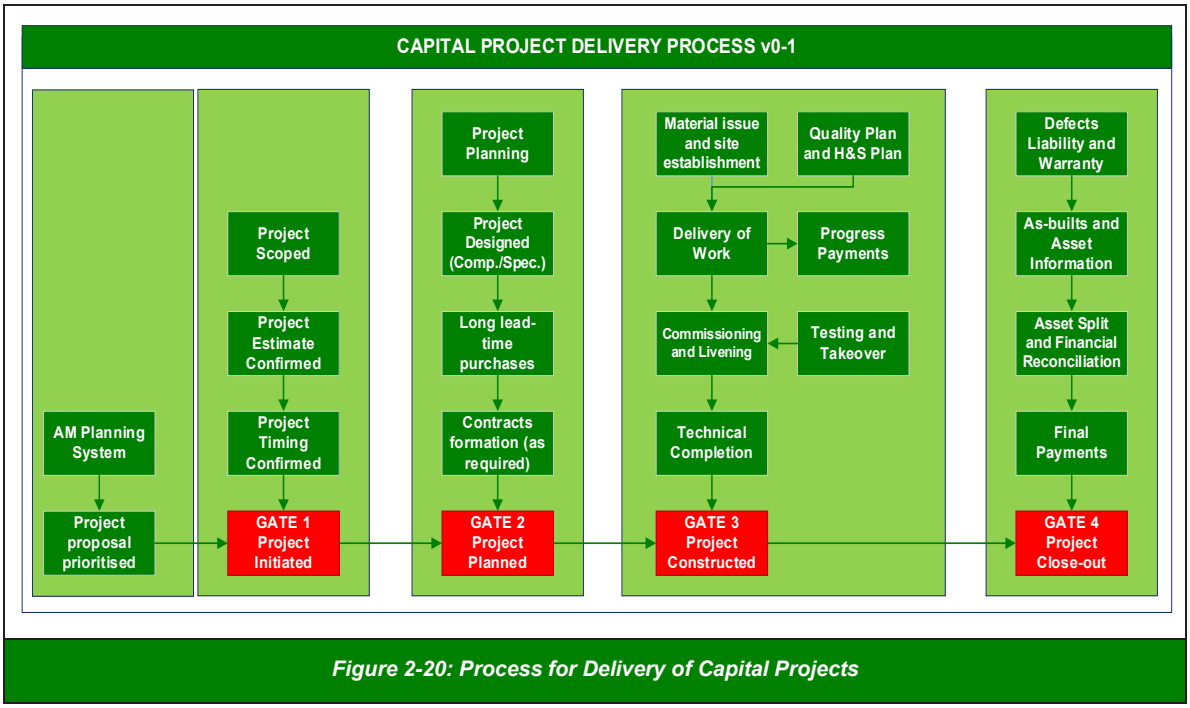

Figure 2-20: Process for Delivery of Capital Projects

This process requires:

- A project estimate be registered in the AMP with a reasonable estimate of scope, costs, resources, and time frame. The project benefits must be quantified and be credible/justified before being technically approved.
- A project may only proceed to detailed planning once the requirement has been approved by delegated managers of Centralines' Management service provider.
- Resources to plan a project may be internal or external but, will represent a cost incurred in the project budget.
- The project be planned and approved before the budget period in which it starts, or special approval to expedite the work must be approved by the General Manager Centralines. When a project is expedited, a risk assessment is required to determine potential problems with its scope, budget, or timeframe for delivery. Once project costs are approved, the project forms part of the budget for the site in the year in which it commences, and the detailed scope must cover the potential impact on operations.
- The project has an appointed Project Manager. The Project Manager is:
    - required to resource the project, secure resources, confirm the budget and the project schedule
    - accountable for the safety of the project, its environmental compliance and management of the Safety Plan
    - accountable for the quality of the project and the strategy for commissioning the works at the completion of technical work
    - to develop a communications plan, advising stakeholders of the progress of the work plus any requirement for their involvement, and
    - is accountable for keeping the risk register up-to-date and recording all risks and their controls as they become known. This can include all environmental, operations and sustainability risks.

- A Commissioning Plan be communicated to all relevant stakeholders well before the scheduled time of commissioning, to seek their feedback and agreement. When the project requires change to the configuration of the site, the Commissioning Plan will cover how the information systems and site procedures will be updated.
- Review of the quality of the project, including its planning and delivery plus the outcomes in terms of assets and systems commissioned before the project can be closed out.

2.12.4 Measuring Network Performance

Unison's Advanced Distribution Management System (ADMS) is utilised for controlling and measuring Centralines' network and performance. The process for utilising this system is set out in Figure 2-21.

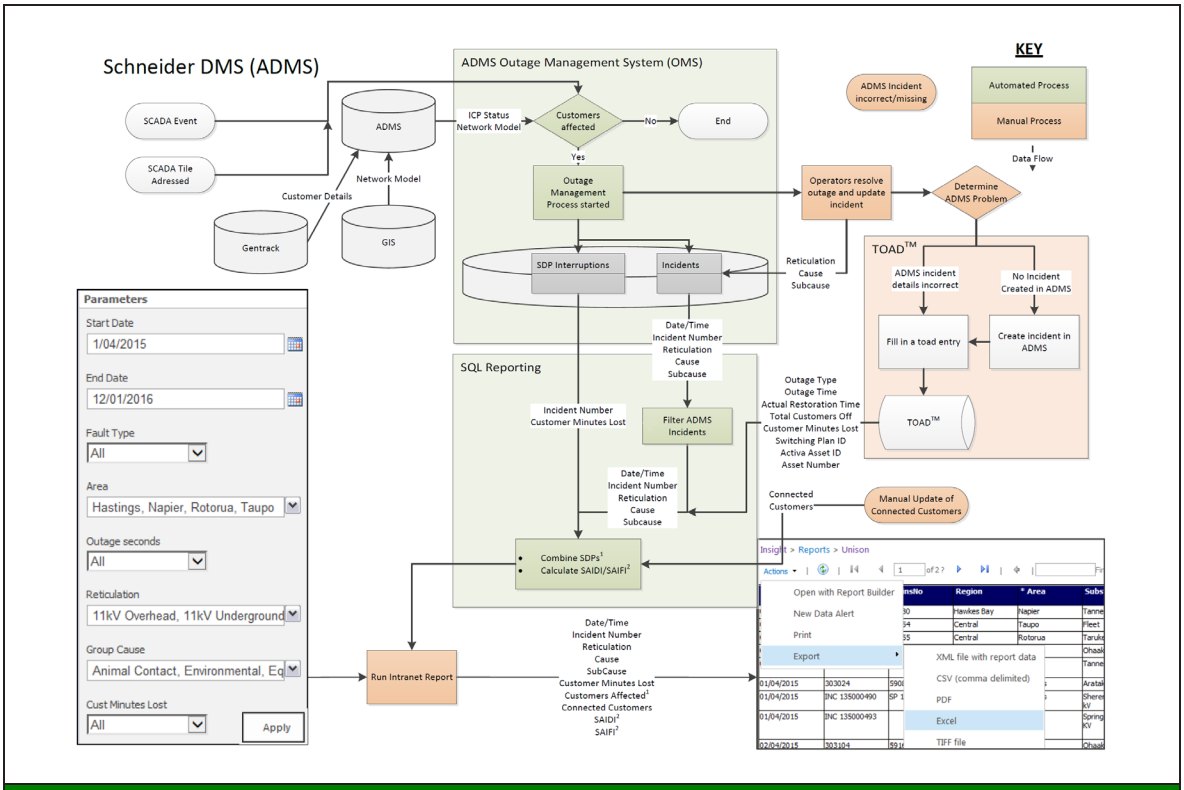

Figure 2-21: Measuring Network Performance

2.13 Documentation, Controls and Review Processes

2.13.1 Documentation

Centralines has adopted and utilises the majority of their management service provider's suite of controlled documents to support effective management of the organisation. The Controlled Document System and associated processes ensure that documents are accessible, current, and appropriate for use. The Controlled Document System is a specially managed environment within the Document Management System, DocStore. This system is managed by the Centralines' Management service provider's Technical Documentation Specialist within the Commercial Group.

A controlled document may be modified, or a new one added when a gap is identified to define a specific asset management process or procedure.

Internal audit processes require access to these documents. They are used to baseline any difference between what Centralines intends by way of asset management, and what is actually happening within the organisation.

Corporate documented information is held within the Controlled Document System in the following categories:

- Asset Management System governance (AMS series)
- Commercial (CM series)
- Contracting (SD series)
- Corporate (FC series)
- Emergency Plans
- Health and Safety (HS series)
- Information Management (IT series)
- Network Standards (NK series)
- Operating Standards (OS series), and
- Standard Operating Procedures (SOPs).

Key asset management documents are managed within the AMS series including the:

- Asset Management Policy
- SAMP, and
- subordinate documents that specify AMS processes, such as Asset Management Planning.

These documents along with key technical standards, plans and reports are set out in the AMS document framework in Figure 2-22.

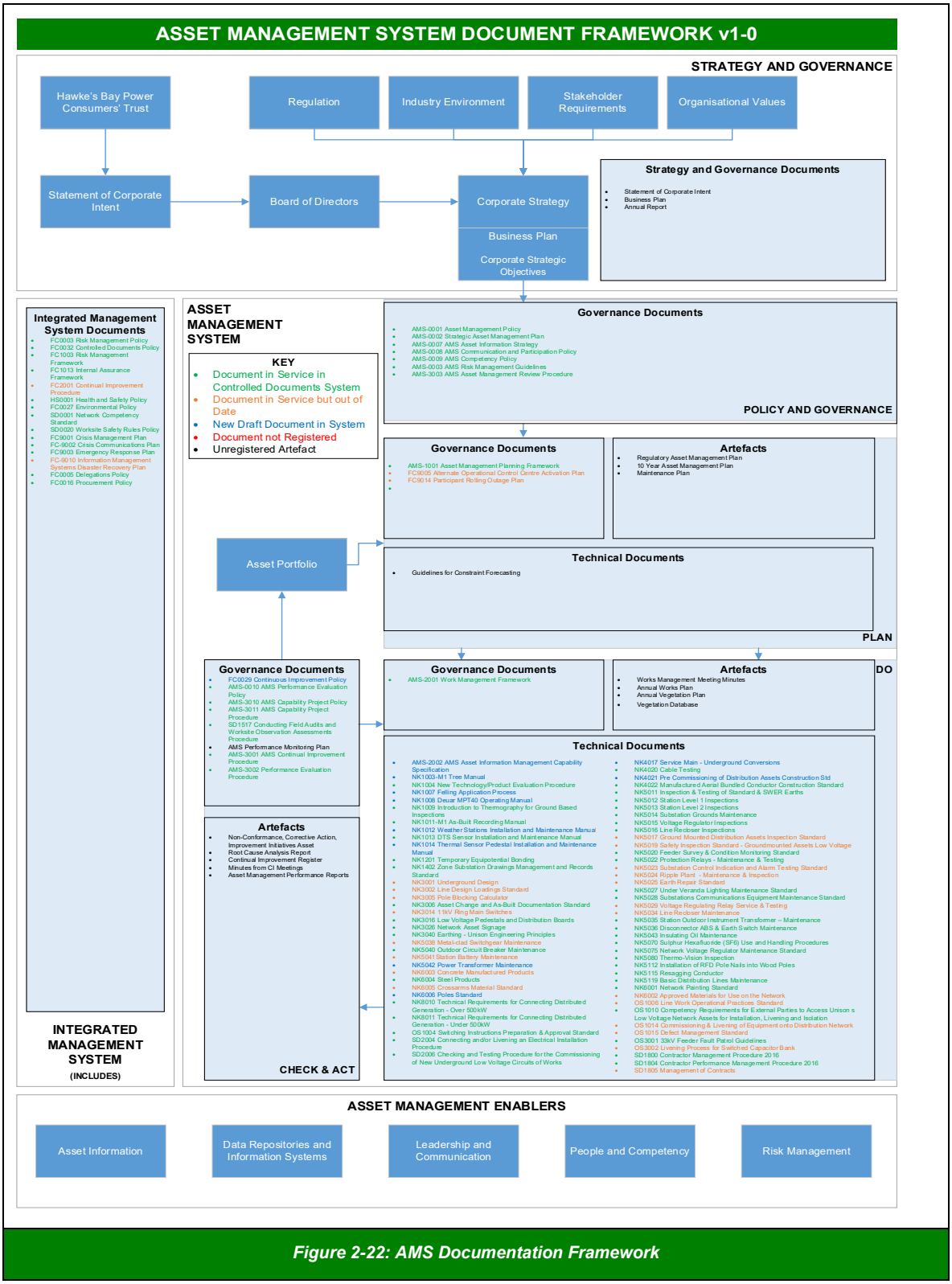

Figure 2-22: AMS Documentation Framework

Technical documents including network policies, standards and operating standards are managed within the NK, OS and SD series. These documents are supplemented with SOPs and Safety Alerts, which are often issued as an interim measure before changes are incorporated within primary technical documentation.

The Centralines' Management service provider's Networks Standards Team, within the Asset Management Team is responsible for supporting and enabling Networks and Operations to produce efficient documentation. They assist to develop associated communication and training requirements, as required.

The Networks Standards Teamwork in close collaboration with the Technical Documentation Specialist to ensure conformance of technical documents with *FC0032 Controlled Documents Policy.*

The Centralines' Management service provider's Asset Performance Manager chairs the AMS Controlled Document Governance Group. This group ensures AMS controlled documents are fit for purpose and resources are efficiently deployed to manage these documents.

Registration of issues in the Continual Improvement (CI) Register is the process by which the Network Standards Team is notified of a requirement to add or adjust technical documents.

Documents of external origin relevant to the AMS fall into four main categories. The management process for each category is specified in Table 2-23.

Document Category	Management Process
External standards	Managed through a subscription with SAI Global for the standards required by the Centralines' Management service provider's Networks Standards Team.
Legislation, regulation, and codes of practice	Managed through a subscription with LexisNexus by the Management service providers' Senior Legal Counsel. Centralines' employees are advised to access current legislation and subordinate regulation through the New Zealand Government service at www.legislation.co.nz.
Contracts, consents, easements, and other binding documents	Managed through service providers contracts register by the Administration Team.
Original equipment manufacturer (OEM) documentation	Electronic records are stored with the project file on DocStore by the responsible Project Engineer. New hardcopy and legacy documentation are filed in the East Wing of the service provider's offices by the service provider's Asset Specialists Technical Lead.

Table 2-23: Documents of External Origin

2.13.2 Control of Processes

Control of processes within the AMS is achieved as follows:

- Each process has an assigned Process Owner who is accountable to the General Manager Networks and Operations for its:
  - specification and documentation
  - implementation
  - monitoring for compliance, and
  - continual improvement.
- The Process Owner is supported through delegation to the management representative for the AMS.
- Subject Matter Experts (SMEs) who are people who work in the process, are called upon to develop, review and improve controls such as standards and procedures, training materials and performance measures.
- The Process Owner has the mandate to initiate a review of process controls as well as internal audit of processes. Each of these tasks is delegated to the management representative for the AMS, for coordination. A review of process controls involves an evaluation of whether the controls are appropriate, given the risk profile of the process. Internal audit involves an assessment of how well the process is performing and whether procedures are being conformed to. The approaches to review of process controls and internal audit are set out in a simplified form in Figure 2-23.

These processes apply both to internal and outsourced processes of the AMS.

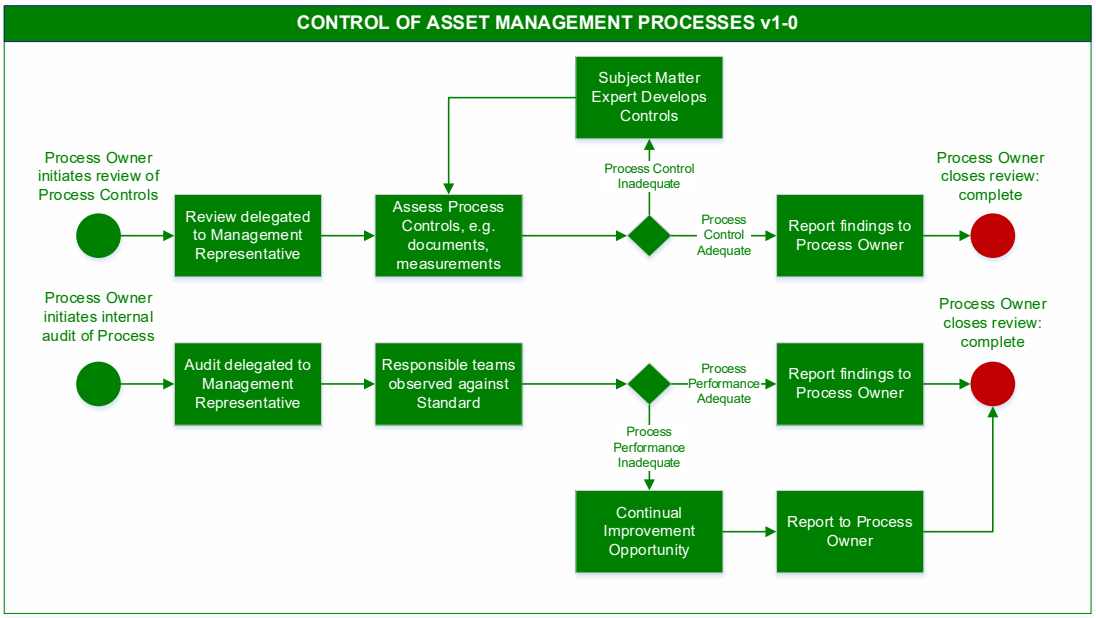

Figure 2-23: Control of the Asset Management Process

Where conformance issues or other process performance shortcomings are identified, then a Continual Improvement Opportunity may be raised in the CI Register.

2.13.3 Management Review

Regular top management review of the various components of the AMS is undertaken to assure its ongoing fitness-for-purpose and effectiveness. The management service provider's General Manager Networks and Operations is responsible for management review, with coordination delegated to the service provider's AMS Manager. The process for management review is documented in *AMS-3003 AMS Management Review Procedure.*

The following items are subject to management review:

1. The health of the AMS.
2. Continuing suitability of the Asset Management Policy.
3. Continuing suitability of the AMOs.
4. The Asset Management Strategy.
5. Changes in external and internal issues and risks relevant to the AMS.
6. Incidents that have occurred and remedial actions that have been taken.
7. The Asset Management Plan.
8. Lifecycle Delivery performance, including the quality of, and progress through works programmes.
9. The CI Register.
10. The performance of active Capability Projects.
11. Outcomes from recent internal audits.
12. Assessments and audits by external bodies.
13. Customer and other stakeholder feedback, including complaints.
14. Recommendations for improvement including other factors, such as resources and training.
15. The performance of the Asset Portfolio, asset systems and individual assets.

The 15 items listed above are addressed through five management review meetings of varying frequency, as specified in Table 2-24.

Meeting	Frequency	Chair	Items Covered
AMS Governance Meeting	Annually	General Manager Networks and Operations	1, 2, 3, 4
AMP Review Meeting	Six-monthly	Network Investment and Delivery Manager	7
N&O Strategic Risk Committee Meeting	Quarterly	Asset Management System Manager	5, 6
Work Management Monthly Meeting	Monthly	Network Investment and Delivery Manager	8
Continual Improvement Meeting	Monthly	Asset Management System Manager	1, 9, 10, 11, 12, 13, 14
Network Performance Meeting	Monthly	General Manager Networks & Operations	5, 6, 14, 15

Table 2-24: Summary of Management Reviews

Meeting documents including briefing notes, performance information and minutes are stored within the Management Review SharePoint library at the address provided under Other References below.

2.13.4 *Internal Audit*

The Centralines' Business Management System Framework (BMSF) referred to earlier includes a strong audit capability within the Internal Assurance Framework. This framework from Centralines' Management service provider is applied to some of the key business processes that have been adopted and are being used by the organisation. In the AMS, this capability has three main purposes.

1. Assess the competency of the various teams in their functional roles within the AMS.
2. Test conformance to planning and decision-making processes and the execution of activities.
3. Provide a basis for identification of corrective actions and continual improvement opportunities.

The Internal Audit process is set out in Figure 2-24.

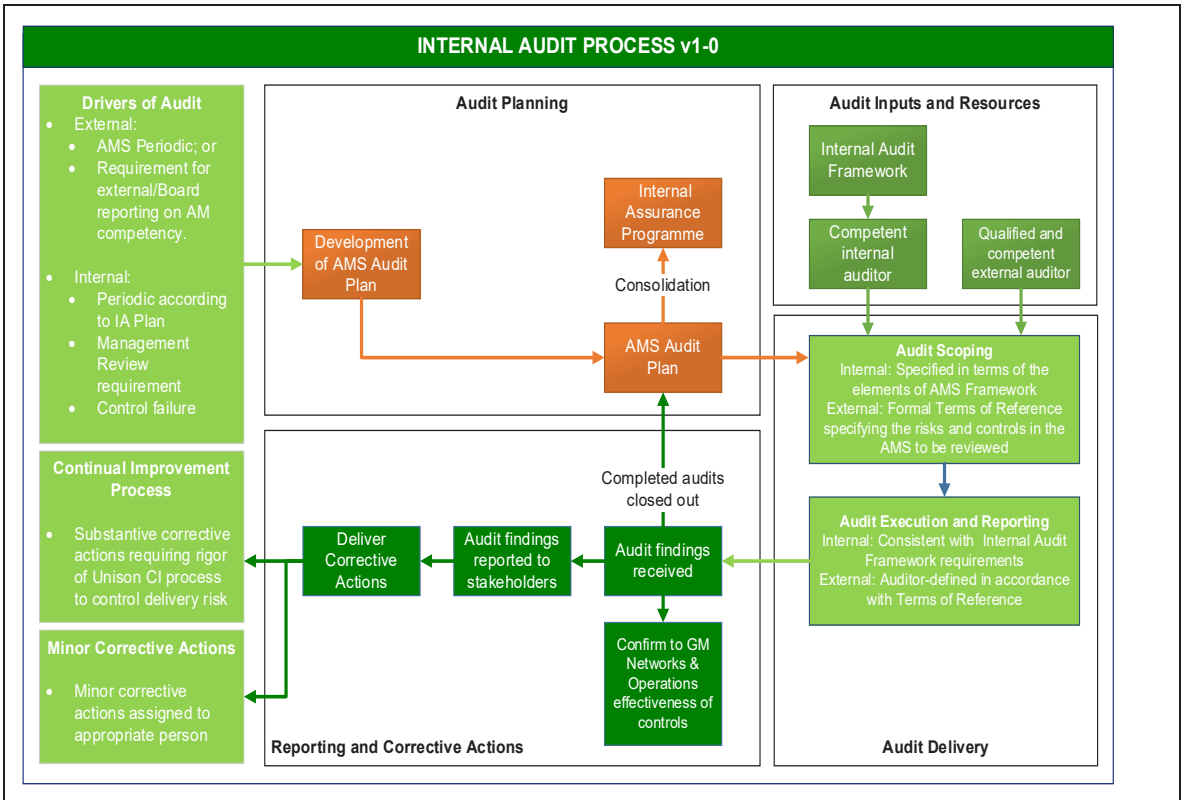

Figure 2-24: Internal Audit Process

A three-year Internal Audit Plan has been developed collaboratively between the service providers. The Group Risk & Sustainability Manager is responsible for enterprise internal assurance, and the Asset Management System Manager is the management representative for the AMS.

This plan links planned internal audits to the controlled documentation specifying processes of the AMS, and the relevant clause of ISO 55001.

Internal audits are scheduled based on risk with those processes most at risk audited more often than those a less risk. The likelihood of a process being at risk is based on the results of the previous audit of that process. The consequence of the process being at risk is based on the criticality to the overall AMS and the Unison's strategy. Other information is also included in the risk assessment where relevant.

The scope of the periodic internal audit is limited to conformance of teams with the specified processes. This is appropriate given that the processes have been developed to meet the requirements of ISO 55001, and that this is tested through the External Audit process for certification to the standard.

For each of the internal audits specified in the plan, audit tools are progressively being developed. The audit tools include checklists and open-ended questions that probe the effectiveness of the implementation of processes and systems, and support capabilities, including training and resourcing.

2.13.4.2 Reporting of Internal Audit Outcomes

The outputs of all internal audits are presented to the Asset Management System Manager. If the Asset Management System Manager is satisfied that the audit has fulfilled the Audit Plan or Terms of Reference the report will be issued to relevant stakeholders, including the Group Risk & Sustainability Manager. Where the driver for the audit has been Executive Management, the Board or external stakeholders, the Asset Management System Manager will engage with the General Manager Networks and Operations to establish the next steps for reporting.

Process Owners of the process being audited are responsible for raising corrective actions and opportunities for improvement in the CI Register.

2.14 Communication of Asset Management Strategy and Objectives

Asset management outcomes are communicated formally at Centralines through the mechanisms listed below.

- the Business Plan is made available to all employees. This document contains a comprehensive review of asset management outcomes for the previous financial year.
- on a quarterly basis a business-wide performance brief is delivered by Management.
- the Operations Manager holds a monthly Team Brief where topical asset management outcomes are presented and discussed.
- automated network performance and reliability reports are sent to key employees daily detailing year-end targets, current performance, and forecasts for SAIDI and SAIFI, as well as recent outages.
- incidents and urgent changes to SOPs are drawn to the attention of all employees through Safety Alert bulletins. These are sent to all employees by email, pinned up in visible locations around the office and managers are required to communicate details to employees.
- relevant asset management outcomes are included within employee performance frameworks which are reviewed and discussed six-monthly with their manager.
- favourable and important asset management outcomes are celebrated within the organisation.

2.15 Determination Reference Mapping Table

Section 2 Reference		Determination Reference
2 2.1 2.2 2.3	Background and Objectives Introduction to this Section Context of the Organisation Overview of Centralines' Asset Management System	3.2
2.4	Purpose of the Regulatory Asset Management Plan (RAMP)	3.3 including 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5
2.5	Planning Period of the Regulatory Asset Management Plan	3.4
2.6	Date of Director Approval	3.5
2.7	Centralines' Stakeholders	3.6 including 3.6.1, 3.6.2, 3.6.3, 3.6.4
2.8	Accountabilities and Responsibilities for Asset Management	3.7 including 3.7.1, 3.7.2, 3.7.3
2.9	Significant Assumptions made in the AMP	3.8 including 3.8.1, 3.8.2, 3.8.3, 3.8.4, 3.8.5, 3.9
2.10	Overview of the Asset Management Strategy and Delivery	3.10
2.11	Overview of Systems and Information Data Management	3.11 3.12
2.12	Asset Management Processes	3.13 including 3.13.1, 3.13.2, 3.13.3
2.13	Documentation, Controls and Review Processes	3.14, (i), (ii), (iii), (iv), (v)
2.14	Communication of Asset Management Strategy and Objectives	3.15, (i), (ii)

Table 2-25: Determination Reference Mapping Table

THREE SERVICE LEVELS

CENTRALINES
LIMITED

CONTENTS

3-2 SECTION 3 SERVICE LEVELS

3. SERVICE LEVELS

3.1 Introduction to this Section

Centralines uses monitoring, measurement, and analytical processes to evaluate its asset management performance. This provides a check on whether stakeholder requirements are being met, and if therefore, value is being realised from the asset portfolio. It also supports continual improvement of the asset portfolio and Asset Management System (AMS).

The Asset Management Objectives (AMOs) specified in Section 2 provide coverage of stakeholder requirements and expectations. They are therefore utilised as the basis for identifying what must be measured and monitored to ensure appropriate performance levels.

3.2 Performance Evaluation Overview

3.2.1 Purpose

The purpose of performance evaluation is to monitor key metrics to ensure the effectiveness, efficiency, performance, and continuous improvement of Centralines' AMS and related processes.

Performance evaluation includes determining:

- what needs to be monitored and measured
- the best frequency and method of measurement, and
- how and when the results will be analysed and evaluated.

Performance evaluation covers the evaluation and reporting of:

- asset performance
- asset management performance, and
- the effectiveness of the Asset Management System (AMS).

In summary, performance evaluation reports on whether the needs and expectations of stakeholders of the AMS are met.

3.2.2 Principles

Listed below are the requirements that must be adhered to for all performance evaluation activities.

1. Reports must be provided regularly on performance trends of the AMS to:
    - the General Manager Centralines — as the role with overall accountability for the AMS, and
    - all employees who contributed to the data being reported on.
2. There must be a specified use for all information collected. This will be to support an approved AMS measure.
3. All relevant Centralines employees and contractors must support the collection of performance evaluation measures approved by the General Manager Centralines. Those

impacted by data collection for performance evaluation of the AMS will be provided with an explanation of the use and purpose of the data.

4. The collection of performance evaluation measures must be done in a way that minimises the impact on staff.
5. A balanced set of measures must be used to avoid skewing measures towards one outcome at the expense of another outcome. For example, focusing on network performance at the expense of cost.
6. Data captured for performance evaluation of the AMS must be aggregated so it is not used to measure the performance of individuals. It must not be linked to any Human Resources performance management system.

3.3 Performance Evaluation Procedure

The diagram in Figure 3-1 shows the overall process flow for performance evaluation along with the key inputs and outputs.

The overall process flow is applied to:

- establish the Performance Indicator Framework (PIF)
- develop performance measures
- report on AMS performance, and
- investigate/evaluate AMS non-conformity.

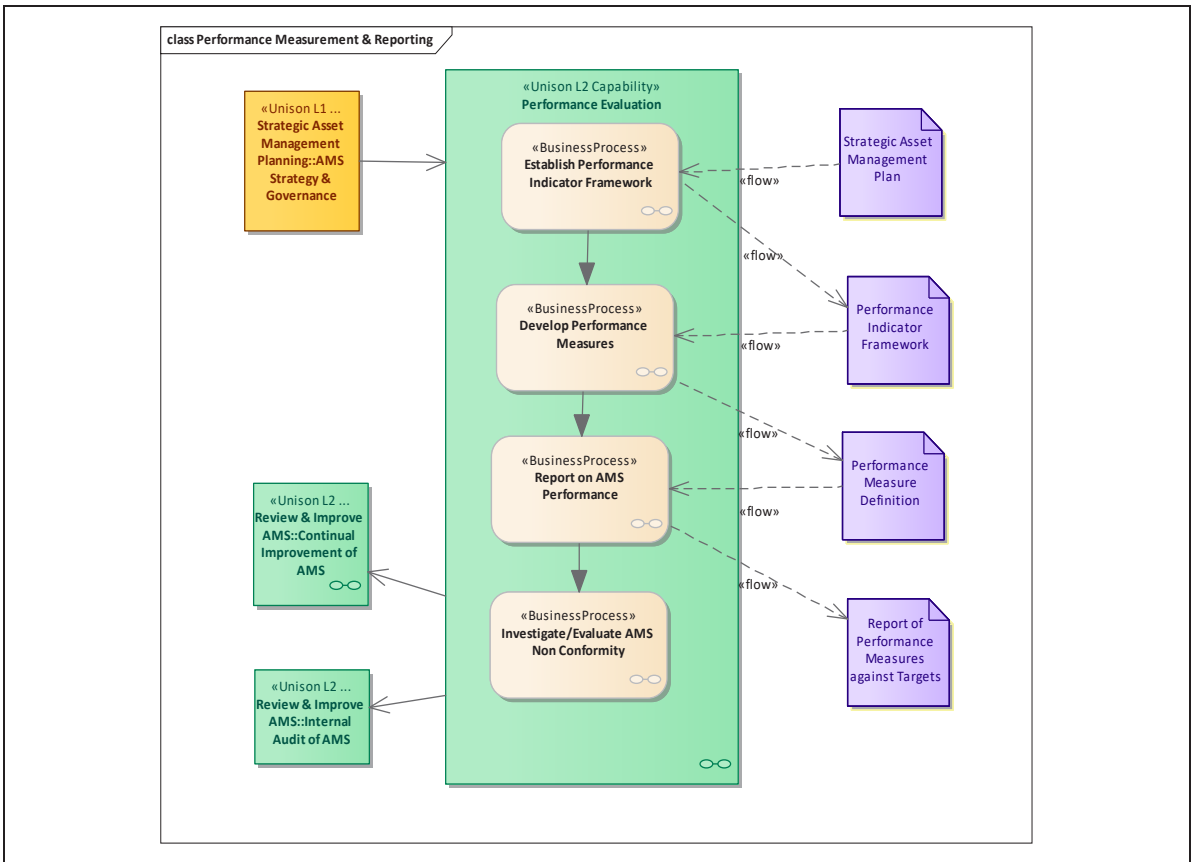

Figure 3-1: Performance Measurement and Reporting

3.3.1 *Further Detail on Service Levels*

The PIF provides a portfolio of performance indicators. These indicators can be used to conduct a quantitative measurement of AMS performance. It is intended that at any time a subset of these performance indicators will be implemented.

The General Manager Centralines selects performance indicators to be used over a given period. This selection is reviewed annually through the Business Planning process.

This approach:

- provides the General Manager Centralines with a basis for directing organisational attention towards issues of strategic importance
- supports the organisation to tailor the extent of performance measurement to the internal and external context of the organisation over time, and
- recognises performance measurement is a non-trivial cost to an organisation of Centralines' scale.

When the General Manager Centralines selects a new performance indicator for measurement, consultation with the relevant teams will be undertaken to decide details for the performance measure.

The General Manager Centralines must approve the confirmation of appropriate performance levels and measurement systems for each team. Measurement and reporting against the performance indicator will then be adopted into the Performance Measurement Framework.

Outcomes of performance measurement may include:

- initiation of an internal audit, and
- the subsequent implementation of recommended corrective actions.

3.3.2 *Development of Performance Measures*

When a new performance indicator is selected for measurement by the General Manager Centralines, the relevant teams are required to agree to:

- the performance level to be achieved
- the business rules for measurement, including responsibilities for measurement, where applicable
- the review process, where the performance is assessed using the agreed measures, and
- how corrective actions will be initiated to address any gaps, including through the Continual Improvement process.

3.3.3 *AMS Performance Reporting*

Reporting on the performance of the AMS:

- provides information on each team's capability to contribute to the achievement of the AMOs relevant to their function, and

- enables the organisation to effectively drive improvement through the Continual Improvement process.

3.4 Performance Measures

Centralines' performance measures are provided below and are aligned to the nine Strategic Asset Management Objectives, specified in Section 2. In respect to each performance measure that has been implemented, the following information is provided:

The measurement approach for the performance indicator.

1. Performance targets.
2. The justification for the measure and targeted level of performance.
3. Historical performance levels, where available.

3.4.1 Ensure People are Safe Around Centralines' Assets

3.4.1.1 Measurements

Number of asset failures resulting in an injury (serious harm) or fatality to the public.

Number of severity 1, field crew, health and safety internal audit findings.

Percentage of priority 1, 2, and 3 asset defects completed within required timeframes.

3.4.1.2 Performance Targets

Measurements	Targets 2022/23
Number of asset failures resulting in an injury (serious harm) or fatality to a member of the public.	0
Number of severity 1, field crew, health and safety internal audit findings.	0
Priority 1, 2, and 3 asset defects completed within required timeframes.	100%

Table 3-1: Performance Targets – Ensure People are Safe Around Centralines' Assets

3.4.1.3 *Justification for Targeted Level of Performance*

Ensuring the safety of Centralines' staff, contractors and members of the public is the most important priority in asset management. This objective aligns with and complements, the objectives of Centralines' Health and Safety Management System (HSMS) and Public Safety Management System (PSMS).

Any asset failure resulting in harm to members of the public, would be totally unacceptable and subsequently Centralines is totally committed to managing risks to ensure this does not eventuate.

The number of severity 1 findings from Centralines field crew internal health and safety audits is set at zero, as serious harm to any field staff member is again deemed totally unacceptable. Any severity 1 audit finding could indicate a potential process failure which would be a major concern and require investigation and corrective actions.

Priority 1, 2 and 3 asset related defects in the asset portfolio have the potential to cause harm to people and property. Once identified, these defects must be prioritised and actioned through existing processes to ensure they are corrected within the required timeframes.

3.4.1.4 *Historic Performance*

Financial Year Ending	Target	Actual	Target Met
2019	= 0	0	✓
2020	= 0	0	✓
2021	= 0	0	✓

Table 3-2: Historic Performance – Number of Asset Failures Resulting in Serious Harm or Fatality to Member of the Public

Financial Year Ending	Target	Actual	Target Met
2019	= 0	0	✓
2020	= 0	0	✓
2021	= 0	0	✓

Table 3-3: Historic Performance – Number of Severity 1 Non-Conforming Field Crew Internal Health and Safety Audit Findings

Historical performance for priority 1, 2, and 3 asset defects followed up within required timeframes is a new measure. It is expected, following the implementation of the new EAMS and once Centralines has adopted the associated processes, this data will be available and reported on.

3.4.2 Deliver a Reliable and Compliant Electricity Supply to Customers

3.4.2.1 Measurements

Statement of Corporate Intent (SCI) unplanned SAIDI target.

SCI unplanned SAIFI target.

Number of annual, verified power quality complaints.

3.4.2.2 Performance Targets

Measurements	Targets 2022/23
SCI unplanned SAIDI target.	<62.83
SCI unplanned SAIFI target.	<3.16
Number of annual verified power quality complaints.	≤ 5

Table 3-4: Performance Targets – Deliver a Reliable and Compliant Electricity Supply to Customers

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3.4.2.3 Justification for Targeted Level of Performance

Electricity is an essential service. Stakeholders, customers, and regulators expect Centralines to provide a reliable supply, that meets agreed service levels and all legislative requirements.

While no longer required to meet regulated quality targets, stretch unplanned SAIDI and SAIFI targets (which are lower than what would have been the regulatory limit) have been developed and included within Centralines' Statement of Corporate Intent (SCI). These targets ensure that there is a sustained focus on continuous improvement and ensuring a reliable electricity supply is provided to customers.

Current targets for the number of verified power quality complaints are based on historic annual performance of Centralines. The processes being utilised for Network Development Planning (referred to in Section 5 of Centralines' RAMP Update) will over time result in a reducing likelihood of power quality issues on the network. It is anticipated such issues are unlikely to occur with any frequency by the end of the planning period. This assumes that there is no significant change to patterns of demand and energy use intensity.

3.4.2.4 Historic Performance

Financial Year Ending	Target	Actual	Target Met
2021	< 62.83	38.46	✓

Table 3-5: Historic Performance – SCI Target for Unplanned SAIDI

Financial Year Ending	Target	Actual	Target Met
2021	< 3.16	1.49	✓

Table 3-6: Historic Performance – SCI Target for Unplanned SAIFI

3.4.3 Improve the Customer Experience Rating for Asset Management Services

3.4.3.1 Measurements

Percentage of planned shutdowns finishing outside notified outage windows.

Centralines responses not completed within Utilities Disputes (UDL) time limits.

Timeframe to complete standard low voltage customer connection.

Timeframe to complete investigation of power quality issue.

3.4.3.2 Performance Targets

Measurement	Target 2022/23
Percentage of planned shutdowns finishing outside notified outage windows.	< 15%
Centralines responses not completed within Utilities Disputes (UDL) time limits.	0
Timeframe to complete standard low voltage customer connection.	<15 business days
Timeframe to complete investigation of power quality issue.	<20 business days

Table 3-7: Performance Target – Improve the Customer Experience Rating for Asset Management Services

3.4.3.3 *Justification for Targeted Level of Performance*

While a requirement to ensure the asset portfolio remains fit for purpose, planned shutdowns are often disruptive and inconvenient to customers. To minimise this disruption and allow customers to prepare appropriately, adherence to notified outage windows is very important.

UDL offers a service to resolve complaints that have been unable to be resolved between utilities such as Centralines and their customers. The UDL resolution process prescribes time limits for responses to customer complaints which Centralines seeks to meet in all cases to ensure any issues a resolved in a timely manner.

Delivery and adherence to schedule of standard low voltage customer connections is important to both the reputation of Centralines and to provide assurance and confidence to customers that a supply will be available within agreed timelines.

When power quality issues are raised, there is an expectation these issues will be investigated and resolved efficiently within agreed timeframes.

3.4.3.4 *Historic Performance*

Financial Year Ending	Target	Actual	Target Met
2020	0	0	✓
2021	0	0	✓

Table 3-8: Historic Performance – Centralines Responses Not Completed Within Defined UDL Time Limits

3.4.4 Improve the Financial Performance of the Asset Management Plan without Compromising Network Performance and Asset Integrity

3.4.4.1 *Measurements*

Network CapEx is within ±10% of total budget.

Network OpEx is within ±10% of total budget.

3.4.4.2 Performance Targets

Measurements	Targets 2022/23
Network CapEx	< ± 10%
Network OpEx	< ± 10%

Table 3-9: Performance Targets – Improve the Financial Performance of the Asset Management Plan without Compromising Network Performance and Asset Integrity

3.4.4.3 Justification for Targeted Level of Performance

The investment requirements of Centralines' Asset Management Plan have a direct link with the cost and affordability of the service. Accordingly, all network investment must be prudent and effective. This applies to both CapEx and OpEx.

Less than 10% variance to the total CapEx and OpEx budgets is deemed an acceptable level of variance to support effective management of the organisation. This level of variance recognises the fact that there are uncertainties in the delivery of annual Network CapEx and OpEx programmes of work that cannot be completely managed down.

3.4.5 Improve Delivery Performance of the Annual Works Plan

3.4.5.1 Measurements

Delivery of the annual network capital works programme.

Delivery of the annual planned network maintenance programme.

Delivery of non-standard customer projects outside of agreed scheduled date.

Number of severity 1 and 2 work practice and quality outcomes from internal field audits.

3.4.5.2 Performance Targets

Measurements	Targets 2022/23
Delivery of the annual network capital works programme	Programme completed in full
Delivery of the annual planned network maintenance programme.	Programme completed in full

Measurements	Targets 2022/23
Delivery of non-standard customer projects outside of agreed scheduled date.	0
Number of severity 1 and 2 work practice and quality outcomes from internal field audits.	0

Table 3-10: Performance Targets – Improve Delivery Performance of the Annual Works Plan

3.4.5.3 *Justification for Targeted Level of Performance*

The safe, efficient, and cost-effective delivery of Centralines' Annual Works Plans ensures that network risks are managed appropriately and that assets will remain fit for purpose to deliver electricity distribution services safely and effectively.

Delivery and adherence to schedule of non-standard customer projects is important to both the reputation of Centralines and to provide assurance and confidence to customers that projects will be delivered as agreed.

The number of severity 1 and 2, non-conforming internal audit findings of work practices and quality outcomes is set at zero as any significant quality breaches that could lead to major incidents are deemed unacceptable.

3.4.5.4 *Historic Performance*

Financial Year Ending	Target	Actual	Target Met
2018	≤ 0	0	✓
2019	≤ 0	0	✓
2020	≤ 0	0	✓
2021	≤ 0	0	✓

Table 3-11: Historic Performance – Number of Severity 1 and 2 Non-Conforming Internal Audit Findings of Contractor Work Practices and Quality Outcomes

3.4.6 Improve the Asset Management Capability to Support the Development and Implementation of the Asset Management Strategies and Plans

3.4.6.1 Measurements

Delivery of the Asset Management Capability Plan.

Centralines' asset management service provider (Unison) maintains ISO 55001 certification.

3.4.6.2 Performance Targets

Measurements	Targets 2022/23
Delivery of the Asset Management Capability Plan.	100%
Centralines' asset management service provider (Unison) maintains ISO 55001 certification.	ISO 55001 Certification

Table 3-12: Performance Targets – Improve the Asset Management Capability to Support the Development and Implementation of the Asset Management Strategies and Plans

3.4.6.3 Justification for Targeted Level of Performance

Sufficient and appropriate asset management maturity, staff engagement, capability and continuous improvement is required to achieve AMOs. Continually improving Centralines' asset management maturity and capabilities is necessary to appropriately manage risk and respond to the challenges and opportunities created by a changing electricity sector.

3.4.6.4 Historic Performance

Financial Year Ending	Target	Actual	Target Met
2019	ISO 55001 Certification	ISO 55001 Certification	✓
2020	ISO 55001 Certification	ISO 55001 Certification	✓
2021	ISO 55001 Certification	ISO 55001 Certification	✓

Table 3-13: Historic Performance – Centralines' Asset Management Service Provider (Unison) Maintains ISO 55001 Certification

3.4.7 Improve the Communication of the Asset Management strategy to all Centralines' Teams

3.4.7.1 Measurements

Percentage of new Centralines staff who received an asset management induction within three months of commencing employment.

Percentage of Centralines staff receiving an annual asset management briefing.

3.4.7.2 Performance Targets

Measurements	Targets 2022/23
Percentage of new Centralines staff who received an asset management induction within three months of commencing employment.	100%
Percentage of Centralines staff receiving an annual asset management briefing.	100%

Table 3-14: Performance Targets – Improve the Asset Management Capability to Support the Development and Implementation of the Asset Management Strategies and Plans

3.4.7.3 Justification for Targeted Level of Performance

Sufficient and appropriate staff engagement is critical to ensure the success of an organisation. Providing asset management "line of sight" to all staff facilitates a common understanding of what is required to achieve asset management and organisational strategic objectives and how progress will be measured.

3.4.8 Improve the Environmental Sustainability, Performance and Resilience of the Asset Management Activities

3.4.8.1 Measurements

Number of environmental breaches resulting in environmental contamination due to the failure or an asset, asset system or associated containment.

Centralines' network resilience maturity is assessed on an annual basis through the EEA's Resilience Management Maturity Assessment Tool (RMMAT).

3.4.8.2 *Performance Targets*

Measurements	Targets 2022/23
Number of environmental breaches resulting in environmental contamination due to the failure or an asset, asset system or associated containment.	0
Centralines' network resilience maturity is assessed on an annual basis through the EEA's Resilience Management Maturity Assessment Tool (RMMAT).	Completed

Table 3-15: Performance Targets – Improve the Environmental Sustainability, Performance and Resilience of the Asset Management Activities

3.4.9 Maintain Compliance with all Applicable Requirements.

3.4.9.1 *Measurements*

Delivery of Asset Management Capability Plan Delivery.

Centralines' asset management service provider (Unison) maintains ISO 55001 certification.

3.4.9.2 *Performance Targets*

Measurements	Targets 2022/23
Percentage of non-compliances identified through Legislative Compliance Programme in relation to Asset Management have a corrective plan in place.	100%
Number of instances of unanticipated legal challenge or government investigation occurring.	0

Table 3-16: Performance Targets – Maintain Compliance with all Applicable Requirements

3.5 Performance Measure Summary

Table 3-17 below summarises the respective measurements for each strategic Asset Management Objective and targets for the 2022/23 financial year.

3-16 SECTION 3 SERVICE LEVELS

Key Result Area	Strategic Asset Management Objective	Measurement	Targets 2022 / 2023
Health and Safety	Ensure people are safe around Centralines' assets.	Asset failures resulting in serious harm or fatality to a member of the public.	0
		Number of severity 1, field crew, health, and safety internal audit findings.	0
		Percentage of priority 1, 2, and 3 asset defects completed within required timeframes.	100%
Network Reliability	Deliver a reliable and compliant electricity supply to customers.	Unplanned SAIDI, less than SCI Target (minutes).	<62.83
		Unplanned SAIFI, less than SCI Target (interruptions).	<3.16
		Number of annual, verified power quality complaints.	≤ 5
Customer Service	Improve customers' experience in relation to asset management services.	Percentage of planned shutdowns finishing outside notified outage windows.	< 15%
		Centralines responses not completed within Utilities Disputes (UDL) time limits.	0
		Timeframe to complete standard low voltage customer connection	<15 business days
		Timeframe to complete investigation of power quality issue	<20 business days
Financial	Improve the financial performance of the asset management plan without compromising network performance and asset integrity.	Total annual network CapEx is within ±10% of total budget.	< ± 10%
		Total annual network OpEx is within ±10% of total budget.	< ± 10%
Service Delivery	Improve delivery performance of the Annual Works Plan.	Delivery of the annual network capital works programme.	Programme completed in full.
		Delivery of the annual planned network maintenance programme.	Programme completed in full.
		Delivery of non-standard customer projects outside of agreed scheduled date.	0

Key Result Area	Strategic Asset Management Objective	Measurement	Targets 2022 / 2023
		Number of severity 1 and 2 work practice and quality outcomes from internal field audits.	0
Innovation and Continual Improvement	Improve the asset management capability to support the development and implementation of the asset management strategies and plans.	Delivery of Asset Management Capability Plan Delivery.	100%
		Centralines' asset management service provider (Unison) maintains ISO 55001 certification.	ISO 55001 Certification
	Improve the communication of the asset management strategy to all Centralines' teams.	Percentage of new Centralines' staff who received an asset management induction within three months of commencing employment.	100%
		Percentage of Centralines' staff receiving an annual asset management briefing.	100%
	Improve the environmental sustainability performance and resilience of the asset management activities.	Number of environmental breaches resulting in environmental contamination due to the failure or an asset, asset system or associated containment.	0
		Centralines' network resilience maturity is assessed on an annual basis through the EEA's Resilience Management Maturity Assessment Tool (RMMAT).	Completed
Assurance	Maintain compliance with all applicable requirements.	Percentage of non-compliances identified through Legislative Compliance Programme in relation to Asset Management have a corrective plan in place.	100%
		Number of instances of unanticipated legal challenge or government investigation.	0

Table 3-17: Summary of Performance Measures & Targets

3.6 Determination Reference Mapping Table

Section 3 Reference	Determination Reference
3.1 Introduction to this Section 3.2 Performance Evaluation Overview 3.3 Performance Evaluation Procedure 3.4 Performance Measures 3.5 Performance Measure Summary	5, 6, 7 including 7.1, 7.2, 8, 9, 10

Table 3-18: Determination Reference Mapping Table

FOUR
NETWORK DEVELOPMENT PLANS

CENTRALINES
LIMITED

Contents

4. NETWORK DEVELOPMENT PLANS

4.1 Introduction to this Section

This section provides an overview of how Centralines conducts network development planning and continually improves its network development programme. It demonstrates how the various elements of network development planning fit together to achieve Centralines' Network Development Objectives, informed by the Asset Management Objectives (AMOs) detailed in Section 2.

4.1.1 Network Overview

Centralines owns and operates network assets across the Central Hawke's Bay region. These assets cover an area of 3,334 km^2, aligning with the boundaries of the Central Hawke's Bay District Council, and serve approximately 9,000 customers.

Supply is received via a single Transpower grid exit point (GXP) at OngaOnga. Centralines, after negotiations with Transpower has agreed to purchase the majority of the 33kV assets on the OngaOnga site. Centralines is developing a project currently scheduled for the 2024/25 financial year to undertake alterations and upgrades to these assets to optimise future operational capabilities.

Figure 4-1: Map of the Centralines' Network

4.1.1.1 *Load Characteristics*

The load is a mix of agricultural, industrial, residential, and commercial. Because of the hot dry summers, the system experiences a summer peak, driven by irrigation load. The winter peak is lower but not significantly.

Approximately 1% of customers currently have distributed generation connected to the grid. At this level it does not have a material impact on the load.

4.1.1.2 *Large Customers*

Large customers are those with a peak load greater than 1MVA. These customers often have unique network configurations, and in these cases, Centralines takes special measures to ensure compatibility with network operations. Centralines also works with these customers to ensure that maintenance is scheduled at appropriate times.

Centralines has two large customers that represent approximately 25% of the demand on the network. These are Silver Fern Farms at Takapau and Ovation Limited at Waipukurau.

4.1.1.3 *Supply Points and Embedded Generation*

There is no embedded generation, and the network is supplied from a single GXP at OngaOnga.

The GXP is connected by four separate overhead 110kV circuits, two from Dannevirke to the south and two from Fernhill to the north. The GXP is normally supplied by the lines from Dannevirke. A single 110kV bus supplies a 20MVA and 30MVA transformer bank.

At the same site, an 11kV supply is provided by a single Transpower owned transformer. The supply point is the terminals of the 11kV switchgear owned by Transpower.

4.1.1.4 *Peak Demand, Total Energy Delivered and Firm Capacity*

Peak demand and total energy delivered is measured at the GXP. As there is only one GXP it also represents total network demand.

Supply	Peak Demand (MVA)	Total Energy Delivered (GWh)	Firm Capacity Winter (MVA)
Waipawa GXP	21	123	26

Table 4-1: Peak Demand and Total Energy Delivered Measured at GXP

4.1.1.5 Sub-Transmission Network

Urban areas are supplied by a meshed sub-transmission network that provides a high level of security (n-1). Rural areas are supplied by a radial sub-transmission network providing an acceptable level of security (n).

Figure 4-2 provides geographical views of the sub-transmission network. Table 4-2 lists the capacity and security of the zone substations across the network.

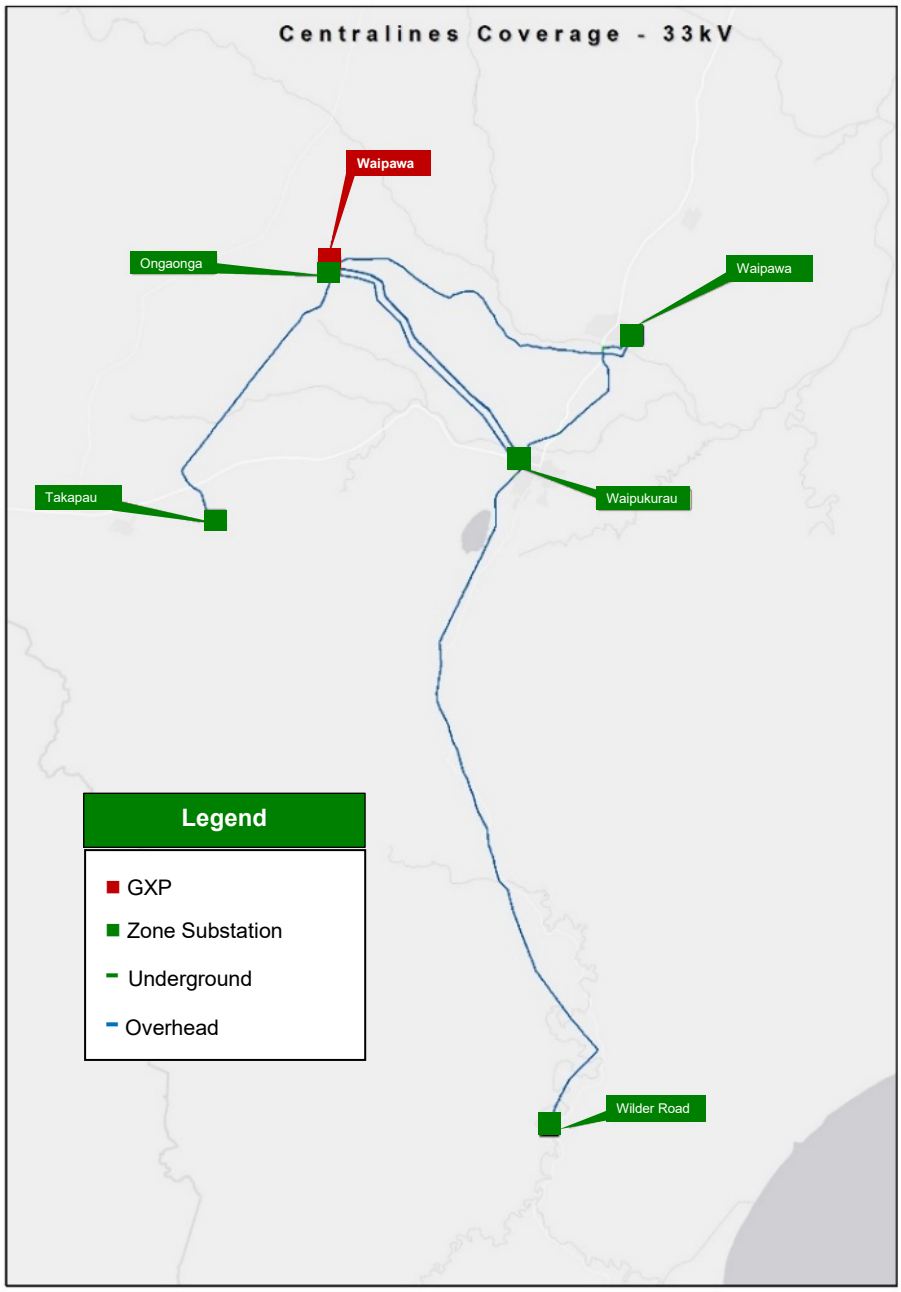

Figure 4-2: 33kV Sub-Transmission and Point of Supply Network

Zone Substation	Supply Voltage	Sub–transmission Security	Installed Capacity (MVA)	Power Transformer Security
Waipukurau	33kV	n-1	15	n-1
Waipawa	33kV	n-1	15	n-1
Wilder Road	33kV	n	2	n
Takapau	33kV	n(1)	15	n-1

Table 4-2: Zone Substation Capacity and Security

(1) Two transformer substation, supplied by a single 33kV circuit.

4.1.1.6 Distribution Network

Undergrounding across the distribution (11kV and 400V) networks is undertaken when appropriate as part of Centralines' Lifecycle Asset Management Process. Table 4-3 details the current portion of the networks that are underground.

Network Type	Portion of the Network Underground
11kV Network	2.4%
400V Network	27.3%

Table 4-3: Portion of Distribution Network which is Underground

4.1.1.7 11kV Network

The 11kV network in urban areas has a high level of interconnectivity and provides considerable flexibility during contingency events. This results in a high level of security in these areas.

The 11kV network in rural areas is predominantly overhead radial feeders with concrete poles and timber crossarms. 11kV interconnectivity is limited and supply can be compromised during a single contingency event.

Network loads are generally small and spread across large geographical areas.

4.1.1.8 400V Network

The 400V network in the urban area has interconnectivity between adjacent distribution transformers.

The 400V network in the rural and remote rural areas is predominately radial overhead conductors with concrete poles and timber crossarms and the transformers are sized to the customers' requirements.

4.2 Network Development Planning Objectives, and Criteria

Centralines' network development objectives are informed and translated directly from the AMOs in Section 2. The network development objectives are to:

- meet customer-driven needs
- maintain network security and service levels
- meet power quality requirements
- meet regulatory and legislative requirements, and
- provide value in a changing energy economy.

These objectives have been distilled into the following network development criteria:

- power quality
- security of supply, and
- preparing for an uncertain future.

These criteria are discussed further below.

4.2.1 Power Quality

Power quality is considered over both short and long-term planning horizons to ensure solutions to current power quality constraints are appropriate long-term solutions.

As power quality issues can result from problems on both Centralines' network and their customers own installations or equipment designs, Centralines has published a Network Connection Standard on its website. This standard outlines the responsibilities of both Centralines and the customer, to ensure all connection parties receive electricity supply to appropriate quality and performance standards. The standard is also referenced in Centralines' Use of System Agreement with all retailers and in the Customer Connection Agreement with each customer.

Centralines' Quality of Supply Standard and asset design standards specify the limits of key power quality parameters on voltage regulation, voltage unbalance, harmonic distortion, flicker, and voltage fluctuation. The specified limits are summarised in Table 4-4. Of these, voltage regulation and unbalance are monitored proactively using in-situ data and modelling tools while the others are managed on a reactive ad-hoc basis as issues are identified.

Power Quality	Specified Limits
Voltage regulation	230V +/- 6%
Voltage unbalance	Less than 2%
Total harmonic distortion voltage	Less than or equal to 5%
Flicker	Short term – less than 1.0 Long term – less than 0.8
Voltage fluctuation	Various limits specified in respective design standards

Table 4-4: Power Quality Parameters and Limits

4.2.2 Security of Supply

To ensure the network meets its agreed performance targets and obligations, Centralines applies a set of security of supply criteria based on the established framework set out in Table 4-5 and Table 4-6: Security of Supply Classification and Compliance by Substation. The framework defines the level of security for different customer load types and load sizes. The criteria are used to identify network security constraints when contingency events occur and to guide the selection of solutions to mitigate these constraints.

Centralines reviews these criteria and adjusts in its network restoration approach using smart network technologies, network demand profiles and customer expectations (as identified in customer surveys). This is to ensure these criteria remain appropriate and continue to meet network performance targets.

Security of Supply Restoration Times	
Class D – Single large customer	Agreed individually with customer
Class C – CBD	N-1 – 50% restored within 15 minutes remainder within 45 mins N-2 – 50% restored within 60 minutes remainder within 3 hours Bus fault – 50% restored within 60 minutes remainder within 3 hours
Class B – Urban	N-1 – 50% restored within 45 minutes remainder within 2 hours N-2 – 50% restored within 3 hours
Class A2 – Rural up to 1MVA	N-1 – 50% restored within 2 hours
Class A1 – Rural up to 500kVA	No targets

Table 4-5: Summary of Non-Regulatory Planning Criteria and Standards

Substation	Target	Compliant	Comments
Waipukurau Urban	Class C	Yes	
Waipukurau Rural	Class B	Yes	Possible from back-feeding or transferring load
Waipawa Urban	Class C	Yes	
Waipawa Rural	Class B	Yes	Possible from back-feeding or transferring load
Takapau	Class A2 Class D	Yes	Substation supplies one large customer and the surrounding rural area
OngaOnga 11kV	Class A2	Yes	Due to automation in the area
Wilder Road	Class A1	Yes	Due to automation in the area

Table 4-6: Security of Supply Classification and Compliance by Substation

In addition to managing restoration times, other aspects of network performance also need to be managed in contingency conditions. These include ensuring the safety of people, the security of zone substations, maintaining system voltages, and not exceeding network element loading and protection relay operating limits. All must be managed to ensure Centralines achieves an optimal balance between customer expectation and performance targets, without any adverse effects on assets.

4.2.3 Change Drivers to New Zealand's Electricity System

The electricity system supporting New Zealand's economy and lifestyle is changing. This change is being shaped by the following key drivers:

1. Decarbonisation

   Decarbonisation refers to the elimination of carbon-based fuels for electricity generation and, electrification of demand sources that currently utilise carbon-based fuels e.g., transport and process heat. While an increase in renewable energy sources will result in a more sustainable grid, renewable generation can be highly intermittent, making the balancing of energy supply and demand significantly more challenging.

2. Decentralisation

   Decentralisation is the reduced reliance on a handful of large generating plants and the disbursement of generation across many smaller units. It also refers to the increasing amount of embedded generation and storage coming online including solar farms, batteries, combined heat, and power sources on business sites and, residential solar panels.

3. Digitisation

   The complex changes occurring in the energy market will require effective network management in real-time. Digitalisation provides the means to achieve this through comprehensive monitoring and control across the entire electricity system from generation to transmission and distribution supply and demand. Digitalisation also provides the foundation for

innovation by enabling monitored information to be analysed to identify system efficiency improvement opportunities.

While the transformation of the electricity system will support environmental sustainability and improved energy equity, the system will be significantly more complex than it is today. Many of the techniques currently employed to manage the transmission system may become relevant at a distribution level to deal with the hundreds of thousands or millions of nodes.

4.2.3.1 Distribution System Operation (DSO)

The term Distribution System Operation is used to describe the bundle of functions required to manage this increased complexity. DSO functions may include:

- more granular forecasting of demand, generation, and distributed energy resources (DER)
- coordination of flexible DER at the transmission and distribution interface
- DER hosting capacity analysis, and
- data management and sharing.

Based on the existing uptake rates of solar, electric vehicles and batteries, New Zealand's adoption of these technologies is slower when compared with other developed jurisdictions such as Australia and the UK. The key reason for this is the lack of government incentives, due to New Zealand's existing generation being predominantly renewable (85%). In comparison, only 24% of Australia's total electricity generation comes from renewable energy sources.

Within New Zealand, data[1] indicates that technology uptake will occur in the main city centres (Auckland, Wellington, and Christchurch) first. This implies, the electricity distributors supplying these cities will potentially be the first to face capacity and power quality issues associated with the above technologies. This will allow regional utilities such as Centralines to learn and adjust their strategy if and as required.

4.2.3.2 Centralines Response to Changes in the Electricity System

In response to the above-mentioned changing environment, Centralines has developed a strategy to build capability in the following key areas to enable the smooth integration of these technologies onto the network:

1. Low Voltage (LV) Network Visibility

   Increased penetration of distributed energy resources in the distribution network has the potential to create issues on low voltage (400 volt) circuits which traditionally have less mature levels of asset information quality and are not remotely monitored. Centralines has developed and is undertaking a programme of work to enhance both static and dynamic asset information for low voltage networks. This initiative supports safety, investment efficiency, and the capability of the network to host distributed energy resources.

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[1] Uptake rates of small scale DER and Electric Vehicles published by Electricity Authority and Ministry of Transport respectively.

Centralines has created a low voltage data framework and is developing strategies to cost effectively capture both static and dynamic data.

2. Network Standards

Network standards provide definitive guidance to teams that undertake the design, construction, operation, and maintenance of Centralines' network. These standards play a critical role in assuring the technical integrity of assets and asset systems. As stakeholder requirements of Centralines' services evolve, so must network standards. Low voltage network design and distributed energy resource connection standards are key areas of focus for Centralines' roadmap as the low voltage network will be impacted the most from high levels of DER penetration.

In 2021/22, Centralines' has reviewed and updated its design standard for its low voltage network. In 2022/23 the focus will be on establishing hosting capacity on the low voltage network.

3. Flexibility

Borrowing from international experiences, the term 'flexibility' is increasingly being used in New Zealand with an example being the recent Electricity Authority's consultation document. It is defined as *"modifying generation and / or consumption patterns in reaction to an external signal (such as a change in price) to provide a service within the energy system".*

Current examples of flexibility within the electricity system are demand response schemes where contracts allow customers to be compensated for reducing load at certain times to optimise the transmission or distribution network.

In the future when there is increased penetration of controllable DER, these customer-owned resources could be used to provide a range of services to different participants within the electricity system. These services could include energy, transmission support, ancillary services, and distribution network support. Ideally these resources would be consistently allocated to the greatest need, which requires enabling regulation, effective coordination between participants and market-based mechanisms. If these measures were effective, customers would be able to realise the full value of their investments in distributed generation and storage while contributing to a more environmentally sustainable electricity system.

Centralines will be investigating methods to publish the opportunities for third parties to assist in alleviating constraints in the medium to long term.

4.2.3.3 Distributed Generation Policy

Centralines continues to support the objectives of customers wishing to utilise DG by ensuring any potential detrimental effects are prevented or mitigated. The regulations categorise DG into two categories - 10kW or less, and above 10kW. There are different processes and requirements for each category. The Distributed Generation Policy, process information, and application form are available on Centralines' website www.centralines.co.nz.

The key principles of Centralines' distributed generation policy are:

- DG can be connected to Centralines' electricity distribution network on fair and equitable terms which do not discriminate between different DG schemes.

- Centralines will make the terms under which DG can be connected and operated within its electricity distribution network as clear and as straightforward as possible, and will progress all applications to connect DG to its electricity distribution network as quickly as possible.
- Technical and safety standards for the DG connection and operation on Centralines' electricity distribution network will be based on best practice, and will aim to meet the needs and protect the interests of DG schemes, other customers and Centralines, and
- Centralines will comply with legislation and regulatory requirements regarding the DG connection and application on its electricity distribution network.

Centralines recognises the value of DG in a number of ways and encourages the development of DG where it will provide real benefits to both the generator and Centralines. Centralines also recognises that DG can have undesirable effects on the network. Any new DG is modelled and analysed to ensure key policies in the connection documents are met.

4.2.4 Customer Savvy and Engagement

Historically, customers have enjoyed a reliable electricity supply at a given price based on their electricity consumption. This 'one size fits all' approach does not cater for when customers use electricity or *how much* capacity is provided. Technology innovation and advancement has transformed the way customers use electricity. Centralines' customers are becoming active participants demanding great service with an increasing range of choices and an increased level of interaction. Centralines needs to ensure the electricity pricing structure has enough flexibility to avoid cross-subsidisation. The data and communication platform will also be integral to meeting the expectations of Centralines' customers.

4.3 Network Development Planning Process

4.3.1 Overview

Network Development Planning (NDP) is an important part of Centralines' Asset Management System (AMS).

The overarching objective of Network Development Planning (NDP) to strike an optimal balance between risk, performance, and cost. The NDP process is undertaken bi-annually and is reviewed regularly, with any identified, value adding improvement opportunities, scoped, and developed to ensure the best possible balance is achieved.

The purpose of NDP is to:

- identify network risks associated with changes or the introduction of demand and/or generation on the network, and
- propose projects to address these risks.

The goal of the process is to ensure that:

- at peak times customers energy/electrical needs are met without compromising the operating parameters of the asset, i.e., thermal overload, and
- customers receive compliant power quality.

Figure 4-3 outlines the key elements of Network Development Planning. There are two key components of NDP:

1. Network Constraint Forecasting.
2. Solution Development.

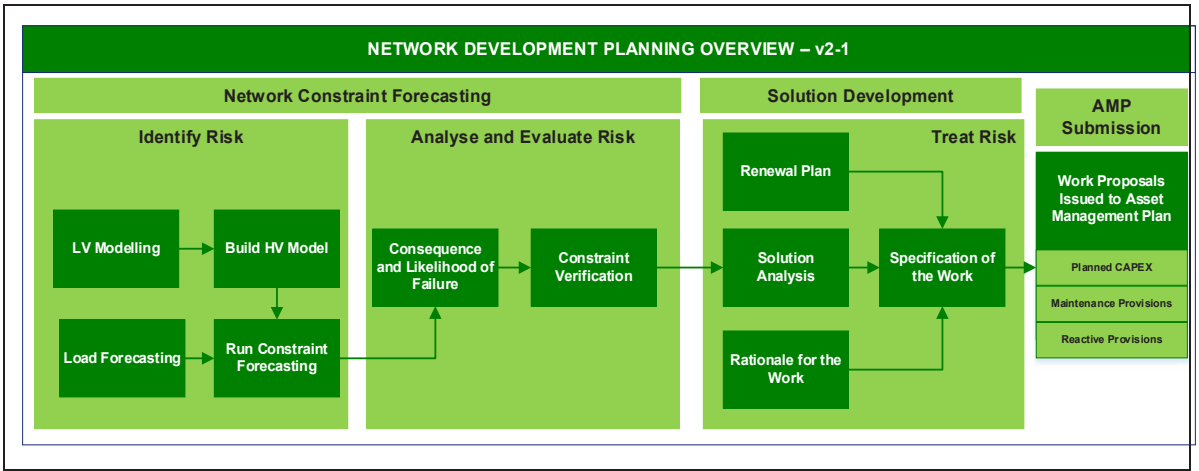

Figure 4-3: Network Development Planning Workflow

4.3.2 Network Constraint Forecasting

Network Constraint Forecasting (NCF) identifies, analyses, and evaluates risks associated with changes in demand and how customers utilise electricity. The goal of NCF is to systematically identify assets at risk of:

- current overload
- supplying non-compliant (both over and under) voltage to customers, and
- breaching the security of supply criteria.

NCF involves forecasting future network demands and the application of a network model that assesses the capabilities of assets and asset systems based on this demand. The results of this power flow modelling identify the timing and magnitude of potential constraints. Each constraint is assessed in terms of its likelihood (timing) and consequence to form a holistic risk profile on potential constraints. This risk profile can then be used to justify and prioritise investment.

Figure 4-4 below provides an overview of each stage of the NCF process.

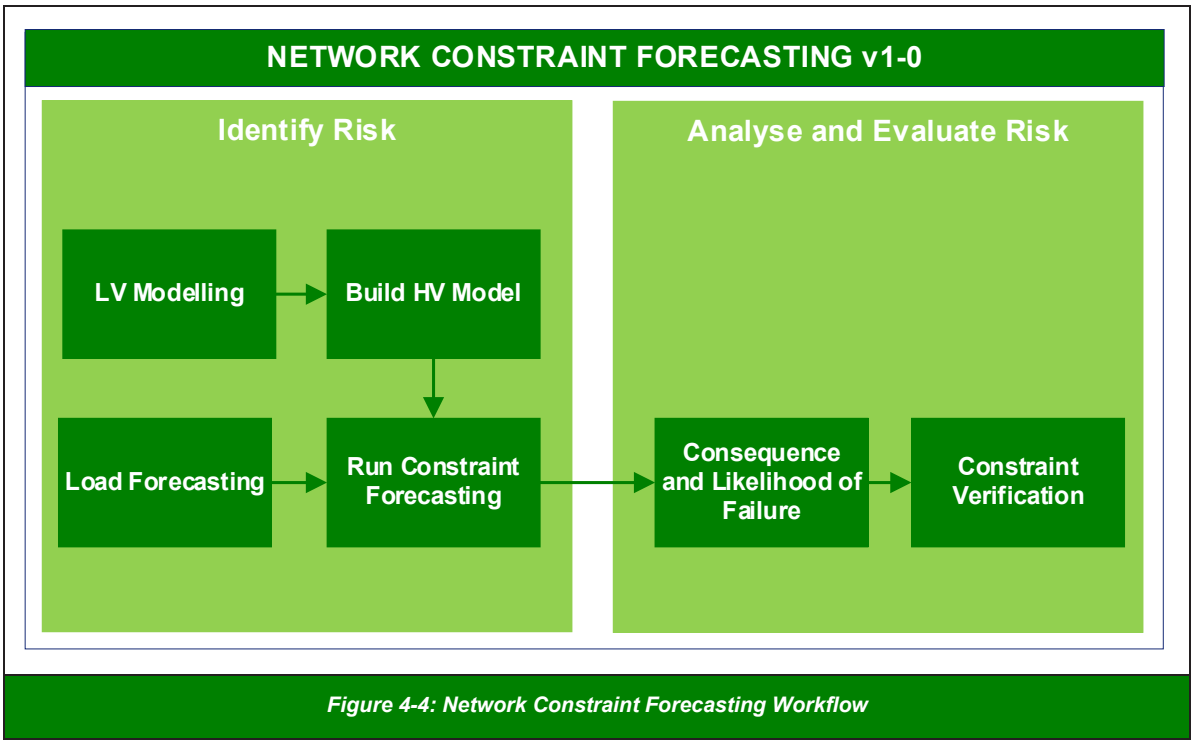

Figure 4-4: Network Constraint Forecasting Workflow

4.3.2.1 *Data Inputs*

The data required to complete Network Constraint Forecasting is summarised in Table 4-7.

Information Type	Information
Historical Load Data	• ICP demand records (e.g., smart meter data) • Network demand records
Network Model	• Connection of assets • Open points
Asset Attribute Information and Master Data	• Impedance • Maximum rating
Economic Projections	• GDP • Population • Number of dwellings
Consequence of Failure	• Financial information about assets and potential penalties

Table 4-7: NCF Data Inputs

4.3.3 Identify Risk

4.3.3.1 Load Normalisation

The purpose of feeder head load normalisation is to determine the network load in its normal state. Logged demand data from 11kV feeders is normalised by removing abnormalities such as contingency network switching or poor-quality data.

4.3.3.2 Load Estimation

The objective of load estimation is to estimate the peak load and peak diversity at a distribution transformer level. Estimation of the distribution transformer peak load is achieved through either the summation of smart meter data or the calculation of the after diversity maximum demand (ADMD).

ADMD calculations bridge the gap where:

- consumers have yet to convert to the smart meter system, or
- data from the retailer is not available.

The methodology used in NCF works (with a defined margin of error), over a wide range of customer types. These calculations are also relevant for combinations of customer types, e.g., residential commercial, light industrial.

4.3.3.3 Ten-Year Forecast

The ten-year forecast is a reasonable estimation of the expected demand requirements used for short and medium-term asset management planning. This forecast captures the demand change, connection location and timing of load changes on Centralines' high voltage network

New Connections

A new connection application is created when customers approach Centralines with intent to connect. New connection demand is added to the ten-year load forecast where:

- the requested capacity is larger than 200kVA
- the customer has signed a contract to connect or there is a high likelihood that the project will proceed.

Consent Applications

Consent applications provide a useful indication of customers intent to connect to new loads to Centralines' network. Consent application demand is added to the ten-year load forecast where:

- the customer has not already approached Centralines with a new connection application
- the capacity requirements can be reasonably estimated, and
- the capacity requirement is larger than 200kVA.

Organic Growth Assumptions

Centralines applies a small growth rate to its ten-year forecast to account for changes in the average demand requirements of bulk customers and the combined impact of the many smaller connections. This organic growth rate is useful for determining areas of the network which are approaching maximum capacity.

4.3.3.4 Low Voltage Modelling

A representation of the current low voltage (LV) network is needed to identify constraints. Centralines' approach involves simplifying the LV model to a single equivalent impedance model that can be run alongside an HV model. Monte-Carlo[2] analysis is used simplify the LV model to a single equivalent impedance.

4.3.3.5 Network Equipment Ratings

Network Equipment Ratings define the current carrying capacity of Centralines' conducting assets in the context of their local conditions. There are two types of ratings applied.

Base Rating

The base rating is a rating using standard parameters for the type of conductor. These base ratings are usually conservative but provide a useful way of describing common type ratings and flagging asset constraints early for further investigation.

The following assumptions are used for base ratings

1. Lines
   - design and build temperature of 50º Celsius unless recorded otherwise
   - ambient temperature of 30º Celsius, and
   - 1m/sec wind speed.

2. Cables
   - soil thermal resistivity of 1.2
   - cables are installed in duct, and
   - maximum continuous rating (MCR).

Local re-rating

If an asset has been flagged as having a potential loading constraint, it will often be re-rated. This re-rating considers local parameters and the operating environment. Below are some of the variables that are often considered in a local re-rating.

1. Lines
   - monthly ratings based on monthly maximum temperatures compared with monthly load profile data
   - site survey and re-assessment of the designed line temperature, and

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[2] A risk management technique used for conducting a quantitative analysis of risks.

- dynamic ratings using real time weather data (these schemes may be implemented in the control room for use when network is in an abnormal state).

2. Cables
   - site sampling of soil thermal resistivity
   - cyclic rating calculated with known load profiles
   - direct buried rating, and
   - adjacent cable de-rating.

4.3.3.6 Load Flow Model

The constraint forecasting model is built in a software package called Powerfactory by DIgSILENT. Data to build the model is extracted from Centralines' asset management systems. The model is updated regularly to ensure it reflects the current state of the network. The Powerfactory model simulates the:

- load through each conductor segment
- voltage at every node on HV feeders
- maximum and minimum LV voltage on transformer circuits using LV equivalent impedances, and
- fault levels.

4.3.3.7 Constraint Forecasting Case Studies

The timing and severity of constraints are identified by performing case studies as per Table 4-8.

Case Studies	Description
Maximum Load	Maximum peak loads applied over the entire network for the full load forecast period. This case study is used to determine undervoltage and overload constraints.
Minimum Load	Minimum peak loads applied over the entire network for the full load forecast period. This case study is used to determine overvoltage.
Security of Supply	Maximum peak loads applied to 33kV and 11kV feeders to determine where the network does not comply with the security of supply criteria. These studies are carried out manually when there is a significant change in load or network architecture.

Table 4-8: Case Study Descriptions

4.3.4 Analyse and Evaluate Risk

4.3.4.1 Consequence and Likelihood

Risk (consequence and likelihood) is estimated for each constraint based on the impacts on performance, safety, and environment. The evaluated risk is used to determine the urgency and relative priority of each constraint.

4.3.4.2 Constraint Verification

Constraint verification ensures constraints being raised by the constraint forecast model are verified and validated before they are submitted as an issue in the AMP. This is achieved by using supplementary asset data, site visits or manual checks. Often a process of elimination will confirm the constraint exists.

4.3.5 Constraint Forecasting Improvements

4.3.5.1 Low Voltage Visibility

Centralines has started a LV Visibility project that will identify the likely information required by the business in relation to the LV network in the future. This will allow the development of strategies and processes to enable this information to be efficiently collected. This project is expected to improve the accuracy and confidence of LV modelling in NCF.

4.3.5.2 Smart Meter Data

Consumption data from smart meters significantly improves the accuracy and confidence of load estimation. Better load estimations enhance constraint identification allowing more prudent investment decisions. Centralines has prepared its systems and processes to make full use of smart meter data as it becomes available. A project is underway with the goal of obtaining a regular and complete update of smart meter data from retailers.

4.3.5.3 Load Forecasting

Centralines is continuing to improve it load forecasting capabilities. A prototype load forecasting algorithm is being developed to estimate unique organic load growths driven by demography and environmental factors. Technology and customer driven load changes will be considered in future prototypes.

4.3.5.4 *Value of Lost Load*

Centralines current process and systems to identify security of supply constraints rely on deterministic rules and manual studies. The SAIDI and SAIFI impact of faults is often the predominant driver for motivating network improvements.

Value of Lost Load or VoLL is the economic cost of demand not served during supply interruptions. Centralines believes that VoLL impact analysis is important way to measure the true impact of interruptions to our different customer groups. There is a project underway to look at how Centralines can systematically incorporate VoLL analysis is our constraint analysis.

4.3.6 Load Forecasting Tool Outputs

The LFT forecast extends out to a 20-year horizon for each month on each 11kV feeder. The Network Development Planning process considers the first ten-year outlook of load forecasts for planning purposes and the ten-year-plus outlook for longer term trend consideration.

Below are the expected zone substation loads in MVA for Centralines.

Known As	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Waipukurau	7.8	8.7	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6
Waipawa	4.5	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8
Takapau	6.2	7.6	7.7	9.6	9.7	9.8	9.9	10.0	10.1	10.2
OngaOnga	5.1	6.0	6.2	6.4	6.6	6.7	6.9	7.0	7.1	7.2
Wilder Road	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9

Table 4-9: Zone Substation Load MVA Forecasts

4.3.7 Solution Development

The purpose of Solution Development is to identify and specify the preferred engineering solution to mitigate risks in the network. These risks are identified by the Network Constraint Forecasting process for inclusion in the AMP.

Solution Development requires:

- an understanding of the risk, the physical asset, and its surrounds, and
- awareness of network constraints, available options, other planned work, and pricing / estimating.

Solution Development commences when:

- a constraint has been identified

- the risk has been quantified, and
- the risk is sufficient that action should be taken to control it.

Solution Development involves identifying the most optimal control for the risk, considering the key asset management drivers of cost, risk, and performance.

Solution Development is completed when:

- an appropriate solution has been identified, and
- this solution has been proposed as a capital project to the AMP, or work has been issued out of an OpEx provision.

4.3.7.1 Solution Development Process

Figure 4-5 outlines the key elements of Solution Development.

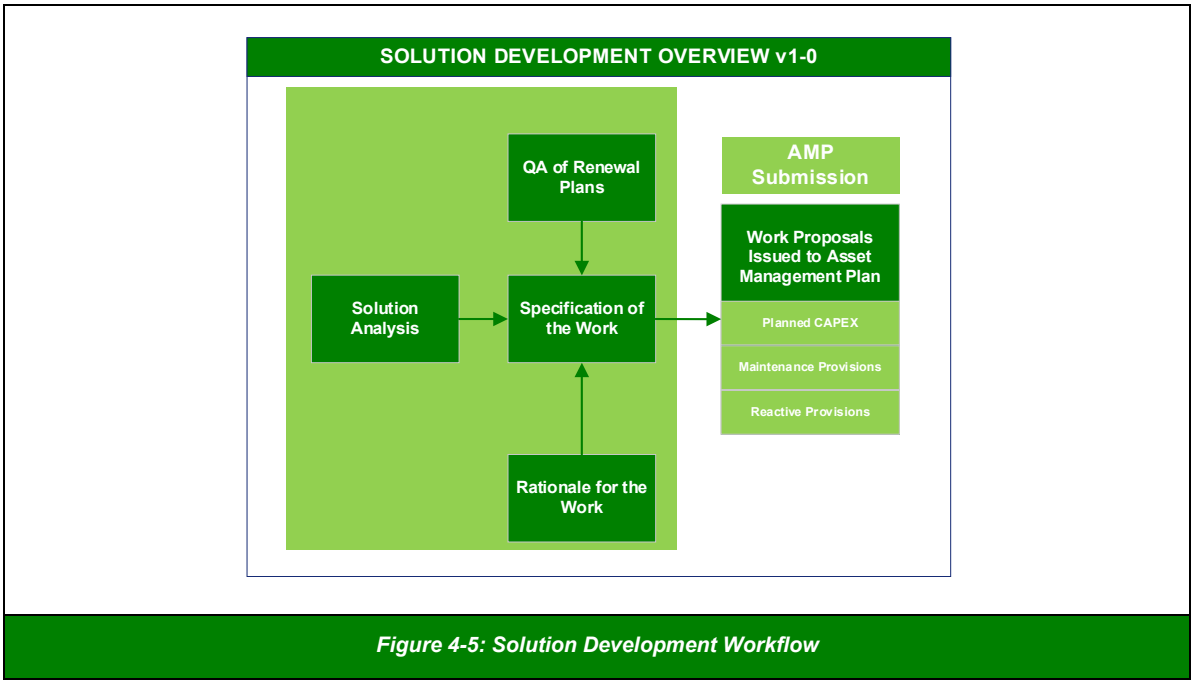


Figure 4-5: Solution Development Workflow

The key steps in Solution Development are set out below.

- Solution analysis
- Specification of the work
- Rationale for the work, and
- Submission to the AMP.

4.3.7.2 Solution Analysis

Solution analysis involves the evaluation of all the AMP issues spanning the Years 3 – 10 planning horizon to form a combined ten-year view of work. While issues arising in the Years 1 and 2 planning horizon form part of the overall process, they are not reviewed in the solution analysis stage. Years 1 and 2 issues are scoped and approved to proceed before they reach the Years 1 and 2 planning horizon.

The Constraints Map is a tool developed to enable the Analysis and Solutions Engineers to view and group issues geographically.

Consultation between both the Network Development and Asset Management teams is needed to ensure proposed solutions benefit from potential timing synergies that may be achieved across both constraint types. The same level of systematic and optimised decision-making is practiced during a combined evaluation to ensure alignment with the Asset Management Objectives (AMOs). This results in clusters of issues that can be assigned to a specification of work.

4.3.7.3 Specification of the Work- Scope Solution

A specification of work is completed by an assigned Engineer and considers and includes the following:

- the context of each cluster (applying knowledge from supporting systems)
- the potential packaging of solutions
- preparation of the specification for work to meet the key drivers of asset management, and
- generation of a project in the AMP to resolve the identified issues.

Work specified as part of Network Development will have primary motivation as outlined in Section 4.2 but will have secondary motivations based in Life Cycle Asset Management Planning where packaging efficiencies are identified.

This specification provides the basis for estimating the project value and details the following:

- the asset(s) to be installed, maintained, renewed, or removed
- the work required including installation and construction or, in the case of maintenance, references to the appropriate standards, and
- relevant issues registered against the project.

4.3.7.4 Rationale for the Work

This provides the justification for the selected solution including rationale where the solution is mitigating more than one identified constraint or issue. The level of detail will vary depending on the complexity of the solution but typically includes the description, supporting calculations and other relevant information. The developed rationale forms part of the executive summary which is submitted against the issue or constrain in the AMP.

4.3.7.5 Submission to the AMP

Every six months projects are submitted to the AMP for quality assurance and final approval

Quality assurance of the AMP submissions involves:

- frequent reviews throughout the year by the Technical Leads to ensure the objectives of the rationale and specification of works are met, and

- a full review by the Strategic Asset Manager and Energy Solutions Manager one month prior to the bi-annual Works Planning and Consolidation submission.

4.3.7.6 Solutions Toolbox

The available solutions in the 'solutions toolbox' to address the identified network constraints are summarised in Table 4-10: Solutions Toolbox. Centralines is actively exploring possible expansion of the solutions toolbox using new technologies to further enhance the efficiency of the network.

Constraint	Network Solution	Non-network Solution
Voltage	• Upgrade conductor • Install feeder • Install Voltage Regulator	• Reactive VAr compensation • Fast transfer scheme • Network reconfiguration (existing asset)
Continuous current capacity	• Upgrade conductor • Install feeder • Install transformer • Establish substation • Install embedded generation	• Reactive VAr compensation • Fast transfer scheme • Demand-side management • Real-time monitoring • Cyclic ratings (selected asset classes) • Network reconfiguration (existing asset)
Fault current capacity	• Asset upgrade	• Decrease fault rating by: – substation earthing compensation, and – network reconfiguration (existing asset).
Quality of supply, e.g., dips harmonics flicker	• Install feeder • Install transformer	• Network reconfiguration (existing asset) • Behind the meter solutions • Distributed generation • Energy storage

Constraint	Network Solution	Non-network Solution
Network security	• Install feeder • Install transformer • Establish substation • Install recloser • Install embedded generation	• Dynamic ratings (selected asset classes) • Fast transfer scheme • Reactive VAr compensation • Demand-side management • Network reconfiguration (existing asset) • Self-healing scheme • Distributed generation • Energy storage
Network reliability	• Install feeder • Install recloser • Overhead to Underground asset conversion • Install embedded generation	• Network reconfiguration (existing asset) • Substation earthing compensation • Fast protection • Self-healing scheme • Distributed generation • Energy storage

Table 4-10: Solutions Toolbox

4.3.7.7 Network Options

Network solutions are based on traditional network reinforcement approaches and typically provide technically sound long-term solutions. Examples are power transformer, pole, conductor, and cable upgrades.

To ensure traditional network solutions are designed to be as energy and economically efficient as possible the following factors are considered:

- direct effect of heat losses
- voltage and reactive power optimisation, and
- network configuration.

Standardised designs are applied to specify equipment and installation details. Where possible, cost estimates are based on typical costings based on engineering knowledge or actual costing from completed works.

Standardised Designs

Where possible, Centralines utilises standardised designs for assets to maximise cost efficiencies throughout the asset management lifecycle. Standardisation of design in different asset types are summarised below.

Asset	Standardisation
33kV overhead lines	Standard drawings, design and construction methodologies are in place. Standard materials used include concrete Busck poles and ACSR, AAC or AAAC conductor. These are available as standard designs in Design Manager for planners' cost estimates and for designers.
33kV underground cables	Standard drawings, design and construction methodologies are in place. Standard materials used include different sizes of XLPE cable. These are available as standard designs in Design Manager for planners' cost estimates and designers.
Power transformers	Due to the value of this asset, Centralines tenders each one to ensure cost efficiency.
33kV circuit breakers	Standard drawings, design and construction methodologies are in place. The standard outdoor circuit breaker used is an Alstom GL107 unit.
11kV circuit breakers and switchboards	Standard drawings, design and construction methodologies are in place. Standard equipment used includes Reyrolle Pacific (RPS) 11kV indoor boards and the Cooper Nova recloser for outdoor use.
Zone substation buildings and equipment	Due to the value and low number of new constructions of zone substations, Centralines designs each one specifically for the site and the network's technical requirements.
Ripple injection plants	Standard drawings, design and construction methodologies are in place. Standard equipment used is Landis+Gyr (L+G).
Poles	Standard drawings, design and construction methodologies are in place. Standard materials used include concrete Busck poles used across the industry for maximum cost efficiency. These are available as standard designs in Design Manager for planners' cost estimates and for designers.
11kV and 400V lines	Standard drawings, design and construction methodologies are in place. Standard materials used include ACSR, AAC, AAAC, ABC conductors and Busck poles. These are available as standard designs in Design Manager for planners' cost estimates and for designers.
11kV and 400V cables	Standard drawings, design and construction methodologies are in place. Standard material used is PVC-coated XLPE cable. These are available as standard designs in Design Manager for planners cost estimates and for designers.
Distribution Transformers	Standard drawings, design and construction methodologies are in place. Standard equipment used includes pole-mount 15-300kVA and ground-mount 30-1000kVA ETEL transformers. These are available as standard designs in Design Manager for planners' cost estimates and for designers.
Distribution Switchgear – Air Break Switches, 11kV Fuses and Reclosers/ Sectionalisers	Standard drawings, design and construction methodologies are in place. Standard equipment used includes Cooper Nova reclosers, ENTEC RCS, Schneider ABSs, S&C 11kV fuses (DDOs). These are available as standard designs in Design Manager for planners' cost estimates and for designers.

Asset	Standardisation
Distribution Switchgear – Ground Mounted Switches and Ring Main Units	Standard drawings, design and construction methodologies are in place. Standard equipment used is the ABB Safelink RMU. These are available as standard designs in Design Manager for planners' cost estimates and for designers.
Voltage Regulators	Standard drawings, design and construction methodologies are in place. Standard equipment used is the Cooper Voltage Regulator. These are available as standard designs in Design Manager for planners' cost estimates and for designers.
Pedestals	Standard drawings, design and construction methodologies are in place. Six different pedestals are available to cater for varied site and technical requirements. Most are available as standard designs in Design Manager for planners' cost estimates and for designers.
Sensors	Standard drawings, design and construction methodologies are in place. Many different sensors are available to cater for varied technical requirements. Most are available as standard designs in Design Manager for planners' cost estimates and for designers.
Communications	Standard equipment used includes mesh radio, and UHF (rural). Mesh radio is available as standard designs in Design Manager for planners' cost estimates and for designers.

Table 4-11: Standardisation Across Assets

4.3.7.8 *Non-Network Options*

Non-network solutions utilise new technologies to provide cost-effective alternatives to traditional network solutions. Technical advantages can include:

- reduction in system losses
- no detrimental impact on fault level, and
- improvement in asset utilisation and in voltage profile.

Where possible cost estimates are based on typical costing based on engineering knowledge or actual costing from completed works.

4.3.7.9 *Solution Toolbox Enhancement Initiatives*

Centralines is continuing its proactive approach to realise benefits from new techniques and technologies as solutions to constraints. There are three active enhancement initiatives:

1. Flexibility
2. Alternative energy systems, and
3. Fault analysis and anticipation.

Flexibility

Centralines has utilised ripple control of hot water demand as a demand-side response for many years. It has historically been used primarily to manage regional peak demand. The Flexibility initiative explores demand response technologies to define and develop Centralines' demand response philosophy, policy, and strategy. Initial analysis has shown that the potential to mitigate network constraints is highest when solutions are combined with modern operating procedures such as fast transfer schemes. Centralines is continuing to develop flexibility trials as a standard method for deferring network investment.

Alternative Energy Systems

Centralines recognises off-grid systems as a disruptive technology with the potential to reduce the cost of serving its remote rural customers. This is considered a high priority opportunity due to the increasing maturity of technology and the potential benefits from their application on the network. This initiative has trialled large embedded generators and smaller islanded alternatives. Large embedded generators have been adopted as a standard solution available to mitigate reliability constraints. Future work will consider more novel technologies such as renewable generation combined with battery backup.

Fault Analysis and Anticipation

The purpose of this initiative is to develop a system that analyses electrical waveforms to identify assets in a pre-fault condition. This will enable interventions to be undertaken to prevent this asset progressing to a faulted state. Centralines' service provider is currently collecting and analysing waveform data to identify pre-fault signatures and trialling decentralised methods of collecting relevant data.

4.4 Network Development Projects

Projects greater than $250k are considered material and will be discussed in a greater level of detail. Details of material projects for the ten-year planning period are outlined below as well as all projects (material and non-material) planned for 2022/2023.

Project Number	Constraint	Category	Cost $	Section
2022/2023 Material				
None				
2022/2023 Non-Material				
43672	Replace Sub C4/108	Other - Reliability Safety and Environment.	80k	
10274	Feeder 85, Upgrade Sub B4/6 to a 300kVA (Kenilworth Street)	System Growth	65k	

Table 4-12: Material and Non-Material Projects for 2022/2023

Project Number	Constraint	Category	Cost $	Section
2023/2024 to 2026/2027 Material				
1183	Voltage constraint on Feeder 86	Quality of Supply	350k	4.4.2
1156	Voltage constraint Feeder 2 North	Quality of Supply	350k	4.4.2
1180	Feeder 4, 11kV conductor Upgrade	System Growth	360k	4.4.2
1157	Voltage constraint Feeder 18	Quality of Supply	350k	4.4.2
1189	Voltage constraint Feeder 19	Quality of Supply	350k	4.4.2
1194	Voltage constraint Feeder 46	Quality of Supply	350k	4.4.2
10586	Feeder 4 - Voltage constraint when back-feeding	Quality of Supply	350k	4.4.2
10587	Feeder 1 - Voltage constraint when back-feeding	Quality of Supply	350k	4.4.2
3024	Takapau Substation upgrade for New industrial customer	System Growth	4M	4.4.2

Table 4-13: Material Projects for 2023/2024 to 2026/2027

Project Number	Constraint	Category	Cost $	Section
2027/2028 to 2031/2032 Material				
1200	Voltage constraint Feeder 88	Quality of Supply	350k	4.4.3
10136	Install alternative supply to Takapau Zone Substation	Quality of Supply	6M	4.4.3
10733	Waipukurau Substation N-1 rating exceeded	System Growth	6M	4.4.3
1145	Install 14.3km ADSS Aerial Fibre circuit between Waipawa GXP and Takapau	Quality of Supply	475k	4.4.3

Table 4-14: Material Projects for 2027/2028 to 2031/2032

4.4.1 Material Projects for 2022/2023

There are no material projects for 2022/2023.

4.4.2 Material Projects for 2023/2024 to 2026/2027

Material projects for the 2023/24 to 2026/27 years are outlined below.

Project Number	Constraint	Constraint Description	Options	Cost $	Solution
1183	Voltage constraint on Feeder 86	Under-voltage indicated in constraint report. The report indicated that 26 transformers (248 ICPs) on Feeder 86 are already breaching or will breach the LV regulatory voltage levels in the next ten-years.	Network: Voltage Regulator Network: Reconductor Non-network: Accept risk	350k	Voltage Regulator
1156	Voltage constraint on Feeder 2, North	Under-voltage indicated on Feeder 2 North - SH50 (Tikokino), Holden Road, Matheson Road and Smedley Road: The report indicated that 92 transformers (239 ICPs) are at risk of breaching the regulatory voltage levels in the next ten years. Annual risk for area, $108k.	Network - Voltage Regulator Network: Reconductor Non-network. Accept risk	350k	Voltage Regulator
1180	11kV conductor Upgrade Feeder 4	Existing back-feed capability between Feeder 4 and adjacent feeders is limited by 6km of Gopher conductor.	Network: Reconductor Non-Network: Accept risk	360k	Reconductor
1157	Voltage constraint Feeder 18	Under-voltage indicated in constraint report. Feeder 18 - Farm Road. The report indicated that 38 transformers (72 ICPs) are at risk of breaching the regulatory voltage levels in the next ten-years. Total risk for the area, $43k.	Network: Voltage Regulator Network: reconductor Accept risk	350k	Voltage Regulator
1189	Voltage constraint Feeder 19	Constraint - Under-voltage indicated in constraint report.	Network: Reconductor Network: Voltage Regulator Non-network Accept risk	350k	Voltage Regulator
1194	Voltage constraint Feeder 46	Voltage constraint predicted on Feeder 46.	Network: Reconductor	350k	Voltage Regulator

Project Number	Constraint	Constraint Description	Options	Cost $	Solution
			Network: Voltage Regulator Accept risk		
10586	Feeder 4 - Voltage constraint when back-feeding	Feeder 4 is predicted to incur voltage constraints when used to back-feed neighbouring feeders.	Network: Voltage regulator Non-network: 11kV transfer scheme Accept risk	350k	Voltage Regulator
10587	Feeder 1 - Voltage constraint when back-feeding	Feeder 1 is predicted to incur voltage constraints when used to back-feed neighbouring feeders	Network: Install embedded generation Non-network: 11kV transfer scheme Accept risk	350k	Voltage Regulator
3024	Potential Takapau Substation upgrade for new industrial customer	An industrial customer is looking to connect 4MVA of industrial load at Takapau Road. If this goes ahead significant upgrades to the Takapau Substation will be required.	Network: Full rebuild Network: Transformer upgrade	3M	Upgrade

Table 4-15: Material Projects for 2023/2024 to 2026/2027

4.4.3 Material Projects for 2027/2028 to 2031/2032

All projects for 2027/2028 to 2031/2032 are in the initial identification stage. High level solutions have been identified and costs have been estimated for the preferred solutions identified. However, all constraints and possible solutions will be reviewed during annual planning to confirm the constraints still exist and the timing of the constraints have not changed. More detailed investigation into the solutions will be undertaken closer to the planned commencement of the project.

Network development works for this period will be dependent on the energy demand growth experienced on the network. Most energy demand growth on the Centralines' network for the planning period is expected to be driven by customer-driven works and is not included here.

Customers have indicated that the trade-off between reliability and price are appropriate and as a result it is suggested that further investment will generally be limited to relatively minor upgrades to the worst-performing feeders to ensure that customers currently experiencing poor reliability on feeders are progressively upgraded.

Safety-driven upgrades are expected to remain relatively minor during the planning period, due to the relatively robust nature of the network, age profiles of the assets and the relatively high levels of investment in renewals and replacements that are discussed in Section 5.

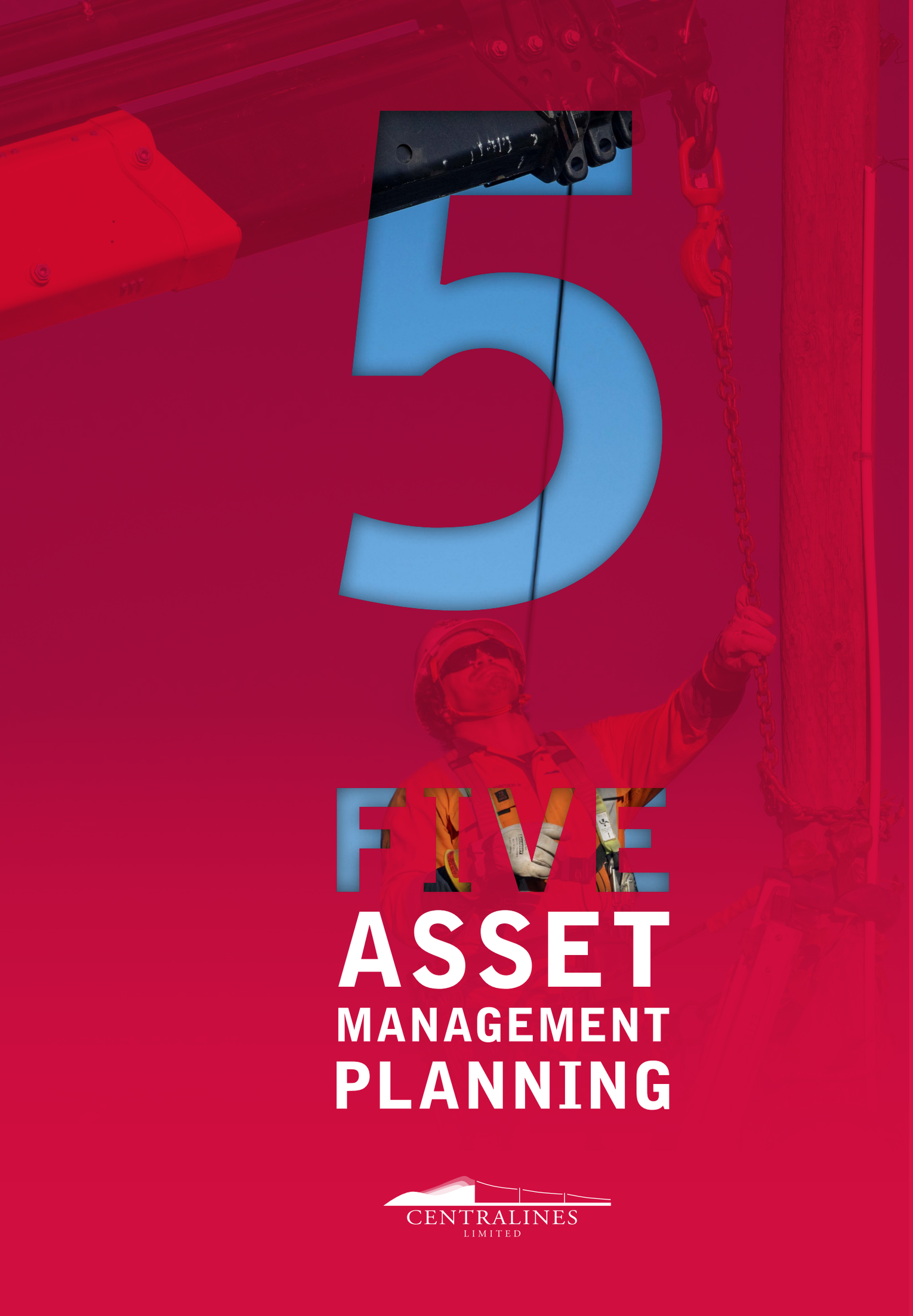
Project Number	Title	Constraint Description	Options	Cost $
1200	Voltage constraint Feeder 88	Issue C68983F2B8. Voltage constraint predicted on Feeder 88.	Network: Reconductor Network: Voltage Regulator Accept risk	350k
10136	Install alternative supply to Takapau Zone Substation	Takapau Zone Substation is Centralines second largest substation by demand and supplies the largest single customer. It is currently supplied via one 15km line with limited backup available through the 11kV network.	Network: Alternative 33kV connection Network: Install embedded generation Non-network:11kV transfer scheme Accept risk	6M
10733	Waipukurau Substation N-1 rating exceeded	Long term growth projections from Council would result in loads above the existing Waipukurau Substation rating.	Network: Upgrade Transformer Network: Establish zone substation Accept risk	6M
1145	Communications between Waipawa GXP and Takapau Zone Substation	Issue C55E54C967. Communication to Takapau Substation is not reliable enough for modern protection and SCADA systems.	Network: Fibre to site Do nothing	475k

Table 4-16: Material Projects for 2027/2028 to 2031/2032

4.5 Determination Reference Mapping Table

Section 4 Reference		Determination Reference
4.1	Introduction to this Section	11
4.2	Network Development Planning Objectives and Criteria	11.1, 11.2
4.3	Network Development Planning Process	11.1, 11.2, 11.11, 11.3, 11.4, 11.4.1, 11.4.2,11.5, 11.6, 11.7, 11.8.1,11.8.2, 11.8.4, 11.12, 11.12.1, 11.12.2
4.4	Network Development Projects	11.7, 11.8.3, 11.9 including 11.9.1 to 11.9.3, 11.10, including 11.10.1 to 11.10.3, 11.12.1 to 11.12.2

Table 4-17: Determination Reference Mapping Table



5

FIVE

ASSET MANAGEMENT PLANNING

CENTRALINES
LIMITED

CONTENTS

5. ASSET MANAGEMENT PLANNING

5.32 Asset Renewal Expenditure Projections

Centralines' renewal expenditure projections for the RAMP planning period are presented by asset category in Table 5-74.

Asset Category	Asset Renewal Expenditure Projections ($000)									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
11kV GM Circuit Breakers			1,200			1,200				
Concrete Poles	575	375	375	250	250	250	250	250	250	250
11kV PM Reclosers and Sectionalisers	390	65	390	65	260					
11kV PM Switches and Fuses	325	650	10	335	10	10	10	10	10	15
Distribution OH Open Wire Conductor	1,817	611	497	500	500	500	500	500	500	500
Pole Mounted Transformers		44								
Zone Substation Transformers		5.2								
Zone Substations	65	1,200								

Table 5-74: Asset Renewal Expenditure Projections for RAMP Planning Period

5.33 Renewal Project List 2022-2023

Renewal Project List 2022/23			
Project Number	Asset Category	Project Description	Project Budget ($000)
200456	Distribution OH Open Wire Conductor	Reconductor 11kV Squirrel, Seaview Road, Herbertville - Stage 2	889
10072	Distribution OH Open Wire Conductor	Smedley Road 7/0.064 11kV copper reconductor	449

Renewal Project List 2022/23			
Project Number	**Asset Category**	**Project Description**	**Project Budget ($000)**
	Distribution OH Open Wire Conductor	Reconductor 11kV Squirrel, Seaview Road, Herbertville - Stage 1	478
10183	Zone substations up to 66kV	Takapau ZS replace security fence posts	65
42847	Distribution OH Open Wire Conductor	Feeder 45 CAPEX	50

Table 5-75: Renewal Project List 2022-2023

5.34 Renewal Project List 2023/24 to 2026/27

Renewal Project List 2023/24 to 2026/27		
Project Number	**Financial Year**	**Project Description**
3024	2024	Takapau ZS 11kV switchboard and protection upgrade
10159	2024	Recloser replacement R44 Farm Road, Centralines
10582	2024	Upgrade transformer capacity of Sub B4/201 and replace aged LV copper conductor in Otane
1149	2024	Replace ABS 647 with a Remote Control Switch (RCS) on pole 913074 (Feeder 46)
1162	2024	Replace ABS 646 with a Remote Control Switch (RCS) (Feeder 83)
1167	2024	Replace ABS 464 with a Remote Control Switch (RCS) on pole 906315 (Feeder 83)
1168	2024	Replace ABS 466 with a Sectionaliser on pole 919754 (Feeder 83)
1161	2024	Convert the Kairakau temporary regulator site to a Sectionaliser site at Pole 917714 (Feeder 83)
1171	2024	Replace ABS 506 with a Remote Control Switch (RCS) on pole 913301 (Feeder 46)
1172	2024	Replace ABS 550 with a Remote Control Switch (RCS) on pole 910190 (Feeder 4)
1173	2024	Feeder 1 - Replace ABS 545 with a Remote Control Switch (RCS) on pole 910166
1174	2024	Replace ABS 542 with a Sectionaliser on pole 923701 (Feeder 1)
1183	2024	Voltage constraint on Feeder 86

Renewal Project List 2023/24 to 2026/27		
Project Number	**Financial Year**	**Project Description**
1196	2024	Feeder 91 - Replace ABS 498 with a Remote Control Switch (RCS) on pole 906009
10474	2024	Establish a new 200kVA Ground Mount transformer in Porangahau Road, Waipukurau (Feeder 18)
3032	2024	Takapau seismic strengthen transformer mountings.
1160	2024	Install new Sectionaliser on pole 913936 (Feeder 46)
10040	2024	Digital VHF Implementation - Centralines
10596	2024	Replace 7/0.064 copper 11kV conductor in Blackburn Road, Feeder 1
10160	2024	Replace ABS 565 with a Recloser on pole 907086 (Feeder 76)
	2024	Replace RMU 7011/7012/CB7014/7013
	2024	Replace transformer B4/15
	2024	Drumpeel Road 16mm Copper 11kV. 1945 11kV 16mm Copper
10176	2025	Waipawa ZS install yard Duragate
10076	2026	Waipawa ZS 11kV switchboard and protection upgrade

Table 5-76: Renewal Project List 2023/24-2026/27

5.35 Renewal Project List 2027/28 to 2031/32

Renewal Project List 2027/28 to 2031/32		
Project Number	**Financial Year**	**Project Description**
3027	2029	Waipukurau install inceptor tank at zone substation
3028	2029	Waipawa install inceptor tank at zone substation

Table 5-77: Renewal Project List 2027/28-2031/32

SIX

NON-NETWORK DEVELOPMENT M&R

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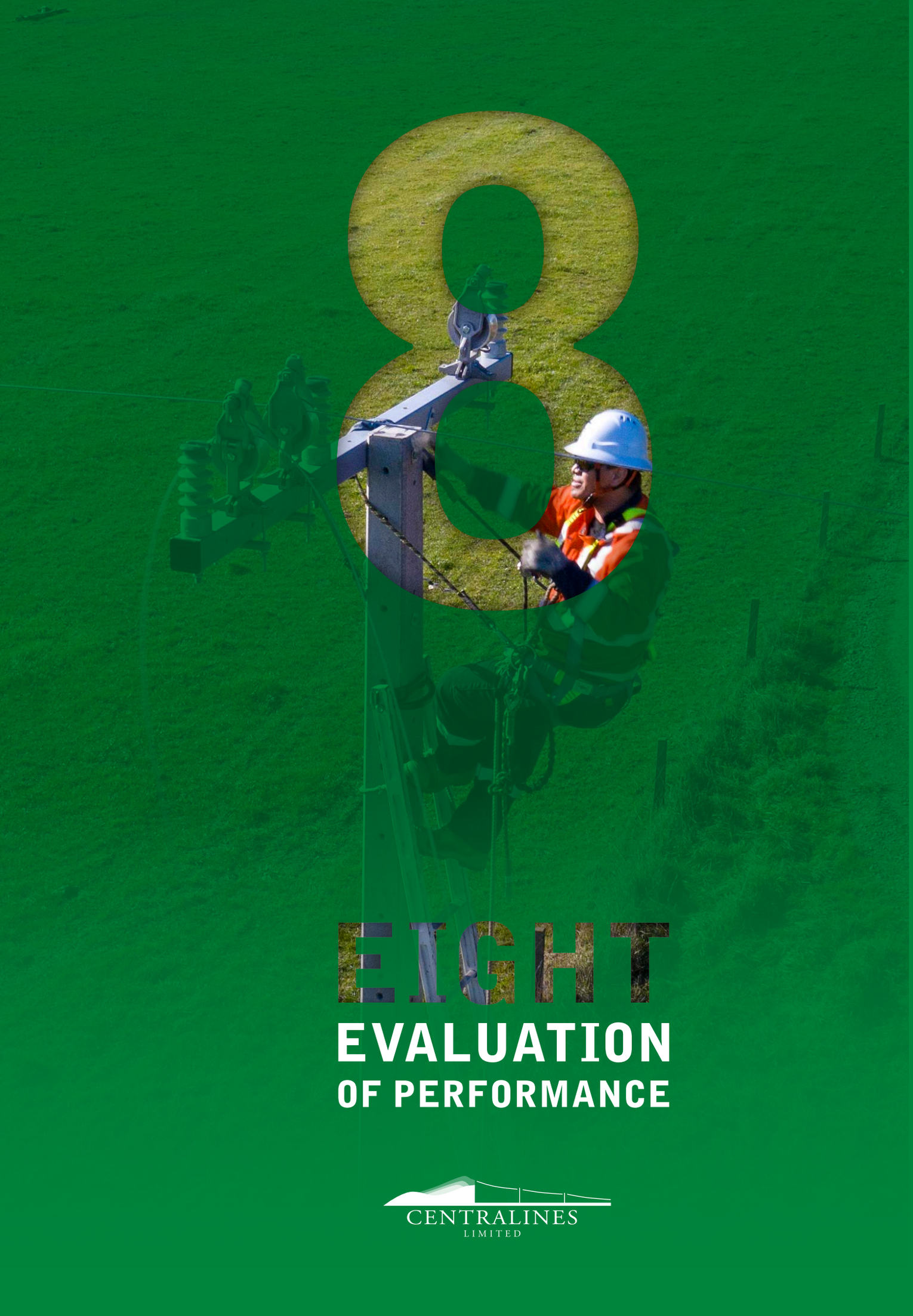
LIMITED

NO MATERIAL CHANGES

SEVEN RISK MANAGEMENT

CENTRALINES LIMITED

NO MATERIAL CHANGES



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EVALUATION
OF PERFORMANCE

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8. EVALUATION OF PERFORMANCE

8.1 Introduction to this Section

Section 8: Evaluation of Performance provides information to enable stakeholders to understand how well Centralines is performing as an asset management organisation. The key performance dimensions covered are:

- physical and financial progress against the plans set out in the last disclosed Regulatory Asset Management Plan (RAMP)
- performance against service level targets
- summary and assessment of network performance, and
- assessment under the Asset Management Maturity Assessment Tool (AMMAT).

Evaluation of performance in respect of the 2021/22 financial year is undertaken using year-end forecast information where this is available.

8.2 Review of Progress Against Plan

In this section Centralines' performance in delivering the plans set out in the RAMP disclosed in March 2021 is reviewed in terms of physical progress (commissioning of works) and financial progress (cost performance). This evaluation is undertaken for the 2020/21 and 2021/22 financial years, for both capital and maintenance programmes.

8.2.1 Planned CapEx

Capital projects proposed for each financial year as published in Centralines' 2020/21 RAMP are detailed below and include the status of each project as at 31 January 2021.

An update is provided for all 2020/21 projects not completed at the time of the 2020/21 RAMP as well as all 2021/22 projects.

8.2.1.1 CapEx Programme of Works 2019/20 & 2020/21

Project Number	Constraints and Projects	Category	Status	AMP Budget ($)	Actual Spend ($)	Comments
41871	Feeder 74: Replace 2 Pole 200kVA transformer D3/20 Sydney Street with a new pole mounted 200kVA transformer structure	Other Reliability Safety and Environment	Completed	42k	48k	

Project Number	Constraints and Projects	Category	Status	AMP Budget ($)	Actual Spend ($)	Comments
41873	Replace ABS 507, Sydney Street Takapau	Asset Replacement and Renewal	Completed	15k	18k	
41891	Feeder 1 Pole Replacements	Asset Replacement and Renewal	Completed	136k	157k	
41892	Feeder 13 Pole Replacements	Asset Replacement and Renewal	Completed	140k	178k	
41893	Feeder 14 Pole Replacements	Asset Replacement and Renewal	Completed	82k	104k	
41897	Feeder 86 Pole Replacements	Asset Replacement and Renewal	Work in progress	205k		Estimated completion 31 March 22
42268	Upgrade B4/79 to 75kVA and transfer load from Sub B4/230 to Sub B4/79	Quality of Supply	Carryover			Will be done in conjuction with new subdivison
42269	Harris Street Rationalisation, Underground existing Overhead LV (sub to 41858)	Quality of Supply	Carryover			Due to resource availability
42839	Waipukurau ZS 33kV insulator replacement	Asset Replacement and Renewal	Completed	50k	42k	
42831	Peanut Replacements RCS42, RCS48, RCS51, RCS53, RCS61	Asset Replacement and Renewal	Completed	325k	257k	
42833	Oruawharo Road 11kV 7/064 Reconductor	Asset Replacement and Renewal	Completed	110k	126k	
42834	Takapau ZS DC panel and battery bank upgrade	Asset Replacement and Renewal	Completed	80k	80k	
42835	Replace 2 pole mounted 200kVA Tx C4/2 with new pole mounted 200kVA transformer structure	Other Reliability Safety and Environment	Carryover	55k		To be completed in 2022/23
42836	Waipawa ZS upgrade zone substation security doors	Other Reliability Safety and Environment	Completed	32k	71k	

8-4 SECTION 8 EVALUATION OF PERFORMANCE

Project Number	Constraints and Projects	Category	Status	AMP Budget ($)	Actual Spend ($)	Comments
	and install new security system					
42837	Waipukurau ZS upgrade zone substation security doors and install new security system	Other Reliability Safety and Environment	Completed	32k	72k	
42838	Takapau ZS upgrade zone substation security doors and install new security	Other Reliability Safety and Environment	Completed	32k	71k	
42823	Replace ABS 459 with a Remote Control Switch (RCS) on Pole 905143	Other Reliability Safety and Environment	Completed	65k	72k	
42824	Replace ABS 629 with a Remote Control Switch (RCS) on Pole 919191	Other Reliability Safety and Environment	Completed	65k	56k	
42825	Replace ABS 463 with a Remote Control Switch (RCS) on Pole 906104	Other Reliability Safety and Environment	Completed	65k	49k	
42826	Replace ABS 461 with a Sectionaliser on pole 905281	Other Reliability Safety and Environment	Completed	65k	50k	
42827	Install a new Sectionaliser on Pole 906318	Other Reliability Safety and Environment	Completed	65k	46k	
42828	Install a new Remote Control Switch (RCS) on Pole 905083	Other Reliability Safety and Environment	Completed	65k	61k	
42829	Replace ABS 462 with a Remote Control Switch (RCS) on pole 905419	Other Reliability Safety and Environment	Completed	65k	53k	
42846	Wilder 33kV Feeder – MAPT CapEx	Asset Replacement and Renewal	Completed	9k	9k	
42847	Feeder 45 11kV Porangahau/Wallingford - MAPT CapEx	Other Reliability Safety and Environment	Carryover	178k		Due to resource availability
42848	Feeder 46 11kV Porangahau/Wallingford - MAPT CapEx	Other Reliability Safety and Environment	Carryover	178k		Due to resource availability

Table 8-1: Physical Progress of Planned Network CapEx Projects – 2019/20 & 2020/21

8.2.1.2 CapEx Programme of Works 2021/22

Project Number	Constraints and Projects	Category	Status	AMP Budget ($)	Actual Spend ($)	Comments
43662	Takapau ZS Ceiling Insulation	Zone substations up to 66kV	Work in Progress	43k		Estimated completion 31 March 2022
42832	Wilder Road Stage 7 of 8	Asset Replacement and Renewal	Carryover	150k		Due to alignment with council works
43664	Working at Heights - Waipukurau T1	Zone Substation Transformers	Carryover	27k		Due to resource availability
43665	Replace 7/0.064 Copper 11kV Conductor in Paget Road, Feeder 75	Distribution OH Open Wire Conductor	Carryover	211k		Due to resource availability
10118	Waipukurau ZS Security Fence Upgrade	Zone substations up to 66kV	Carryover	125k		Due to resource availability
10158	Recloser Replacement. R24 River Road South, Centralines	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	Carryover	65k		Due to resource availability
10164	Peanut Replacement Program. RCS35, RCS34, RCS37, RCS58, RCS62, Centralines	3.3/6.6/11/22kV Switches and fuses (pole mounted)	Work in Progress	325k		Estimated completion 31 March 2022
10182	Waipawa ZS Ceiling Insulation	Zone substations up to 66kV	Work in Progress	43k		Estimated completion 31 March 2022
10184	Waipukurau ZS Ceiling Insulation	Zone substations up to 66kV	Work in Progress	43k		Estimated completion 31 March 2022
10191	Waipukurau Replace Existing Porcelain Lighting Arrestors at Zone Sub Substation	Zone Substation Transformers	Completed	5k	5k	

Project Number	Constraints and Projects	Category	Status	AMP Budget ($)	Actual Spend ($)	Comments
43672	Replace 2 Pole Mounted 100kVA Transformer C4/108 with a New Pole Mounted 200kVA transformer structure in Svenson Road, Feeder 15	Pole Mounted Transformer	Carryover	128k		To be completed in 2022/23 Financial Year

Table 8-2: Physical Progress of Planned CapEx Projects – 2021/22

8.2.2 Planned OpEx

Maintenance programmes described in Section 5 – Lifecycle Asset Management are detailed in Table 8-3 and include the status of the programme as at the end of each financial year.

The programmes have remained reasonably consistent so progress for each year is presented in one table to allow a comparison to easily be made between the financial years.

8.2.2.1 Planned Maintenance 2019/20 and 2020/21

Asset Inspection/Condition Assessment	Progress 2020/21	Progress 2021/22
Annual 33kV Line Visual Inspection	Complete	Complete
5-Yearly Overhead Line Feeder Inspections	Complete	20% complete due to lack of resource and transfer to new EAMS mobility solution
Annual Aerial Inspection	Complete	On hold pending business case development to undertake full network LiDAR survey
Annual Ground Mounted Inspection	Complete	Expected to be completed by 31 March 2022
Level 1: Fortnightly Substation Visual Inspections	Complete	Complete
Level 2: 3-monthly Substation Detailed Inspections	Complete	Complete
Zone Substation Earth Tests — 5-yearly	Complete	Complete
Zone Substation Thermo-vision — Annually	Complete	Complete

Asset Inspection/Condition Assessment	Progress 2020/21	Progress 2021/22
Power Transformer — Annual DGA Oil Tests	Complete	Complete
Partial Discharge — 2-yearly test for Circuit Breakers	Complete	Not due
2-monthly Detailed Inspections of Voltage Regulators	Complete	Complete
Recloser and Remote-Control Switch — 2-yearly Detailed Inspection and Operational Tests	Complete	Complete
Distribution Equipment Earth Tests — 5-yearly	Complete	20% complete due to lack of resource and transfer to new EAMS mobility solution
5-yearly Inspection of Ground-Mounted Low Voltage Distribution Equipment (including Minor Repairs)	Not Due	Not Due

Table 8-3: Physical Progress of Asset Inspection/Condition Assessment

Routine and Corrective Maintenance	Progress 2020/21	Progress 2021/22
Vegetation Control	Complete	On schedule
Transformer — 2-yearly Service	Complete	Complete
Tap Changers — 2-yearly or 6-yearly Service, depending on Tap Changer Type	Complete	Complete
Station Regulators — 2-yearly, 5-yearly, or 10-yearly Service. depending on Make and Model	Complete	One will carryover to next financial year
Circuit Breaker SF6 — 3-yearly Service	Complete	Complete
Circuit Breaker Vacuum — 3-yearly Service	Complete	Complete
Circuit Breaker Oil — 2-yearly Service	Complete	Complete
Circuit Breaker Oil — Fault Service after every Fault Operation	Complete	Complete
Disconnectors and Earth Switches — 10-yearly	Complete	Complete
Annual Ripple Plant Service	Complete	Complete
Zone Substation Batteries — 3-monthly General Service, 6-monthly Discharge Tests	Complete	Complete
Zone Substation – Electro-Mechanical (4-yearly), Electronic (6-yearly) and Microprocessor (6-yearly)	Complete	Complete

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Routine and Corrective Maintenance	Progress 2020/21	Progress 2021/22
Voltage Regulators, Reclosers and Sectionalisers – 2-yearly or 5-yearly Service depending on Make and Model	Complete	Complete

Table 8-4: Physical Progress of Routine and Corrective Maintenance

8.3 Review of Financial Progress against Plan

In this section, Centralines' performance in delivering the plans set out in the 2020 RAMP is reviewed in terms of financial progress (cost performance). This evaluation is undertaken for the 2020/21 and 2021/22 financial years for both capital and maintenance programmes.

Explanations are provided in respect of works programmes with a variance of greater than 10% of budget.

8.3.1 Network Spend Financial Summary 2020/21

Category	Forecasted Expenditure from 2020/21 RAMP ($'000s)	Actual Expenditure ($'000s)	Variance %
CapEx			
Consumer Connection	2,157	1,911	-11%
System Growth	47	16	-66%
Asset Replacement and Renewal	1,318	1,311	-1%
Asset Relocations	103	1	-99%
Reliability, Safety and Environment	651	632	-3%
Total Network CapEx	**4,276**	**3,871**	**-9%**
OpEx			
Service Interruptions and Emergencies	320	320	
Vegetation Management	590	680	15%
Routine and Corrective Maintenance and Inspections	182	153	-15%
Asset Replacement and Renewal	540	689	28%
Total Network OpEx	**1,632**	**1,842**	**13%**

Table 8-5: Financial Progress CapEx and OpEx 2020/21

8.3.1.1 *Explanation System Growth*

A system growth project was not completed by year end as expected.

8.3.1.2 *Variance Explanation Asset Relocations*

Asset relocation project did not proceed in financial year as expected.

8.3.1.3 *Variance Explanation Vegetation*

Late uplift in vegetation cost due to outsourcing of some vegetation management activities.

8.3.1.4 *Variance Explanation Asset Replacement and Renewal (OpEx)*

Work in this category in last quarter of financial year was undertaken by external resource which caused an uplift in costs.

8.3.2 Network Spend Financial Progress 2021/22

Category	Budgeted Expenditure from 2021/22 RAMP ($'000s)	Forecasted Year End Expenditure ($'000s)	Variance %
CapEx			
Consumer Connection	1,500	1,965	31
System Growth	65	0	-100
Asset Replacement and Renewal	2,747	803	-70.8
Asset Relocations	-	-	0
Reliability, Safety and Environment	747	829	11
Total Network CapEx	**5,059**	**3,597**	**-29**

Category	Budgeted Expenditure from 2021/22 RAMP ($'000s)	Forecasted Year End Expenditure ($'000s)	Variance %
OpEx			
Service Interruptions and Emergencies	396	427	7.8
Vegetation Management	572	684	19.6
Routine and Corrective Maintenance and Inspections	197	74	-62.4
Asset Replacement and Renewal	485	1,126	132
Total Network OpEx	**1,650**	**2,311**	**40**

Table 8-6: Financial Progress OpEx and CapEx 2021/22

8.3.2.1 Variance Explanation Consumer Connection

Expenditure in 2021/22 is forecasted to be significantly higher than budget due to an ongoing increase in customer driven growth in Centralines' region.

8.3.2.2 Variance Explanation System Growth

Due to a lack of resource availability a single project was unable to be completed as planned.

8.3.2.3 Variance Explanation Asset Replacement and Renewal - CapEx

An ongoing increase in customer-initiated work and new connections and COVID related "lockdown" restrictions caused a resource constraint resulting in the deferral of some projects in this category. These factors contributed significantly to the overall total underspend on network CapEx.

8.3.2.4 Variance Explanation Reliability Safety & Environment

To enable projects to be completed, external resources were utilised resulting in increased costs

8.3.2.5 *Variance Explanation Vegetation*

Due to the lack of in-house resource, some vegetation management activities were outsourced which has resulted in higher than budgeted costs.

8.3.2.6 *Variance Explanation Routine & Corrective Maintenance & Inspections*

The OneEnergy implementation disrupted inspection driven workflow.

8.3.2.7 *Variance Explanation Asset Replacement & Renewal*

Actual remedial work required for maintenance after pole testing (MAPT) was significantly higher than historical averages resulting in a discrepancy between actuals and budgets. Due to a lack of internal resource, some activities were also outsourced which further increased costs.

8.4 Review of Service Level Performance

In this section, an evaluation of performance against the Service Levels published in Section 3 – Service Levels will be provided.

In all cases, explanations will be provided in respect of material unfavourable variances against targeted performance.

8.4.1 Service Level Performance 2020/21

The table below shows the 2021 service level framework and the forecasted information as per the 2020/21 RAMP compared to actual results for the 2020/21 Financial Year.

Asset Management Objective	Service Level	Unit/Type	Forecast 2020/21	Actual 2020/21	Comments
Health and Safety Performance	Accidents causing harm to a member of the public	Number of accidents	0	0	As forecast
	Serious harm or lost-time injury to employees or contractors	Number of injuries	0	1	Measure not met due to minor injury sustained late in financial year

Asset Management Objective	Service Level	Unit/Type	Forecast 2020/21	Actual 2020/21	Comments
	Injuries to employees or contractors requiring medical treatment	Number of injuries	0	2	Measure not met and relates to minor injuries sustained late in financial year
Customer Service Performance	Surveyed customer satisfaction with delivery of customer works	%	100%	100%	As forecast
	SAIDI Planned	Minutes	75.46	73.33	Below forecast
	SAIDI Unplanned	Minutes	38.45	38.46	As forecast
	SAIFI Planned	Interruptions	0.324	0.371	Slightly above forecast
	SAIFI Unplanned	Interruptions	1.46	1.49	Slightly above forecast
	Revenue per ICP	$ (nominal)	$1,832	$1,860	Above forecast
	Restoration of supply for unplanned interruptions	Urban	3	3	As per forecast
		Rural	8	6	Lower than forecast
		Remote rural	0	0	As per forecast
Cost and Efficiency Performance	Forward work planning horizon at a project level provided to contracting services providers	Years	2 years	2 years	As per forecast
	Operating expenditure per ICP (nominal)	$ (nominal)	$524	$565	Above forecast
	Faults per 100km of network	33kV Overhead	2.13	1.06	Below forecast

Table 8-7: Service Level Performance 2020/21

8.4.2 Forecasted Service Level Performance 2021/22

Table 8-8 shows the 2021/2022 service level framework, targets as per Section 3 of the 2020 RAMP, and the year-end forecasted values as at 31 January 2022.

Asset Management Objective	Service Level	Unit/Type	Target 2021/22	Forecast 2021/22	Comments
Health and Safety Performance	Accidents causing harm to a member of the public	Number of accidents	0	0	On target
	Serious harm or lost-time injury to employees or contractors	Number of injuries	0	1	Measure not met and relates to the aggrevation of a pre-existing condition
	Injuries to employees or contractors requiring medical treatment	Number of injuries	≤ 2	3	Measure not met and includes minor sprains and cuts
Customer Service Performance	Surveyed customer satisfaction with delivery of customer works	%	> 95%	100%	Target met
	SAIDI Planned	Minutes	<70.96	125.82	Above target refer to Section 8.5
	SAIDI Unplanned	Minutes	<62.83	66.78	Above target refer to Section 8.5
	SAIFI Planned	Interruptions	<1.17	0.380	Below target
	SAIFI Unplanned	Interruptions	<3.1616	1.565	Below target
	Revenue per ICP	$ (nominal)	$1,257	$1,271	Slightly above target
	Restoration of supply for unplanned interruptions	Urban	≤ 20 events ≥ 3 hours	4	Below target
		Rural	≤ 10 events ≥ 6 hours	7	Below target
		Remote rural	≤ 5 events ≥ 12 hours	0	Below target
Cost and Efficiency Performance	Forward work planning horizon at a project level provided to contracting services providers	Years	≥ 2 rolling	2 years	Target met
	Operating expenditure per ICP (nominal)	$ (nominal)	$534	$508	Below target
	Faults per 100km of network	33kV Overhead	6.4	3.2	Below target

Table 8-8: Forecasted Service Level Performance 2021/22

8.5 Evaluation of Network Performance

Centralines' network performance for the 2022 disclosure year was slightly above historical averages for both unplanned SAIDI and SAIFI. However, the forecasted values are not outside the typical variations that are expected. This year's unplanned SAIDI and SAIFI performance relative to previous years is presented in Figure 8-1.

Network performance for both SAIDI and SAIFI in the current year is expected to be below the Statement of Corporate Intent (SCI) targets.

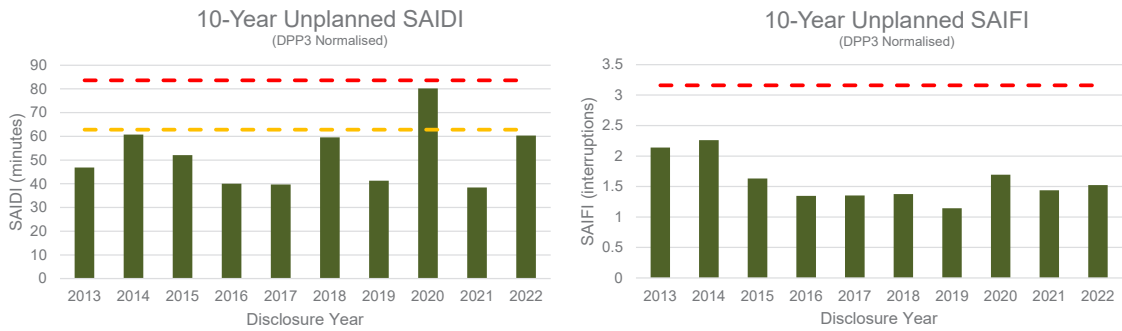


Figure 8-1: Unplanned Network Performance Measures for Past 10 Years

Due to the network's predominantly rural and radial nature and relatively small customer base, a significant amount of statistical variation can occur year-on-year due to low volume, high impact outages which can significantly influence annual performance metrics. This is illustrated in Figure 8-2, whereby 20% of outage incidents accounted for 80% of unplanned SAIDI impacts in 2021/22.

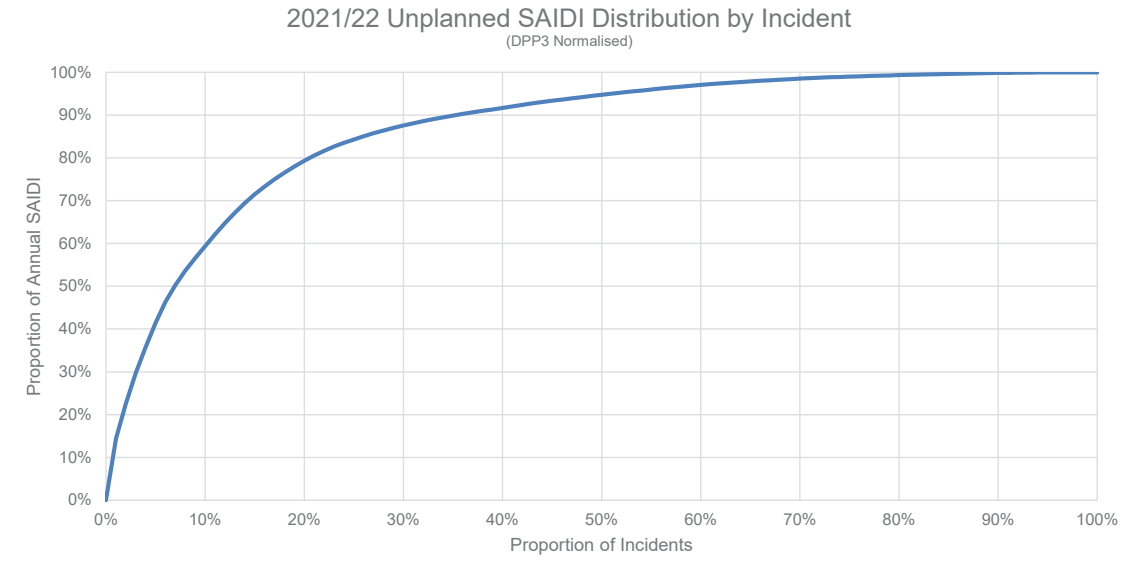


Figure 8-2: 2021/22 Unplanned SAIDI Distribution by Incident

Unplanned SAIDI resulting from equipment failure incidents can also significantly vary year-on-year as shown in Figure 8-3 and in 2022, registered the second highest SAIDI impact of the last ten-years. In 2022, equipment failures contributed the most SAIDI minutes followed closely by vegetation.

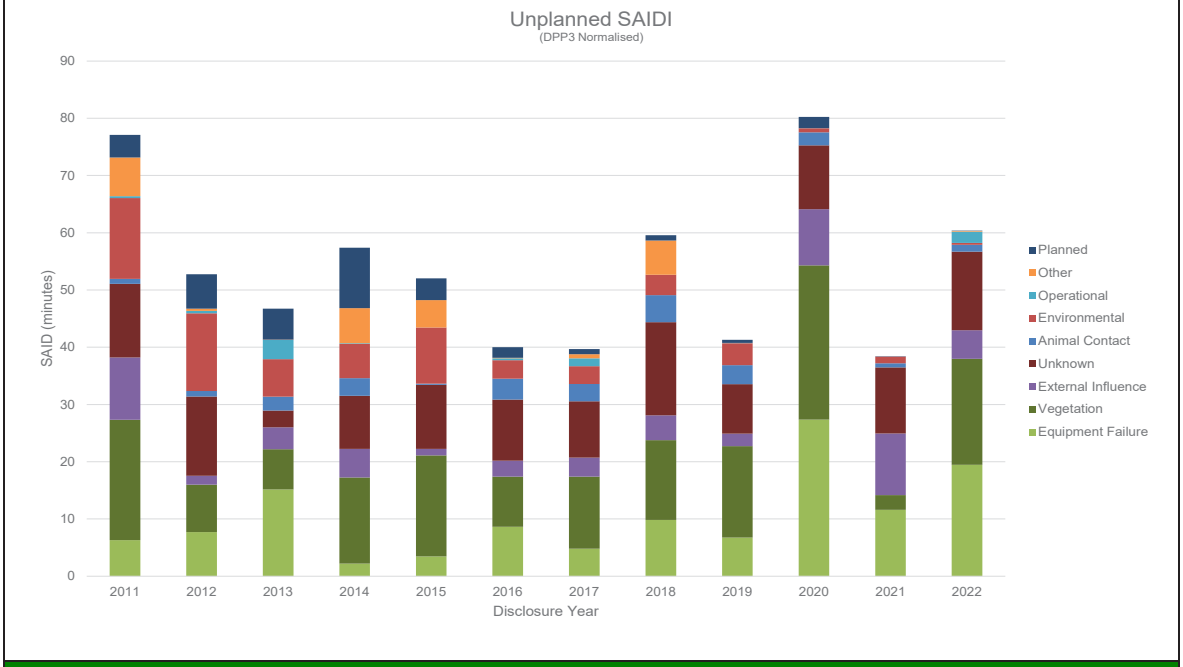


Figure 8-3: Unplanned SAIDI by Outage Cause

The variability described above can again be attributed to the low-density, rural, and radial nature of the network, with individual outages having disproportionate impacts on yearly totals. As observed for all outage causes, the Pareto principle holds true for equipment failure incidents also, with 20% of incidents contributing to almost 80% of the SAIDI impacts as shown in Figure 8-4. This highlights the importance of understanding network risk, and achieving optimal asset management, cost, risk, and performance outcomes.

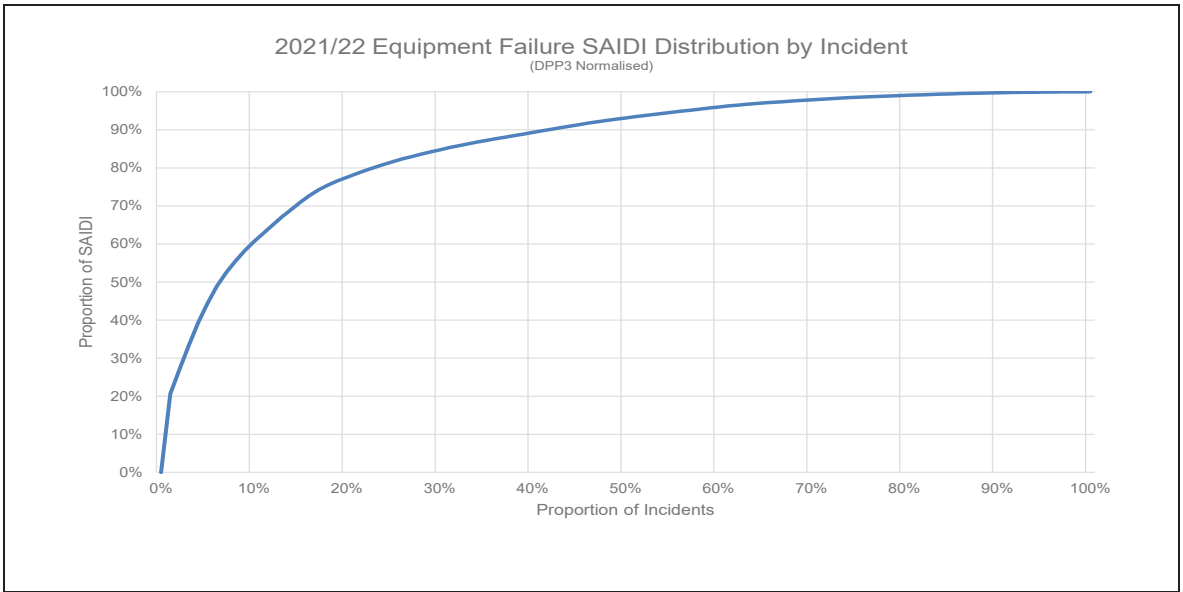


Figure 8-4: Equipment Failure SAIDI Distribution By Incident

8.6 Evaluation of Asset Management Maturity

8.6.1 Background

In 2012, the Commerce Commission included an Asset Management Maturity Assessment Tool (AMMAT) as part of the information Electricity Distribution Businesses (EDBs) are required to disclose in their annual information disclosures. The AMMAT consists of a self-assessment questionnaire containing 31 questions and accompanying guidance notes. The maturity assessment questions are designed to cover the full range of asset management system components and activities while having regard to information that is already disclosed in RAMPs.

The following figure details the maturity scales upon which the AMMAT scoring is based.

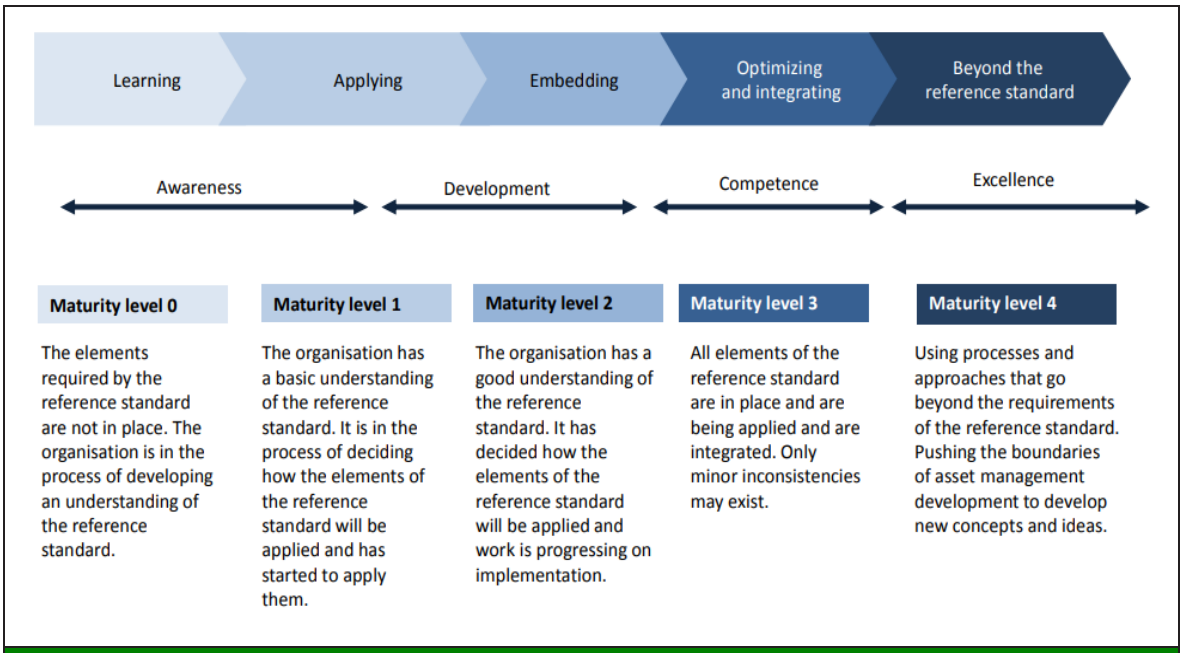


Figure 8-5: PAS55 Maturity Levels

8.6.2 2022 AMMAT Results

Centralines is committed to continually improving its asset management capabilities. Unison, Centralines' Asset Management service provider is ISO 55001 certified. Many of Unison's certified asset management processes and practices have been adopted and implemented at Centralines. This has resulted in an increase in maturity levels across some areas over recent years.

For the 2021/2022 year, Centralines' AMMAT was self-assessed. However, where key Unison asset management processes have been fully adopted by Centralines, maturity levels from Unison's externally assessed AMMAT have been used.

Maturity scoring for individual AMMAT questions is provided in Figure 8-2.

Figure 8-6: 2022 Centralines' AMMAT Results

8-18 SECTION 8 EVALUATION OF PERFORMANCE

These AMMAT functions, including Unison's scores, can be further consolidated into six main capability areas. These grouped capability areas, scoring for individual questions and a rounded summary score for each area, is provided in Table 8-9.

Capability Area	Question	Asset Management Capability Sub-Area	Score	Average Score
Asset Strategy and Delivery	10	Asset Management Strategy Alignment	2	2.6
	11	Asset Management Strategy – Asset Lifecycle	2	
	26	Asset Management Plan	3	
	33	Contingency Planning	3	
	69	Lifecycle Management of Risks	3	
	91	Corrective and Preventative Action	2	
	109	Asset Maintenance and In-service Support	3	
Documentation, Controls and Review	45	Outsourcing	3	2.7
	59	Asset Management System Documentation	2	
	82	Legal/Regulatory/Statutory Compliance	3	
	88	Asset Creation and Refurbishment	3	
	95	Performance and Condition Monitoring	2	
	105	Auditing	3	
	113	Continuous Improvement	3	
Systems, Integration, and Information Management	31	Issue of Work from the Asset Management Plan	2	2.75
	62	Effectiveness of Asset Information Systems	3	
	63	Currency of Asset Information	3	
	64	Asset Information System Relevance	3	
Communication and Participation	3	Asset Management Policy	2	2
	27	Communicating the Asset Management Plan	2	
	42	Asset Management Awareness and Leadership	2	
	53	Communication of Asset Management Information	2	
Structure, Capability and Authority	29	Responsibilities to Act on the Asset Management Plan	3	3
	37	Management Delivering Asset Management	3	
	99	Defect Investigation	3	
	115	Advanced Technology and Practices	3	
Competency and Training	40	Resourcing Asset Management	2	2.6
	48	Development of Human Resources in Asset Management	3	
	49	Competency Development in Asset Management	3	
	50	Training	3	
	79	Risk Based Improvement of Teams	2	

Table 8-9: AMMAT Scoring per Asset Management Capability Area

8.6.3 Assessment of Asset Management Practices 2016-2022

An overview of the scores in 2016 and 2022 for each asset management function is provided in Figure 8-3.

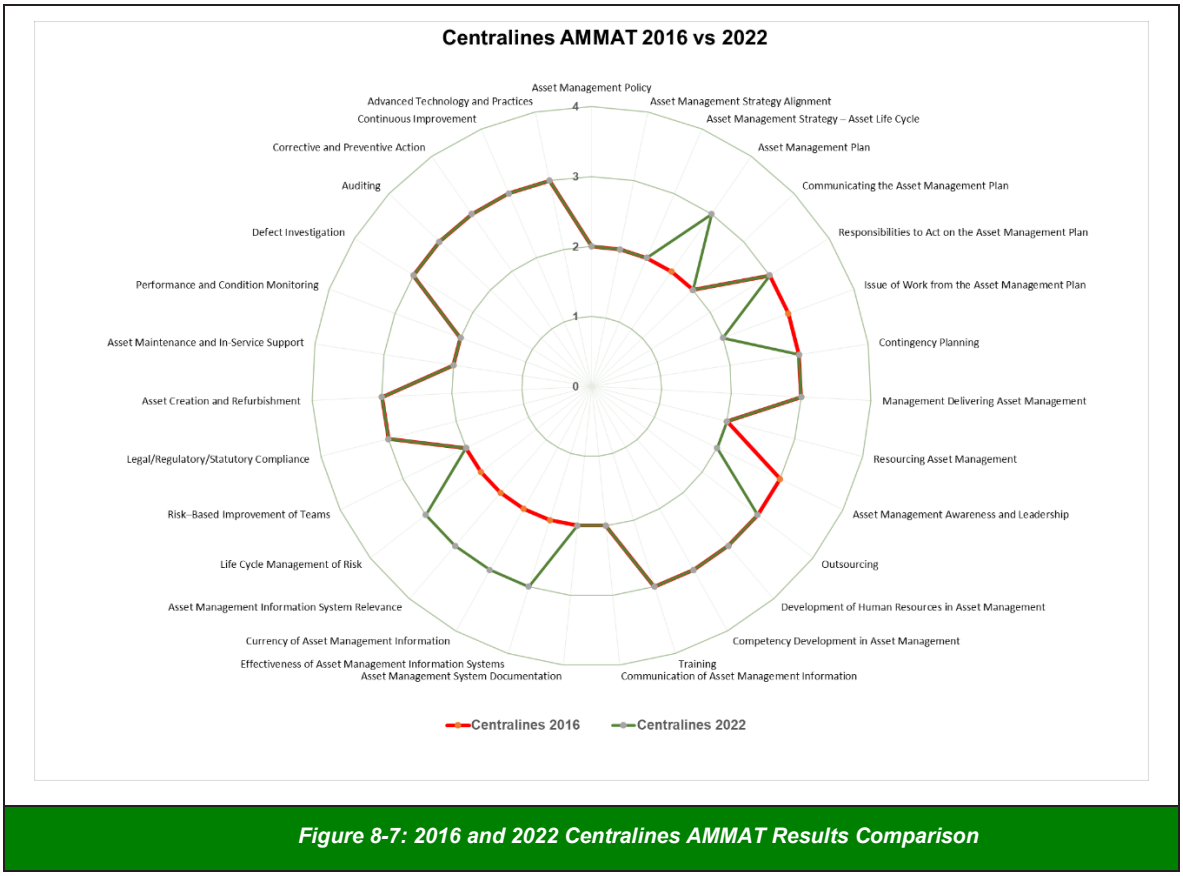


Figure 8-7: 2016 and 2022 Centralines AMMAT Results Comparison

8.6.3.1 Improvement 2016-2022

Consistent improvement from 2016 to 2022 can be seen in Risk and Information Management functions. This is consistent with the effort Centralines and its Management service provider Unison has put in over recent years to improve these functions.

As a result, Centralines has seen improvement in the asset management functions that were not previously meeting acceptable standards. These are:

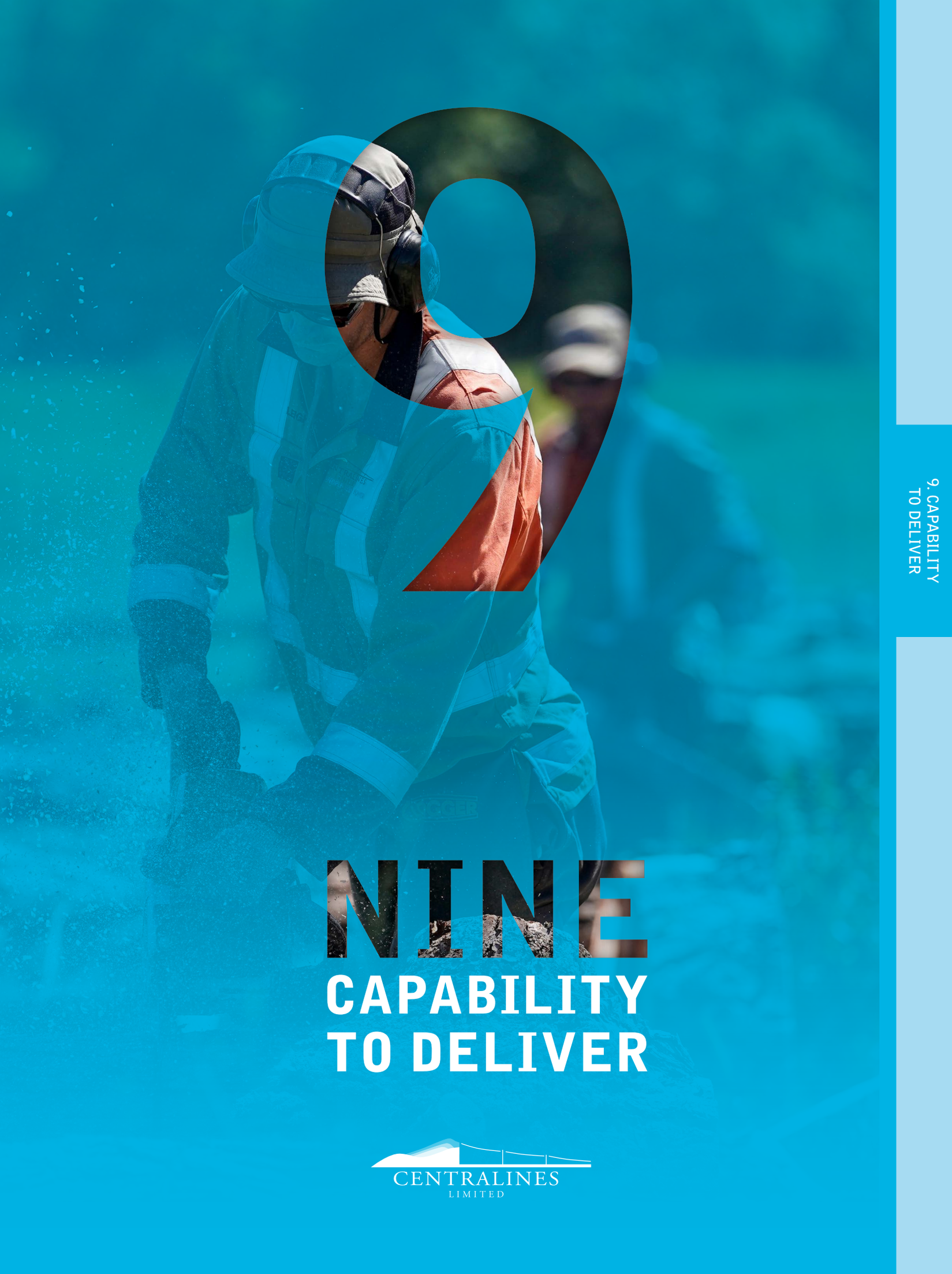
- risk management processes
- information management, and
- asset management plans.

While improvement has been seen in these areas, Centralines recognises that there is still room for improvement and remains committed to achieving this through Continual Improvement processes.

8.7 Determination Reference Mapping Table

Section 8 Reference	Determination Reference
8.1 Introduction to Section	15
8.2 Review of Progress Against Plan 8.3 Review of Financial Progress Against Plan	15.1
8.4 Review of Service Level Performance 8.5 Evaluation of Network Performance	15.2, 15.4
8.6 Evaluation of Asset Management Maturity	15.3, 15.4

Table 8-10: Determination Reference Mapping Table



9

NINE
CAPABILITY TO DELIVER

CENTRALINES
LIMITED

CONTENTS

9. CAPABILITY TO DELIVER

9.1 Introduction to this Section

Centralines' Asset Management Plan (AMP) is developed to ensure that Centralines can build, maintain, renew, and operate the network in the most efficient and effective manner possible, while delivering sustainable, reliable services to customers and managing risks in alignment with Centralines' risk appetite.

The following section outlines how Centralines ensures its AMP is realistic, and the objectives are achievable. The organisational structure, processes for authorisation and business capability also support how the AMP is delivered.

9.2 Achieving the Objectives of the Plan

The requirements for the Regulatory Asset Management Plan (RAMP) include descriptions of processes used by the EDB to ensure that:

- the RAMP is realistic, and the objectives set out in the plan can be achieved, and
- the organisation structure and the processes for authorisation and business capabilities will support the implementation of the RAMP plans.

Centralines interprets these requirements as providing information on how Centralines ensures the plan is reasonable, i.e. is efficient and effective at building, maintaining and operating networks that are neither gold-plated, nor inadequate, to sustainably deliver reliable services to consumers, and that Centralines has business processes and capabilities to actually deliver the plan.

As noted in Section 2 of the RAMP, Centralines operates a mixed model consisting of maintaining capability in-house (field-staff), but outsourcing management services and some capital works to third parties through competitive tenders and negotiation.

9.3 Ensuring the Plan is Realistic

In this context, Centralines defines realistic as having a high level of accuracy as well as being achievable. The ISO 55001 certified processes, systems and associated inputs used to develop the AMP are tested to confirm the outputs are robust and repeatable and the optimal balance between cost, risk and performance is maintained.

Centralines' Asset Management System (AMS) governs the development and execution of the AMP. The main processes that contribute to the AMP and the subsequent achievement of Centralines' Asset Management Objectives (AMOs) are:

- Network Development Planning
- Asset Renewal Planning
- Works Planning and Consolidation
- Annual Works Plan Development, and
- Resource availability.

9.3.1 Network Development Planning

Section 4 of this RAMP details Centralines' network development planning processes and the subsequent outputs. The accuracy of this planning depends on the quality of the inputs, such as the demand and capacity components. Centralines draws on external sources of information such as the long-term development plan from the local council to ensure assumptions used within NDP processes are consistent with independent sources.

The tools, processes, and associated network models, which use this data as inputs to establish the investment priorities are also outlined in Section 4. These tools have been developed in-house by Centralines' Management service provider and go through rigorous testing, along with reviews, continual improvement and enhancements on an annual basis.

9.3.2 Asset Renewal Planning (ARP)

Centralines' approach and processes associated with Asset Renewal Planning (ARP) are detailed in Section 5. The adoption of a risk-based approach to ARP and continual improvement is integral and fundamental within Centralines' AMS. Decision support tools such as condition-based risk management (CBRM) are used to inform maintenance and renewal programmes and ensure the right work is carried out on the right assets at the right time.

This approach, in conjunction with the holistic risk-based approach to all programmes of work, ensures the plan is realistic, achievable and will lead to Centralines meeting its AMOs.

9.3.3 Works Planning and Consolidation (WPC)

The purpose of the Works Planning and Consolidation (WPC) process within Centralines' AMS is to establish and maintain a prudent and efficient AMP, from submitted NDP and ARP work proposals.

The key requirements of WPC are:

- that quality proposals entering the AMP will support the achievement of Centralines' AMOs
- the AMP supports effective prioritisation of competing work proposals
- high integrity of the critical information maintained within the AMP
- stakeholders being aware of their requirements in relation to the WPC process and can access the information they require, and
- that work completed on the Asset Portfolio is verified and closed out of the AMP in a timely manner.

WPC draws together proposals of work from various sources which are risk-prioritised and organised into a plan that can be delivered by the organisation, at the lowest overall cost, subject to external constraints. The AMP is updated on a six-monthly basis to provide an accurate up-to-date view to the business. The aim of this is to bring about efficiency gains through:

- identification of project synergies, to minimise customer interruptions and increase field staff efficiency
- improved visibility for the organisation on where recruitment or attrition may need to be applied

- improved visibility for field staff capacity to enable forward planning for subcontracting requirements, which may enable refinement of rates and costs
- alignment of business units to this plan — Asset Management, Network Development, Field Resources, Procurement and Logistics, Network Operations Centre, and other support functions
- improved financial benefits which include:
  - better cost and cashflow forecasting
  - ability to organise exchange hedging for large material procurement
  - revenue and cost implications, and
  - analysis of regulatory variations, and
- the ability to respond fast and be agile.

9.3.4 Annual Works Plan Development

The Annual Works Plan Development process produces a one-year network investment plan. This plan addresses the issues identified on network assets through ARP and NDP, as well as required maintenance activities.

To obtain the Annual Works Plan (AWP), the proposed projects identified in the AMP are strategically prioritised as per the risk schema, and financial and resource constraints are applied. Included within the project proposals are provisional allowances for minor capital work that are identified during the financial year.

All defined projects that are confirmed as part of the AWP have a scope of work developed. This scope includes an estimated cost of completion.

9.3.5 Delivery of the Annual Works Plan

Centralines has a Management Services Agreement (MSA) with Unison Networks Limited (UNL) to provide a broad suite of management services. These services include:

- leadership
- management
- operational control of the network
- commercial
- financial
- regulatory compliance, and
- management of the development, renewal, and maintenance of the network.

Using decision support tools and processes (outlined in Sections 4 and 5), a risk-based, prioritised 24-month, capital, and maintenance investment plan, in collaboration with Centralines is developed by Centralines' Management service provider's engineers. This plan is refined in collaboration with Centralines to align with resource availability. This refinement includes understanding what external support may be required and the phasing of the works programme to smooth any peaks or troughs. Throughout the year, Centralines has the flexibility to re-prioritise the timing of individual projects to meet resource and network requirements.

Centralines retains in-house capability to undertake field work, in conjunction with the ability to manage competitive tendering for any works unable to be completed internally. To ensure costs and efficiencies are optimised, the preference is that most work is carried out by Centralines resources. However, to ensure an appropriate level of risk is mitigated and the increasing customer driven work demand is met, external resources are utilised where there is a resource shortfall.

Recently, driven by high levels of population growth resulting in an unprecedented surge in customer-initiated work for new connections and subdivisions, and COVID related "lockdown" restrictions, Centralines' limited resources have been unable to deliver the complete capital works programme. To mitigate risks associated with this, Centralines has embarked on a works delivery initiative that includes productivity improvements, recruitment, and development programmes, and the securing of additional external contracting resource. Concurrently, an updated risk-based assessment of projects in the capital works programme including all deferred projects has been undertaken. This has resulted in a revised and smoothed forward works programme that addresses the highest network risks and is aligned to the available resource capacity.

COVID remains a disruptive influence and has the potential to have further impacts on resource and material availability in the new financial year.

Centralines is satisfied that for the 24-month horizon of the AWP, through the combination of in-house field staff capability and the use of external contractors, sufficient resources exist and are available to ensure planned programmes of work are completed. Additional third-party contracting resources will continue to be utilised to ensure network projects are completed.

9.4 Organisation Structure, Processes for Authorisation and Business Capabilities

9.4.1 Organisation Structure

Figure 9-1 outlines the organisation structure employed by Centralines. The relatively simple structure reflects the services outsourced to Centralines' Management service provider.

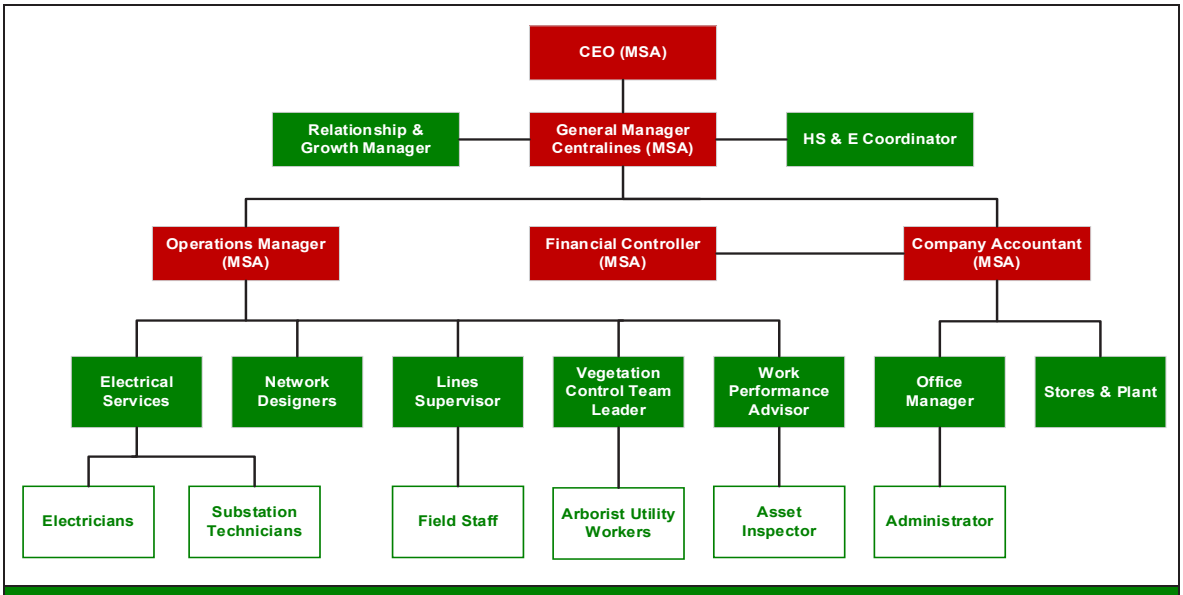


Figure 9-1: Centralines' Organisation Structure

9.4.2 Processes for Authorisation

Various levels of financial authorisation exist in Centralines. The Centralines Delegations Policy is in place which outlines the level of delegated financial authority from the Board to named roles within Centralines and Centralines' Management service provider. Centralines' financial system, coupled with controls and audits ensure that the process for authorisation is adhered to, or should the case arise, detect where non-compliance occurs.

The Centralines' Board approves the overall Centralines' Business Plan, including the AMP, which sets out capital and operating expenditure forecasts.

Should an individual approval be required over the highest level of delegation, a business case is prepared and submitted to the Board for approval.

When there are variations to agreed works contracts, a variation process is followed to authorise changes due to unforeseen circumstances.

9.4.3 Business Capabilities

As a small regional network, Centralines seeks to ensure that there is an efficient and effective business structure in place which ensures that community ownership of the network is not compromised by its small scale.

As stated previously, Centralines seeks to strike a balance between outsourcing specialised functions that would be otherwise unaffordable or provided inefficiently internally, with maintaining an internal capability to ensure resources remain in the region to provide field services.

Outsourcing risks are managed through the method of contracting and exit arrangements, which would provide for an orderly transition in the event that Centralines wished to change their asset management service provider.

Figure 9-2 illustrates the business process that Centralines uses to deliver its asset management activities. Each of these activities can be mapped to a required business capability.

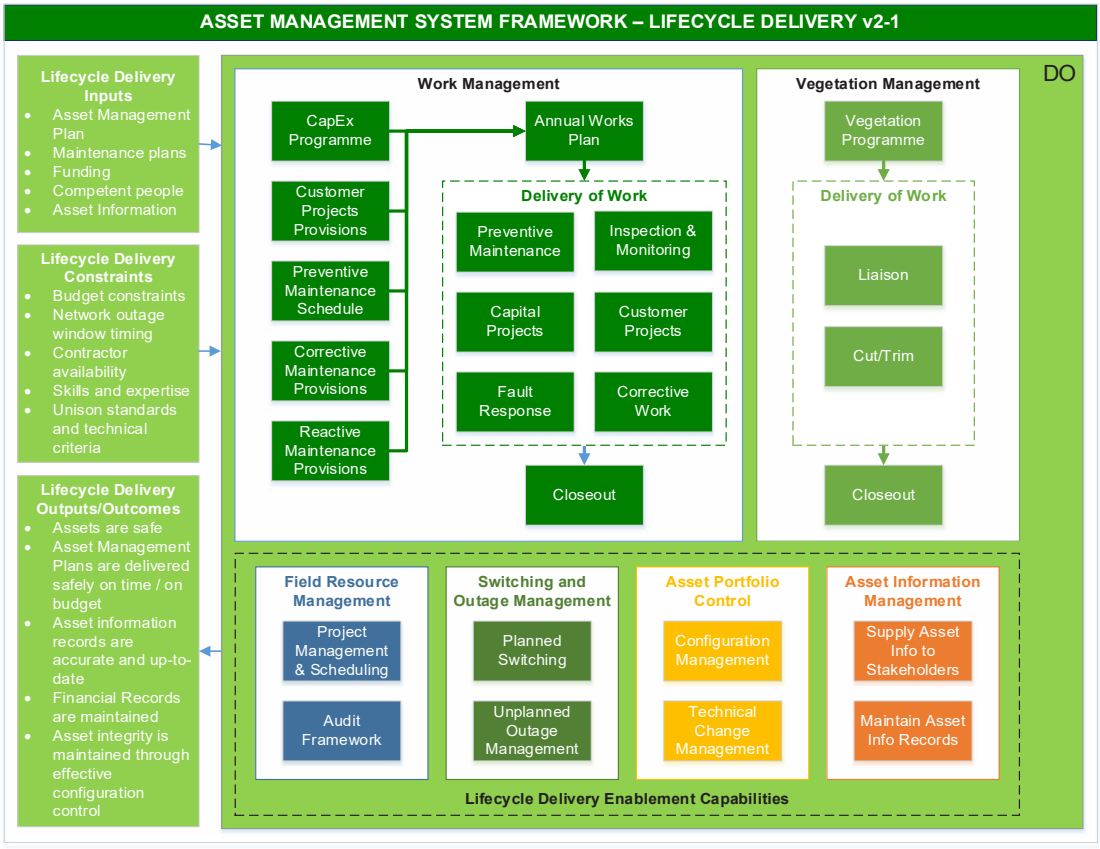


Figure 9-2: Asset Lifecycle Delivery Processes

Table 9-1 below specifies each of the lifecycle processes in the diagram above.

Process	Description
Work Management	• The process by which project and maintenance is undertaken across the network. It assists the field service teams to be productive and effective in maximising equipment, safety, and reliability.
Vegetation Management	• Identify vegetation issues and securing of landowner consent for cutting work through the liaison process. • Vegetation is cut and trimmed to ensure line corridors are clear.
Field Resource Management	• Schedule work throughout year. • Issue projects and work to field resources. • Engage appropriately competent and cost-effective outsourced contracting service providers to undertake any work on assets not being done by Centralines resources. • Monitor and measure performance of internal resources and external service providers.
Switching and Outage Management	• Develop switching plans to enable work on the network to proceed. • Identify the occurrence of unplanned outages and coordinate the response, including the dispatch of the first responder.

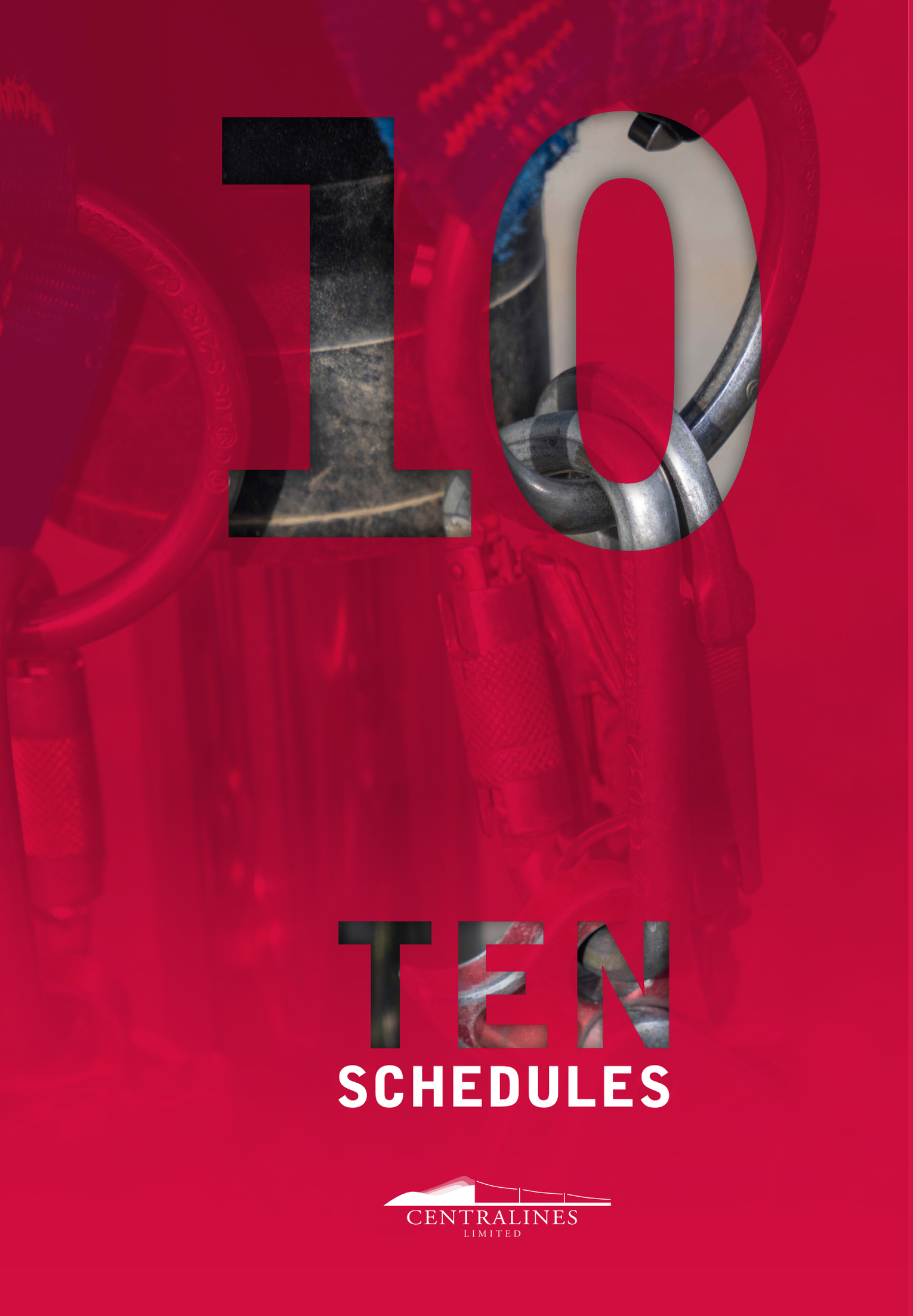
Process	Description
Asset Portfolio Control	• Maintenance of the configuration of the Asset Portfolio to ensure integrity. • Technical Change Management processes to ensure that risk of change in the Asset Portfolio is effectively managed.
Asset Information Management	• Record asset information generated from Lifecycle Delivery activities within asset information systems. • Respond to requests for asset information from Centralines teams, contracting service providers, and third parties such as other utilities.

Table 9-1: Lifecycle Delivery Processes

9.5 Determination Reference Mapping Table

Section 9 Reference		Determination Reference
9.1	Introduction to this Section	16.1
9.2	Achieving the Objectives of the Plan	
9.3	Organisation Structure, Process for Authorisation and Business Capabilities	16.2

Table 9-2: Determination Reference Mapping Table



10

TEN

SCHEDULES

CENTRALINES
LIMITED

CONTENTS

11a: Report on Forecast Capital Expenditure

"This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)

EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

11a(i): Expenditure on Assets Forecast		Current Year CY	CY+1	CY+2
	for year ended	31 Mar 22	31 Mar 23	31 Mar 24
		$000 (in nominal dollars)		
	Consumer connection	1,965	2,318	2,392
	System growth	-	192	1,703
	Asset replacement and renewal	803	6,240	3,880
	Asset relocations	-	-	-
	Reliability, safety and environment:			
	Quality of supply	750	100	918
	Legislative and regulatory	-	-	-
	Other reliability, safety and environment	79	210	232
	Total reliability, safety and environment	**829**	**310**	**1,151**
	Expenditure on network assets	**3,597**	**9,060**	**9,126**
	Expenditure on non-network assets	8,289	951	552
	Expenditure on assets	**11,886**	**10,011**	**9,678**
plus	Cost of financing	-	-	-
less	Value of capital contributions	1,048	1,380	1,424
plus	Value of vested assets	-	-	-
	Capital expenditure forecast	**10,838**	**8,631**	**8,254**
	Assets commissioned	10,838	8,631	8,254
		$000 (in constant prices)		
	Consumer connection	1,965	2,318	2,318
	System growth	-	192	1,650
	Asset replacement and renewal	803	6,240	3,760
	Asset relocations	-	-	-
	Reliability, safety and environment:			
	Quality of supply	750	100	890
	Legislative and regulatory	-	-	-
	Other reliability, safety and environment	79	210	225
	Total reliability, safety and environment	**829**	**310**	**1,115**
	Expenditure on network assets	**3,597**	**9,060**	**8,843**
	Non-network assets	8,289	951	535
	Expenditure on assets	**11,886**	**10,011**	**9,378**
Subcomponents of expenditure on assets (where known)				
	Energy efficiency and demand side management, reduction of energy losses	-	-	-
	Overhead to underground conversion	-	-	-
	Research and development	-	-	-

CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
31 Mar 25	31 Mar 26	31 Mar 27	31 Mar 28	31 Mar 29	31 Mar 30	31 Mar 31	31 Mar 32
2,450	2,499	2,549	2,600	2,652	2,705	2,759	2,814
2,272	388	-	505	4,004	3,500	60	-
1,606	2,652	1,385	1,806	1,842	1,878	1,916	1,954
-	-	-	-	-	-	-	-
819	1,143	1,160	331	1,281	2,176	-	-
-	-	-	-	-	-	-	-
122	108	110	96	143	76	77	79
941	**1,250**	**1,270**	**427**	**1,424**	**2,252**	**77**	**79**
7,268	**6,789**	**5,204**	**5,336**	**9,921**	**10,335**	**4,812**	**4,847**
365	535	1,336	656	669	683	696	710
7,633	**7,323**	**6,540**	**5,992**	**10,590**	**11,018**	**5,508**	**5,557**
-	-	-	-	-	-	-	-
1,458	1,488	1,517	1,548	1,579	1,610	1,642	1,675
-	-	-	-	-	-	-	-
6,175	**5,836**	**5,022**	**4,445**	**9,011**	**9,408**	**3,865**	**3,882**
6,175	5,836	5,022	4,445	9,011	9,408	3,865	3,882
2,318	2,318	2,318	2,318	2,318	2,318	2,318	2,318
2,150	360	-	450	3,500	3,000	50	-
1,520	2,460	1,260	1,610	1,610	1,610	1,610	1,610
-	-	-	-	-	-	-	-
775	1,060	1,055	295	1,120	1,865	-	-
-	-	-	-	-	-	-	-
115	100	100	85	125	65	65	65
890	**1,160**	**1,155**	**380**	**1,245**	**1,930**	**65**	**65**
6,878	**6,298**	**4,733**	**4,758**	**8,673**	**8,858**	**4,043**	**3,993**
345	496	1,215	585	585	585	585	585
7,223	**6,794**	**5,948**	**5,343**	**9,258**	**9,443**	**4,628**	**4,578**
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

	Current Year CY	CY+1	CY+2
for year ended	31 Mar 22	31 Mar 23	31 Mar 24
Difference between nominal and constant price forecasts	$000		
Consumer connection	-	-	74
System growth	-	-	53
Asset replacement and renewal	-	-	120
Asset relocations	-	-	-
Reliability, safety and environment:			
Quality of supply	-	-	28
Legislative and regulatory	-	-	-
Other reliability, safety and environment	-	-	7
Total reliability, safety and environment	**-**	**-**	**36**
Expenditure on network assets	**-**	**-**	**283**
Expenditure on non-network assets	-	-	17
Expenditure on assets	**-**	**-**	**300**

11a(ii): Consumer Connection

	Current Year CY	CY+1	CY+2
for year ended	31 Mar 22	31 Mar 23	31 Mar 24
Consumer types defined by EDB*	$000 (in constant prices)		
All Customers	1,965	2,318	2,318
Consumer connection expenditure	**1,965**	**2,318**	**2,318**
less Capital contributions funding consumer connection	1,048	1,380	1,380
Consumer connection less capital contributions	**917**	**938**	**938**

11a(iii): System Growth

Sub-transmission	-	-	-
Zone substations	-	175	1,500
Distribution and LV lines	-	17	150
Distribution and LV cables	-	-	-
Distribution substations and transformers	-	-	
Distribution switchgear	-	-	
Other network assets	-	-	
System growth expenditure	**-**	**192**	**1,650**
less Capital contributions funding system growth			
System growth less capital contributions	**-**	**192**	**1,650**

11a(iv): Asset Replacement and Renewal

Subtransmission	-	-	-
Zone substations	136	-	-
Distribution and LV lines	409	5,407	2,965
Distribution and LV cables	-	-	-
Distribution substations and transformers	47	-	-
Distribution switchgear	211	833	795
Other network assets	-	-	-
Asset replacement and renewal expenditure	**803**	**6,240**	**3,760**
less Capital contributions funding asset replacement and renewal			
Asset replacement and renewal less capital contributions	**803**	**6,240**	**3,760**

CY+3 31 Mar 25	CY+4 31 Mar 26	CY+5 31 Mar 27	CY+6 31 Mar 28	CY+7 31 Mar 29	CY+8 31 Mar 30	CY+9 31 Mar 31	CY+10 31 Mar 32
132	181	231	282	334	387	441	496
122	28	-	55	504	500	10	-
86	192	125	196	232	268	306	344
-	-	-	-	-	-	-	-
44	83	105	36	161	311	-	-
-	-	-	-	-	-	-	-
7	8	10	10	18	11	12	14
51	**90**	**115**	**46**	**179**	**322**	**12**	**14**
390	**491**	**471**	**578**	**1,248**	**1,477**	**769**	**854**
20	39	121	71	84	98	111	125
410	**529**	**592**	**649**	**1,332**	**1,575**	**880**	**979**

CY+3 31 Mar 25	CY+4 31 Mar 26	CY+5 31 Mar 27
2,318	2,318	2,318
2,318	**2,318**	**2,318**
1,380	1,380	1,380
938	**938**	**938**

-	-	-
2,000	-	-
150	360	-
-	-	-
-	-	-
-	-	-
-	-	-
2,150	**360**	**-**
2,150	**360**	**-**

-	-	-
-	1,200	-
1,000	1,000	1,000
-	-	-
-	-	-
520	260	260
-	-	-
1,520	**2,460**	**1,260**
1,520	**2,460**	**1,260**

11a(v):Asset Relocations

	for year end	Current Year CY 31 Mar 22	CY+1 31 Mar 23	CY+2 31 Mar 24
	*Project or programme**	$000 (in constant prices)		
	NZTA	-	-	-
	Councils	-	-	-
	Other Customers	-	-	-
	All other asset relocations projects or programmes	-	-	-
	Asset relocations expenditure	**-**	**-**	**-**
less	Capital contributions funding asset relocations	-	-	-
	Asset relocations less capital contributions	**-**	**-**	**-**

11a(vi):Quality of Supply

	*Project or programme**			
		-	-	-
		-	-	-
		-	-	-
		-	-	-
	All other quality of supply projects or programmes	750	100	890
	Quality of supply expenditure	**750**	**100**	**890**
less	Capital contributions funding quality of supply			
	Quality of supply less capital contributions	**750**	**100**	**890**

11a(vii): Legislative and Regulatory

	*Project or programme**			
		-	-	-
		-	-	-
	All other legislative and regulatory projects or programmes	-	-	-
	Legislative and regulatory expenditure	**-**	**-**	**-**
less	Capital contributions funding legislative and regulatory	-	-	-
	Legislative and regulatory less capital contributions	**-**	**-**	**-**

11a(viii): Other Reliability, Safety and Environment

	*Project or programme**			
		-	-	-
		-	-	-
		-	-	-
		-	-	-
		-	-	-
	All other reliability, safety and environment projects or programmes	79	210	225
	Other reliability, safety and environment expenditure	**79**	**210**	**225**
less	Capital contributions funding other reliability, safety and environment			
	Other reliability, safety and environment less capital contributions	**79**	**210**	**225**

CY+3 31 Mar 25	CY+4 31 Mar 26	CY+5 31 Mar 27
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
775	1,060	1,055
775	**1,060**	**1,055**
775	**1,060**	**1,055**
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
115	100	100
115	**100**	**100**
115	**100**	**100**

11a(ix): Non-Network Assets

		Current Year CY	CY+1	CY+2
Routine expenditure	*for year end*	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
Project or programme*		**$000 (in constant prices)**		
Motor Vehicles		77	434	450
Plant, Equipment and Tools		137	232	70
Office Furniture and Equipment		75	77	15
Land and Buildings		8,000	208	
All other routine expenditure projects or programmes		-	-	-
Routine expenditure		**8,289**	**951**	**535**
Atypical expenditure				
Project or programme*				
Construction of new office complex and depot		-	-	-
		-	-	-
		-	-	-
All other atypical projects or programmes				
Atypical expenditure		**-**	**-**	**-**
Non-network assets expenditure		**8,289**	**951**	**535**

CY+3 31 Mar 25	CY+4 31 Mar 26	CY+5 31 Mar 27
260	411	500
70	70	700
15	15	15
-	-	-
-	-	-
345	**496**	**1,215**
-	-	-
-	-	-
-	-	-
-	**-**	**-**
345	**496**	**1,215**

11b: Report on Forecast Operational Expenditure

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms.

EDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes).

This information is not part of audited disclosure information.

for year ended	*Current Year CY* 31 Mar 22	*CY+1* 31 Mar 23	*CY+2* 31 Mar 24
Operational Expenditure Forecast	**$000 (in nominal dollars)**		
Service interruptions and emergencies	434	337	392
Vegetation management	684	696	671
Routine and corrective maintenance and inspection	74	121	194
Asset replacement and renewal	1,215	1,416	826
Network Opex	**2,407**	**2,570**	**2,083**
System operations and network support	258	210	268
Business support	2,766	3,113	3,096
Non-network opex	**3,024**	**3,323**	**3,364**
Operational expenditure	**5,431**	**5,893**	**5,447**
	$000 (in constant prices)		
Service interruptions and emergencies	434	337	380
Vegetation management	684	696	650
Routine and corrective maintenance and inspection	74	121	188
Asset replacement and renewal	1,215	1,416	800
Network Opex	**2,407**	**2,570**	**2,018**
System operations and network support	258	210	260
Business support	2,766	3,113	3,000
Non-network opex	**3,024**	**3,323**	**3,260**
Operational expenditure	**5,431**	**5,893**	**5,278**
Subcomponents of operational expenditure (where known)			
Energy efficiency and demand side management, reduction of energy losses	-	-	-
Direct billing*	-	-	-
Research and Development	-	-	-
Insurance	-	-	-
Difference between nominal and real forecasts	**$000**		
Service interruptions and emergencies	-	-	12
Vegetation management	-	-	21
Routine and corrective maintenance and inspection	-	-	6
Asset replacement and renewal	-	-	26
Network Opex	**-**	**-**	**65**
System operations and network support	-	-	8
Business support	-	-	96
Non-network opex	**-**	**-**	**104**
Operational expenditure	**-**	**-**	**169**

**** Direct billing expenditure by suppliers that direct bill the majority of their consumers***

CY+3 31 Mar 25	*CY+4* 31 Mar 26	*CY+5* 31 Mar 27	*CY+6* 31 Mar 28	*CY+7* 31 Mar 29	*CY+8* 31 Mar 30	*CY+9* 31 Mar 31	*CY+10* 31 Mar 32
402	410	418	426	435	443	452	461
687	701	715	729	744	758	774	789
199	203	207	211	215	219	224	228
845	862	880	897	915	933	952	971
2,133	**2,175**	**2,219**	**2,263**	**2,308**	**2,355**	**2,402**	**2,450**
275	280	286	292	297	303	309	316
3,170	3,234	3,298	3,364	3,432	3,500	3,570	3,642
3,445	**3,514**	**3,584**	**3,656**	**3,729**	**3,804**	**3,880**	**3,957**
5,578	**5,689**	**5,803**	**5,919**	**6,037**	**6,158**	**6,281**	**6,407**
380	380	380	380	380	380	380	380
650	650	650	650	650	650	650	650
188	188	188	188	188	188	188	188
800	800	800	800	800	800	800	800
2,018	**2,018**	**2,018**	**2,018**	**2,018**	**2,018**	**2,018**	**2,018**
260	260	260	260	260	260	260	260
3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
3,260	**3,260**	**3,260**	**3,260**	**3,260**	**3,260**	**3,260**	**3,260**
5,278	**5,278**	**5,278**	**5,278**	**5,278**	**5,278**	**5,278**	**5,278**
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
22	30	38	46	55	63	72	81
37	51	65	79	94	108	124	139
11	15	19	23	27	31	36	40
45	62	80	97	115	133	152	171
115	**157**	**201**	**245**	**290**	**337**	**384**	**432**
15	20	26	32	37	43	49	56
170	234	298	364	432	500	570	642
185	**254**	**324**	**396**	**469**	**544**	**620**	**697**
300	**411**	**525**	**641**	**759**	**880**	**1,003**	**1,129**

12a: Report on Asset Condition

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a. All units relating to cable and line assets, that are expressed in km, refer to circuit lengths.

Voltage	Asset category	Asset class	Units
All	Overhead Line	Concrete poles / steel structure	No.
All	Overhead Line	Wood poles	No.
HV	Subtransmission Line	Subtransmission OH up to 66kV conductor	km
HV	Subtransmission Cable	Subtransmission UG up to 66kV (XLPE)	km
HV	Zone substation Buildings	Zone substations up to 66kV	No.
HV	Zone substation switchgear	22/33kV CB (Outdoor)	No.
HV	Zone substation switchgear	33kV Switch (Pole Mounted)	No.
HV	Zone substation switchgear	3.3/6.6/11/22kV CB (ground mounted)	No.
HV	Zone substation switchgear	3.3/6.6/11/22kV CB (pole mounted)	No.
HV	Zone Substation Transformer	Zone Substation Transformers	No.
HV	Distribution Line	Distribution OH Open Wire Conductor	km
HV	Distribution Cable	Distribution UG XLPE or PVC	km
HV	Distribution Cable	Distribution UG PILC	km
HV	Distribution switchgear	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	No.
HV	Distribution switchgear	3.3/6.6/11/22kV Switches and fuses (pole mounted)	No.
HV	Distribution switchgear	3.3/6.6/11/22kV Switch (ground mounted) - except RMU	No.
HV	Distribution switchgear	3.3/6.6/11/22kV RMU	No.
HV	Distribution Transformer	Pole Mounted Transformer	No.
HV	Distribution Transformer	Ground Mounted Transformer	No.
HV	Distribution Transformer	Voltage regulators	No.
HV	Distribution Substations	Ground Mounted Substation Housing	No.
LV	LV Line	LV OH Conductor	km
LV	LV Cable	LV UG Cable	km
LV	LV Streetlighting	LV OH/UG Streetlight circuit	km
LV	Connections	OH/UG consumer service connections	No.
All	Protection	Protection relays (electromechanical, solid state and numeric)	No.
All	SCADA and communications	SCADA and communications equipment operating as a single system	Lot
All	Capacitor Banks	Capacitors including controls	No.
All	Load Control	Centralised plant	Lot
All	Load Control	Relays	No.

Asset condition at start of planning period (percentage of units by grade)								
	H1	H2	H3	H4	H5	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
	0.50%	5.00%	28.25%	33.25%	33.00%	-	3	2.00%
	-	18.00%	38.00%	38.00%	6.00%	-	3	20.00%
	-	-	47.00%	47.00%	6.00%	-	2	-
	-	-			100.00%	-	3	-
	-	-	-	33.00%	67.00%	-	3	-
	-	-	-	-	100.00%	-	4	-
	-	5.00%	20.00%	20.00%	55.00%	-	3	-
	-	3.70%	44.40%	18.50%	33.40%	-	4	33.30%
	-	-	-	-	100.00%	-	4	-
	-	-	14.30%		85.70%	-	4	-
	1.00%	3.00%	44.50%	47.50%	4.00%	-	2	2.00%
	-	1.00%	2.50%	2.50%	94.00%	-	3	0.50%
	-	-	2.50%	2.50%	95.00%	-	3	0.50%
	-	3.00%	22.50%	22.50%	52.00%	-	3	5.00%
	2.00%	11.00%	19.00%	21.00%	47.00%	-	2	2.00%
	-	5.00%	15.00%	70.00%	10.00%	-	4	-
	-	5.00%	15.00%	70.00%	10.00%	-	4	-
	1.00%	5.00%	33.00%	31.00%	30.00%	-	3	1.50%
	1.00%	1.00%	10.00%	10.00%	78.00%	-	3	1.00%
	-			50.00%	50.00%	-	3	2.00%
	-	-	-	-	100.00%	-	2	-
	0.50%	2.00%	42.75%	44.75%	10.00%	-	2	1.00%
	0.50%	5.50%	23.50%	23.50%	47.00%	-	2	0.50%
	-	-	13.50%	13.50%	73.00%	-	2	0.50%
	0.15%	-	-	-	99.85%	-	2	0.50%
	-	-	16.67%	16.67%	66.67%	-	2	5.00%
	-	-	-	-	100.00%	-	2	-
	-	-	-	-	100.00%	-	4	-
	-	-	-	-	100.00%	-	4	-
	-	-	50.00%	50.00%	-	-	1	-

12b: Report on Forecast Capacity

This schedule requires a breakdown of current and forecast capacity and utilisation for each zone substation and current distribution transformer capacity. The data provided should be consistent with the information provided in the AMP. Information provided in this table should relate to the operation of the network in its normal steady state configuration.

12b(i): System Growth - Zone Substations

Existing Zone Substations	Current Peak Load (MVA)	Installed Firm Capacity (MVA)	Security of Supply Classification (type)	Transfer Capacity (MVA)	Utilisation of Installed Firm Capacity %	
Waipukurau	7.8	10.0	N-1	-	78%	
Waipawa	4.5	7.5	N-1	-	60%	
Takapau	6.2	7.5	N	2.4	83%	
OngaOnga	5.1	-	N-1 Switched	10.0	-	
Wilder Road	1.0	-	N-1 Switched	2.4	-	

[1] *Extend forecast capacity table as necessary to disclose all capacity by each zone substation*

	Installed Firm Capacity +5 years (MVA)	Utilisation of Installed Firm Capacity + 5yrs %	Installed Firm Capacity Constraint +5 years (cause)	Explanation
	10.0	78%	No constraint within +5 years	-
	7.5	60%	No constraint within +5 years	-
	7.5	83%	No constraint within +5 years	Two transformer sites supplied by single 33kV line.
	-	-	No constraint within +5 years	Load transfer from adjacent substations available using remote switches.
	-	-	No constraint within +5 years	Load transfer from adjacent substations available using remote switches.

12c: Report on Forecast Network Demand

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b and the capacity and utilisation forecasts in Schedule 12b.

12c(i): Consumer Connections

Number of ICPs connected in year by consumer type

		Current Year CY	CY+1
	for year ended	31 Mar 22	31 Mar 23
	Consumer types defined by EDB*	**Number of connections**	
	Residential	177	177
	Commercial	65	65
	Connections total	**242**	**242**

***include additional rows if needed**

Distributed generation

Number of connections	50	50
Installed connection capacity of distributed generation (MVA)	0	0

12c(ii) System Demand

	for year ended	Number of connections	
Maximum coincident system demand (MW)			
	GXP demand	21	24
plus	Distributed generation output at HV and above	-	-
	Maximum coincident system demand	**21**	**24**
less	Net transfers to (from) other EDBs at HV and above	-	-
	Demand on system for supply to consumers' connection points	**21**	**24**
Electricity volumes carried (GWh)			
	Electricity supplied from GXPs	119	120
less	Electricity exports to GXPs	-	-
plus	Electricity supplied from distributed generation	-	-
less	Net electricity supplied to (from) other EDBs	-	-
	Electricity entering system for supply to ICPs	**119**	**120**
less	Total energy delivered to ICPs	109	110
	Losses	**10**	**10**
	Load factor	**65%**	**57%**
	Loss ratio	**8.4%**	**8.3%**

CY+2 31 Mar 24	CY+3 31 Mar 25	CY+4 31 Mar 26	CY+5 31 Mar 27
Number of connections			
177	177	177	177
65	65	65	65
242	**242**	**242**	**242**
50	50	50	50
0	0	0	0
Number of connections			
24	24	24	24
-	-	-	-
24	**24**	**24**	**24**
-	-	-	-
24	**24**	**24**	**24**
120	120	120	120
-	-	-	-
-	-	-	-
-	-	-	-
120	**120**	**120**	**120**
110	110	110	110
10	**10**	**10**	**10**
57%	**57%**	**57%**	**57%**
8.3%	**8.3%**	**8.3%**	**8.3%**

12d: Report Forecast Interruptions and Duration

This schedule requires a forecast of SAIFI and SAIDI for disclosure and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumed impact of planned and unplanned SAIFI and SAIDI on the expenditures forecast provided in Schedule 11a and Schedule 11b.

	Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
for year ended	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
SAIDI						
Class B (planned interruptions on the network)	126.1	101.0	101.0	101.0	101.0	101.0
Class C (unplanned interruptions on the network)	84.7	82.1	82.1	82.1	82.1	82.1
SAIFI						
Class B (planned interruptions on the network)	0.40	0.39	0.39	0.39	0.39	0.39
Class C (unplanned interruptions on the network)	2.14	1.89	1.89	1.89	1.89	1.89

SECTION 10 **SCHEDULES 10-19**

10-20 SECTION 10 SCHEDULES

13: Report on Asset Management Maturity

This schedule requires information on the EDB'S self-assessment of the maturity of its asset management practices.

Question No.	Function	Question	Score	Evidence—Summary	
3	Asset management policy	To what extent has an asset management policy been documented, authorised and communicated?	2	Centralines has an Asset Management Policy which is detailed in controlled document CL-AMS0001. The Asset Management Policy has been approved by the Centralines General Manager, Chief Executive and Board of Directors and is reviewed every two years to enure it aligns with Centralines corporate objectives.	
10	Asset management strategy	What has the organisation done to ensure that its asset management strategy is consistent with other appropriate organisational policies and strategies, and the needs of stakeholders?	2	Centralines is in the process of implementing the strategies developed at Unison tailored for Centralines. Some of the linkages between the long-term asset management strategy and other organisational policies, strategies and stakeholder requirements are defined. The work is fairly well advanced but still incomplete.	
11	Asset management strategy	In what way does the organisation's asset management strategy take account of the lifecycle of the assets, asset types and asset systems over which the organisation has stewardship?	2	As part of the Management Services Agreement with Unison, Centralines will be implementing the strategies introduced at Unison at a level appropriate to Centralines. The long-term asset management strategy takes account of the lifecycle of some, but not all, of its assets, asset types and asset systems.	
26	Asset management plan(s)	How does the organisation establish and document its asset management plan(s) across the life cycle activities of its assets and asset systems?	3	Centralines produces a Regulatory Asset Management Plan (RAMP) document that contains an overview of its ten-year asset management plans for external stakeholders. Asset management plans for network developments and asset renewals are registered within an internal database and include a consistent risk assessment on all issues, an overview of project options, recommended timing and estimated cost. The capital plan is updated six-monthly. AMS-1001 Asset Management Planning Framework specifies the key asset planning standards, AMS-0003 AMS Risk Management Guidelines specifies how risk management is to be utilised in asset planning.	

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	Widely used AM practice standards require an organisation to document, authorise and communicate its asset management policy (e.g. as required in PAS 55 para 4.2 i). A key pre-requisite of any robust policy is that the organisation's top management must be seen to endorse and fully support it. Also vital to the effective implementation of the policy, is to tell the appropriate people of its content and their obligations under it. Where an organisation outsources some of its asset-related activities, then these people and their organisations must equally be made aware of the policy's content. Also, there may be other stakeholders, such as regulatory authorities and shareholders who should be made aware of it.	Top management. The management team that has overall responsibility for asset management.	The organisation's asset management policy, its organisational strategic plan, documents indicating how the asset management policy was based upon the needs of the organisation and evidence of communication.	The organisation has an asset management policy, which has been authorised by top management, but it has had limited circulation.It may be in use to influence development of strategy and planning but its effect is limited.
	In setting an organisation's asset management strategy, it is important that it is consistent with any other policies and strategies that the organisation has and has taken into account the requirements of relevant stakeholders. This question examines to what extent the asset management strategy is consistent with other organisational policies and strategies (e.g. as required by PAS 55 para 4.3.1b) and has taken account of stakeholder requirements as required by PAS 55 para 4.3.1 c). Generally, this will take into account the same polices, strategies and stakeholder requirements as covered in drafting the asset management policy but at a greater level of detail.	Top management. The organisation's strategic planning team. The management team that has overall responsibility for asset management.	The organisation's asset management strategy document and other related organisational policies and strategies. Other than the organisation's strategic plan, these could include those relating to health and safety, environmental, etc. Results of stakeholder consultation.	Some of the linkages between the long-term asset management strategy and other organisational policies, strategies and stakeholder requirements are defined but the work is fairly well advanced but still incomplete.
	Good asset stewardship is the hallmark of an organisation compliant with widely used AM standards. A key component of this is the need to take account of the lifecycle of the assets, asset types and asset systems. (For example, this requirement is recognised in 4.3.1d of PAS 55). This question explores what an organisation has done to take lifecycle into account in its asset management strategy.	Top management. People in the organisation with expert knowledge of the assets, asset types, asset systems and their associated life-cycles. The management team that has overall responsibility for asset management. Those responsible for developing and adopting methods and processes used in asset management.	The organisation's documented asset management strategy and supporting working documents.	The long-term asset management strategy takes account of the lifecycle of some, but not all, of its assets, asset types and asset systems.
	The asset management strategy needs to be translated into practical plan(s) so that all parties know how the objectives will be achieved. The development of plan(s) will need to identify the specific tasks and activities required to optimise costs, risks and performance of the assets and/or asset system(s), when they are to be carried out and the resources required.	The management team with overall responsibility for the asset management system. Operations, maintenance and engineering managers.	The organisation's asset management plan(s).	Asset management plan(s) are established, documented, implemented and maintained for asset systems and critical assets to achieve the asset management strategy and asset management objectives across all life cycle phases.

Question No.	Function	Question	Score	Evidence—Summary
27	Asset management plan(s)	How has the organisation communicated its plan(s) to all relevant parties to a level of detail appropriate to the receiver's role in their delivery?	2	The asset management plans at Centralines are communicated to its field services team responsible for the delivery of the plans through its Enterprise Asset Management System and other supporting software systems.
29	Asset management plan(s)	How are designated responsibilities for delivery of asset plan actions documented?	3	Centralines has appropriate documentation in place defining the responsibility for delivery of Capital and Maintenance Plans. For capital projects, project scope documents are established in alignment with Centralines field services information requirements. The annual works plan which contains all work for the forthcoming financial year is issued to field services to enable programming of work and issuing to relevant teams.
31	Asset management plan(s)	What has the organisation done to ensure that appropriate arrangements are made available for the efficient and cost effective implementation of the plan(s)? (Note this is about resources and enabling support)	2	A number of tools have been developed to prioritise and schedule works, which then leads to resource requirement assessments, including identifying gaps to be filled to meet the planned programme of works. More work is required to adequately meet these gaps.
33	Contingency planning	What plan(s) and procedure(s) does the organisation have for identifying and responding to incidents and emergency situations and ensuring continuity of critical asset management activities?	3	Centralines has established a crisis and emergency management framework that includes contingency planning for HILP events, network emergencies, major weather events, and other impacts to business continuity. Centralines is collaborating with regional Lifelines groups, local councils, universities, and other stakeholders to develop credible HILP event scenarios and identify assets at risk to address in asset management plans. Centralines is in the process of aligning its crisis management framework with CIMS. Regular crisis event simulations are undertaken internally, and Centralines will participate in upcoming regional Lifelines exercises.

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	Plans will be ineffective unless they are communicated to all those, including contracted suppliers and those who undertake enabling function(s). The plan(s) needs to be communicated in a way that is relevant to those who need to use them.	The management team with overall responsibility for the asset management system. Delivery functions and suppliers.	Distribution lists for plan(s). Documents derived from plan(s) which detail the receiver's role in plan delivery. Evidence of communication.	The plan(s) are communicated to most of those responsible for delivery but there are weaknesses in identifying relevant parties resulting in incomplete or inappropriate communication. The organisation recognises improvement is needed and is working towards resolution.
	The implementation of asset management plan(s) relies on (1) actions being clearly identified, (2) an owner allocated, and (3) that owner having sufficient delegated responsibility and authority to carry out the work required. It also requires alignment of actions across the organisation. This question explores how well the plan(s) set out responsibility for delivery of asset plan actions.	The management team with overall responsibility for the asset management system. Operations, maintenance and engineering managers. If appropriate, the performance management team.	The organisation's asset management plan(s). Documentation defining roles and responsibilities of individuals and organisational departments.	Asset management plan(s) consistently document responsibilities for the delivery actions and there is adequate detail to enable delivery of actions. Designated responsibility and authority for achievement of asset plan actions is appropriate.
	It is essential that the plan(s) are realistic and can be implemented, which requires appropriate resources to be available and enabling mechanisms in place. This question explores how well this is achieved. The plan(s) not only needs to consider the resources directly required and timescales, but also the enabling activities, including for example, training requirements, supply chain capability and procurement timescales.	The management team with overall responsibility for the asset management system. Operations, maintenance and engineering managers. If appropriate, the performance management team. If appropriate, the performance management team. Where appropriate the procurement team and service providers working on the organisation's asset-related activities.	The organisation's asset management plan(s). Documented processes and procedures for the delivery of the asset management plan.	The organisation has arrangements in place for the implementation of asset management plan(s) but the arrangements are not yet adequately efficient and/or effective. The organisation is working to resolve existing weaknesses.
	Widely used AM practice standards require that an organisation has a plan(s) to identify and respond to emergency situations. Emergency plan(s) should outline the actions to be taken to respond to specified emergency situations and ensure continuity of critical asset management activities including the communication to, and involvement of, external agencies. This question assesses if, and how well, these plan(s) triggered, implemented and resolved in the event of an incident. The plan(s) should be appropriate to the level of risk as determined by the organisation's risk assessment methodology. It is also a requirement that relevant personnel are competent and trained.	The manager with responsibility for developing emergency plan(s). The organisation's risk assessment team. People with designated duties within the plan(s) and procedure(s) for dealing with incidents and emergency situations.	The organisation's plan(s) and procedure(s) for dealing with emergencies. The organisation's risk assessments and risk registers.	Appropriate emergency plan(s) and procedure(s) are in place to respond to credible incidents and manage continuity of critical asset management activities consistent with policies and asset management objectives. Training and external agency alignment is in place.

Question No.	Function	Question	Score	Evidence—Summary	
37	Structure, authority and responsibilities	What has the organisation done to appoint member(s) of its management team to be responsible for ensuring that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s)?	3	Centralines has a Management Services Agreement with Unison. The Centralines General Manager is responsible to ensure that assets deliver the requirements of the asset management strategy, objectives and plans. Further support is provided through Unison's Networks and Operations Team lead by the General Manager Networks and Operations who is a member of the Executive Management Team.	
40	Structure, authority and responsibilities	What evidence can the organisation's top management provide to demonstrate that sufficient resources are available for asset management?	2	Centralines uses a basic scheduling tool to evaluate and plan works over time, which links to resource availability and requirements. When work is out-sourced to Unison contracting a software-based scheduling tool is used to evaluate and plan works over time, which links to resource availability and requirements. The tool enables an evaluation of resource gaps, so that priorities can be re-evaluated or additional resources sought.	
42	Structure, authority and responsibilities	To what degree does the organisation's top management communicate the importance of meeting its asset management requirements?	2	The importance of meeting asset management requirements is communicated to select parts of the organisation. Centralines' business plan and RAMP approved by Directors specifies asset management goals and objectives. The plan is annually presented to the business by the Unison Group Chief Executive. The asset management objectives are documented in the asset management strategy and performance against the objectives are reported monthly to some stakeholders.	

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	In order to ensure that the organisation's assets and asset systems deliver the requirements of the asset management policy, strategy and objectives responsibilities need to be allocated to appropriate people who have the necessary authority to fulfil their responsibilities. (This question, relates to the organisation's assets, e.g. para b), s 4.4.1 of PAS 55, making it therefore distinct from the requirement contained in para a), s 4.4.1 of PAS 55).	Top management. People with management responsibility for the delivery of asset management policy, strategy, objectives and plan(s). People working on asset-related activities.	Evidence that managers with responsibility for the delivery of asset management policy, strategy, objectives and plan(s) have been appointed and have assumed their responsibilities. Evidence may include the organisation's documents relating to its asset management system, organisational charts, job descriptions of post-holders, annual targets/objectives and personal development plan(s) of post-holders as appropriate.	The appointed person or persons have full responsibility for ensuring that the organisation's assets deliver the requirements of the asset management strategy, objectives and plan(s). They have been given the necessary authority to achieve this.
	Optimal asset management requires top management to ensure sufficient resources are available. In this context the term 'resources' includes manpower, materials, funding and service provider support.	Top management. The management team that has overall responsibility for asset management. Risk management team. The organisation's managers involved in day-to-day supervision of asset-related activities, such as frontline managers, engineers, foremen and chargehands as appropriate.	Evidence demonstrating that asset management plan(s) and/or the process(es) for asset management plan implementation consider the provision of adequate resources in both the short and long term. Resources include funding, materials, equipment, services provided by third parties and personnel (internal and service providers) with appropriate skills competencies and knowledge.	A process exists for determining what resources are required for its asset management activities and in most cases these are available but in some instances resources remain insufficient.
	Widely used AM practice standards require an organisation to communicate the importance of meeting its asset management requirements such that personnel fully understand, take ownership of, and are fully engaged in the delivery of the asset management requirements (e.g. PAS 55 s 4.4.1 g).	Top management. The management team that has overall responsibility for asset management. People involved in the delivery of the asset management requirements.	Evidence of such activities as road shows, written bulletins, workshops, team talks and management walk-abouts would assist an organisation to demonstrate it is meeting this requirement of PAS 55.	Top management communicates the importance of meeting its asset management requirements but only to parts of the organisation.

Question No.	Function	Question	Score	Evidence—Summary	
45	Outsourcing of asset management activities	Where the organisation has outsourced some of its asset management activities, how has it ensured that appropriate controls are in place to ensure the compliant delivery of its organisational strategic plan, and its asset management policy and strategy?	3	Centralines outsources the majority of its asset management activities to Unison under a Management Services Agreement apart from project delivery. Project delivery is predominantly undertaken by Centralines staff. Centralines “”outsources”” some network projects to external contractors. Regular auditing of work takes place. There is some collaboration over scheduling of works in order to deliver the planned programme.	
48	Training, awareness and competence	How does the organisation develop plan(s) for the human resources required to undertake asset management activities - including the development and delivery of asset management strategy, process(es), objectives and plan(s)?	3	Centralines’ service provider has established a technical competency framework that covers all asset management roles and considers qualifications, work and industry experience, industry recognition, asset management role competencies (aligned with Institute of Asset Management competency framework) and role specific technical competencies. All staff are assessed against requirements and a development plan is established based upon this.	
49	Training, awareness and competence	How does the organisation identify competency requirements and then plan, provide and record the training necessary to achieve the competencies?	3	Competency requirements are defined in the Network Competency Standard (SD0001) and the necessary training and refreshers are undertaken and tracked within controlled information systems. Competency requirements associated with new equipment and technical change are identified as part of NK1004-New Technology and Product Evaluation Procedure.	

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	Where an organisation chooses to outsource some of its asset management activities, the organisation must ensure that these outsourced process(es) are under appropriate control to ensure that all the requirements of widely used AM standards (e.g. PAS 55) are in place, and the asset management policy, strategy objectives and plan(s) are delivered. This includes ensuring capabilities and resources across a time span aligned to life cycle management. The organisation must put arrangements in place to control the outsourced activities, whether it be to external providers or to other in-house departments. This question explores what the organisation does in this regard.	Top management. The management team that has overall responsibility for asset management. The manager(s) responsible for the monitoring and management of the outsourced activities. People involved with the procurement of outsourced activities. The people within the organisations that are performing the outsourced activities. The people impacted by the outsourced activity.	The organisation's arrangements that detail the compliance required of the outsourced activities. For example, this could form part of a contract or service level agreement between the organisation and the suppliers of its outsourced activities. Evidence that the organisation has demonstrated to itself that it has assurance of compliance of outsourced activities.	Evidence exists to demonstrate that outsourced activities are appropriately controlled to provide for the compliant delivery of the organisational strategic plan, asset management policy and strategy, and that these controls are integrated into the asset management system.
	There is a need for an organisation to demonstrate that it has considered what resources are required to develop and implement its asset management system. There is also a need for the organisation to demonstrate that it has assessed what development plan(s) are required to provide its human resources with the skills and competencies to develop and implement its asset management systems. The timescales over which the plan(s) are relevant should be commensurate with the planning horizons within the asset management strategy considers, e.g. if the asset management strategy considers 5, 10 and 15 year time scales then the human resources development plan(s) should align with these. Resources include both 'in house' and external resources who undertake asset management activities.	Senior management responsible for agreement of plan(s). Managers responsible for developing asset management strategy and plan(s). Managers with responsibility for development and recruitment of staff (including HR functions). Staff responsible for training. Procurement officers. Contracted service providers.	Evidence of analysis of future work load plan(s) in terms of human resources. Document(s) containing analysis of the organisation's own direct resources and contractors resource capability over suitable timescales. Evidence, such as minutes of meetings, that suitable management forums are monitoring human resource development plan(s). Training plan(s), personal development plan(s), contract and service level agreements.	The organisation can demonstrate that plan(s) are in place and effective in matching competencies and capabilities to the asset management system including the plan for both internal and contracted activities. Plans are reviewed integral to asset management system process(es).
	Widely used AM standards require that organisations to undertake a systematic identification of the asset management awareness and competencies required at each level and function within the organisation. Once identified the training required to provide the necessary competencies should be planned for delivery in a timely and systematic way. Any training provided must be recorded and maintained in a suitable format. Where an organisation has contracted service providers in place then it should have a means to demonstrate that this requirement is being met for their employees. (e.g. PAS 55 refers to frameworks suitable for identifying competency requirements).	Senior management responsible for agreement of plan(s). Managers responsible for developing asset management strategy and plan(s). Managers with responsibility for development and recruitment of staff (including HR functions). Staff responsible for training. Procurement officers. Contracted service providers.	Evidence of an established and applied competency requirements assessment process and plan(s) in place to deliver the required training. Evidence that the training programme is part of a wider, co-ordinated asset management activities training and competency programme. Evidence that training activities are recorded and that records are readily available (for both direct and contracted service provider staff) e.g. via organisation wide information system or local records database.	Competency requirements are in place and aligned with asset management plan(s). Plans are in place and effective in providing the training necessary to achieve the competencies. A structured means of recording the competencies achieved is in place.

Question No.	Function	Question	Score	Evidence—Summary	
50	Training, awareness and competence	How does the organisation ensure that persons under its direct control undertaking asset management related activities have an appropriate level of competence in terms of education, training or experience?	3	Centralines identifies and assesses competency requirements through its technical competency framework and AMS-0009 AMS Competency Policy. Competency requirements are also defined in position descriptions and these requirements are used as part of recruitment processes. Field crew competencies are managed under SD-0001 Network Competency Standard. Evidence/records of training/refreshers is maintained within a software package called “”Vault””.	
53	Communica-tion, participation and consultation	How does the organisation ensure that pertinent asset management information is effectively communicated to and from employees and other stakeholders, including contracted service providers?	2	Given the small size of the business, communication at Centralines is generally effective at most levels of the organisation.	
59	Asset Management System documentation	What documentation has the organisation established to describe the main elements of its asset management system and interactions between them?	2	Some of the main elements of the Asset Management System are documented in the Asset Management Policy, the Regulatory Asset Management Plan, Standards, and are reviewed at prescribed intervals. Gaps still exist.	

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	A critical success factor for the effective development and implementation of an asset management system is the competence of persons undertaking these activities. Organisations should have effective means in place for ensuring the competence of employees to carry out their designated asset management function(s). Where an organisation has contracted service providers undertaking elements of its asset management system then the organisation shall assure itself that the outsourced service provider also has suitable arrangements in place to manage the competencies of its employees. The organisation should ensure that the individual and corporate competencies it requires are in place and actively monitor, develop and maintain an appropriate balance of these competencies.	Managers, supervisors, persons responsible for developing training programmes. Staff responsible for procurement and service agreements. HR staff and those responsible for recruitment.	Evidence of a competency assessment framework that aligns with established frameworks such as the asset management Competencies Requirements Framework (Version 2.0); National Occupational Standards for Management and Leadership; UK Standard for Professional Engineering Competence, Engineering Council, 2005.	Competency requirements are identified and assessed for all persons carrying out asset management related activities - internal and contracted. Requirements are reviewed and staff reassessed at appropriate intervals aligned to asset management requirements.
	Widely used AM practice standards require that pertinent asset management information is effectively communicated to and from employees and other stakeholders including contracted service providers. Pertinent information refers to information required in order to effectively and efficiently comply with and deliver asset management strategy, plan(s) and objectives. This will include for example the communication of the asset management policy, asset performance information, and planning information as appropriate to contractors.	Top management and senior management representative(s), employees' representative(s), employee's trade union representative(s); contracted service provider management and employee representative(s); representative(s) from the organisation's Health, Safety and Environmental team. Key stakeholder representative(s).	Asset management policy statement prominently displayed on notice boards, intranet and internet; use of organisation's website for displaying asset performance data; evidence of formal briefings to employees, stakeholders and contracted service providers; evidence of inclusion of asset management issues in team meetings and contracted service provider contract meetings; newsletters, etc.	The organisation has determined pertinent information and relevant parties. Some effective two way communication is in place but as yet not all relevant parties are clear on their roles and responsibilities with respect to asset management information.
	Widely used AM practice standards require an organisation maintain up to date documentation that ensures that its asset management systems (i.e. the systems the organisation has in place to meet the standards) can be understood, communicated and operated (e.g. s4.5 of PAS 55 requires the maintenance of up to date documentation of the asset management system requirements specified throughout s4 of PAS 55).	The management team that has overall responsibility for asset management. Managers engaged in asset management activities.	The documented information describing the main elements of the asset management system (process(es)) and their interaction.	The organisation is in the process of documenting its asset management system and has documentation in place that describes some, but not all, of the main elements of its asset management system and their interaction.

Question No.	Function	Question	Score	Evidence—Summary	
62	Information management	What has the organisation done to determine what its asset management information system(s) should contain in order to support its asset management system?	3	Centralines has defined and documented information requirements for most of its asset management processes. As new requirements emerge the defined information requirements are augmented. A framework is in place to monitor the extent to which information requirements are currently addressed to enable planning for gaps to be closed. As part of planning for new asset information systems, a full external review of business requirements for asset information was undertaken. Asset information guide documents have been developed that set out what information is stored in which information systems for the benefit of stakeholders.	
63	Information management	How does the organisation maintain its asset management information system(s) and ensure that the data held within it (them) is of the requisite quality and accuracy and is consistent?	3	Centralines service provider has established a data quality dashboard that enables stakeholders to understand the current state of data quality, as measured against defined asset information requirements. Data collection standards have been established for the key processes that result in new data being registered in information systems. Automated daily data quality checks have been implemented. Critical issues are flagged to asset information managers to address. Asset information technicians provide a final check on data entering asset information systems.	
64	Information management	How has the organisation ensured its asset management information system is relevant to its needs?	3	There is an Asset Information Governance Group (AIGG) is responsible for ensuring asset management information systems are fit for purpose. AIGG commissioned external review of information systems which identified that the current enterprise system (ACTIVA) was becoming incompatible with its asset management strategy. As a result, a new information system solution was selected and is currently in the process of being implemented. The new system will be better integrated across business functions, offer improved user friendliness and enhanced mobility support.	
69	Risk management process(es)	How has the organisation documented process(es) and/or procedure(s) for the identification and assessment of asset and asset management related risks throughout the asset life cycle?	3	Centralines has a corporate risk management framework that has been effectively implemented. AMS-0003 AMS Risk Management Guidelines translates corporate risk management requirements for use within the asset management system and documents how risk management must be applied to the various asset management processes and asset lifecycle stages, including asset criticality, asset condition risk, defect prioritisation, assessment of issues in the asset management plan, and prioritisation of the asset management improvement plan.	

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	Effective asset management requires appropriate information to be available. Widely used AM standards therefore require the organisation to identify the asset management information it requires in order to support its asset management system. Some of the information required may be held by suppliers. The maintenance and development of asset management information systems is a poorly understood specialist activity that is akin to IT management but different from IT management. This group of questions provides some indications as to whether the capability is available and applied. Note: To be effective, an asset information management system requires the mobilisation of technology, people and process(es) that create, secure, make available and destroy the information required to support the asset management system.	The organisation's strategic planning team. The management team that has overall responsibility for asset management. Information management team. Operations, maintenance and engineering managers.	Details of the process the organisation has employed to determine what its asset information system should contain in order to support its asset management system. Evidence that this has been effectively implemented.	The organisation has determined what its asset information system should contain in order to support its asset management system. The requirements relate to the whole life cycle and cover information originating from both internal and external sources.
	The response to the questions is progressive. A higher scale cannot be awarded without achieving the requirements of the lower scale. This question explores how the organisation ensures that information management meets widely used AM practice requirements (e.g. s 4.4.6 (a), (c) and (d) of PAS 55).	The management team that has overall responsibility for asset management. Users of the organisational information systems.	The asset management information system, together with the policies, procedure(s), improvement initiatives and audits regarding information controls.	The organisation has effective controls in place that ensure the data held is of the requisite quality and accuracy and is consistent. The controls are regularly reviewed and improved where necessary.
	Widely used AM standards need not be prescriptive about the form of the asset management information system, but simply require that the asset management information system is appropriate to the organisations needs, can be effectively used and can supply information which is consistent and of the requisite quality and accuracy.	The organisation's strategic planning team. The management team that has overall responsibility for asset management. Information management team. Users of the organisational information systems.	The documented process the organisation employs to ensure its asset management information system aligns with its asset management requirements. Minutes of information systems review meetings involving users.	The organisation's asset management information system aligns with its asset management requirements. Users can confirm that it is relevant to their needs.
	Risk management is an important foundation for proactive asset management. Its overall purpose is to understand the cause, effect and likelihood of adverse events occurring, to optimally manage such risks to an acceptable level, and to provide an audit trail for the management of risks. Widely used standards require the organisation to have process(es) and/or procedure(s) in place that set out how the organisation identifies and assesses asset and asset management related risks. The risks have to be considered across the four phases of the asset lifecycle (e.g. para 4.3.3 of PAS 55).	The top management team in conjunction with the organisation's senior risk management representatives. There may also be input from the organisation's Safety, Health and Environment team. Staff who carry out risk identification and assessment.	The organisation's risk management framework and/or evidence of specific process(es) and/ or procedure(s) that deal with risk control mechanisms. Evidence that the process(es) and/or procedure(s) are implemented across the business and maintained. Evidence of agendas and minutes from risk management meetings. Evidence of feedback in to process(es) and/or procedure(s) as a result of incident investigation(s). Risk registers and assessments.	Identification and assessment of asset related risk across the asset lifecycle is fully documented. The organisation can demonstrate that appropriate documented mechanisms are integrated across life cycle phases and are being consistently applied.

Question No.	Function	Question	Score	Evidence—Summary
79	Use and maintenance of asset risk information	How does the organisation ensure that the results of risk assessments provide input into the identification of adequate resources and training and competency needs?	2	Centralines maintains various risk registers in alignment with requirements specified in corporate risk management system documentation. Where appropriate, assessed risks may lead to new resources, training, and competency requirements. Inconsistencies do exist and are in the process of being addressed.
82	Legal and other requirements	What procedure does the organisation have to identify and provide access to its legal, regulatory, statutory and other asset management requirements, and how is requirements incorporated into the asset management system?	3	Centralines has a corporate legislative compliance process that identifies relevant requirements and assigns an owner to each of these to review compliance annually. FC1007 Legislative Compliance Handbook has been established to document corporate compliance requirements. An asset management objective that considers legal compliance has been established and associated performance evaluation processes track breaches. NK1004-New Technology and Product Evaluation Procedure includes a check on legal requirements before any technical change is approved. Draft Fleet Strategy documents record compliance requirements by asset class.
88	Life Cycle Activities	How does the organisation establish implement and maintain process(es) for the implementation of its asset management plan(s) and control of activities across the creation, acquisition or enhancement of assets. This includes design, modification, procurement, construction and commissioning activities?	3	Centralines service provider has established a range of design and construction standards and procedures to control the creation and upgrade of assets which have been adopted by Centralines. Detailed designs completed by outsourced service providers are reviewed internally prior to projects progressing. Audits are conducted on capital projects. Commissioning procedures have been developed and specialist project engineers are assigned to the commissioning of high criticality plant. Asset information capture processes are effective and error rates and timeliness issues are being controlled through improved systems and processes and performance measurement and feedback.
91	Life Cycle Activities	How does the organisation ensure that process(es) and/or procedure(s) for the implementation of asset management plan(s) and control of activities during maintenance (and inspection) of assets are sufficient to ensure activities are carried out under specified conditions, are consistent with asset management strategy and control cost, risk and performance?	2	Processes and procedures to manage and control the implementation of asset management plans during this life cycle phase are mostly in place. However, systems and processes for the scheduling and tracking of maintenance are currently not fit for purpose, which is a key driver for the asset information system upgrade currently underway. These improvements are ongoing but yet to be implemented.

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	Widely used AM standards require that the output from risk assessments are considered and that adequate resource (including staff) and training is identified to match the requirements. It is a further requirement that the effects of the control measures are considered, as there may be implications in resources and training required to achieve other objectives.	Staff responsible for risk assessment and those responsible for developing and approving resource and training plan(s). There may also be input from the organisation's Safety, Health and Environment team.	The organisations risk management framework. The organisation's resourcing plan(s) and training and competency plan(s). The organisation should be able to demonstrate appropriate linkages between the content of resource plan(s) and training and competency plan(s) to the risk assessments and risk control measures that have been developed.	The organisation is in the process ensuring that outputs of risk assessment are included in developing requirements for resources and training. The implementation is incomplete and there are gaps and inconsistencies.
	In order for an organisation to comply with its legal, regulatory, statutory and other asset management requirements, the organisation first needs to ensure that it knows what they are (e.g. PAS 55 specifies this in s 4.4.8). It is necessary to have systematic and auditable mechanisms in place to identify new and changing requirements. Widely used AM standards also require that requirements are incorporated into the asset management system (e.g. procedure(s) and process(es)).	Top management. The organisations regulatory team. The organisation's legal team or advisors. The management team with overall responsibility for the asset management system. The organisation's health and safety team or advisors. The organisation's policy making team.	The organisational processes and procedures for ensuring information of this type is identified, made accessible to those requiring the information and is incorporated into asset management strategy and objectives.	Evidence exists to demonstrate that the organisation's legal, regulatory, statutory and other asset management requirements are identified and kept up to date. Systematic mechanisms for identifying relevant legal and statutory requirements.
	Life cycle activities are about the implementation of asset management plan(s) i.e. they are the "doing" phase. They need to be done effectively and well in order for asset management to have any practical meaning. As a consequence, widely used standards (e.g. PAS 55 s 4.5.1) require organisations to have in place appropriate process(es) and procedure(s) for the implementation of asset management plan(s) and control of lifecycle activities. This question explores those aspects relevant to asset creation.	Asset managers, design staff, construction staff and project managers from other impacted areas of the business, e.g. Procurement.	Documented process(es) and procedure(s) which are relevant to demonstrating the effective management and control of life cycle activities during asset creation, acquisition, enhancement including design, modification, procurement, construction and commissioning.	Effective process(es) and procedure(s) are in place to manage and control the implementation of asset management plan(s) during activities related to asset creation including design, modification, procurement, construction and commissioning.
	Having documented process(es) which ensure the asset management plan(s) are implemented in accordance with any specified conditions, in a manner consistent with the asset management policy, strategy and objectives and in such a way that cost, risk and asset system performance are appropriately controlled is critical. They are an essential part of turning intention into action (e.g. as required by PAS 55 s 4.5.1).	Asset managers, operations managers, maintenance managers and project managers from other impacted areas of the business.	Documented procedure for review. Documented procedure for audit of process delivery. Records of previous audits, improvement actions and documented confirmation that actions have been carried out.	The organisation is in the process of putting in place process(es) and procedure(s) to manage and control the implementation of asset management plan(s) during this life cycle phase. They include a process for confirming the process(es)/ procedure(s) are effective and if necessary carrying out modifications.

Question No.	Function	Question	Score	Evidence—Summary	
95	Performance and condition monitoring	How does the organisation measure the performance and condition of its assets?	2	Some of Centralines asset management objectives consider asset performance from the perspectives of SAIDI and SAIFI. This information is recorded, analysed, and reviewed in various regular management review meetings. A range of asset condition monitoring programmes are in place with varying levels of sophistication. Current work to improve condition monitoring is prioritised by risk and recent focus has been on overhead conductor and underground cables.	
99	Investigation of asset-related failures, incidents and non-conformities	How does the organisation ensure responsibility and the authority for the handling, investigation and mitigation of asset-related failures, incidents and emergency situations and non conformances is clear, unambiguous, understood and communicated?	3	A defect management process has been established for identification, registration, prioritisation, and rectification of asset defects identified through inspections and monitoring programmes or other feedback. The defects backlog is monitored through dashboard reporting. Continual Improvement process has been established to enable corrective and preventive actions to be registered and prioritised. Sources for such actions include audit programmes, assessments and reviews, incident investigations and post-project reviews.	
105	Audit	What has the organisation done to establish procedure(s) for the audit of its asset management system (process(es))?	3	Centralines service provider has established an internal audit programme covering all asset management processes. A consistent audit template and framework is utilised. Audit frequency is risk-based. All auditors have received quality systems auditor training. Audits lead to corrective actions and opportunities for improvement being registered in a Continual Improvement Register. The audit programme is on schedule.	

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	Widely used AM standards require that organisations establish implement and maintain procedure(s) to monitor and measure the performance and/or condition of assets and asset systems. They further set out requirements in some detail for reactive and proactive monitoring, and leading/lagging performance indicators together with the monitoring or results to provide input to corrective actions and continual improvement. There is an expectation that performance and condition monitoring will provide input to improving asset management strategy, objectives and plan(s).	A broad cross-section of the people involved in the organisation's asset-related activities from data input to decision-makers, i.e. an end-to end assessment. This should include contactors and other relevant third parties as appropriate.	Functional policy and/ or strategy documents for performance or condition monitoring and measurement. The organisation's performance monitoring frameworks, balanced scorecards etc. Evidence of the reviews of any appropriate performance indicators and the action lists resulting from these reviews. Reports and trend analysis using performance and condition information. Evidence of the use of performance and condition information shaping improvements and supporting asset management strategy, objectives and plan(s).	The organisation is developing coherent asset performance monitoring linked to asset management objectives. Reactive and proactive measures are in place. Use is being made of leading indicators and analysis. Gaps and inconsistencies remain.
	Widely used AM standards require that the organisation establishes implements and maintains process(es) for the handling and investigation of failures incidents and non-conformities for assets and sets down a number of expectations. Specifically this question examines the requirement to define clearly responsibilities and authorities for these activities, and communicate these unambiguously to relevant people including external stakeholders if appropriate.	The organisation's safety and environment management team. The team with overall responsibility for the management of the assets. People who have appointed roles within the asset-related investigation procedure, from those who carry out the investigations to senior management who review the recommendations. Operational controllers responsible for managing the asset base under fault conditions and maintaining services to consumers. Contractors and other third parties as appropriate.	Process(es) and procedure(s) for the handling, investigation and mitigation of asset-related failures, incidents and emergency situations and non conformances. Documentation of assigned responsibilities and authority to employees. Job Descriptions, Audit reports. Common communication systems, i.e. all Job Descriptions on Internet etc.	The organisation have defined the appropriate responsibilities and authorities and evidence is available to show that these are applied across the business and kept up to date.
	This question seeks to explore what the organisation has done to comply with the standard practice AM audit requirements (e.g. the associated requirements of PAS 55 s 4.6.4 and its linkages to s 4.7).	The management team responsible for its asset management procedure(s). The team with overall responsibility for the management of the assets. Audit teams, together with key staff responsible for asset management. For example, Asset Management Director, Engineering Director. People with responsibility for carrying out risk assessments.	The organisation's asset-related audit procedure(s). The organisation's methodology(s) by which it determined the scope and frequency of the audits and the criteria by which it identified the appropriate audit personnel. Audit schedules, reports etc. Evidence of the procedure(s) by which the audit results are presented, together with any subsequent communications. The risk assessment schedule or risk registers.	The organisation can demonstrate that its audit procedure(s) cover all the appropriate asset-related activities and the associated reporting of audit results. Audits are to an appropriate level of detail and consistently managed.

Question No.	Function	Question	Score	Evidence—Summary	
109	Corrective & Preventative action	How does the organisation instigate appropriate corrective and/or preventive actions to eliminate or prevent the causes of identified poor performance and non conformance?	3	A defect management process has been established for identification, registration, prioritisation, and rectification of asset defects identified through inspections and monitoring programmes or other feedback. The defects backlog is monitored through dashboard reporting. Continual Improvement process has been established to enable corrective and preventive actions to be registered and prioritised. Sources for such actions include audit programmes, assessments and reviews, incident investigations and post-project reviews.	
113	Continual Improvement	How does the organisation achieve continual improvement in the optimal combination of costs, asset related risks and the performance and condition of assets and asset systems across the whole life cycle?	3	Centralines asset manager service provider achieves continual improvement through two plans, the Continual Improvement Plan and the Asset Management Capability Plan. The continual improvement plan enables all staff to raise improvement opportunities associated with assets and the asset management system. All opportunities are prioritised based upon their alignment with performance against asset management objectives. Rate of opportunities raised and closed out is tracked. Completed improvements are verified based upon benefits realised. Teams delivering best improvements are recognised by management. Asset Management Capability Plan is a programme of strategic improvements aligned with asset management strategy.	
115	Continual Improvement	How does the organisation seek and acquire knowledge about new asset management related technology and practices, and evaluate their potential benefit to the organisation?	3	Centralines asset manager service provider's staff are involved in a wide range of industry working groups, including on future technology trends such as the Smart Technology Working Group. They attend conferences and seminars, e.g. Electricity Engineers Association and Electricity Authority events. Senior managers have strong contacts with large utilities abroad, e.g. in the United Kingdom. They have established their own capabilities in research and development and are implementing a Conductor Condition Recognition technology enabling machine vision condition assessment of older conductor types on its network. They are also implementing Fault Anticipation and Avoidance schemes using disturbances to electrical waveform to infer incipient asset failure.	

	Why	Who	Record/documented Information	Maturity narrative for assessed score
	Having investigated asset related failures, incidents and non-conformances, and taken action to mitigate their consequences, an organisation is required to implement preventative and corrective actions to address root causes. Incident and failure investigations are only useful if appropriate actions are taken as a result to assess changes to a businesses risk profile and ensure that appropriate arrangements are in place should a recurrence of the incident happen. Widely used AM standards also require that necessary changes arising from preventive or corrective action are made to the asset management system.	The management team responsible for its asset management procedure(s). The team with overall responsibility for the management of the assets. Audit and incident investigation teams. Staff responsible for planning and managing corrective and preventive actions.	Analysis records, meeting notes and minutes, modification records. Asset management plan(s), investigation reports, audit reports, improvement programmes and projects. Recorded changes to asset management procedure(s) and process(es). Condition and performance reviews. Maintenance reviews.	Mechanisms are consistently in place and effective for the systematic instigation of preventive and corrective actions to address root causes of non compliance or incidents identified by investigations, compliance evaluation or audit.
	Widely used AM standards have requirements to establish, implement and maintain process(es)/ procedure(s) for identifying, assessing, prioritising and implementing actions to achieve continual improvement. Specifically there is a requirement to demonstrate continual improvement in optimisation of cost risk and performance/condition of assets across the life cycle. This question explores an organisation's capabilities in this area—looking for systematic improvement mechanisms rather that reviews and audit (which are separately examined).	The top management of the organisation. The manager/ team responsible for managing the organisation's asset management system, including its continual improvement. Managers responsible for policy development and implementation.	Records showing systematic exploration of improvement. Evidence of new techniques being explored and implemented. Changes in procedure(s) and process(es) reflecting improved use of optimisation tools/ techniques and available information. Evidence of working parties and research.	There is evidence to show that continuous improvement process(es) which include consideration of cost risk, performance and condition for assets managed across the whole life cycle are being systematically applied.
	One important aspect of continual improvement is where an organisation looks beyond its existing boundaries and knowledge base to look at what 'new things are on the market'. These new things can include equipment, process(es), tools, etc. An organisation which does this (e.g. by the PAS 55 s 4.6 standards) will be able to demonstrate that it continually seeks to expand its knowledge of all things affecting its asset management approach and capabilities. The organisation will be able to demonstrate that it identifies any such opportunities to improve, evaluates them for suitability to its own organisation and implements them as appropriate. This question explores an organisation's approach to this activity.	The top management of the organisation. The manager/ team responsible for managing the organisation's asset management system, including its continual improvement. People who monitor the various items that require monitoring for 'change'. People that implement changes to the organisation's policy, strategy, etc. People within an organisation with responsibility for investigating, evaluating, recommending and implementing new tools and techniques, etc.	Research and development projects and records, benchmarking and participation knowledge exchange professional forums. Evidence of correspondence relating to knowledge acquisition. Examples of change implementation and evaluation of new tools, and techniques linked to asset management strategy and objectives.	The organisation actively engages internally and externally with other asset management practitioners, professional bodies and relevant conferences. Actively investigates and evaluates new practices and evolves its asset management activities using appropriate developments.

APPENDIX
GLOSSARY OF TERMS

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APPENDIX **GLOSSARY OF TERMS**

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APPENDIX GLOSSARY OF TERMS

A. GLOSSARY OF TERMS

A	Amperes	**CI**	Continual Improvement
AAAC	All Aluminium Alloy Conductor	**CoC**	Certificate of Competency
AAC	All Aluminium Conductor	**CorMon**	Corrosion Monitoring
ABB	Supplier	**CPI**	Consumer Price Index
ABC	Aerial Bundled Cable	**CRM**	Customer Relationship Management
ABS	Air Break Switch	**CT**	Current Transformer
AC	Alternating Current	**DA**	Distribution Automation
ACC	Accident Compensation Corporation	**DC**	Direct Current
ACSR	Aluminium Conductor Steel Reinforced	**DDO**	Dominion Drop Out
ACS	Asset Criticality Schema	**DER**	Distributed Energy Resources
ACTIVA	Software Package	**Deuar**	Deuar Mechanical Partial Load Deflection Testing
ADMS	Advanced Distribution Management System	**DFA**	Delegated Financial Authority
AE	Augmentation Envelope	**DG**	Distributed Generation
AEI	Associated Electrical Industries	**DGA**	Dissolved Gas Analysis
AIGG	Asset Information Governance Group	**DMAIC**	Define, Measure, Analyse, Improve, Control
AMMAT	Asset Management Maturity Assessment Tool	**DNO**	Distribution Network Operator
AMO	Asset Management Objective	**DNP-3**	Distributed Network Protocol
AMP	Asset Management Plan	**DPP**	Commerce Commission's Default Price Path
AMS	Asset Management System	**DQD**	Data Quality Dashboard
AMSF	Asset Management System Framework	**DR**	Disaster Recovery
AOC	Alternative Operations Centre	**DSO**	Distribution System Operator
ARC	Audit and Risk Committee	**EAMS**	Enterprise Asset Management System
ARP	Asset Renewal Planning	**EDB**	Electricity Distribution Business
ASEA	Merged with Brown Boveri to create ABB	**EDSS**	Expert Decision Support System
BCP	Business Continuity Planning	**EEA**	Electricity Engineers' Association
BMSF	Business Management Framework	**EMT**	Executive Management Team
BSI	British Standards Institute	**ENTEC**	Supplier
CAD	Computer-Aided Design	**ERC**	Executive Risk Committee
CAPEX	Capital Expenditure	**EVA**	Ethylene Vinyl Acetate
CAR	Corridor Access Request	**FAIDI**	Feeder Average Interruption Duration Index
CB	Circuit Breaker	**FAIFI**	Feeder Average Interruption Frequency Index
CBD	Central Business District	**FRS-3**	Financial Reporting Standards
CBRM	Condition Based Risk Management	**GEC**	The General Electric Company
CDEM	Civil Defence Emergency Management	**GIS**	Geo-spatial Information System
CHBCPT	Central Hawke's Bay Consumers Power Trust	**GMI**	Annual Invasive Inspection
CF	Constraint Forecasting	**GPS**	Global Positioning System

APPENDIX GLOSSARY OF TERMS

GSP	Great Safety Performance	**NIT**	Network Investment Toolbox
GWh	Giga Watt-hours	**NOC**	Network Operations Centre
GXP	Grid Exit Point	**NPS**	Net Promoter Score
H&S	Health and Safety	**NPV**	Net Present Value
HILP	High Impact Low Probability	**NZ**	New Zealand
HP	Hewlett Packard	**NZIER**	New Zealand Institute for Economic Research
HR	Human Relations	**NZOQ**	New Zealand Organisation for Quality
HV	High Voltage	**OH**	Overhead
IAM	Institute of Asset Management	**OHUG**	Overhead to Underground
ICP	Installation Control Point	**OPEX**	Operational Expenditure
IMG	Information Management Group	**PA**	Partial Achievement
IMP	Insulator Pollution Monitoring	**PCP**	Pentachlorophenol
IMS	Integrated Management System	**PD**	Partial Discharge
IP	Internet Protocol	**PDCA**	Plan, Do, Check, Act
IPAG	Innovation & Participation Advisory Group	**Peanut**	Vacuum Capacitor Switch
IPT	Investment Prioritisation Tool	**PIF**	Performance Indicator Framework
IT	Information Technology	**PILC**	Paper Insulated, Lead Covered
k	Thousand	**PLC**	Programmable Logic Controller
kV	Kilovolt	**POS**	Point of Supply
kVA	1000 Volt-Amps	**PSMS**	Public Safety Management System
kVAr	Reactive power	**PV**	Solar Photovoltaic
L+G	Landis + Gyr	**PVC**	Polyvinyl Chloride
LCAM	Lifecycle Asset Management	**R:P**	Reactive to Preventative Cost
LCP	Legislative Compliance Programme	**RAMP**	Regulatory Asset Management Plan
LED	Light Emitting Diode	**RC**	Replacement Cost
LFT	Load Forecast Tool	**RCS**	Remote Controlled Switch
LMVP	Model of Reyrolle Pacific Switchgear	**RE**	Renewal Envelope
LTOS	Live Tank Oil Sampling	**REG D**	A Eberle Voltage Regulating Relay
LV	Low Voltage	**RFP**	Request for Proposal
M	Million	**RLE**	Residual Life Expectancy
MAGTECH	Supplier	**RSP**	Retail Service Provider
MCR	Maximum Continuous Rating	**RMS**	Ring Main Switchgear
MD	Maximum Demand	**RMU**	Ring Main Unit
MDS	Master Data Services	**RPS**	Reyrolle Pacific
MED	Major Event Day	**RTU**	Remote Terminal Unit
MIND	Mineral Insulated Non-Draining	**S/S**	Substation
MPT40	Deuar Mechanical Partial Load Deflection Testing	**SAIDI**	System Average Interruption Duration Index
MV	Medium Voltage	**SAIFI**	System Average Interruption Frequency Index
MVA	Mega Volt-Amps	**SAMP**	Strategic Asset Management Plan
MW	Megawatt	**SAN**	Storage Area Network

APPENDIX GLOSSARY OF TERMS

SAP	Software Package	**Triple-R**	Repair, Refurbish, Replace
SCADA	Supervisory Control and Data Acquisition	**UCSL**	Unison Contracting Services Limited
SCI	Statement of Corporate Intent	**UC**	University of Canterbury
SF6	Sulphur Hexafluoride	**UG**	Underground
SH	State Highway	**VoIP**	Voice over Internet Protocol
SI	Serviceability Index	**VPT**	Vegetation Prioritisation Tool
SLA	Service Level Agreement	**VRR**	Voltage Regulating Relay
SMART	Specific, Measurable, Achievable, Relevant, Timebound	**VT**	Voltage Transformer
SO2	Sulphur Dioxide	**WPC**	Works Planning and Consolidation
SOP	Standard Operating Procedure	**UHF**	Ultra-High Frequency
Stn	Station	**UNISAFE**	A model of ABB switchgear
SWER	Single Wire Earth Return	**UNL**	Unison Networks Limited
TCP	Transmission Control Protocol	**Var**	Volt Ampere Reactive
TEC	Technical Evaluation Committee	**VHF**	Very High Frequency
TELARCC	Supplier		

CENTRALINES
LIMITED

CERTIFICATION FOR YEAR-BEGINNING DISCLOSURES

Pursuant to Schedule 17

We, Ian Howard Walker and Derek Neil Walker, being directors of Centralines Limited certify that, having made all reasonable enquiry, to the best of our knowledge -

a) the following attached information of Centralines Limited prepared for the purposes of clauses 2.4.1, 2.6.1, 2.6.3, 2.6.6 and 2.7.2 of the Electricity Distribution Information Disclosure Determination 2012 in all material respects complies with that determination.

b) the prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.

c) the forecasts in Schedules 11a, 11b, 12a, 12b, 12c and 12d are based on objective and reasonable assumptions which both align with Centralines Limited's corporate vision and strategy and are documented in retained records.

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Director Date: 29th March 2022

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Director Date: 29th March 2022

CENTRALINES LIMITED
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