

# Asset Management System Overview

## Asset Management System

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## Asset Management System – Overview

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## Asset Management System – Overview

### 1 PURPOSE

The purpose of this document is to provide an overview of the systems, policies, strategies, plans, standards, processes and procedures that have been integrated in an asset management system by which AusNet Services manages the performance of its gas and electricity networks and the assets forming of those networks.

### 2 STANDARD

Until April 2014, the AusNet Services' asset management system conformed to the requirements of the British Standards Institute's Publicly Available Specification PAS 55-1:2008 for Asset Management.

This asset management system now conforms to the requirements of ISO 55001 Asset Management, as illustrated in Figure 1. The yellow boxes highlight the associated clauses from the standard.

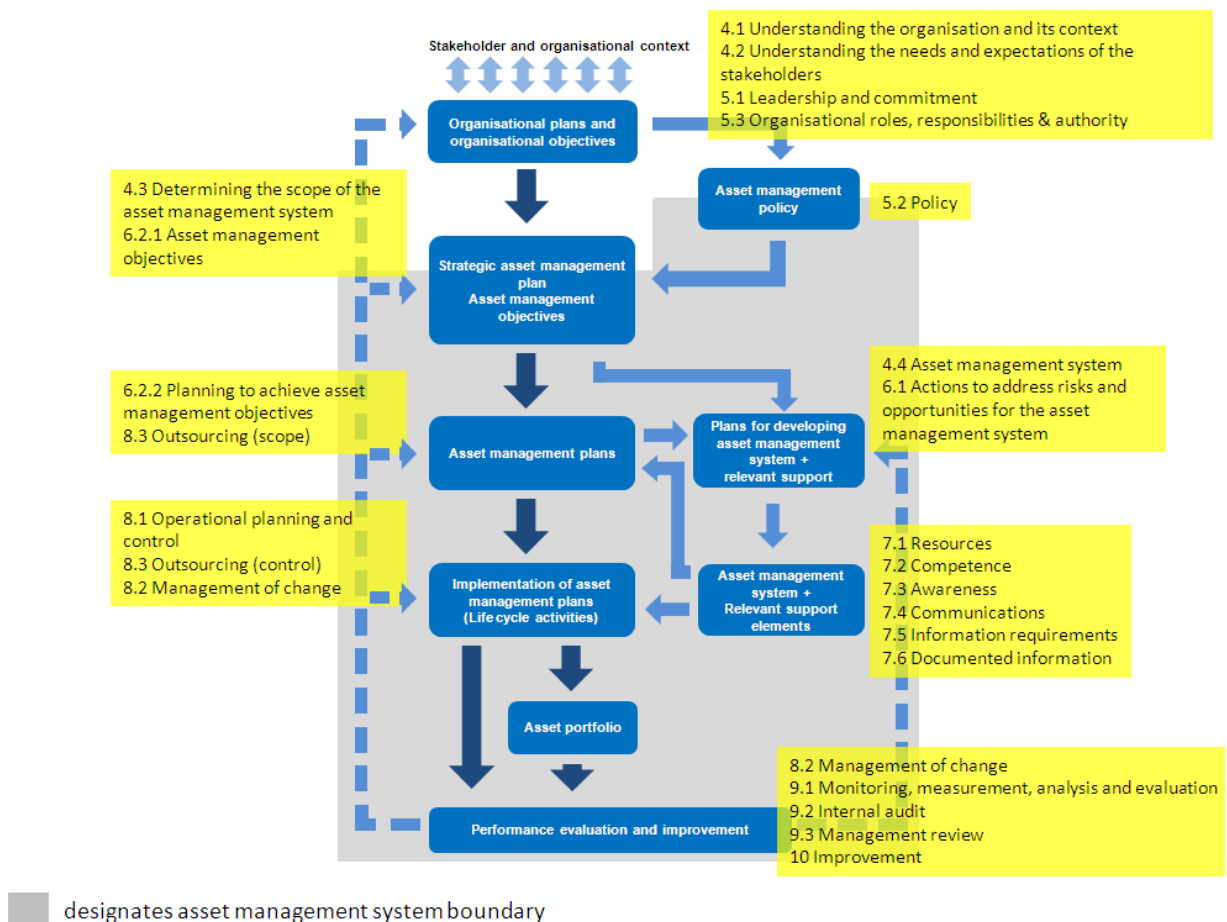


Figure 1: Relationship between the key elements of an asset management system

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**3 AUSNET SERVICES**

The AusNet Services group is a large diversified energy infrastructure business employing more than 2,500 people based in Melbourne, Victoria, Australia.

AusNet Services is a publically listed company listed on both the Australian Securities Exchange (ASX: AST) and the Singapore Exchange (SGX: X04). AusNet Services' securities are 31.1% owned by Singapore Power Limited (SPI) and 19.9% by State Grid International Development Limited (SGID); with the remaining owned by ASX and SCX-ST investors.

Select Solutions is a commercial utility services division within AusNet Services. Select Solutions provides metering, data management and asset management solutions to Australian electricity, water, gas and telecommunications industries.

Via a gas distribution licence issued in 1997; AusNet Services owns and operates Victoria's fastest growing natural gas distribution network. It serves more than 665,000 customers via more than 10,000km of underground pipelines in south-west Victoria. This network includes five of Victoria's eight high-growth areas.

AusNet Services holds an electricity distribution licence issued in 1994. This licence authorises the distribution of electricity to more than 690,000 customers in northern and eastern Victoria via 50,000km of powerlines.

AusNet Services holds an electricity transmission licence issued in 1994. The licence authorises the transmission and supply of electricity using more than 6,500km of extra high voltage transmission lines connecting power generators to electricity distributors and large customers throughout Victoria. This network also interconnects New South Wales, South Australia and Tasmania in the National Electricity Market.



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### 4 INDUSTRY CONTEXT

#### 4.1 National Regulatory Framework

The economic regulation of these energy delivery networks is subject to a national regulatory framework, which is contained in the National Electricity Rules and National Gas Rules and governed by the National Electricity Law and National Gas Law.

The Australian Energy Markets Commission (AEMC) has responsibility for development of the national energy rules.

##### 4.1.1 National Electricity Objective

The objective of the National Electricity Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

- (a) Price, quality, safety, reliability, and security of supply of electricity; and
- (b) The reliability, safety and security of the national electricity system.

##### 4.1.2 National Gas Objective

The objective of the National Gas Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of natural gas.

#### 4.2 Australian Energy Regulator

The Australian Energy Regulator (AER) is responsible for regulation of industry participants in accordance with the Rules.

The AER's functions and powers include:

- regulating the revenues of transmission and distribution network service providers;
- monitoring the electricity and gas wholesale markets;
- monitoring compliance with the national laws, national rules and national regulations;
- investigating breaches or possible breaches of provisions of the national law, rules and regulations and instituting and conducting enforcement proceedings against relevant market participants;
- establishing service standards for network service providers;
- establishing ring-fencing guidelines for business operations with respect to regulated transmission and distribution services.

#### 4.3 Energy Safe Victoria

Energy Safe Victoria (ESV) is a technical and safety regulator responsible for the safe generation, supply and use of electricity, gas and pipelines in Victoria.

The objectives of ESV under the Electricity Safety Act are:

- To ensure the electrical safety of electrical generation, transmission and distribution systems, electrical installations and electrical equipment;
- To control the electrical safety standards of electrical work carried out by electrical workers;
- To promote awareness of energy efficiency through energy efficiency labelling of electrical and energy efficiency regulation of electrical equipment;
- To promote the prevention and mitigation of bushfire danger;

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- To protect underground and underwater structures from corrosion caused by stray electrical currents; and
- To maintain public and industry awareness of electrical safety requirements.

The objectives of ESV under the Gas Safety Act are:

- To ensure the safety of the conveyance, sale, supply, measurement, control and use of gas;
- To control the safety standards of gas works;
- To maintain public and industry awareness of gas safety requirements; and
- To promote awareness of energy efficiency through energy efficiency labelling of gas installations, appliances and components and energy efficiency regulation of gas installations, appliances and components.

### 4.4 Australian Energy Market Operator

The Australian Energy Market Operator (AEMO) is responsible for:

- procuring bulk shared network services from AusNet Services and other electricity transmission and gas transmission network providers;
- providing transmission use of system services to electricity and gas transmission customers (including administering transmission pricing); and
- planning and requisition of augmentation to the shared electricity and shared gas transmission networks.

### 4.5 Network Specific Context

Network specific issues are described in the relevant network asset management strategy (i.e. AMS 10-01, AMS 20-01 and AMS 30-01).

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### 5 STAKEHOLDERS

#### 5.1 Stakeholder Expectations

The following table summarises key stakeholders and their expectations of the service provided by the AusNet Services' energy delivery networks.

**Table 1: Stakeholder Expectation Summary**

Asset Owners	<ul style="list-style-type: none"> <li>• Compliance with contract</li> <li>• Reliable information</li> </ul>
Connected Parties (energy consumers, electricity generators and gas producers, other network service providers)	<ul style="list-style-type: none"> <li>• Network access</li> <li>• Efficient service costs with minimum increases</li> <li>• No network related fire or safety issues</li> <li>• Reliable, uninterrupted energy supply</li> <li>• Efficient, well planned investment and expenditure</li> <li>• Pro-active and responsive network planning</li> </ul>
Community	<ul style="list-style-type: none"> <li>• Public safety</li> <li>• Reliable and secure energy supply</li> <li>• Environmental performance within Code</li> </ul>
Employees and contractors	<ul style="list-style-type: none"> <li>• Safe work place</li> <li>• Reward and recognition</li> <li>• Skill development</li> </ul>
Shareholders	<ul style="list-style-type: none"> <li>• Return on investment</li> <li>• Growth in investment value</li> <li>• Commensurate opportunities, liabilities and risks</li> </ul>
Energy Retailers	<ul style="list-style-type: none"> <li>• Reliable information</li> <li>• Efficient service costs</li> </ul>
Network Safety Regulator	<ul style="list-style-type: none"> <li>• Compliance with Acts, Regulations and Codes</li> <li>• Improving safety performance</li> <li>• Transparent processes</li> <li>• Reliable information</li> </ul>
Economic Regulator	<ul style="list-style-type: none"> <li>• Compliance with Law, Rules and Codes</li> <li>• Efficient service costs</li> <li>• Transparent processes</li> <li>• Reliable information</li> </ul>
State and Federal Government	<ul style="list-style-type: none"> <li>• Compliance with Acts and Regulations in particular Occupational Health and Safety and Environmental obligations</li> <li>• Support economic development</li> <li>• Improving safety performance</li> <li>• Efficient service costs</li> </ul>
Local Government and VicRoads	<ul style="list-style-type: none"> <li>• Coordinated infrastructure development</li> <li>• Coordination of works</li> <li>• Public land reinstatement</li> </ul>

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The performance of each regulated energy network is recorded in various asset information systems. Further information is provided in Section 7.2.

The performance of each regulated energy network is reported to the Australian Energy Regulator in accordance with the specifications established in the Regulatory Information Notification, Regulatory Accounts, and Non-Financial Regulatory Accounts.

The principal monthly and annual reports to Energy Safe Victoria are in accordance with the Electrical (or Gas) Safety Performance Reporting Guidelines.

Compliance to reporting requirements is monitored through the Compliance Management module of Enablon to ensure that requirements are met.

### 5.2 Customer Engagement

Historically, AusNet Services have gauged customer expectations indirectly through proxies such as network performance measures or willingness to pay studies undertaken by third parties.

More recently, customer engagement has been driven predominantly by regulatory submissions with discrete programs of customer engagement.

What has emerged in recent years is a growing need for network businesses to build direct relationships with end-user customers, rather than relying on other parties, such as retailers, to manage those relationships. This has been largely driven by unprecedented changes affecting the energy industry. This includes changing customer behaviour, availability of new and alternative technologies, and compounded by growing customer dissatisfaction, particularly due to rising bills.

In the face of such uncertainty, AusNet Services recognises that customer preferences and choices will play a critical role in the future of the business.

As a result, AusNet Services has established a Customer Consultative Committee to provide an ongoing forum in which a range of customer issues can be discussed by a select group of community or customer representatives. Terms of reference have been established for the committee setting out the purpose, membership, governance and code of conduct of the committee. The purpose of the committee is to gain actionable customer insights to inform decision making and execution of strategy.

In addition, various auditable customer service and performance measures have been put in place to provide ongoing quantitative feedback on customer preferences and satisfaction.

Finally, a Customer Engagement Strategy is under development to set the framework for customer engagement across the business.

Discrete programs of customer engagement linked to regulatory submissions will continue under this new framework. Details of these discrete programs can be found in the relevant network asset management strategy (i.e. AMS 10-01, 20-01 and 30-01).

### 5.3 Stakeholder Engagement

At a project level, AusNet Services has developed a stakeholder engagement framework for key projects (SEF 20-01). It provides a protocol for engaging with external stakeholders throughout the life cycle of a project.

### 5.4 Visioning Exercise

In July 2014 AusNet Services completed a visioning exercise designed to help technical staff explore a range of future energy supply scenarios.

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Based on the CSIRO's paper 'Change and Choice' published in December 2013 to summarise "The Future Grid's Forum's analysis of Australia's potential electricity pathways to 2050", AusNet Services explored the following three scenarios:

1. **Rise of the Prosumer:** A tide of customers take up distributed generation and electric vehicles. The role of centralised power and liquid fuel declines considerably. The distribution network becomes a hub for user electricity trading.
2. **Renewables Thrive:** Storage plays a large role in all aspects of the electricity network supporting a very high share of renewables in centralised power supply, high electric vehicle uptake and strong demand control.
3. **Leaving the Grid:** One third of consumers completely disconnect from the grid using a combination of gas generation, solar panels, storage and energy efficiency. The remaining consumers on the network are those with poor access to capital and are faced with maintaining an underutilised network.

Exploration of the scenarios generated the following common core themes for refinement:

- In the area of Data and Technical:
  - Increasing volumes and variety of data will require management;
  - There is an opportunity to derive value from this data;
  - Forecasting and analytics skills will be essential to understand an increasingly dynamic environment;
  - Comprehending the energy balance at each point in an energy distribution network will be critical to success;
  - The connectivity of customers to energy delivery networks must be reliably robust and visible to enable superior monitoring and forecasting; and
  - Information communication and technology skills will be in demand to create information networks and to modify them to acquire, store and analyse increasing volumes of energy consumption data in a dynamic environment.
- Increasing need for non-technical skills in the areas of:
  - People management;
  - Customer focus;
  - Economic and commercial analysis; and
  - Price and risk management.
- Increasing need for comprehension of customer needs and customer choice in a free market including:
  - Customer relationship management;
  - Customer data analysis to create and test market offerings;
  - Development of service portfolios based on a wide range of energy management techniques and delivery technologies; and
  - Commercially viable offerings tailored to customer choices.

The learnings from the visioning exercises together with information gleaned from the customer engagement process are underpinning new and revised energy service offerings through amendments to Business Plans, Asset Management Strategies and Asset Management Plans.

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### 5.5 CSIRO/ENA Electricity Network Transformation Roadmap

Australia's national science agency, CSIRO, and the peak national body representing gas distribution and electricity transmission and distribution businesses in Australia, Energy Networks Australia (ENA), partnered to develop an Electricity Network Transformation Roadmap released in April 2017.

The Roadmap was initiated recognising that:

- Australia's electricity networks are facing complex challenges that impact the economic efficiency and technical stability of the system;
- Australia's electricity system will require expenditure of almost \$1000 billion by current service providers, new entrants and customers by 2050; and
- The type and scale of benefits gained from this unprecedented investment will vary greatly depending on decisions made early in this period and particularly during the decade from 2017-27.

The Electricity Network Transformation Roadmap provides detailed milestones and actions to guide an efficient and timely transformation over the 2017-27 decade.

These milestones and actions are an input into business plans, asset management strategies and asset management plans.

### 5.6 Gas Vision 2050

The Gas Vision 2050 report was produced by key organisations<sup>1</sup> representing Australia's gas sector. It reflects their ambitions and vision for Australia to turn its gas resources into products and services that will enhance national prosperity while achieving carbon neutrality.

The Australian energy sector is undergoing a major transformation. One of the major drivers for this transformation is the decarbonisation of the energy sector in line with the COP21 Paris agreement.

Achieving these emission reductions will require major changes to the energy system that will include how energy is used in households and by industry, as well as to the energy mix for power generation. This needs to be carefully managed to ensure an optimum solution is implemented that balances environmental outcomes (clean), energy security (reliable) and costs (affordable), a challenge that is known as the energy trilemma.

Gas Vision 2050 highlights how gas and renewables can support each other to achieve a near zero carbon energy sector by 2050, including a decarbonisation pathway for gas beyond 2050.

This document will inform business plans, asset management strategies and asset management plans.

<sup>1</sup> Energy Networks Australia, Australian Petroleum Production and Exploration Association, Australian Pipelines and Gas Association, Gas Energy Australia and Gas Appliance Manufacturers Association of Australia

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### 6 CORPORATE BUSINESS PLAN

#### 6.1 Core Capability

AusNet Services' core capability is:

*We move energy.*

#### 6.2 Our Purpose

AusNet Services' business purpose is:

*Empowering communities and their energy future.*

#### 6.3 Focus 2021 Goal

The Focus 2021 goal is:

*We aim to be a leading, modern energy company:*

- *Operating all three core networks in the top quartile of efficiency benchmarks; and*
- *Owning a substantial and sustainable commercial services business.*

#### 6.4 Focus 2021 Strategy

The Focus 2021 Strategy is to:

*Leverage core capabilities in networks, assets, high value services and innovation to build a portfolio of high performing and sustainable regulation and commercial services businesses.*

#### 6.5 Strategic Responses

To achieve AusNet Services purpose and goal in the current environment, the corporate strategy is focused on four strategic responses:

1. Lead network transformation and embrace change;
2. Grow commercial services by leveraging the core;
3. Drive efficiency and effectiveness throughout the portfolio; and
4. Build our reputation with all stakeholders.

#### 6.6 Corporate Functions: Operating Plans

Achievement of the AusNet Services' Focus 2021 Corporate Strategy requires support from our corporate functions, namely:

1. Safety
2. Technology
3. Customer
4. People
5. Governance

Further details of the scope and delivery schedules for these operating plans can be found in the Corporate Business Plan available on The Loop.

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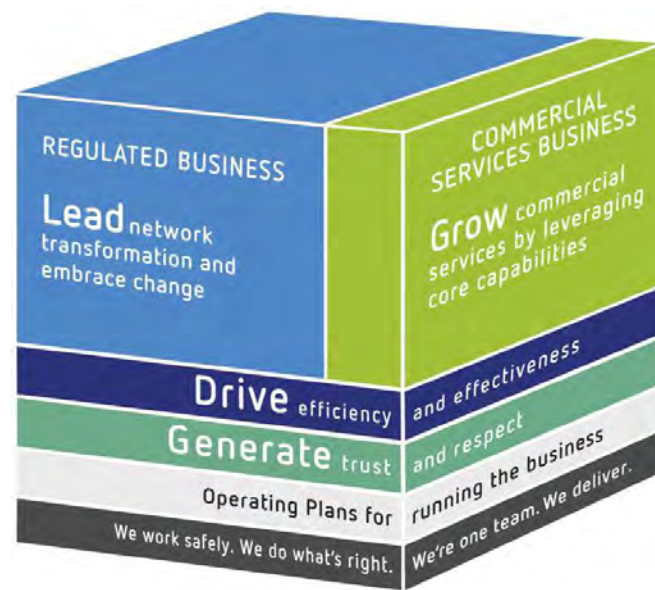
### 6.7 Our Values

AusNet Services has four company values:

1. We work safely;
2. We do what's right;
3. We're one team; and
4. We deliver.

### 6.8 Putting it Together

The relationship between the strategic responses, the corporate functions' operating plans and AusNet Services' values are depicted in Figure 2.



**Figure 2: AusNet Services Strategic Responses, Operating Plans and Values**

Flowing on from this the business determined its strategic priorities, shown in Figure 3.



## Asset Management System – Overview

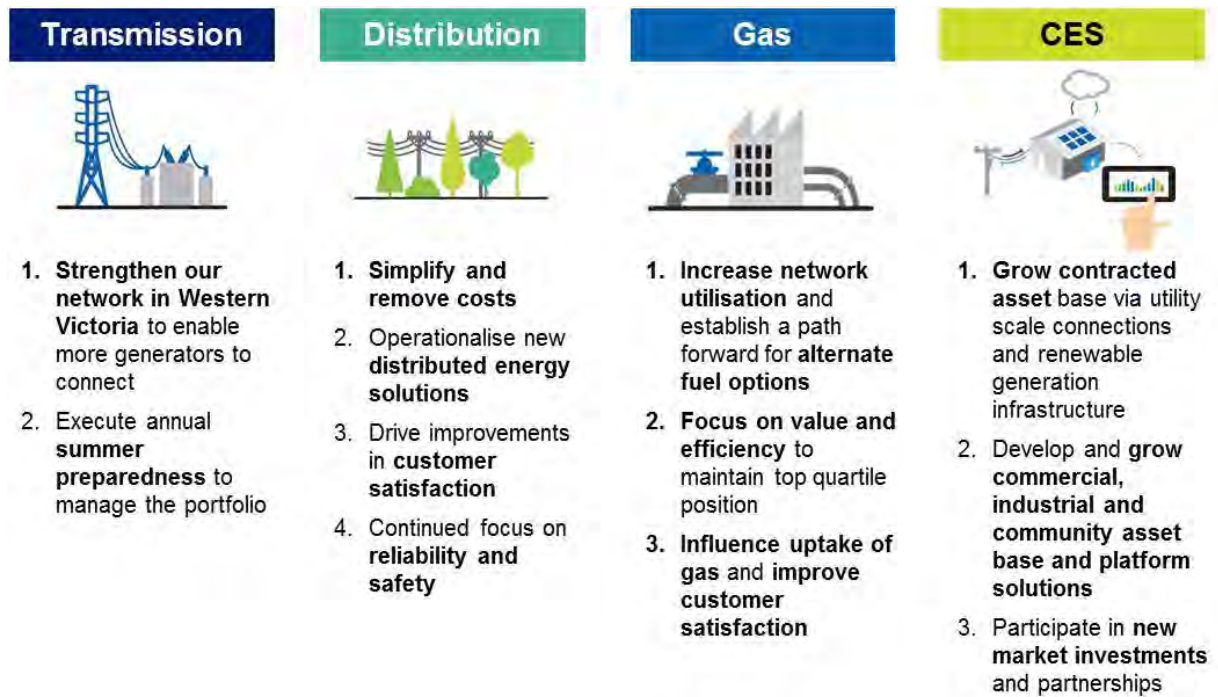


Figure 3: Strategic Priorities 2018-19

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## Asset Management System – Overview

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### 7 SCOPE OF THE ASSET MANAGEMENT SYSTEM

The scope of this asset management system includes the management functions, asset information systems and the physical assets, which form the following energy networks, owned and operated by AusNet Services in the state of Victoria:

- Electricity transmission network;
- Electricity distribution network; and
- Gas distribution network.

The scope of this asset management system includes the Wonthaggi Desalination Plant Electricity Transmission and Connection Assets, which are operated and maintained by AusNet Services in accordance with specific contracts with the state of Victoria.

The scope of the asset management system includes all employees, Delivery Partners and Service Providers undertaking activities on AusNet Services assets included in the scope of the asset management system.

Delivery Partners and Service Providers will ensure that their management systems complement those of AusNet Services and will interface with AusNet Services' Asset Information Systems (Section 7.2).

#### 7.1 Functions

The asset management system includes the following functions for each network:

1. Creation and acquisition of assets;
2. Commissioning of assets;
3. Operation of the network;
4. Inspection and Maintenance;
5. Repair, refurbishment and replacement of assets; and
6. Decommissioning, removal and disposal of assets.

Where appropriate, the asset management system includes linkages to human, financial and intangible assets necessary for the holistic management of the energy network assets to meet the objectives of the AusNet Services business plan.

#### 7.2 Asset Information Systems

The key asset information systems within the scope of this asset management system include:

1. SAP Enterprise Asset Management – Asset data information system for assets in each network;
2. SAP Enterprise Resource Planning – Task, project and program information system for managing physical change in each network;
3. LatLonGo – Geospatial navigation system for viewing tasks, projects and programs in each network;
4. Enablon Compliance Management System – Legal and regulatory compliance management system;
5. Enablon Issue Management System (IMS) – Unplanned incident management and reporting;
6. Distribution Outage Management System (DOMS) - real time network configuration and status management system;
7. PowerOn Fusion – Electricity distribution supply outage management system;

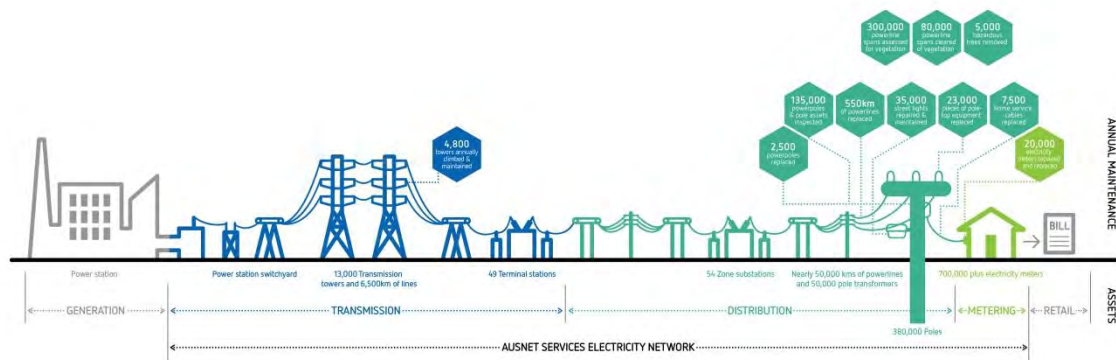
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8. SDME – Geospatial asset location system for electricity assets;
9. SDMG – Geospatial asset location system for gas assets;
10. Objective – Engineering drawing record management system; and
11. Enterprise Content Management (ECM) – Written document management system.

### 7.3 Transmission Network

The electricity transmission network interconnects generators, distributors, high voltage customers and the transmission systems of neighbouring New South Wales, South Australia and Tasmania. It serves almost six million Victorians living in an area of approximately 227,600 square kilometres.

The electricity transmission network operates at 500kV, 330kV, 275kV, 220kV and 66kV and includes those assets summarised between the 'point of connection' with generators and distribution companies illustrated in blue in Figure 4.



**Figure 4: Illustration of Electricity Transmission Network**

More specifically, the electricity transmission sites and facilities include those:

1. Listed in the Network Agreement between AusNet Services (formerly PowerNet Victoria) and AEMO (formerly the Victorian Power Exchange) 1994;
2. Illustrated on AusNet Services' system diagram T1/209/84;
3. Listed in 1994 Connection Agreements between AusNet Services and connected parties, largely consisting of generators, direct connect customers and distributors;
4. Listed in various supplementary network and connection agreements, detailing AusNet Services' unregulated transmission assets; and
5. Wonthaggi Desalination Plant Electricity Transmission and Connection Assets.

#### 7.3.1 Asset Location

The electricity transmission network location, configuration and voltages are illustrated in Figure 5.

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**Figure 5: Victorian Electricity Transmission Network**

Figure 5 includes the following interstate connections:

1. Two 330kV lines from Dederang Terminal Station, to the Murray Switching Station (NSW)
2. One 330kV line from Wodonga Terminal Station to Jindera (NSW)
3. One 220kV line from Red Cliffs Terminal Station to Buronga (NSW)
4. Two 275kV lines from Heywood Terminal Station to South East Substation (SA)
5. One 220kV circuit from Red Cliffs Terminal Station to the 300kV DC link to Berri (SA)
6. One 500kV circuit from Loy Yang to the 400kV DC link to Bell Bay (TAS).

### 7.3.2 Asset Summary

A summary of the assets forming the Victorian electricity transmission network can be found in Section 4 of AMS 10-01 Victorian Electricity Transmission Network Asset Management Strategy.

### 7.3.3 Asset Function

A summary of the functions of assets forming the Victorian electricity transmission network can be found in Section 4 of ESMS 20-03 the Electricity Safety Management Scheme for this network which has been accepted by Energy Safe Victoria.

## 7.4 Electricity Distribution Network

AusNet Services' electricity distribution licence authorises the distribution of electricity to more than 690,000 customers in northern and eastern Victoria via 50,000km of powerlines.

### 7.4.1 Asset Location

The electricity distribution network is located across the eastern half of Victoria and includes outer eastern Melbourne metropolitan suburbs as illustrated in Figure 6.



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**Figure 6: Electricity Distribution Network Location**

This electricity distribution network includes approximately 230km of electricity distribution network located in the Bendoc area of far eastern Gippsland which supplies over 200 customers from three connection points near the New South Wales-Victoria border, via medium voltage feeders operated by Essential Energy in New South Wales.

### 7.4.2 Asset Summary

The electricity distribution network is configured as illustrated in in green Figure 4, its sub-transmission circuits operate at 66kV. The medium voltage network primarily operates at 22kV with some 11kV and 6.6kV circuits. Low voltage circuits are reticulated at 400V.

A summary of the assets forming the electricity distribution network can be found in Section 4 of AMS 20-01 Electricity Distribution Network Asset Management Strategy.

### 7.4.3 Asset Function

A summary of the functions of assets forming the electricity distribution network can be found in Section 4 of ESMS 10-03 the Electricity Safety Management Scheme for this network which has been accepted by Energy Safe Victoria.

## 7.5 Gas Distribution Network

AusNet Services owns and operates a gas distribution network that supplies natural gas to approximately 665,000 properties in western Victoria across a geographically diverse region spanning 60,000km<sup>2</sup>.

### 7.5.1 Asset Location

AusNet Services' gas network serves the western half of Victoria, from the Hume Highway in metropolitan Melbourne, west to the South Australian border and from just north of Bendigo and Horsham, south to the coast as illustrated in Figure 7. AusNet Services also owns an LPG vapour reticulation network at Mt Baw Baw.

## Asset Management System – Overview

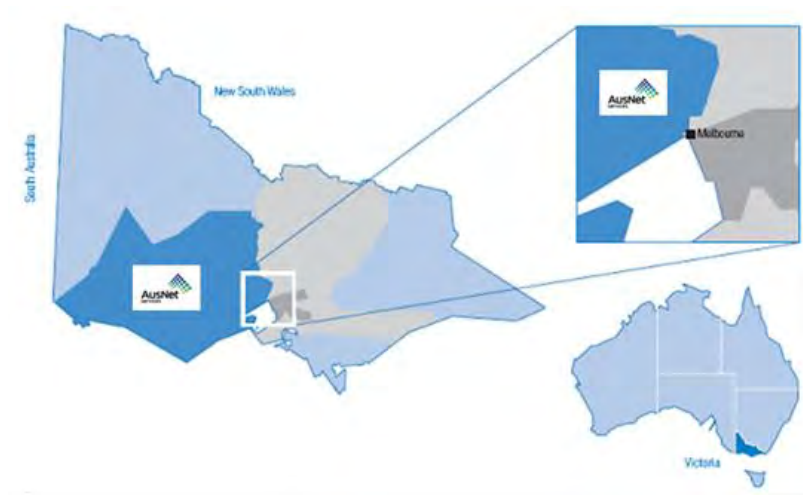


Figure 7: Gas Network Location

### 7.5.2 Asset Summary

The gas distribution network consists of 183km of licensed transmission pipelines operating at pressures up to 2,800kPa and approximately 10,700km of distribution mains and services operating at high, medium and low pressures.

AusNet Services is responsible for the distribution of gas from the principal transmission system to the end consumer, as illustrated in Figure 8.

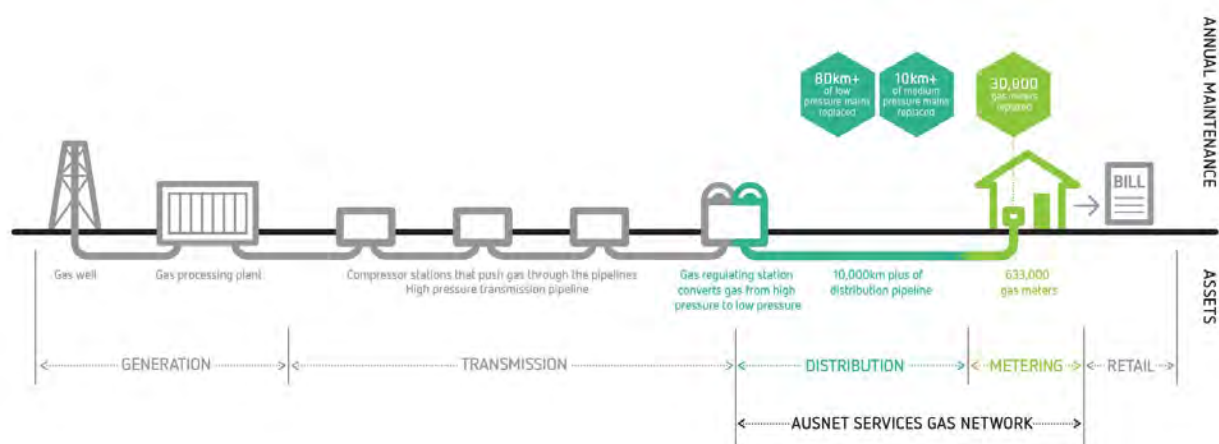


Figure 8: Gas Network Configuration

A summary of the assets forming this gas distribution network can be found in Section 4 of AMS 30-01 Gas Networks Asset Management Strategy.

### 7.5.3 Asset Function

A summary of the functions of assets forming this gas network can be found in Sections 4 to 6 of GSC 10-01 the Facilities Description and Safety Management System Overview of the Gas Safety Case for this network, which has been accepted by Energy Safe Victoria.

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## Asset Management System – Overview

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### 7.6 Exclusions

The scope of this asset management system excludes activities related to the planning of the Victorian electricity transmission network which is the joint responsibility of:

- The Australian Energy Market Operator (AEMO); and
- Connected Parties, including Distribution Companies and Generating Companies.

This asset management system does not include the operation and maintenance of the following electricity assets by AusNet Services in accordance with specific contracts with the asset's owners:

1. Series connected capacitor banks at South Morang terminal station
2. 500kV switchyard at Mortlake power station
3. A1 500/220kV transformer at Cranbourne terminal station
4. A2 500/220kV transformer at Moorabool terminal station
5. A1 and A2 500/220kV transformers at Rowville terminal station
6. Shunt connected capacitor banks at Wodonga terminal station
7. Shunt capacitor banks at Dederang terminal station

Specific asset management strategies are being progressively prepared for each asset listed in the exclusions immediately above.

Each asset management strategy will summarise the specific contractual requirements for managing the asset and may reference the asset management strategies prepared for similar assets owned by AusNet Services.

When each of these assets has been integrated within AusNet Services' practices and systems a conscious decision will be taken to formally include it within the scope of the asset management system described in this document.

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## Asset Management System – Overview

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### 8 ASSET MANAGEMENT SYSTEM

#### 8.1 Asset Management Framework

An overview diagram of the asset management framework is given in Figure 9.

The asset management framework is informed by a regular assessment of the external business environment and the AusNet Services' five-year business and financial plans.

These plans influence the asset management policy and the development of the 20-year asset management strategies.

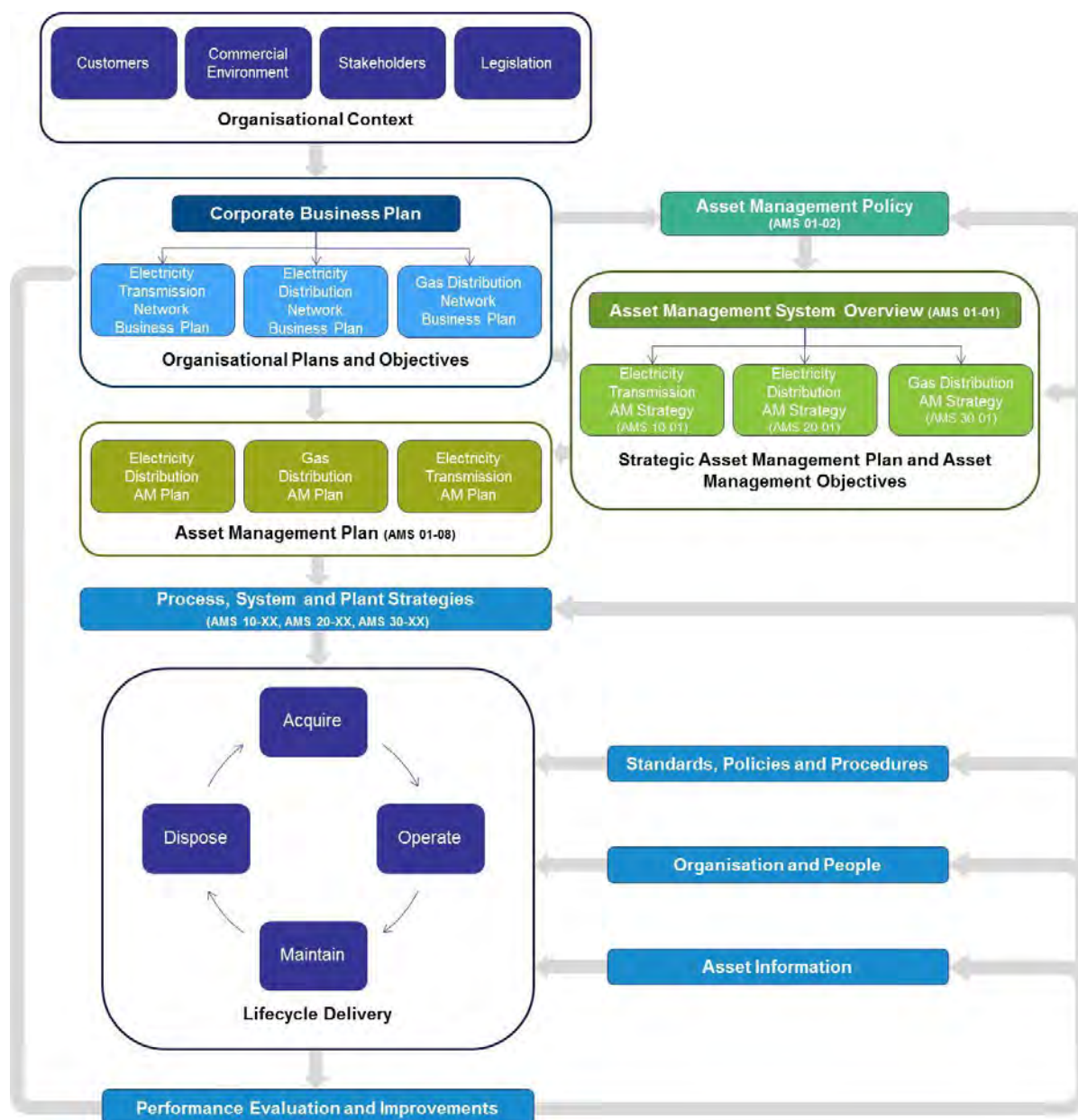
The five-year asset management plans are guided by the organisational plans and objectives and the asset management strategies and asset management objectives.

These asset management plans identify the management of projects and programs of change and the application of standards to the life cycle of network assets.

The framework is completed with monitoring and evaluation of performance to identify improvement opportunities throughout the entire asset management framework.



## Asset Management System – Overview



**Figure 9: Asset Management Framework**

This document (AMS 01-01) and the top level Asset Management Strategies for each network (AMS 10-01, AMS 20-01 and AMS 30-01) form a Strategic Asset Management Plan (SAMP) as defined in ISO 55001:2014.

AMS 01-08 Asset Management Plan combined with the process, system and plant strategies shown in Figure 9 form the asset management plans as described in ISO 550001 Section 6.2.2 *Planning to achieve asset management objectives*.

## 8.2 Asset Management Strategies

AusNet Services has an asset management strategy for each energy network.

Each asset management strategy consists of a suite of documents consistent with and aligned to the Asset Management Policy and the AusNet Services' Network Business Plans.

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## Asset Management System – Overview

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The highest level document in each suite of documents is the asset management strategy, namely:

- AMS 10-01 Asset Management Strategy (Electricity Transmission)
- AMS 20-01 Asset Management Strategy (Electricity Distribution)
- AMS 30-01 Asset Management Strategy (Gas Distribution)

Each asset management strategy brings together external influences, investment drivers, business values and asset management objectives with a summary of the resources and the strategies to deliver sustained performance for the benefit of stakeholders.

Below the asset management strategies are the process, system and plant strategies. These documents detail the assets, issues and investment drivers behind each technical, procedural and support system strategy. They provide the analysis behind each strategy necessary to achieve agreed performance outcomes.

The final level of documentation in the suite outlines the implementation of the asset management strategy. At this level, strategies are integrated with AusNet Services' business systems and practices. These documents provide direct links between asset management strategies and company standards, procedures, support system developments, work programs and plans.

### 8.3 Asset Management Plans

In conjunction with a Business Plan and a Finance Plan; each year AusNet Services prepares an Asset Management Plan (AMP) for the forthcoming five-year period.

The AMP is endorsed by the Asset Management Committee. The endorsed plan is then submitted together with the Finance Plan and the Business Plan to the AusNet Services Board for approval during the fourth quarter of each financial year.

The asset management plan summarises the following for each energy network:

- Alignment between asset management objectives and corporate objectives and stakeholder requirements;
- capital expenditure projects to meet the energy needs of customers;
- capital expenditure projects to refurbish or replace assets to maintain network performance and control risks to selected targets and prescribed obligations;
- operating expenditures to meet recurrent network operating and asset maintenance requirements; and
- operating expenditures (asset works) to meet unique or non-recurrent operating and maintenance requirements.

### 8.4 Project Life Cycle

Each Asset Management Plan summarises a five-year list of proposed projects and programs of change necessary to meet agreed objectives for each energy network.

Details of the projects and programs of change are managed by the Portfolio Management and Review (PM&R) team within the Finance Division using SAP based Enterprise Resource Planning software.

Each project and expenditure program within the five-year asset management plan is implemented via the authorisation of a Business Case which contains an evaluation of the options to address the performance risks and demonstrates the economic efficiency of the selected option.

Each Business Case is documented using the PM&R template; reviewed by engineering and financial managers and authorised by executive managers having formal authority to

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## Asset Management System – Overview

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approve expenditures. Each business case includes a *Project Evaluation Template* which is a net present value (NPV) calculator which requires life cycle costing of project options considered.

A Project Manager is appointed to deliver the change summarised in each Business Case and the Enterprise Program Management Office coordinates that delivery with other projects and programs of change by monitoring and reporting technical and financial progress.

More detailed information on how projects are managed is available on the PM&R share point portal at:

<https://spausnet.sharepoint.com/sites/snp/PMnR?Pages?Home.aspx>

The PM&R team uses a Project Life Cycle process to facilitate the approval and prioritised delivery of the projects and programs of change and monitors the delivery process against:

- The scope of projects or programs of activity;
- Performance outcomes;
- Time frames for achievement;
- Resources allocated; and
- Responsibilities for delivery, monitoring and management.

Detail on the Project Life Cycle process, including Business Case development and Change Control Requests, can be found within the Enterprise Content Management system at:

<http://ecm/pandp/Forms/AllItems.aspx?RootFolder=%2Fpandp%2FPortfolio%20Management%20and%20Review%20%28PMR%29&FolderCTID=0x012000276794C4B0176D42867D2C218B1BBB3C&View={0D7CF619-D471-419D-B2BF-5F9191FFBD45}>

### 8.5 Management Systems

The AusNet Services' ISO 55001 compliant asset management system interfaces with the integrated health, safety, environment and quality (HSEQ) management system and the risk management system.

The integrated HSEQ management system is accredited to AS/NZS 4801, AS/NZS ISO 14001, AS/NZS ISO 9001. The Risk Management System is designed to comply with ISO 31000:2009.

Two Electricity Safety Management Schemes and a Gas Safety Case also interface with this asset management system.

These management systems are an integral part of the AusNet Services management framework providing instruction and support across all areas of operation by providing processes and procedures for functions from planning to customer requirements. Their interface is illustrated in Figure 10.

## Asset Management System – Overview



**Figure 10: Management Systems**

As indicated in Figure 10, there are numerous business wide consistent methodologies that underpin all of the AusNet Services Business Plans and Strategies. In addition, there is significant cross over between the Asset Management and HSEQ Management Systems.

In particular, QMS 10-01 HSEQ Management System Manual outlines a number of processes that are utilised as part of the certified asset management system, specifically:

- Document Management (Section 1.16)
- Management of Change (Section 1.17)
- Resource Management (Section 4.3)
- Purchasing (Section 4.4)
- Training, Authorisation and Licences (Section 5)
- Delivery Partner Management (Section 7)
- Emergency Management (Section 9)
- Incident Management (Section 10)
- Nonconforming Product or Services (Section 11.1)

### 8.5.1 Network Safety

Each five years, in accordance with the Electricity Safety Act and Gas Safety Act; AusNet Services re-specifies two electricity safety management schemes and a gas safety case to manage network safety risks identified by formal safety assessments.

Safety risk controls are then integrated within the processes, systems, strategies and plans which make up the asset management system.

Energy Safe Victoria formally reviews and accepts the safety schemes and then audits the design, construction, operation, maintenance and decommissioning of network assets to ensure safety risk controls are effectively delivered by the asset management system.

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## Asset Management System – Overview

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Detailed descriptions of the scope, risks and controls of the respective schemes are contained with the following documents:

- ESMS 10-03 Safety Management System (Electricity distribution)
- ESMS 20-03 Safety Management System (Electricity transmission)
- GSC 10-01 Gas Safety Case – Facilities Description and Safety Management System Overview

### 8.5.2 Occupational Health and Safety

AusNet Services operates a HSEQ Management System that is certified to AS/NZS 4801 and integrated with the asset management system.

Under the missionZero banner, safety improvements are achieved through a process of employee involvement and self-regulation to maintain continual improvement. All employees and contractors have a responsibility to safeguard their own health and safety as well as that of their workmates. This management system and its processes interact within the business to ensure that there is a single and consistent approach to managing safety.

Further information can be found in QMS 10-01 HSEQ Management System Manual.

### 8.5.3 Quality Management

AusNet Services operates a HSEQ Management System which is certified to AS/NZS ISO 9001 Quality Management and integrated with the asset management system to provide independent verification that service delivery:

- conforms to specified requirements,
- is capable of consistently achieving its stated policy and objectives, and
- is effectively implemented.

The HSEQ Policy outlines AusNet Services' commitment to quality, which is fundamental to meeting our organisational goals, expectations and the needs of customers and stakeholders. These principles are communicated and prominently displayed in each business location. The HSEQ Policy outlines our quality objectives and commitments which are integrated with the asset management system.

Further information can be found in QMS 10-01 HSEQ Management System Manual.

### 8.5.4 Environmental Management

AusNet Services operates a HSEQ Management System that is certified to AS/NZS ISO 14001 Environmental Management and integrated with the asset management system.

AusNet Services strives to be an innovative leader in the management of environmental issues through leadership in all our business decisions concerning business sustainability. AusNet Services believes environmental sustainability means minimising impact on the natural environment while finding ways to leverage environmental innovation for business advantage, and maintaining effective dialogue with our stakeholders. All employees and contractors have a responsibility to integrate environmental considerations into business planning and decision making activities to ensure compliance.

For further information can be found in QMS 10-01 HSEQ Management System Manual.

### 8.5.5 Risk Management

AusNet Services maintains a risk management system that has been designed to the ISO 31000:2009 Risk Management standard to ensure risks are effectively managed to provide greater certainty for our security holders, employees, customers, suppliers and the communities in which we operate. The Risk Management Framework sets out the



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## Asset Management System – Overview

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overarching philosophy, principles, requirements and responsibilities for a sound approach of risk oversight, management and ongoing internal control assurance required within AusNet Services.

The Framework addresses the following:

- Governance and responsibilities;
- Risk management principles and methodology;
- How AusNet Services assesses and manages risk; and
- How AusNet Services monitors and reports on risk.

The framework is a blue print to manage risk consistently across AusNet Services. The asset management system is the primary mechanism by which risk reduction controls are implemented.

Risks are rated and prioritised under the following categories:

- Health and Safety (Employee and Public);
- Environment and Community;
- Reputation;
- Customers;
- Regulation, Legal and Compliance;
- Management Impact and People; and
- Financial Impact.

By adopting common metrics across the broad range of business risks and investment portfolios, AusNet Services can more effectively manage business risks and optimise network outcomes and objectives.

AusNet Services uses a range of techniques to identify and assess risk and thus determine the maintenance and replacement requirements for each asset class.

Further information can be found in *RM 10-01 Risk Management Policy and Framework* and *AMS 01-09 Asset Risk Assessment Overview*.

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## Asset Management System – Overview

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### 9 LEADERSHIP

#### 9.1 Leadership and Commitment

The Executive Leadership Team (ELT) is responsible for the holistic management of the three energy networks in accordance with the Business Plan and via the Asset Management System.

There are a number of committees to support the ELT in executing this function. Formal charters document the authority of each of the following groups:

1. Asset Management Committee;
2. Audit and Risk Management Committee;
3. Network Safety Management Committee; and
4. Security Steering Committee.

The role of each of these committees is described in the following sections.

##### 9.1.1 Asset Management Committee

The purpose of Asset Management Committee (AMC) is to maintain an Asset Management System which optimises network performance and life-cycle costs to achieve AusNet Services' business plan, for the benefit of the community, customers and security holders.

The AMC is responsible for reviewing and improving the suitability, adequacy and effectiveness of the Asset Management System.

A formal charter requires the AMC to decide:

- Appropriate asset management practices and approaches to continuous improvement of the Asset Management System
- Network performance levels including Key Performance Indicators and targets
- Changes to the Asset Management System, including the asset management policy, asset management strategy and asset management objectives; including
  - Reviewing the asset management system, as described in AMS 01-01 Asset Management System Overview
  - Conducting periodic network performance reviews
  - Implementing appropriate corrective actions
  - Initiating environmental assessments e.g. regulatory, legal, community and technology
  - Identifying emerging systemic asset risks and including assessments and controls in the organisation's risk management system
- Compliance with statutory rules (Safety Management Systems, National Energy Rules) and recognised Standards such as ISO 55001 Asset Management, AS/NZS ISO 9001 Quality Management, ISO 14001 Environmental Management and AS 4801 Health and Safety Management.
- Endorsement of the following for Executive Leadership Team (ELT) or AusNet Services Board approval:
  - Asset Management Policy
  - Asset Management Strategy
  - Five-year Asset Management Plans
  - Safety Management Systems

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## Asset Management System – Overview

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- Communications to all stakeholders on the above, including:
  - Senior management forums
  - Peer committees such as Network Safety, Occupational Health and Safety, Environmental management and Infrastructure Security
  - Specific asset management improvement teams

### 9.1.2 Audit and Risk Management Committee

The primary function of this committee is to assist the Board in discharging its statutory responsibilities relating to:

- The financial reporting process;
- The audit process (including the Company's relationship with external auditors);
- The Company's systems of internal controls;
- The Company's process for monitoring compliance with applicable laws, regulations and codes of conduct (including in relation to interested (related) party transactions); and
- The Company's risk appetite (including the policies identifying, measuring, monitoring and managing risks).

### 9.1.3 Network Safety Management Committee

The principal objective and role of the Network Safety Management Committee (NSMC), is to understand and manage the safety and bushfire ignition risks, in planning, designing, constructing, operating, maintaining and decommissioning its supply networks to minimise as far as practicable:

- the hazards and risks to the safety of any person arising from the supply network; and
- the hazards and risks of damage to the property of any person arising from the supply network; and
- if that network is an at-risk supply network, the bushfire danger arising from that network.

The committee, whose membership consists of senior personnel from various business streams, provides the operational leadership and coordination of resources engaged in the development and implementation of bushfire mitigation, vegetation management and asset safety programs.

### 9.1.4 Security Steering Committee

This committee's role and responsibilities are to:

- Providing guidance and direction for the Corporate Emergency Planning and Security Manager (CEPSM) and the Information Security Manager (ISM) in developing, reviewing, and recommending a strategy, standards, procedures and guidelines for AusNet Services;
- Ensuring that improvements to AusNet Services' security capability are implemented efficiently to align with operational security policies, standards and procedures required by the Corporate Security Policy and the Security Management Framework whilst recognising the needs of the various stakeholders;
- Identifying and recommending appropriate industry practices in security for AusNet Services;
- Prioritising security projects (and the security components of other projects) to ensure best fit to needs and coordination with other projects, standards and policy;



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## Asset Management System – Overview

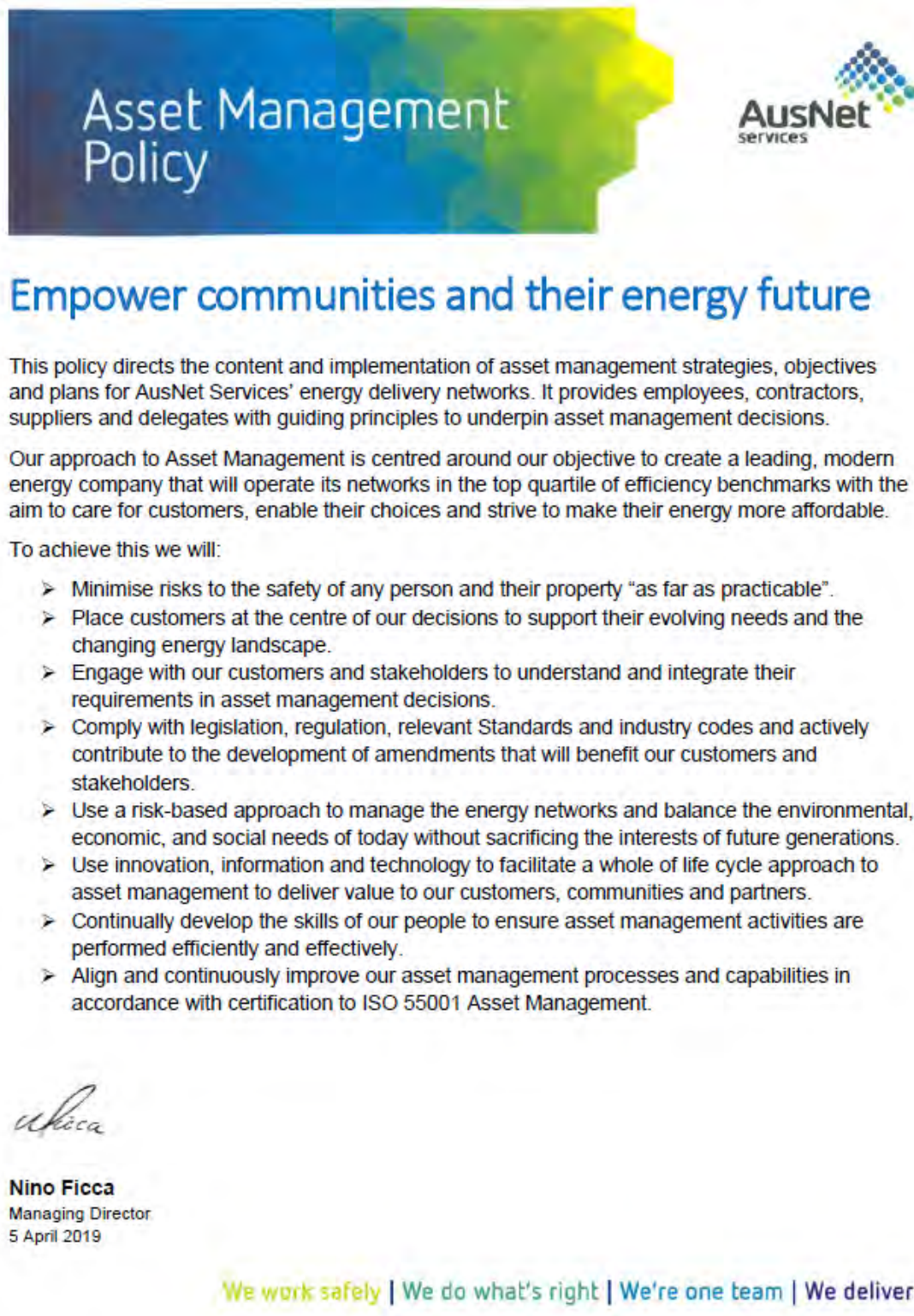
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- Coordinating inter-departmental communication and collaboration on security issues;
- Ensure that the risks are managed and internal controls are effective;
- Review of major incidents and the responses to security issues at AusNet Services;
- Review the status of various security initiatives;
- Provide security guidance and input to all projects early in the cycle of its inception;
- Ensuring that proposed security spending gives value to AusNet Services as a whole and manage the risk whilst meeting business objectives; and
- Ensuring that all new projects provide due consideration for security issues and do not increase AusNet Services' security risk without due consideration for the possible consequences.

## Asset Management System – Overview

### 9.2 Asset Management Policy

AusNet Services has formally endorsed an Asset Management Policy as illustrated in Figure 11.



**Figure 11: Asset Management Policy**

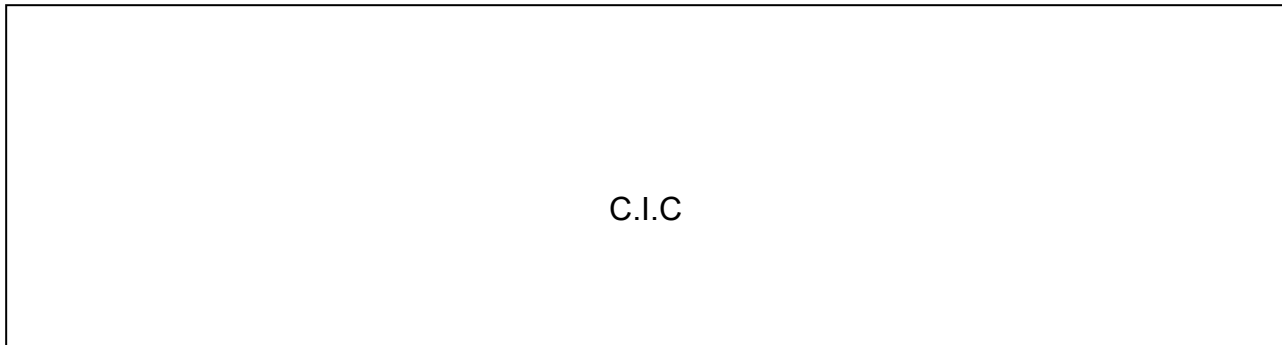
This policy is reviewed each year and has been communicated throughout the business. Copies of this policy are posted in each workplace.

## Asset Management System – Overview

### 9.3 Organisational Roles, Responsibilities and Authorities

#### 9.3.1 Organisational Roles

The Executive Leadership Team (ELT) is responsible for the holistic management of the three energy networks in accordance with the Business Plan and via the Asset Management System.



**Figure 12: Executive Leadership Team**

A complete organisational hierarchy can be found on *The Loop*.

Key roles are described in the following sections.

#### **Managing Director**

The Managing Director with the support and guidance of the Board of Directors is ultimately responsible for the management of AusNet Services.

The Managing Director oversees the strategies, policies and performance of AusNet Services and sets the values and standards.

Governance arrangements are established in a charter, which describes the functions of the Board and those functions delegated to management.

#### **Executive General Manager Governance**

The EGM Governance provides:

- expertise on risk, regulatory compliance, information security and internal audit,
- independent and objective audits of the businesses' operations,
- the Risk Management Framework,
- advice on legislative and regulatory issues, drafting and negotiating legal agreements, managing and protecting the company's intellectual property portfolio,
- assistance with management of claims and litigation, corporate governance, insurance and board administration and approvals.

#### **Executive General Manager – Regulated Energy Services**

The EGM Regulated Energy Services is responsible for the:

- performance of the regulated gas and electricity networks and the stewardship of the constituent assets,
- strategic functions of customer strategy, regulatory and network strategy, project portfolio management, asset engineering and communication system development.

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## **Asset Management System – Overview**

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### ***Executive General Manager – Mondo***

The EGM Commercial Energy Services is responsible for:

- delivery of asset inspection, vegetation, technical, and metering and data services,
- the continued development of these services together with the introduction of new technologies and innovation to extend management of energy supply networks.

### ***Executive General Manager – People Safety and Customer***

The EGM People, Safety and Customer is responsible for the safety and skill development of personnel, the environmental performance of energy delivery networks, business communications and the quality of safety, environment, and people orientated processes. This role is also responsible for customer engagement strategy and customer access to network services.

### ***Chief Financial Officer***

The Chief Financial Officer is responsible for delivery of financial services which include treasury, cash management, investor relations, financial modelling, investment analysis, taxation planning and compliance, statutory and regulatory accounting and reporting, accounting operations and management accounting.

### ***Executive General Manager – Technology***

The EGM Technology is responsible for:

- strategic information technology and communication functions including strategy, architecture, portfolio management and IT policy,
- supporting the real time network control systems,
- provision of IT services and systems including translating business requirements into functional and technical specifications.

### ***Executive General Manager – Strategy and Transformation***

The EGM Strategy and Transformation provides:

- consistent and aligned strategic directions in the form of corporate development strategy and emerging market assessments,
- operational performance review and improvement opportunity development, to drive end-to-end performance efficiency and effectiveness across all business divisions.

### ***Executive General Manager – Operations and Services***

The EGM Operations and Services is responsible for:

- delivery of all asset related works, including customer projects, as defined in asset management plans,
- operational functions of customer service, network operations and control, network maintenance, logistics and procurement and major project delivery.

## **9.3.2 Responsibilities**

AusNet Services has role and responsibility statements for each position within the business. These statements, together with personal development plans and objectives, are managed within the corporate human resource management system.

Responsibility, Accountability, Consultation and Information (RACI) frameworks are utilised within the Regulated Energy Services division to coordinate contributions from many roles to large and complex tasks.

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## Asset Management System – Overview

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### 9.3.3 Authority

The Board has delegated authority to the Managing Director for the day-to-day operations of AusNet Services.

The AusNet Services' Authority Manual contains the framework for controlling the delegation of authority, to assist managers and others to perform their duties effectively and manage risks, whilst enabling the Board to monitor performance and compliance. The AusNet Services' Authority Schedule contains the current financial delegations of authority for selected employees.

The Authority Manual, Authority Schedule, Authority Policy and Authority Approval can be found on The Loop at:

<https://spausnet.sharepoint.com/supportservices/finance/Pages/Delegations-of-authority.aspx>



## Asset Management System – Overview

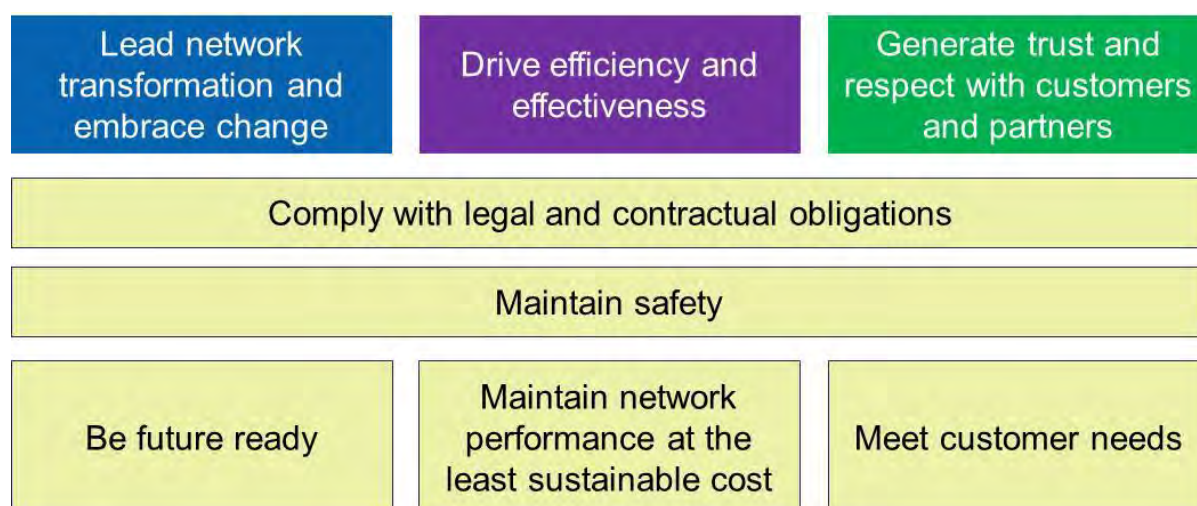
### 10 PLANNING

#### 10.1 Asset Management Objectives

Considering the industry context, stakeholder requirements, the corporate business plan and the asset management policy, the following high level asset management objectives have been established for the three regulated energy networks:

1. Comply with legal and contractual obligations;
2. Maintain safety;
3. Be future ready;
4. Maintain network performance at the lowest sustainable cost; and
5. Meet customer needs.

The alignment of these objectives to the strategies responses is shown in Figure 13.



**Figure 13: Alignment between Strategic Responses and Overall Asset Management Objectives**

More specific Asset Management Objectives for each of the regulated energy networks, aligning to the specific industry context, stakeholder requirements and network business plan for each network and these overall asset management objectives are detailed in each of the respective asset management strategies; AMS 10-01, AMS 20-01 and AMS 30-01.

#### 10.2 Risk Identification and Management

The effective management of risk is central to continued growth and success. By understanding and managing risk, AusNet Services provides greater certainty for shareholders, employees, customers and suppliers and the communities in which we operate. Being well informed and decisive, we have increased confidence to move to achieve our purpose of empowering communities and their energy future. A structured and consistent process for recognising, understanding and responding to risk is a key principle.

##### 10.2.1 Risk Management System

The *Risk Management Policy* defines the governance of risk and the overarching philosophy, principles, and responsibilities for a sound approach. The RM 10-01 Risk Management Policy and Framework documents the governance process, management principles and methodology, the assessment and management processes, monitoring and reporting processes and the compliance and review processes within AusNet Services. This framework is based upon the ISO 31000:2009 Risk Management standard.

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## Asset Management System – Overview

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The RM 10-02 Risk Appetite Statement describes the amount of risk which the AusNet Services group is prepared to manage in the execution of its strategy and the ordinary operation of its business. This appetite is defined at a level which is within the 'Capacity' of the business to absorb the consequences of a risk event. Risk appetite is reviewed by the Board each year to provide guidance for the execution of defined strategic objectives and operational activities within AusNet Services.

The *Group Risk Committee* aligns the business objectives with risk appetite and risk management strategy and provides direction in the development, implementation and sustenance of an effective risk management system.

Further information on risk leaders, the operation of the group risk committee and risk management tools can be found on the Enterprise Risk Team Sharepoint site at:

<https://spausnet.sharepoint.com/sites/ra/SitePages/Risk%20Management.aspx>

### 10.2.2 Formal Safety Assessments

In accordance with the Electricity Safety Act and the Gas Safety Act; AusNet Services operates Electricity Safety Management Schemes for its electricity transmission and distribution networks and a Gas Safety Case for the gas distribution network. Both Acts require detailed network safety risk assessments using a recognised risk assessment technique. These assessments are undertaken using the *Risk Management Framework* and are formally accepted and routinely audited by Energy Safe Victoria.

Network Safety risks are documented in a formal risk assessment for each network. Identified risks are monitored via the *Risk Management Information System (Enablon)*, and managed through the strategies, plans, technical standards and operating procedures which make up the asset management system.

### 10.2.3 Asset Failure Risks

AusNet Services uses a range of techniques to identify and assess risk and thus determine the maintenance and replacement requirements for each asset class.

Various techniques are applied depending on the asset type and the asset data available. The range of resulting risk assessments and replacement forecasts are compared, contrasted and brought together using engineering judgement to inform the management of risk and development of maintenance programs and replacement forecasts.

These techniques range from qualitative techniques, such as bow-tie analysis and consequence/likelihood matrices, to quantitative analysis such as cost-benefit analysis, failure modes, effects and criticality analysis (FMECA) and Monte Carlo simulation.

The choice of technique is highly dependent on context and the form of assessment and its output should be consistent with the risk criteria developed as part of establishing the context.

Further information can be found in *AMS 01-09 Asset Risk Assessment Overview*.

### 10.2.4 Infrastructure Security Risks

Safety, criminal, malicious damage and terrorism risks have been assessed for each large installation and for each fleet of generic network assets using purpose build infrastructure security risk assessment tools (ISRAT). ISRAT is reviewed bi-annually using updated crime statistics, historic security events, energy distributed and market constraints to produce relative security risk rankings and guide the development of security controls based on deterrence, delay, detection, response and contingency plans.

Asset Management Strategies AMS 10-63 and AMS 20-14 contain more information on the infrastructure security risk management.

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## Asset Management System – Overview

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### 10.3 Planning to Achieve Asset Management Objectives

#### 10.3.1 Criteria for Asset Management Decisions

The following summary of criteria for asset management decisions and prioritising of activities and resources commences with the principal legal and regulatory obligations, includes industry codes of practice and extends to AusNet Services' technical standards, AusNet Services' values and independently certified management processes.

A summary can be found in the Asset Management Policy.

#### ***National Electricity Law and National Gas Law***

The National Electricity Law and the National Gas Law require AusNet Services to develop Capital and Operational expenditure proposals to:

- meet or manage the expected demand for services,
- comply with all applicable regulatory obligations or requirements,
- maintain the quality, reliability and security of supply, and
- maintain the safety of the networks.

#### ***Electricity Safety and Gas Safety Acts***

The Electricity Safety and Gas Safety Acts require AusNet Services to “design, construct, operate, maintain and decommission its supply networks to minimise, as far as practicable, the hazards and risks to the safety of any person arising from the supply network by having regard to:

- the severity of the hazard or risk in question;
- state of knowledge about the hazard or risk and any ways of removing or mitigating the hazard or risk;
- the availability and suitability of ways to remove or mitigate the hazard or risk; and
- the cost of removing or mitigating the hazard or risk.

#### ***Electricity and Gas Safety Management Regulations***

The Electricity Safety (Management) Regulations and the Gas Safety (Safety Management) Regulations require AusNet Services to design, construct, operate, maintain and decommission its supply networks in accordance with:

- an Electricity Safety Management Scheme accepted by Energy Safe Victoria;
- a Gas Safety Case accepted by Energy Safe Victoria; and
- published Australian Standards, International Standards and AusNet Services standards.

#### ***Industry Codes***

The Electricity Distribution Code, the Electricity System Code and Gas Distribution System Code detail the technical specifications for the operation of licenced energy supply networks in Victoria.

#### ***Technical Standards***

The technical standards that AusNet Services applies to asset creation, operation, inspection, maintenance, refurbishment and replacement are contained in “operational manuals” which are managed within the Enterprise Content Management system.

The technical standards which are also listed in the relevant Electricity Safety Management Scheme or Gas Safety Case, are used by staff, contractors and auditors to manage each stage of the asset life cycle.



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## Asset Management System – Overview

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### **AusNet Services' Values**

As discussed in Section 6.7, AusNet Services has four company values:

1. We work safely;
2. We do what's right;
3. We're one team; and
4. We deliver.

These values lay the foundation for the basis upon which all asset management decisions are made.

### **Asset Management System**

The criteria for asset management decisions are summarised in the Asset Management Policy and detailed in the relevant components of the ISO 55001 compliant asset management system, which includes:

- Asset Management Policy,
- Asset Management Strategies for each network,
- Annual Five-Year Asset Management Plan,
- Electricity Safety Management Schemes accepted by Energy Safe Victoria,
- Gas Safety Case accepted by Energy Safe Victoria,
- An integrated Occupational health and safety management system, Quality management system and Environmental management system certified to AS/NZS 4801, AS/NZS ISO 9001, and AS/NZS ISO 14001 respectively, and
- A risk management system based on ISO 31000.

### **10.3.2 Methodology for Asset Management Decisions and Priority**

The following summarises AusNet Services' methodology of asset management decision-making and resource prioritisation.

#### **Legislation Regulation Industry Standards and Codes**

AusNet Services is an active participant in national and state reviews of law and regulation governing the energy supply industry.

AusNet Services also participates in the industry working groups developing and refining Australian Standards and industry Codes of Practice.

A compliance management system is employed by AusNet Services to assign responsibility and to continuously monitor compliance with each regulatory and industry obligation.

#### **Business Environmental Assessment**

As part of the annual cycle of business, financial and asset management planning; business environmental assessments are undertaken to benchmark customers' and external stakeholders' expectations.

Periodically these assessments are supplemented by internal stakeholder visioning workshops, which shape the longer term asset management responses to external stimuli.

#### **Asset Management Policy**

Each year the Asset Management Committee reviews the content of the Asset Management Policy to ensure its contents are fit for the purpose of directing the content and implementation of asset management strategies, objectives and plans for energy delivery networks.

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## Asset Management System – Overview

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The Asset Management Policy contains the criteria which guide individual asset management decisions.

### **Asset Management Strategy**

Each year the long-term asset management strategy for each energy delivery network (AMS 10-01, AMS 20-01 and AMS 30-01) is reviewed and updated for endorsement by the Asset Management Committee.

Updates are informed by network performance reviews, progress on the delivery of the current five-year asset management plan, regulatory determinations, forecast demand for network services, forecast consumer prices and the forecasts of asset inspection, maintenance, refurbishment and replacement needs.

### **Asset Management Plan**

The annual production of a five-year asset management plan is informed by the coincident development of the company's Business Plan and Finance Plan and:

- The long term view expressed in the Asset Management Strategy for each network,
- Assessment of the prevailing business environment,
- Historic expenditures and regulated revenue benchmarks,
- Historic network performance and emerging performance risks, and
- Progress on the delivery of the current five-year asset management plan

### **Business Case**

Each project and expenditure program within the five-year asset management plan is implemented via the authorisation of a Business Case, which contains an evaluation of the options to address the performance risks, demonstrates the economic efficiency of the selected option and the financial treatment of the recommended investment.

Each Business Case is reviewed against the relevant asset management decision criteria by engineering and financial managers and authorised by executive managers having formal authority to approve expenditures.

### **Project Life Cycle**

A Project Manager is appointed to deliver the change approved in each Business Case.

The Portfolio Management and Review (PM&R) team aids the business in coordinating the delivery of each project with other projects and programs of change.

The delivery priority of each project or program within the SAP based Enterprise Resource Management system is determined by its contributions to the following criteria:

- mandatory – addressing regulatory, legal and safety issues,
- discretionary – considering strategic alignment, technical assessment, cost estimate, risk reduction and financial return.

### **Performance Reporting**

The progressive delivery of projects and programs of change are monitored and reported on a monthly cycle by the PM&R role to facilitate and coordinate network expenditure programs.

Selected key performance indicators for Capacity, Reliability, Quality, Safety, Environment, Compliance and Security in each network are monitored and reported continuously to inform stakeholders and facilitate asset management decisions on the prioritisation of activities and resources. The current key performance indicators and their associated targets can be found in the approved Asset Management Plan.

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## Asset Management System – Overview

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Each year a specific report summarising the performance of each regulated network against the agreed key performance indicators is presented to the Asset Management Committee. This performance report underpins the review of the relevant Asset Management Strategy and the next draft of the Asset Management Plan.

Unplanned and adverse-performance events are continuously monitored, reported and subject to root cause analysis. Performance trends and systemic root causes are used to inform asset management decisions and set the priority of activities within each network and across the energy networks. A summary of these events is presented annually to the Asset Management Committee.

The performance of each regulated energy network is reported to the Australian Energy Regulator in accordance with the specifications established in the Regulatory Information Notification, Regulatory Accounts, and Non-Financial Regulatory Accounts.

The principal monthly and annual reports to Energy Safe Victoria are in accordance with the Electrical (or Gas) Safety Performance Reporting Guidelines.

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## Asset Management System – Overview

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### 11 SUPPORT

#### 11.1 Resources

The forecasting of future enterprise wide resource requirements is undertaken by the People, Safety and Customer division in consultation with operating divisions; using a combination of employee age profiling and future work activity forecasts to establish resource volumes and skill specifications.

The resource model includes the use of internal and external resources in the delivery of maintenance and capital works programs. Strategic alliances have been formed with companies that provide design services, installation services and maintenance services. Contract arrangements are performance based with benchmarking of costs and standards to ensure that quality and value is maintained.

Short term resource procurement is achieved through a combination of contracting and direct employment. Medium to long term resource requirements are factored into the Apprentice, Technical Trainee, Graduate Engineer, analyst and accountant recruiting and development programs.

#### 11.2 Competence

##### 11.2.1 Industry and National Standards

QMS 22-01 Field Training and Development describes how individual and companywide training programs are managed in AusNet Services. Its purpose is to provide safe induction, training and competency of AusNet Services employees, agency labour, delivery partners and visitors. This framework draws from, and is consistent with the Victorian and the National industry standards for competence and training of operational personal. Further information on the electricity and gas industry competency standards and registered training providers can be found at:

- [www.vesi.com.au](http://www.vesi.com.au)
- [www.australianindustrystandards.org.au](http://www.australianindustrystandards.org.au)
- <https://training.gov.au>

Technical training of AusNet Services' employees is recorded in the on-line training records management system, Drive and in industry standard passports held by each operational person.

##### 11.2.2 Learning Framework

The Employee Centre portion of The Loop provides information on the AusNet Services' Learning Framework which features four development streams:

- Leadership development
- Talent development
- Employee development and
- Technical development

Development needs within these streams are delivered via a combination of in-house programs via the Corporate Learning plan, divisional specific programs and external development partners. The recommended development framework for employees is contained in the Development Activities 70-20-10 handout which indicates 70% on the job experience, 20% coaching and mentoring and 10% formal education.

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## Asset Management System – Overview

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### 11.2.3 Performance and Development Framework

The Employment Centre portion of The Loop provides a performance and development framework that provides alignment between AusNet Services' corporate planning, individual performance and development planning, review and reward processes. It consists of four key processes each year:

- Corporate planning and goal alignment
- Plan performance and development expectations
- Mid-year achievement review
- Final achievement review

## 11.3 Awareness

### 11.3.1 Awareness of Policy

Asset Management Policy is reviewed annually by the Asset Management Committee and periodically re-published under the signature of the Chief Executive Officer. It is posted on notice boards in each work place. This Policy is referenced in Asset Management Strategies and the annual Asset Management Plan. This Policy has been summarised and discussed in face to face meetings between strategic and operational staff in regional network planning forums. The Asset Management Policy summarises the asset management decision-making criteria.

### 11.3.2 Contribution to Asset Management System

Where specific contributions are required for the effectiveness or the enhancement of the asset management system, such as the annual creation of the five-year Asset Management Plan, the tasks are specifically listed in role statements and Annual Incentive Plans of individual staff. Specific contributions can also be found in the annual Departmental and Divisional Business Plans together with delivery deadlines and quality targets. Coordination of contributions to the asset management system is managed within the Regulated Energy Services division via a Responsibility Accountability Consultation and Information (RACI) matrix.

Strategic contributions to the effectiveness of the Asset Management System are summarised in the Asset Management Committee Charter and tracked through the Committee meetings. A decision register is maintained recording material asset management decisions made by the Asset Management Committee and the impact of these decisions on cost and risk.

The effectiveness of the Asset Management system is reliant on individuals completing assigned tasks in accordance with the relevant approved procedure. Employees and contractors are engaged in the development, review and improvement of each procedure and are trained and instructed in the use of the relevant procedures. Employees are encouraged to suggest amendments to the formal procedure when deficiencies are identified.

Work activities and success criteria are formally summarised in role statements for each role. The correct processes, tools and techniques for successful delivery of routine work activities are formally documented in relevant procedures which are published on ECM and embedded in information technology work flow processes as required. Workers are obliged by their employment agreement to use the formally documented works procedures or seek specific exemption from their supervisor.

Specific tasks are documented in formal work orders within a project or program of change. Workers are obliged to complete work orders as requested or to seek specific exemption from their supervisor. Work Order completion is validated by supervisors and audited by the

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## Asset Management System – Overview

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quality management system and the internal audit process. High profile safety-related or customer-related work activities are monitored and audited by the safety or economic regulator and reported in annual comparative performance reports.

### 11.3.3 Risks and Opportunities

As summarised in Section 8.5.1 and Section 8.5.5, AusNet Services formally assesses risks and opportunities through the formal safety assessments of its electricity and gas safety management schemes and through the structured assessments of its ISO 31000 based risk management system.

The risks and opportunities associated with a program or project of change are assessed at several stages through the project life cycle; originally at the conceptual stage, and then at the approval stage, detailed design stage and then through each stage of construction and commissioning.

Risks and opportunities associated with field work activities are assessed via the use of Job Safety Assessments (JSA) prior to the commencement of each individual task.

Opportunities to improve the effectiveness or efficiency of the asset management system are also identified through the structured audits undertaken for the two Electricity Safety Management Schemes, the Gas Safety Case and the integrated Health Safety Environment and Quality management system as summarised in Section 8.5. Further, the AusNet Services internal audit function (see Section 13.4) formally identifies risks to the asset management system and opportunities to improve its functioning.

### 11.3.4 Implications of non-conformance

Asset Management System requirements are integrated in regulatory submissions, Business Plans and the annual Asset Management Plan. Similarly the Asset Management System requirements are embedded in the approved portfolio of programs and projects for each network as well as the information systems requirements and formal works processes and task procedures used to deliver service and manage change.

Selected key performance indicators and targets are incorporated in the annual Business Plan, Asset Management Plan and the Annual Incentive Plans of responsible individuals. Progress is monitored and reported to work groups routinely. Successful delivery of the programs as measured by key performance indicators bears upon moneys available to the Annual Incentive Plan pool and directly upon the annual incentive payment of individuals responsible for delivery.

Formal Post Implementation Review (PIR) assesses the effectiveness of each asset management plan, as well as large programs and projects of change. Audit programs run to continually assess completion, quality and the use of approved processes and tools. Non-conformances are registered in the Issue Management System for corrective action. Corrective actions are monitored for completion and effectiveness. The AusNet Services' Corporate Compliance program is run in accordance with Australian Standard AS 3806–2006.

The Discipline Policy 10-1025 contains the processes to be followed for dealing with systemic failures to conform with required business policies, procedures and standards.

## 11.4 Communication

### 11.4.1 Policy

The Corporate Communications Policy ensures that communications across AusNet Services are well-coordinated, effectively managed and responsive to the diverse information needs of its stakeholders: shareholders, National Energy Market participants,

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## Asset Management System – Overview

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customers, easement holders, suppliers, the general public, employees, contractors and its majority shareholders, Singapore Power and State Grid International Development Limited.

The Corporate Communications Policy can be found on The Loop at:

<https://spausnet.sharepoint.com/SiteCollectionDocuments/External%20Communications%20Policy.pdf>

It assigns responsibilities to senior officers and outlines the framework within which communications are undertaken. It summarises obligations and appropriate communication techniques associated with:

- Internal business communication;
- External stakeholders enquiries and complaints;
- Crisis communications;
- Media and spokespersons;
- Advertising and marketing;
- Printed publications, film and multimedia productions, Internet; and
- Exhibitions and trade events.

### 11.4.2 Customer Strategy and Implementation Roadmap

The Customer Engagement Strategy outlines the strategy and high level tactics by which AusNet Services will engage both regulated business customers and unregulated infrastructure and energy customers.

This strategy and road map outlines with whom AusNet Services must communicate together with the benefits of increased engagement to both customers and AusNet Services. It establishes the contemporary issues on which AusNet Services must communicate and endorses a program of activity which includes the structure, processes and systems of engagement with stakeholders.

### 11.4.3 Customer Engagement to Test Regulatory Submissions

The Australian Energy Market Commission (AEMC) has established requirements for energy network businesses to engage with customers prior to the lodgement of a revenue submission.

AusNet Services engaged customers in association with its preparations for the 2018-2022 Gas Access Arrangements Review and the 2017-2022 Electricity Transmission Revenue Review submissions and has commenced enhanced engagement with electricity distribution network customers in association with pending Electricity Distribution Price Reset.

### 11.4.4 Routine Stakeholder Communications

The results of the annual network planning process are published each year in planning reports such as the *Distribution Annual Planning Report* and the *Transmission Connection Planning Report*.

The intent of these reports is to make transparent the asset management processes and the emerging network constraints and proposals to address each constraint. This commences a consultation process with stakeholders who may provide demand management or embedded generation or energy storage proposals. These reports are provided to regulators and published on the AusNet Services website.

In addition, each year the regulated energy networks provide safety and economic regulators with audited data on safety, service and financial performance. This information is used by regulators to benchmark relative performance with peers, measure performance against financial incentive schemes and report expenditures against revenue determinations.



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The Australian Energy Regulator publishes economic and service level comparative performance reports designed to inform stakeholders on the fundamental balance of price and service performance on its website located on the AER website.

Each year Energy Safe Victoria publishes a safety comparative performance report on its website.

The AusNet Services website ([www.ausnetservices.com.au](http://www.ausnetservices.com.au)) is used to update energy customers, investors and prospective employees on the status of a wide range of issues, processes and proposals. Energy customers are provided information on:

- Interruptions and faults
- Connections applications
- Safety and preparedness
- Energy use, and
- Revenue determinations

Investors are provided information on:

- ASX information releases
- Company results and reports, and
- Share and securities dividends and distributions

Prospective employees can find information on:

- Available roles
- Scholarships, and
- Apprentice and trainee programs

### 11.4.5 Employees

Communication of general information to employees is a continuous process which includes newsletters, an internal social media site (Yammer), departmental meetings and divisional briefings. Communication extends to a range of on-line reports and includes many routine direct email reports such as safety grams, network event reports and network performance reports.

The involvement of employees in the development of action plans to manage emerging issues is a common communication technique used by AusNet Services. It is routinely supplemented by engaging other employees in consultation on emerging issues through review of drafts of proposed actions and feedback surveys on the quality of service provided. An example of communication and consultation is the formal safety risk assessments for the Electricity Safety Management Schemes and Gas Safety Case in which many subject matter experts from engineering design to asset operation participate. Process improvement projects have involved many subject matter experts in the specification, design and implementation of new process and systems to improve the delivery of network services.

SharePoint portals are increasingly used to communicate with employees on the functions of:

- Portfolio Management and Review
- Strategic Programs
- Graduate Engineer Program
- Career Development
- Risk and Assurance and the Asset Management Committee

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## Asset Management System – Overview

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Communication of progress on specific issues is commonly emailed directly to stakeholders and The Loop continues to be a primary communication tool. All employees and selected contractors have access to The Loop and the Enterprise Content Management system.

More general communications within the business may include, but are not limited to:

- Board, Executive, Divisional and Department Management team and work group meetings
- Corporate and divisional quarterly employee briefings
- Connected (AusNet Services electronic newsletter)
- Divisional summary reports
- Employee surveys
- Health and Safety Grams

### 11.5 Information Requirements

#### 11.5.1 Data Attributes and Quality

The data attributes and quality requirements have been specified for each of the following asset management information systems:

- SAP Enterprise Asset Management – asset data information for assets in each network
- SAP Enterprise Resource Planning – task, project and program information for managing change in each network
- Enablon – legal and regulatory compliance management system, and risk tracking
- Enablon – Issue Management System (IMS) – unplanned incident management and reporting
- Distribution Outage Management System (DOMS) – real time network configuration and status management. Includes the systems PowerOn Fusion and PowerOn Gas
- GIS – Geographic Information Systems containing spatial information about electricity gas and telecommunication network assets. Includes the systems SDME, SDMG, SDMT, SpatialView, SAMS, SAMS OP and LatLonGo.
- Objective – Engineering drawing record management
- Enterprise Content Management (ECM) – written document management
- PACSIS – Protection settings database
- SCADA – real time information on network status

As part of Program Workout; in 2015 more than 100 disparate information systems were consolidated within a SAP based Enterprise Asset and Resource Management information platform.

#### 11.5.2 Organisation for Information

Roles and responsibilities for managing information have been established. These roles are described in Table 2.

## Asset Management System – Overview

**Table 2: Information roles**

Role title	Description
Network and Asset Information Governance Leadership	Ensures that responsibilities are assigned and processes are in place to collect and manage network/ asset data of appropriate quality for organisational decision making and reporting.
System Business Owners (RES)	Ensure that the business needs for network and asset systems are communicated to and understood by ICT.
Network and Asset Information Infrastructure Owners (ICT)	Ensures the software and hardware systems that house network and asset information meet the business requirements and are functioning correctly.
Process, Performance and Data Specialist	Triages requests for new master data requirements and engages relevant business SME's
Network and Asset Information Business SME's	Provide the business knowledge around decision making for network and asset data.
Master Data Change Approval	Approval for changes to master data environments.
Data Maintenance and Data Quality Control	Responsible for entering data into master data into systems (where end users do not directly enter data). Responsible for ensuring quality of the data entered. Quality control makes sure the results of what is entered meet expectations.
Data Quality Assurance	Quality Assurance makes sure we are doing the right things, the right way. Ensures that standards, processes and policies are in place and carried out for network/asset data.
Data Standards	Responsible for approving and facilitating changes to data structure and standards. eg Technical hierarchy
Data Remediation	Identifies and prioritises data requiring remediation.
Users	Responsible for entry of data into system eg Mobility device users.  Responsible for extracting data for use in decision making.

Further improvements to the operating model for asset and network data governance are in progress as part of the Information Management and Asset Risk Modelling Use Case project. This project is planned for the 2018/19 Financial Year.

### 11.5.3 Data Types

Key data definitions used in Enterprise Asset Management at AusNet Services:

#### **Master Data**

Master Data represents the business objects that are agreed upon and shared across the enterprise. It can cover relatively static reference data, transactional, unstructured,

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## Asset Management System – Overview

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analytical, hierarchical, spatial, and metadata. Examples of Master Data include Customers, Vendors, Equipment, Functional Locations, Assets and Compatible units.

### ***Hierarchical Data Model***

AusNet Services Enterprise Asset Management practices employ a Hierarchical Data Model into a technical hierarchy. A hierarchical database model organizes data objects (FLOC/Equipment), entities (classification) and attributes (characteristics) into a tree-like structure.

Configuration data is then used to apply business rules to data and specify what values are valid for an attribute/characteristic. Configuration data are typically enabled as dropdown menus within the Enterprise Asset Management systems SAP and GIS. Examples of Configuration Data include; Cost Centre category, Material types, Project Status and Employment status.

### ***Transaction Data***

Transaction Data is the data that relates to a sequence of information exchanges and related work to satisfy a specific service request. Examples of Transaction Data include: Work Orders, Purchase Orders, Project Cost Estimates, and Timesheets.

Transaction data is specified and governed by the relevant business unit in accordance with the Business Process defined for that task. The Business Processes were recorded in Business Process Design documents as part of the SAP platform implementation.

### ***Spatial Data***

Spatial data, also known as geospatial data or geographic information is the data or information that identifies the geographic location of features (assets), boundaries and network relationships. Examples of Spatial Data include Functional Locations and Codified Area Boundaries.

### ***Network Model Data***

Network Model data is derived data that provides the links between Network (gas or Electricity) components. eg a 22kV line is connected to another 22kV line, but cannot connect to an LV line. The 22kV lines are also part of AA123 feeder.

### ***Normal Network Data***

Network Model Data reflecting the Normal (operating) state of the Physical Network. Planned or Unplanned outages are not represented in the network normal model.

### ***Real Time Network Data***

Network Model Data reflecting the Real Time (operating) state of the network. Planned and Unplanned outages are represented in the model for the actual chronological time that they exist in the Physical Network.

### ***Metadata***

Metadata is data that provides information about other data. In the practice of Enterprise Asset Management administrative metadata provides information to help manage a resource, such as when and how it was created, file type and other technical information, and who can access it.

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### 11.5.4 Alignment of Terminology

Asset management and financial terminology are aligned with the definitions established by:

- National Electricity and Gas Laws and Regulations;
- National and Victorian State Law and Regulation;
- International and National Standards; and
- Electricity and gas industry standards.

### 11.5.5 Traceability of Data

Safety and economic regulators specify the requirements for traceability of data. Regulators have established independent due diligence and audit processes for the traceability of information back to raw data. As specified by the regulator each report has an accompanying diligence statement.

Each year, financial and asset information is provided to the AER in the form of an annual Regulatory Information Notice (RIN) for each network. The information provided in the RIN requires alignment of asset and financial data. This information is externally audited which ensures consistency and traceability of the information.

### 11.5.6 Current Information Systems

The AusNet Services' Technology division manage the Information Security Policy and Controls procedure (AusNet Services Security Policy number 10-1031) concerning enterprise wide systems to ensure:

- Assignment of asset information responsibilities that ensure access to department network drives and core asset management systems are protected from un-authorised access, data entry or removal. This is achieved through the application of systems access authorities and authorisation. Authorisation for access to a system is made electronically through the IT Service Portal whereby the appropriate level manager is required to approve applications.
- Maintenance of an Information Asset Registry that lists details of important information assets to be created and maintained.
- Information can be recovered from disaster events.
- Assignment of Asset Information owners who are responsible for reviewing and maintaining accuracy of information entries in the Information Asset Registry and systems, retention and disposal.
- Classification of asset information in respect of its value, legal requirements, sensitivity and criticality to the organisation.

The policies contained in the Information Security, Policy and Control document comply with International Standard ISO/IEC 17799:2005 (Now called AS/NZS ISO/IEC 27002:2006) Information Technology—Security techniques—Code of Practice for information security management, with relevant allowances made for the size and complexity of AusNet Services' information systems.

New Information Assets are developed to comply with the AusNet Services Information Security, Policy and Control procedure. The AS/NZS ISO/IEC 27002:2006 standard introduced a number of new compliance requirements, along with differences in previous compliance levels. Existing Information Assets are subjected to progressive compliance reviews. Non-compliance areas follow the formal risk assessment process outlined in the Information Security Policy to identify the appropriate treatment plan.

AusNet Services' information management pertaining to its design, construction and operations activities are managed in accordance with the accredited ISO AS/NZS 9001

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Management System. The certification authority for maintenance of this accreditation undertakes bi-annual audits of the Management Systems. Additionally, internal audits are conducted on all facets of the certification and compliance requirements in accordance with QMS 21-11 Technical Compliance Audit Schedule.

### 11.5.7 Information and Communication Technology Strategy

The Technology division provides the strategic direction for the development of information and communication systems aligned to AusNet Services' Business Plan corporate objectives. The strategic direction is documented in the Technology Plan which is updated each year as part of the annual business planning process.

The development of ICT programs relating to Regulated Network Services is governed by the RES ICT Steering Committee. This committee prioritises and governs the overall delivery of the program of work, endorses core scope and business requirements, and endorses relevant business cases.

## 11.6 Documented Information

Fundamentally; asset management records are identified, collected, indexed, accessed, filed, stored, maintained and disposed of in accordance with governance procedure 10-1030 Document Retention.

### 11.6.1 Creating and Updating

Templates have been established and published for the creation of asset management documents such as:

- Policy
- Strategies
- Plans
- Business Case
- Technical Standards, and
- Works procedures

### 11.6.2 Control of Documented Information

AusNet Services now records current and archived copies of asset management documents in the *Enterprise Content Management* (ECM) system, at the following address:

<http://ecm/SitePages/Home.aspx>

ECM has assumed the role of the principal asset management document management system used to publish approved versions of key documents.

*Objective* is used by AusNet Services for the electronic storage of drawings and technical documents recording the detail of the installation of assets in the three energy networks. *Objective* is used manage the process of editing, reviewing and approving electronic drawings. The *ACONEX* engineering drawing management platform has been used successfully to manage the significant editing, reviewing and approving of electronic drawings necessary for the major brownfield redevelopment projects at Brunswick and Richmond terminal stations.

Records are electronically or hard-copy-listed and include sufficient information for the record to be retrieved in future years. Records are appropriately stored, with consideration to their importance, retention period and regulatory compliance requirements. Confidential and vital records are identified, handled, stored and disposed of in accordance with governance procedure 10-1030 Document Retention.

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## Asset Management System – Overview

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### 11.6.3 Records

Records are managed in accordance with the certified AS/NZS ISO 9001 management system. Knowledge and record management includes the maintenance of accurate electronic records of assets and locations, condition assessments and automated condition monitoring in the SAP based Enterprise Asset Management and Resource Management platform as summarised in Section 11.5.

It also includes the real-time acquisition and management of data regarding network operating parameters and event circumstances from SCADA systems and electronic smart meters. This data facilitates confident, safe and reliable operation of the network, the modelling of future scenarios and the forecasting of performance.

Knowledge and record management extends to include the transfer of intellectual property and informal knowledge through training and mentoring programs.

Related documents include:

- QMS 10-01 HSEQ Management System Manual
- QMS 20-04 Document and Data Control
- 10-1030 Document Retention



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## 12 OPERATION

### 12.1 Operational Planning and Control

#### 12.1.1 Compliance Management

AusNet Services' operations are subject to a wide range of regulatory requirements, contained in legislation, licences, guidelines and enforceable industry rules. The effective management of compliance is integral to the achievement of our purpose to "empower communities and their energy future".

The *Compliance Management System* has recently transitioned from a lotus notes database, known as CARS, to Enablon. Within Enablon; requirements and obligations are assigned to relevant Responsible Persons (RPs) who complete compliance reports on a periodic basis to provide positive assurance of service and process compliance with both state and national requirements.

Where relevant to their work activities; all employees and their agents are responsible for managing compliance. Employees are expected to be aware of relevant obligations, and embedding compliance management in business functions and processes. AusNet Services requires its employees to recognise and report breaches, including situations where there is risk of a potential breach, so that improvements can be made.

The Managing Director is accountable for ensuring that Corporate Compliance Policy is promulgated throughout the business, and ultimately for performance outcomes. The Audit and Risk Management Committee oversees the design and implementation of the corporate compliance framework. It monitors the effectiveness of the framework in achieving compliance and contributing to business performance.

The *Corporate Compliance program* is run in accordance with Australian Standard AS 3806-2006.

#### 12.1.2 Contingency Plans

SPIRACS is the AusNet Services' Integrated Response and Contingency System. It ensures effective and timely response to emergencies, which may affect the operation of the network, the health and safety of personnel or the public. SPIRACS contains policies, frameworks, standards and procedures that create a single point of reference for the management of those risks involving the disciplines of business continuity, crisis, emergencies or security. SPIRACS procedure Crisis and Emergency Management Guide 30-4006-04 is based upon the Risk Management Framework and contains a guide to the range of potential consequences and subsequent responses.

The outcomes of the Emergency and Crisis Management System as stated in the Emergency and Crisis Management Policy 30-4006-02 procedure cover:

- Prevention of events that may involve threat to life, health, property or the environment,
- Preparing for those events which are not preventable,
- Responding to those events which impact the business, and
- Recovering from those events

At a network operational level, network contingency plans have been developed and are reviewed annually. These plans are applicable to events that directly impact or are likely to directly impact or impede the safe and reliable operation of the networks or which interrupt or are likely to interrupt power supply. The objective of the plans is to provide the framework for network contingency planning and provide an overview of the suite of contingency plans established.

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The plan includes specific incident response and recovery strategies to cover the summer and winter demand peaks, major transformer failure, selective load shedding and recovery from black starts.

The Crisis and Emergency Management 30-4006-04 provides a system of communication for nominated internal and external stakeholders, which include ESV, AEMO, the Minister and the Executive Leadership Team, for the respective levels of declared emergency. Procedures within the SPIRACS manual define emergency roles and responsibilities across AusNet Services and accredited service providers and the communication arrangements within its facilities and with outside organisations. It incorporates an emergency organisational structure and operating protocols to be adopted following the formal declaration of an emergency.

To avoid unnecessary disruption to services following an adverse natural or manmade event; each network has a number of specific continuity plans for various operational and geographical locations within the business. These are further detailed in the following documents:

- Network Contingency Plan (Victorian Transmission Network)
- Network Contingency Plan (Electricity Distribution Network)
- Network Contingency Plan (Gas Distribution Network)

### 12.2 Management of Change

Changes in operations, procedures, standards and equipment are evaluated as part of the PM&R and Cost Out stage gating procedures using the Rapid Change Impact Assessment template, which can be found at:

<https://spausnet.sharepoint.com/sites/psnc/ASCR/SitePages/Home.aspx>

The template provides a quick and easy method to assess the change and make a high level assessment of the change management requirements. This ensures that risks arising from these changes are assessed for their impact on the business. This process considers the impact on processes, systems, people and culture.

The PM&R stage gating process is the governance framework that applies to all discrete phase projects at AusNet Services. It follows a four-phase, six-stage process and individual activities are aligned to decision points in SAP-PPM.

More detailed information on how projects are managed is available on the PM&R share point portal at:

<https://spausnet.sharepoint.com/sites/snp/PMnR/Pages/Home.aspx>

#### 12.2.1 Changes to Networks

The management of change in the AusNet Services' energy delivery networks is governed by mature processes which are subject to the scrutiny of safety and economic regulators.

The regulated nature of these energy delivery networks requires that proposed changes are published for the scrutiny of a wide range of stakeholders.

AMS 20-16 Distribution Network Planning Standards and Guidelines outlines the probabilistic approach applied to determine when a network augmentation or asset renewal is economic.

The Australian Energy Market Operator (AEMO) and connected parties also apply a probabilistic approach toward augmentation of the transmission network.

AusNet Services uses a probabilistic approach to determine the economic scope and timing of transmission network asset renewals.

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The results of these planning processes are published on AusNet Services' Internet site in planning reports each year and submitted to the economic regulator as part of revenue and pricing determinations each five or six years.

The AusNet Services' gas network applies a deterministic approach where required pressure limits must be maintained as specified in the Gas Distribution Code of Practice.

### 12.3 Outsourcing

#### 12.3.1 Scope

The scope of this asset management system includes the selection, engagement and management of independent service providers in accordance with the QMS 21-01 suite of documents. Assessment of the suitability of a service provider's processes, procedures and management systems are within the scope of this asset management system.

The operation and management of a service provider's processes, procedures and management systems are defined within the contract between AusNet Services and the service provider; they are not within the scope of this asset management system.

#### 12.3.2 Principal Service Contracts

Whilst a variety of independent service providers are engaged to deliver specific projects and services for each network the principal service contracts are:

- Electricity transmission network services – In December 2016 AusNet Services extended the contract with [ C.I.C ] from 31 March 2017 to 31 March 2022, with a 5 year option to extend. This contract is for the provision of operations and maintenance services in the north-western portion of the Victorian electricity transmission network. This contract follows a similar arrangement for network services which was established between these parties in 2007. The rights and obligations of this service provision are set in the North-West Transmission Maintenance (NWTM) Contract. Effective 1 January 2018, the contract was novated to [ C.I.C ], the wholly owned unregulated subsidiary of [ C.I.C ].
- Gas network services – In April 2013 AusNet Services established a five-year contract for the provision of customer connections, network operation, fault and emergency works, asset inspection and replacement works and some minor capital project works on the AusNet Services gas network with [ C.I.C ]. The contract has a provision for five individual one year extensions, subject to achieving certain key performance indicators. Major capital works are subject to competitive tenders from registered Installation Service Providers.
- Electricity distribution network services – In April 2013 AusNet Services established a five-year contract with [ C.I.C ] for the provision of fault and emergency works, asset replacement works and some capital project works in the central service region of AusNet Services' electricity distribution network. The contract has a provision for five individual one year extensions, subject to achieving certain key performance indicators.
- Gas meter reading services – In February 2018 AusNet Services established a three year contract with [ C.I.C ] for the provision of gas meter reading services. The contract has the provision for two one year extensions.

#### 12.3.3 Interfaces

In general terms, principal service providers do not operate within the AusNet Services' asset management system but are required to use similar practices to those specified in the AusNet Services' asset management system.

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Each contract between AusNet Services and a principal service provider defines the processes and activities the service provider will undertake; the interfaces with AusNet Services' processes, the rights, responsibilities and authorities within AusNet Services to manage the service provision and the processes for the sharing of knowledge and information.

### 12.3.4 Contract Management

A Contract Management Leadership Team (CMLT) formed from the General Managers of the principal service providers and AusNet Services and meets on a monthly basis to review and actively manage the principal service contracts.

The role of the CMLT is to:

- Establish and maintain effective communication
- Review performance, unplanned events, emerging risks
- Initiate and oversee corrective actions

### 12.3.5 Management Systems

AusNet Services requires principal service providers to establish and maintain:

- A quality management system certified to AS/NZS ISO 9001;
- An environmental management system certified to AS/NZS ISO 14001; and
- A health and safety management system certified to AS/NZS 4801.

### 12.3.6 Management Procedures Manual

AusNet Services relies upon the existing ISO certified policies and procedures of the principal service provider. However, where existing policies and procedures are not considered satisfactory; AusNet services may require the service provider to establish, utilise and audit compliance with a Management Procedures Manual containing plans for:

- Operational Management;
- Quality Management;
- Environmental Management;
- Risk Management;
- Emergency Management;
- Occupational Health and Safety, and
- Security.

### 12.3.7 Standards

Each contract between AusNet Services and a service provider defines the Australian Standards, AusNet Services' standards and the Legislation and Regulation with which the service provider must conform.

### 12.3.8 Records and Reporting

Service providers are required to keep accurate records and report to AusNet Services:

- Accidents and incidents;
- Risk assessments and hazard controls;
- Performance reports and corrective action summaries;
- Audit plans; and
- Inspection and audit findings.

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### 12.3.9 Audit

Contracted resources are subject to regular audits to verify compliance with specified technical, operational and safety standards and legislative requirements. Audits are undertaken in accordance with QMS 21-11 Technical Compliance Audit Strategy to ensure compliance in all aspects of the design, construction, installation, operation and maintenance of the energy networks.

### 12.3.10 Compulsory Competitive Tender Process

The regulatory framework provides for the calling of competitive tenders for connection and augmentation related works to the three energy networks which allows connection proponents to market-test network augmentation costs. Tendering for augmentation works on the transmission network is managed by AEMO. Accordingly, the network functions of design, project management, and construction can be undertaken by service providers independent of the network owner or operator. However, assets to be connected to the energy networks must comply with AusNet Services' technical standards before connection or inclusion in AusNet Services' physical and financial registers.

### 12.3.11 Contractor Accreditation

In addition to network augmentation activities, contract resources are also utilised across the three energy networks to provide asset inspection, replacement and maintenance activities. QMS 21-01 Contractor Accreditation Guidelines provides the requirements to accredit service providers for the provision of design and engineering consultancy, installation services, construction services and maintenance services.

AusNet Services' assessment and accreditation is conducted in accordance with *Contractor Induction Checklist* and core competencies adopted are outlined in document *Contractor Training Records Management*.

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### 13 PERFORMANCE EVALUATION

#### 13.1 Monitoring

##### 13.1.1 Energy and Demand

Time related commodities such as electrical energy consumed, gas volume delivered and peak consumer demand are monitored via electro-mechanical meters and Advanced Metering interval (AMI) electronic meters at consumer's installations and via SCADA at key locations within each energy network. Meter readings and SCADA measurements are stored and made available to other industry participants in accordance with requirements of National Electricity Rules and National Gas Rules. Other industry participants are provided with access to SCADA records for the purpose of reporting or forecasting future energy requirements.

##### 13.1.2 Events

Event records such as storm damage, equipment failure and consequent supply outages and customers affected are recorded in the Distribution Outage Management system (DOMs) and the Issue Management System (IMS). Transmission network equipment failures are recorded in the SAP based Enterprise Asset Management information system. Event related data is summarised in monthly key performance indicator reports to line and executive managers. Data is analysed, reported and presented to the Asset Management Committee in an annual performance report for each network.

##### 13.1.3 Planned Works and Expenditures

Planned works such as customer connection requests, capacity augmentation projects and programs of asset renewal are monitored against progress and expenditure targets by the PM&R in accordance with the monthly operating rhythm. The Network Safety Management Committee monitors progress on safety-related inspection and maintenance programs on a monthly basis.

##### 13.1.4 Asset Condition

The condition of network assets, as measured by the asset inspection processes, is recorded in the Enterprise Asset Management information system. Asset condition is periodically summarised in Asset Health Reports and Asset Management Strategies for each asset class.

##### 13.1.5 Risk

Risks are continuously monitored through key performance indicators, which provide the ability to monitor trends and the effectiveness of asset management programs.

Formal risk reviews are triggered by the review interval set in Enablon, or more frequently if there are concerns raised by risk or control owners that there are significant changes occurring in the operating environment that may have a material effect on the risk.

Risk owners, supported by risk management leaders in relevant divisions of AusNet Services, ensure that network safety related risks are formally reviewed in the required timeframe, which is usually no longer than 12 months.

The review will typically be co-ordinated by the risk management leader for the division owning the risk and will comprise a workshop/meeting of the risk owner and key control and task owners. At this workshop all aspects of the risk assessment are reviewed.



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### 13.2 Measurement

A majority of the performance measures employed in regulated energy networks are established in Regulation or by national standard or industry Code of Practice.

For example, Energy Safe Victoria has established the definitions of network events such as gas leaks and fire ignitions which must be recorded and subsequently reported. AusNet Services uses these industry standard definitions of performance measures for internal purposes as well as external reporting. The definitions of performance measures are included in the formal works procedures, which guide employees and contractors in the information capture and subsequent analysis of event driven data. The safety regulator audits the data capture, analysis and reporting of event driven data in accordance with the performance measures it has established on behalf of consumers and other stakeholders.

The Australian Energy Regulator specifies the definition of relevant performance measures in each regulatory determination and more detailed definitions in Regulatory Information Notices. AusNet Services uses these industry standard definitions of performance measures for internal and external reporting. Information provided to the Australian Energy Regulator is subject to independent due-diligence and audit against the performance measure definitions.

The Essential Services Commission (ESC) has specified the performance measures for each energy network in regulatory instruments such as the Distribution Code, System Code and Gas Code. As these Codes are Licence obligations; all data capture, analysis and reporting is undertaken in accordance with the ESC definitions for performance measures.

### 13.3 Analysis

The analysis of performance metrics is undertaken in accordance with the definitions and methodology established by the safety and economic regulators to ensure consistency with regulatory reports and facilitate comparison with peer network businesses.

A significant example of where consistent industry wide analysis is required is the publication by the Australian Energy Regulator of an Economic Analysis Benchmarking Report and a Category Analysis Benchmarking Report for the electricity distribution and transmission networks, based on data collected through the Regulatory Information Notices (RINs). Adherence to the regulator's specification for analysis is enforced by independent due diligence and audit processes to facilitate comparisons of relative efficiency between networks.

Additionally, AusNet Services sets internal network performance targets for each of the three networks.

When monitoring and measurement identify poor benchmarking or consistently missed targets, analysis is undertaken using risk assessment techniques, as described in Section 10.2 Risk Identification and Management.

### 13.4 Internal Audit

AusNet Services facilities are also subject to regular audits to verify compliance with specified technical, operational and safety standards and legislative requirements. Audits are undertaken in accordance with QMS 21-10 Audit to ensure the requisite compliance is achieved in all aspects of the design, construction, installation, operation and maintenance of the AusNet Services network.

Audits of the asset management system are undertaken in accordance with the asset management system audit schedule and asset management system audit checklist.

Audit teams, whether sourced from external consulting firms or internal staff, are trained to ensure a competent and consistent approach, suitability and effectiveness of auditing. Results of audits are summarised and reported to the Asset Management Committee (AMC),



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Network Safety Management Committee and Audit and Risk Management Committee (ARMC).

Non-compliance and recommended improvement opportunities requiring action are logged in Enablon.

### 13.4.1 Audit Risk and Management Committee

The Audit Risk and Management Committee's (ARMC) primary function is to assist the Board in discharging its statutory responsibilities relating to:

- the financial reporting process;
- the audit process (including the Company's relationship with external auditors);
- the Company's systems of internal controls;
- the Company's process for monitoring compliance with applicable laws, regulations and codes of conduct (including in relation to interested(related) party transactions); and
- the Company's risk appetite (including the policies identifying, measuring, monitoring and managing risks).

The ARMC's charter can be found on The Loop at:

<https://www.ausnetservices.com.au/Misc-Pages/Links/About-Us/Corporate-Governance>

## 13.5 Management Review

Management review is undertaken to ensure that process capability is maintained, improved and that policies and objectives are identified, measured and reported in accordance with QMS 20-01 Management Review.

The review includes items such as:

- On-going performance against internal KPIs, objectives and targets;
- Review Policies, Business and Management Plan's as appropriate;
- Process and system changes in gaps, risks, deficiencies, suitability and effectiveness;
- Results of audits (internal, external and certification);
- Corrective actions statistics and performance;
- Regulatory and legislative impacts on the system;

Each year, in accordance with its calendar of activities, the Asset Management Committee reviews the performance of each energy network and the effectiveness of the asset management system as precursors to the annual update of the Asset Management Strategies for each network and the five-year asset management plan.

The Network Safety Management Committee meets on a monthly basis and monitors and reports on the effectiveness of risk management controls associated with key network safety related risks. This is achieved by using key performance indicators (KPIs) to track the management of these risks, including monitoring the timely completion of network safety programs. The Network Safety Report (NSR), prepared for the monthly meetings, contains detailed information on the trending of network safety related KPIs and the outcomes of quality audits. A summary of the NSR is provided to the Executive Management Team.

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### 14 IMPROVEMENT

#### 14.1 Nonconformity and Corrective Action

The Electrical Incident Investigation and Reporting 30-2010 and Gas Incident Reporting (Investigation Data Gathering Guide) TS 0503 procedures provide instruction on the required data, timeframes and responsibilities for reporting an asset related incident.

Incidents requiring investigation have information entered into the Issues Management System (IMS), the Event Management module of Enablon, which also provides the required regulatory reporting information to Energy Safe Victoria (ESV).

IMS is also designed to prompt the user to provide the required information and provides the ability to track and report against timelines and line management responsibilities. Investigation tools such as Apollo Root Cause Analysis and Failure Modes Effect Criticality Analysis (FMECA) may be utilised in the investigation of incidents depending on the complexity or severity of the consequences. IMS is also the management tool used to record non-conformances and improvement recommendations from all audits with the business.

Enablon is an intranet based system which is accessed via The Loop or via a desktop icon.

Figure 14, is a screen shot of the Enablon homepage.

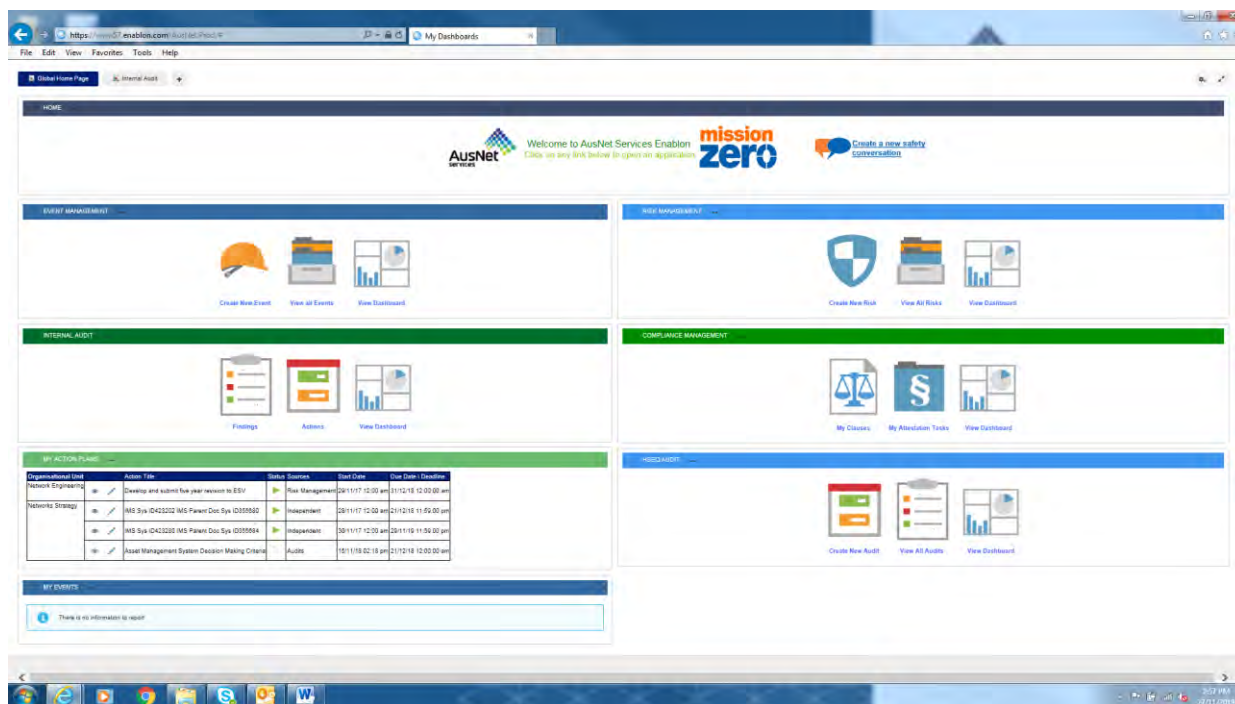


Figure 14: Enablon Homepage

#### 14.2 Condition Monitoring and Preventative Action

QMS 21-04 Corrective and Preventative Action defines the corrective and preventative action process to identify and eliminate the causes of actual or potential non-conformances.

##### 14.2.1 Electricity Distribution Network

AMS 20-21 Condition Monitoring summarises the prevailing asset condition monitoring techniques employed in the electricity distribution network. It also describes the techniques used to summarise condition data in Asset Health Reports and the use of such data in asset failure probability forecasts.

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This information is used to guide asset replacement plans and optimise maintenance efforts.

### 14.2.2 Gas Distribution Network

The monitoring of gas distribution network asset condition is undertaken by a combination of:

- Real-time data acquisition and recording via SCADA systems,
- Leakage surveys, leak reports, and Unaccounted For Gas monitoring,
- Asset inspection programs and corrosion surveys, and
- Gas quality monitoring, including management of oil-in-gas issues.

AMS 30-01 Section 10.4 Condition Monitoring describes how AusNet Services monitors the condition of its gas network to inform asset replacement plans and optimise maintenance efforts.

### 14.2.3 Electricity Transmission Network

AMS 10-13 Condition Monitoring summarises the prevailing Visual, Off-line, On-line and Scanning techniques employed to assess asset condition in the electricity transmission network. It also describes the asset class condition summaries in Asset Health Reports and the use of such condition data as the foundation for asset failure probability forecasts.

AMS 10-17 Victorian Electricity Transmission Network Performance Monitoring describes the process for monitoring the performance of the electricity transmission network, including the reporting of malfunctions and trends in plant and equipment performance to enable corrective and preventative actions to be taken in a timely manner.

### 14.2.4 Reactive Monitoring

Reactive monitoring is applied through forensic analysis and report preparation of major plant and equipment in-service failures or failures that have resulted in reportable or major incidents. These events are logged in the *Issues Management System (IMS)* and a report and recommendations completed. Examples of this include CVT and bare conductor failures that have resulted in the subsequent implementation of enhanced condition monitoring and replacement programs.

### 14.2.5 Leading Indicators

The comprehensive audit and compliance program maintained by AusNet Services includes audit of asset management systems, processes, training, work practices and construction standards. Results of audits are reviewed by the Audit and Compliance Committee to identify opportunities to modify asset management systems or work practices to ensure compliance to required design and performance standards.

On-line monitoring of lines and plant provides real-time monitoring of the network and its status together with the ability to remotely control. Off-line asset condition assessment data is obtained through cyclic and duty based inspection, testing and maintenance programs. The scheduling of these programs is maintained in the Enterprise Asset Management information system together with asset condition assessments.

Respective asset class technical standards have established asset condition assessment criteria against which an assessment of condition and/or remaining life or performance is determined.

Combination of asset performance monitoring data and regular review of individual plant strategies provides the ability to determine the effectiveness of asset management strategies together with the opportunity to modify maintenance and replacement programs.

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### 14.2.6 Lagging Performance Indicators

Analysis of Enterprise Asset Management information system and IMS data, together with *PowerOn* for electricity and gas distribution, provides frequencies of unscheduled asset maintenance and in-service failures that indicate that existing inspection and maintenance programs may need adjustment. This generally requires analysis by asset class to identify the cohort that requires a modified inspection and maintenance schedule or initiation of a replacement program.

### 14.2.7 Qualitative and Quantitative Measures

SCADA operating data provides quantitative status of the network for all networks and provides confirmation the respective network is operating within designated design parameters. This data also provides the planning forecast information required for network augmentation.

In general terms, asset inspection and condition criteria for electricity network lines can be regarded as qualitative based upon visual assessment criteria that are used to provide a deterministic assessment of when the asset is to be replaced. The exception is wood pole assessment which has quantitative criteria to determine asset replacement or reinforcement requirements. Plant within electricity terminal and zone stations such as transformers and circuit breakers have quantitative condition assessment criteria used in a qualitative manner to undertake replacement risk modelling.

The gas network utilises quantitative measures to drive mains and meter replacement programs as well as network augmentation. Network leaks, identified through leakage surveys and customer reports are applied to risk based models to drive mains replacement requirements. Sample testing techniques are applied to ascertain meter replacement programs and network modelling is used to ascertain reinforcement requirements based on current and predicted network performance and growth.

### 14.2.8 Effectiveness and Efficiency

Monitoring of trends in unscheduled network outages, in-service asset failures and unplanned incidents provides an indication of asset condition monitoring programs and their respective effectiveness. The efficiency of proposed augmentation to asset monitoring programs is assessed when reviewing asset management strategies to establish the optimal outcome between on-going inspection and maintenance versus refurbishment and replacement options.

Undertaking an options analysis requires an assessment of the risks associated with the options and a subsequent cost benefit analysis.

Among a range of tools used in assessing asset life cycle management options, AusNet Services utilises Reliability Centred Maintenance (RCM), Apollo Root Cause Analysis and Failure Modes Effect Criticality Analysis (FMECA).

The safety management schemes (ESMS and Gas Safety Case) are systems designed to meet the legislative requirement for a risk based approach to network safety management which is heavily dependent upon asset management. As such, these systems are outcome focussed and have performance monitoring systems that continuously identify opportunities to cost effectively manage safety risk as far as practicable (AFAP).

For further information, refer to:

- AMS 10-01 Transmission Asset Management Strategy
- AMS 10-13 Condition Monitoring
- OP207-8 CVT Asset Monitoring System (CAMS)
- ESMS 20-03 Electricity Safety Management System

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- AMS 20-01 Electricity Distribution Asset Management Strategy
- AMS 20-21 Condition Monitoring
- ESMS 10-03 Electricity Safety Management System
- AMS 30-01 Gas Distribution Asset Management Strategy
- GSC 10-01 Facilities Description and Safety Management System Overview

### 14.3 Continual Improvement

#### 14.3.1 Culture

Continuous improvement is achieved within AusNet Services by linking our business plan initiatives through division and department plans to an individual's 'Annual Incentive Plan' and 'Personnel Development Plan' which instils an 'improvement culture'.

AusNet Services employees participate in annual performance review and appropriate training in order to improve competence and performance.

#### 14.3.2 Process

AusNet Services uses Value Engineering techniques on a case-by-case basis to improve the value of an asset, service or process by improving quality, increasing productivity or reducing cost.

#### 14.3.3 Economic

The economic regulatory framework under which AusNet Services secures its operating revenues is subjected to regular review, normally every five years. These reviews require demonstration that the respective Asset Management Strategy for each network is delivering the optimal balance between customer service and price. These reviews require AusNet Services to complete and submit a detailed price and service proposal to the Australian Energy Regulator (AER), which is subject to public, customer and stakeholder review and comment. The preparation of a price proposal requires the demonstration of asset replacement and augmentation programs that achieve industry best practice evident through the systematic process of benchmarking by the AER of other energy networks. Efficient delivery of network services is achieved through a combination of competitively tendered and in-house service provision.

Economic and life cycle modelling associated with the respective Asset Management Strategy for each network underpins the price proposals provided to the AER for review and comparison. The highest level of each of the asset management strategies is reviewed and updated each year and their supporting foundation and implementation strategies and procedures are reviewed prior to each regulatory price reset and maintained within price reset periods as required. The Asset Management Committee oversees this process of review and update and endorses the annual publication of each asset management strategy. Implementation of the Asset Management Strategy and Plans is monitored by the AER and details published for the information of customers and stakeholders through the AER's Comparative Benchmarking Report.

#### 14.3.4 Technical

Asset management drivers requiring the delivery of economic and efficient customer network services requires an equal focus toward the continual development and adoption of new technology to enable the delivery of optimal network services.

Activities that assist in this include:

- Membership and participation in key industry organisations (Energy Networks Australia, CIGRE, IEEE);
- Participation in industry field days and seminars;

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- Participation and collaborative research and development with Universities;
- Participation in State, National and International benchmarking;
- Membership and subscription to trade and industry journals and magazines; and
- Energy Safe Victoria comparative reporting and audit processes.

### 14.4 Improvement Plan

Continual improvement actions are identified and logged in several ways, including:

- System audits;
- Activity audits, such as worksite quality audits;
- Internal audit reports, prepared by the Internal Audit Team;
- Performance Hub activities;
- Actions in annual business plans; and
- Asset Management Committee meeting minutes and actions.

#### 14.4.1 Recording Audit Findings

Each audit will result in a number of findings, which include items where the system does not conform with the standard (minor and major non-conformances) and items where, in the opinion of the auditor, the system could be improved (opportunities for improvement).

All non-conformances and opportunities for improvement shall be raised as a corrective action in Enablon to allocate responsibilities, record progress and monitor close out as per QMS 21-04 Corrective and Preventative Actions.

For each audit, one audit finding shall be raised in Enablon for each:

- Major Non-conformances;
- Minor Non-conformances; and
- Opportunities for Improvement.

Once the findings have been created, an action plan, or plans, can be created to address the finding. If it is decided not to progress an opportunity for improvement, no action item needs to be raised.

The due date for action items shall be:

- Major Non-conformances – 6 months from audit date
- Minor non-conformances – 12 months from audit date
- Opportunities for improvement – 2 years from audit date.

#### 14.4.2 Addressing Non-conformances and Opportunities for Improvement

It is a requirement of ISO 55001 for non-conformances to be addressed.

Opportunities for improvement are simply opportunities, which may or may not be taken.

The criteria for deciding whether or not to implement an opportunity for improvement are:

- Estimated cost to implement versus the expected benefit;
- Resource availability to implement the opportunity;
- Complexity or difficulty of implementation; and
- Alignment with existing organisation initiatives.



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### 14.4.3 Close-out process

Evidence of Corrective Actions meeting the 'Success Criteria' can be submitted to the auditor during an audit or forwarded to the auditor with a request for review following an audit.

If required, the auditor will convene a teleconference with the appropriate AusNet Services people. If there is sufficient evidence to close the non-conformance, it will be 'closed subject to verification' at the next Certification or Surveillance Audit.

### 14.4.4 Open Non-Conformances Resulting from ISO 55001 Audits

Table 3 lists all of the open non-conformances from previous ISO 55001 audits.

**Table 3: Open Non-Conformances resulting from ISO 55001 audits**

Enablon Action Plan ID	ISO 55001 Clause	Minor Non-Conformance	Assigned to
A0002156	9.2	The scope of the current corporate audit plan contains some aspects of the asset management system; however AusNet Services is unable to adequately demonstrate that this encompasses the full scope of the Asset Management System.  <b>Update at 2018 Audit:</b> Clearly document and implement the criteria used to form the asset management system audit plan.	C.I.C
A0001417	8.2	There is insufficient control migrating data between training excel spreadsheets. The activity is resulting in a loss of connectivity to source staffing module / databases.  <b>Update at 2018 Audit:</b> Whilst the scope of SuccessFactors is considered to address this item, it is not yet fully implemented within the business. As such it is not possible to evaluate the effectiveness of the system in addressing the non-conformity identified.	
NCR 8.1.2	8.1	Two ladders were out of test date at Richmond Terminal Station.  <b>Update at 2018 Audit:</b> There is no evidence to determine if this was a localised or systemic issue.	
NCR 8.1.1	8.1	First-aid boxes not tagged with in-service dates. Not clear if items contained are within use by dates.  <b>Update at 2018 Audit:</b> There is no evidence to determine if this was a localised or systemic issue.	

Further details on the progress of addressing these non-conformances can be found in Enablon.