Expenditure Forecasting Methodology Statement

2019-24 REGULATORY PROPOSAL

June 2017

Endeavour Energy

CONTENTS

1.0 INTRODUCTION

In accordance with clause 6.8.1A of the National Electricity Rules (NER), this document is designed to inform the Australian Energy Regulator (AER) and other stakeholders of the methodology Endeavour Energy proposes to use to forecast the operating and capital expenditure required for standard control services that will form part of our regulatory proposal for the regulatory control period 1 July 2019 to 30 June 2024.

Endeavour Energy understands the primary purpose of providing this forecasting methodology statement is to:

- allow the AER to understand the approach and methods employed by Endeavour Energy to derive efficient forecasts of operating and capital expenditure for the 2019-24 regulatory control period; and
- enable engagement between Endeavour Energy and the AER so as to assist the AER in preparing its assessment methods for Endeavour Energy’s proposed operating and capital expenditure forecasts.

This document has been prepared with the intention of implementing the forecasting methodologies as described to develop our 2019-24 regulatory proposal to the AER. Nevertheless, given that Endeavour Energy is not required to lodge a regulatory proposal until 31 January 2018, not all elements of our expenditure forecasting methodology can be finalised at the time of lodging this statement. As a consequence, this statement can only provide an overview of the methodologies we propose to adopt in forecasting our operating and capital expenditure that form part of our 2019-24 regulatory proposal. Full details of these methodologies, including key variables and assumptions, will be included in our regulatory proposal, as required by clauses S6.1.1 and S6.1.2 of the NER.

Should Endeavour Energy need to deviate from the proposed forecasting methodology to cater for changes in our circumstances from the time of lodging this statement, we will advise the AER as soon as practicable. Any amendments will also be outlined in our 2019-24 regulatory proposal.

Endeavour Energy’s customers and stakeholders can provide feedback on this statement through the following channels:

Table 1: Feedback on this Forecasting Methodology Statement

Channel	Details
Email	yoursay@endeavourenergy.com.au
Post	Manager Network Regulation PO Box 811 Seven Hills NSW 1730
Online	www.endeavourenergy.com.au/contactus

Customers can also provide feedback and comments on our Forecasting Methodology Statement to the AER (www.aer.gov.au).

Alternatively, customers may also like to contact us via Twitter.com/endeavourenergy.

2.0 RULE REQUIREMENTS

This expenditure forecasting methodology statement has been prepared with consideration to the various legal and regulatory requirements that Endeavour Energy, as a registered and licenced electricity distribution network service provider, is obligated to comply with. Endeavour Energy is committed to the principles that are supported by the National Electricity Objective (NEO) as stated in the National Electricity Law (NEL).

National Electricity Objective (NEO)
The objective of this 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

2.1 OPERATING & CAPITAL EXPENDITURE OBJECTIVES

The NER identifies the requirements Endeavour Energy must satisfy in submitting operating and capital expenditure forecasts as part of the building block proposal. Clauses 6.5.6(a) and 6.5.7(a) of the NER requires Endeavour Energy to provide operating and capital expenditure forecasts for the 2019-24 regulatory control period required to achieve each of the operating and capital expenditure objectives as part of the 2019-24 regulatory proposal.

Operating & Capital Expenditure Objectives
A building block proposal must include the total forecast operating and capital expenditure for the relevant regulatory control period which the Distribution Network Service Provider considers is required in order to achieve each of the following:

- meet or manage the expected demand for standard control services over that period;
- comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
- to the extent that there is no applicable regulatory obligation or requirement in relation to:
  (i) the quality, reliability or security of supply of standard control services; or
  (ii) the reliability or security of the distribution system through the supply of standard control services,
  to the relevant extent:
  (iii) maintain the quality, reliability and security of supply of standard control services; and
  (iv) maintain the reliability and security of the distribution system through the supply of standard control services; and
- maintain the safety of the distribution system through the supply of standard control services.

2.2 OPERATING & CAPITAL EXPENDITURE CRITERIA

As per clauses 6.5.6(c) and 6.5.7(c) of the NER the AER is obliged to accept the proposed expenditure forecasts if it is satisfied the amount reasonably reflects each of the expenditure criteria.

Operating & Capital Expenditure Criteria
The AER must accept the forecast of required expenditure of a Distribution Network Service Provider that is included in a building block proposal if the AER is satisfied that the total of the forecast expenditure for the regulatory control period reasonably reflects each of the following:

- the efficient costs of achieving the expenditure objectives;
- the costs that a prudent operator would require to achieve the expenditure objectives; and
- a realistic expectation of the demand forecast and cost inputs required to achieve the expenditure objectives.

2.3 OPERATING & CAPITAL EXPENDITURE FACTORS

Clauses 6.5.6(e) and 6.5.7(e) of the NER requires the AER to have regard to several considerations in deciding whether Endeavour Energy has proposed expenditure forecasts that reasonably reflects each of the expenditure criteria. These considerations are known as the expenditure factors. The obligation on the AER to consider these factors is listed in the NER as below:

Operating & Capital Expenditure Factors

In deciding whether or not the AER is satisfied, the AER must have regard to the following:

- the most recent annual benchmarking report that has been published under rule 6.27 and the benchmark operating expenditure that would be incurred by an efficient Distribution Network Service Provider over the relevant regulatory control period;
- the actual and expected operating and capital expenditure of the Distribution Network Service Provider during any preceding regulatory control periods;
- the extent to which the expenditure forecast includes expenditure to address the concerns of electricity consumers as identified by the Distribution Network Service Provider in the course of its engagement with electricity consumers;
- the relative prices of operating and capital inputs;
- the substitution possibilities between operating and capital expenditure;
- whether the expenditure forecast is consistent with any incentive scheme or schemes that apply to the Distribution Network Service Provider under clauses 6.5.8, 6.5.8A or 6.6.2 to 6.6.4;
- the extent the expenditure forecast is referable to arrangements with a person other than the Distribution Network Service Provider that, in the opinion of the AER, do not reflect arm's length terms;
- whether the expenditure forecast includes an amount relating to a project that should more appropriately be included as a contingent project under clause 6.6A.1(b);
- the extent the Distribution Network Service Provider has considered, and made provision for, efficient and prudent non-network alternatives; and
- any relevant final project assessment report (as defined in clause 5.10.2) published under clause 5.17.4(o), (p) or (s);
- any other factor the AER considers relevant and which the AER has notified the Distribution Network Service Provider in writing, prior to the submission of its revised regulatory proposal under clause 6.10.3, is an operating or capital expenditure factor.

This document provides a comprehensive overview of the key strategies, plans and processes undertaken to guide our investment expenditure decisions. In addition, it also confirms Endeavour Energy's prudent assessment of proposed expenditure which is subject to robust and detailed analysis at all stages of the planning process. Specifically, this document explains how Endeavour Energy:

- makes investment decisions that align to our corporate plan and contribute to achieving our purpose;
- arrives at investment decisions based on a detailed understanding of the current condition of network assets and the technical requirements needed of the network to efficiently deliver future demand and service level expectations;
- adopts a stringent approval process for proposed solutions to network constraints and renewal needs, including demand management and other non-network options;
- responsibly incorporates the views and expectations of a range of stakeholders as received through our engagement activities;
- applies investment scrutiny through robust governance to ensure assets are managed in accordance with plans;
- undertakes constant reviews seeking delivery efficiency opportunities; and
- provides realistic costing estimates which are derived through the application of top-down and bottom up approaches and are based on reliable estimates of key variables.

3.0 CORPORATE PLAN & STRATEGY

3.1 OVERVIEW

Endeavour Energy's purpose is captured in the statement:

"To be of service to our communities by efficiently distributing electricity to our customers in a way that is safe, reliable and sustainable."

This purpose is supported by Endeavour Energy's corporate strategy to meet the long-term interests of our customers, shareholders, people and communities by delivering on three key strategic goals:

- Safety – We will deliver safe outcomes for our employees, contractors and the community;
- Reliability – We will provide services on which customers can rely, that meet their long-term needs; and
- Sustainability – We will build a thriving, adaptable business by growing long-term value for customers and shareholders.

Endeavour Energy has implemented four strategic plans to guide the network planning and operational activities required to help us best achieve our core purpose. As indicated below, these strategic plans outline our approaches to achieve objectives in the core priority areas of:

- People and Safety;
- Customers and Stakeholders;
- Asset management; and
- Commercial

Figure 1: Endeavour Energy's purpose and objectives

Contained within each of these strategic plans are clear descriptions of:

- the plan's purpose;
- the business context and strategic challenges relevant for each plan;
- the initiatives to be delivered via the plan and the actions that are to occur;
- how risk is managed within each plan; and
- the main performance measurements for each plan.

Our strategic plans provide a level of clarity and focus which enables Endeavour Energy to affect strategies through a coordinated approach to program development using Endeavour Energy's network planning and management framework. This integrated approach across all organisational units ensures we are able to efficiently allocate resources to best achieve our core network outcomes in the following areas:

- ensuring the safety of employees, contractors and the community;
- meeting customers' reliability needs;
- servicing growth in demand;
- managing the network efficiently and sustainably; and
- meeting our regulatory obligations.

Our well established and clearly defined corporate plan and supporting strategies facilitate our network planning process which ensures we are well equipped to develop and deliver the network plans designed to meet the expectations of our stakeholders.

3.2 ENDEAVOUR ENERGY'S NETWORK

Figure 2: Endeavour Energy's network area

Endeavour Energy's network distributes power to 970,000 residential and business customers and spans 24,800 square kilometres covering densely populated and regional areas including Sydney's Greater West, the Blue Mountains, Southern Highlands, Illawarra and the South Coast of NSW. It provides reliable electricity supply to major load centres in Western Sydney (the third largest economy in Australia) including the only two Priority Growth Centres in NSW located in Sydney's North West and South West regions.

As of June 2017, our distribution network assets include:

- A sub-transmission system of consisting 132kV, 66kV and 33kV assets;
- A high voltage distribution system of consisting of 22kV, 11kV and 12.7kV SWER assets;
- A total of 24 sub-transmission substations, 162 zone substations and over 31,500 distribution substations across voltage levels from 11kV to 132 kV;
- Over 50,000 km of overhead lines and underground cables;
- Metering assets;
- Communications assets; and street lighting assets.

3.3 KEY STAKEHOLDERS

Endeavour Energy is a regulated electricity distribution business with assets spread across a broad geographical area as noted above. The way we manage our assets impacts the service standards on a broad range of stakeholders who extend beyond those with a direct commercial relationship with Endeavour Energy. Endeavour Energy's corporate plan and business strategies recognise this through our objectives which require us to meet the broad ranging expectations of all key stakeholders. Endeavour Energy's key network stakeholders are:

- End-use customers – residential, commercial and industrial, including their stakeholder and reference groups;
- Other connected networks (TransGrid, Ausgrid, Essential Energy, and other private networks), and generators;
- Communities in which Endeavour Energy's network assets are situated, including local councils and stakeholder groups (for example environmental groups);
- Electricity retailers;

- Industry governance and regulatory bodies (such as the NSW Department of Industry, SafeWork NSW, etc.);
- Australian Energy Market Commission (AEMC – the rule maker under the National Electricity Law).
- Australian Energy Regulator (AER the economic energy markets and networks regulator);
- Australian Energy Market Operator (AEMO – the administrator and operator of the wholesale National Energy Market);
- Independent Pricing & Regulatory Tribunal (IPART – the technical and licence compliance regulator in NSW);
- Accredited Service Providers who undertake contestable works;
- Employees, suppliers and external service providers; and
- Shareholders, including the NSW Government.

3.4 CURRENT BUSINESS ENVIRONMENT

The key areas of strategic focus to our business are as follows:

Safety continues to be a number one priority

The focus on safety at Endeavour Energy has been on the development of safety leadership capability, safety culture and safety management frameworks, which have helped to drive the significant improvement in safety outcomes over the past few years. This approach will continue into the future. Safety culture initiatives including the Network Fatal Risk Program, a review of Endeavour Energy's safety observation process, and engagement forums focusing on safety strategy and improved staff communication are ongoing. This focus also extends to public and customer safety initiatives and campaigns which support our Public Electrical Safety Awareness Plan.

Growth in Western Sydney

Endeavour Energy services some of the fastest growing communities in NSW. Our supply franchise area includes the North West and South West Priority Growth Areas, established by NSW Government in 2005 to accommodate at least 500,000 new residents over 30 years.

Endeavour Energy's area also services the Western Sydney Employment area, which was established by the NSW Government in 2005 to provide businesses in the region with land for industry and employment, catering for transport and logistics, warehousing and office space. Further, the site for the Western Sydney airport will be in Endeavour Energy's network area at Badgerys Creek. In addition, the Western Sydney Employment area is to be expanded by 4,500 hectares to adjoin the airport site and the South West Growth Centre.

The abovementioned developments, combined with such infrastructure projects as the WestConnex motorway, SouthWest and NorthWest rail links, and the associated growth of the region is likely to require extensive network planning and investment and represents an opportunity for Endeavour Energy to make use of technological advances that are envisaged to result in non-network options playing a more prominent role in our network design.

Changing customer energy needs and changing technology

Australia's electricity landscape is likely to change significantly in the coming decades with the increasing use of embedded generation, development and uptake of economically efficient energy storage solutions, and the increasing adoption of electric vehicles combining to drive transformational change. At the time of writing this document, approximately 12% of our customers have solar roof-top installations.

As a consequence, the role of the network is expected to change significantly with the increasing prevalence of the 'two-way' energy flow. The role of the traditional grid is evolving to enable customer-driven take up of new services, such as renewable generation, battery storage, electric vehicles and home automation. These changes, combined with price signal impacts and energy efficiency improvements mean that customer usage patterns continue to change, with the network functions transitioning from a traditional "bulk supply to customer" model to a "connection sharing" model, similar to the way the internet functions.

The widespread use of embedded generation and the emergence of cost-competitive battery storage solutions also provide a suite of opportunities for Endeavour Energy, such as reducing peak demand and optimising costs. We are integrating these technological developments into our network planning and evaluating opportunities from leveraging future technological advances.

Operational efficiency

We are committed to continuous improvement which is largely demonstrated by our focus on delivering network services to our customers (in accordance with our strategies and plans) in the most cost efficient manner possible. Our internal processes have evolved in order to achieve greater efficiency in several organisational areas as the opportunities to do so are identified and adopted. We continue to actively seek these opportunities on behalf of our customers to limit the cost impact of our investment and operational decisions.

Changing community expectations and asset management requirements

A significant proportion of our distribution network is in bushfire prone areas. Preventing network-related bushfire starts is therefore a high-priority asset management focus area. Recent bushfire events associated with electricity supply utilities across Australia reveal changing community expectations and continuing challenges pertaining to the presence of our network in the community setting.

Partly in response to this, IPART requires substantially increased evidence that Endeavour Energy has sound and effective asset management strategies in place. Amongst other things this is expected to require the demonstration of compliance with the international asset management standard ISO 55001 as a NSW Distribution Licence Condition.

In light of this, we are undertaking an Asset Management Transformation Program which has the certification of our Asset Management system to the ISO55001 standard as one of our enablers.

Network Operational Systems Security and Integrity

Maintaining and strengthening the integrity of Endeavour Energy's information and communications system that controls our network remains a high-priority due to the ever-increasing risk of system hacking and cyber-attack.

4.0 STAKEHOLDER ENGAGEMENT

Endeavour Energy is committed to ensuring the quality and level of service provided to our customers and the costs incurred in delivering these services align with community expectations. To ascertain the concerns and issues from a variety of stakeholders and the value they place on network investment outcomes, we actively pursue engagement activities that provide us with feedback that can be used to better inform our investment decisions.

Endeavour Energy has developed the Customers & Stakeholders Engagement Plan to guide interaction and consultation activities that are able to effectively allow genuine input from consumers, business and other stakeholders into developing our network investment plans and decisions.

As one of the four major strategic plans that underpins our overall strategy, the Plan recognises the wide variety of paying electricity customers, both individuals and organisations, as well as the many stakeholder and interest groups, impacted by our business decisions.

The purpose of the Customers and Stakeholders Strategic Plan is:

"To embed effective customer and stakeholder engagement in our daily operations and place customers' interests at the centre of everything we do."

The objective of the Plan is to continually improve our customer service, engage effectively with stakeholders, and meet the needs of the communities we serve. We aim to develop relationships with customers and stakeholders that are efficient, trusted and respectful. We seek to understand our customers and stakeholders by listening to them, and aim to respond to identified customer needs and concerns, ultimately delivering on our promises.

Our customer engagement process includes four phases, based on a continuous cycle of improvement.

We engage on a regular basis with customers and stakeholders and test learnings through research and engagement and use this as test the foundation topics for our regulatory proposal.

We also collect feedback through deliberative forums, targeted roundtable discussions, issues papers, qualitative and quantitative research and on line engagement.

Endeavour Energy is conducting an extensive engagement program to inform the 2019-24 regulatory proposal. The feedback from these activities will help form the basis of the proposal and be reflected in our expenditure forecasts. These activities may be altered to accommodate emerging business and customer priorities and issues.

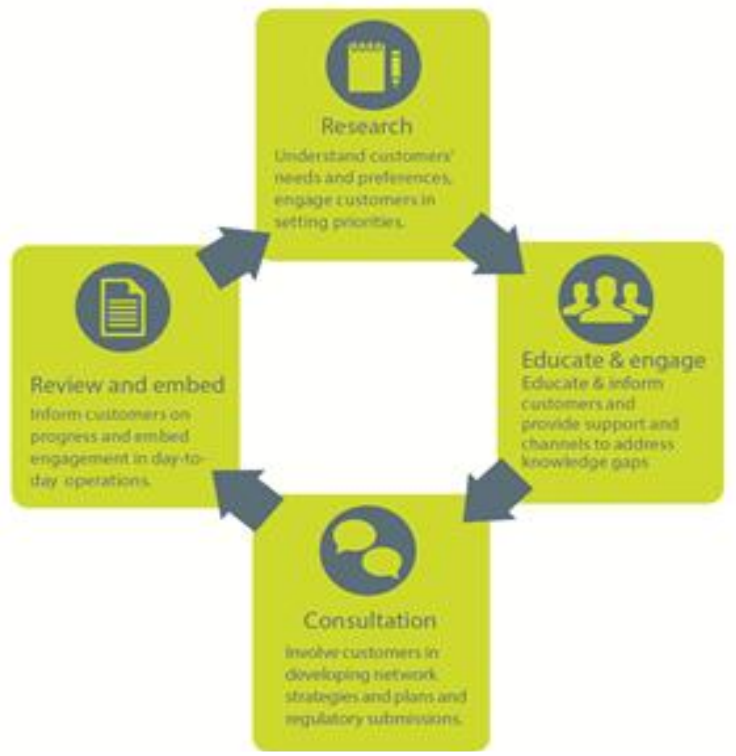


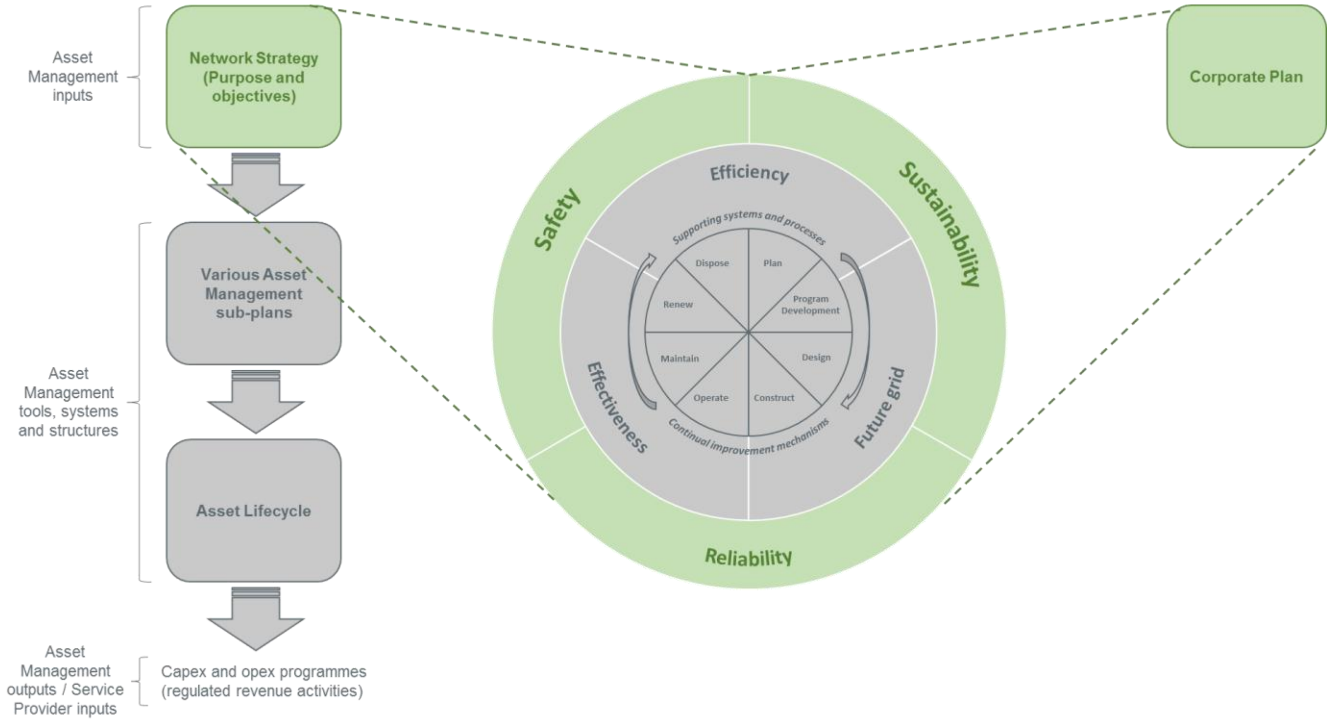
Figure 3: Endeavour Energy's customer engagement framework

5.0 NETWORK STRATEGY AND NETWORK OUTCOMES

5.1 NETWORK STRATEGY FOCUS AREAS

The Network Strategy is structured to support the three organisational objectives of safety, reliability and sustainability. It provides the overarching requirements of Endeavour Energy to manage network assets by setting out the Purpose and Objectives as noted in Figure 1 below. This ensures that Endeavour Energy's approach to asset management is directed by the objectives that Endeavour Energy has set for the network and to ensure that the strategic goals will be achieved.

Figure 4: Purpose and objectives for the network are reflected in the Network Strategy



Specifically it provides the direction for the various Asset Management strategic initiatives required to achieve the objectives of this strategy, aimed at delivering the desired asset management outcomes using efficient, "fit-for-purpose" approaches. The outputs from the asset management process (in particular, the operating and capital investment programs) also provide inputs to the Network Services Division, Endeavour Energy's asset management service provider, which undertakes activities in the "construct", "operate", "maintain", "renew" and "dispose" phases of the asset lifecycle.

Endeavour Energy drives its sustainability objective through business as usual processes via a constrained approach to asset investment. Endeavour Energy achieves this through "needs based" investment with a commercial focus. Examples of our "needs based" investment approach include:

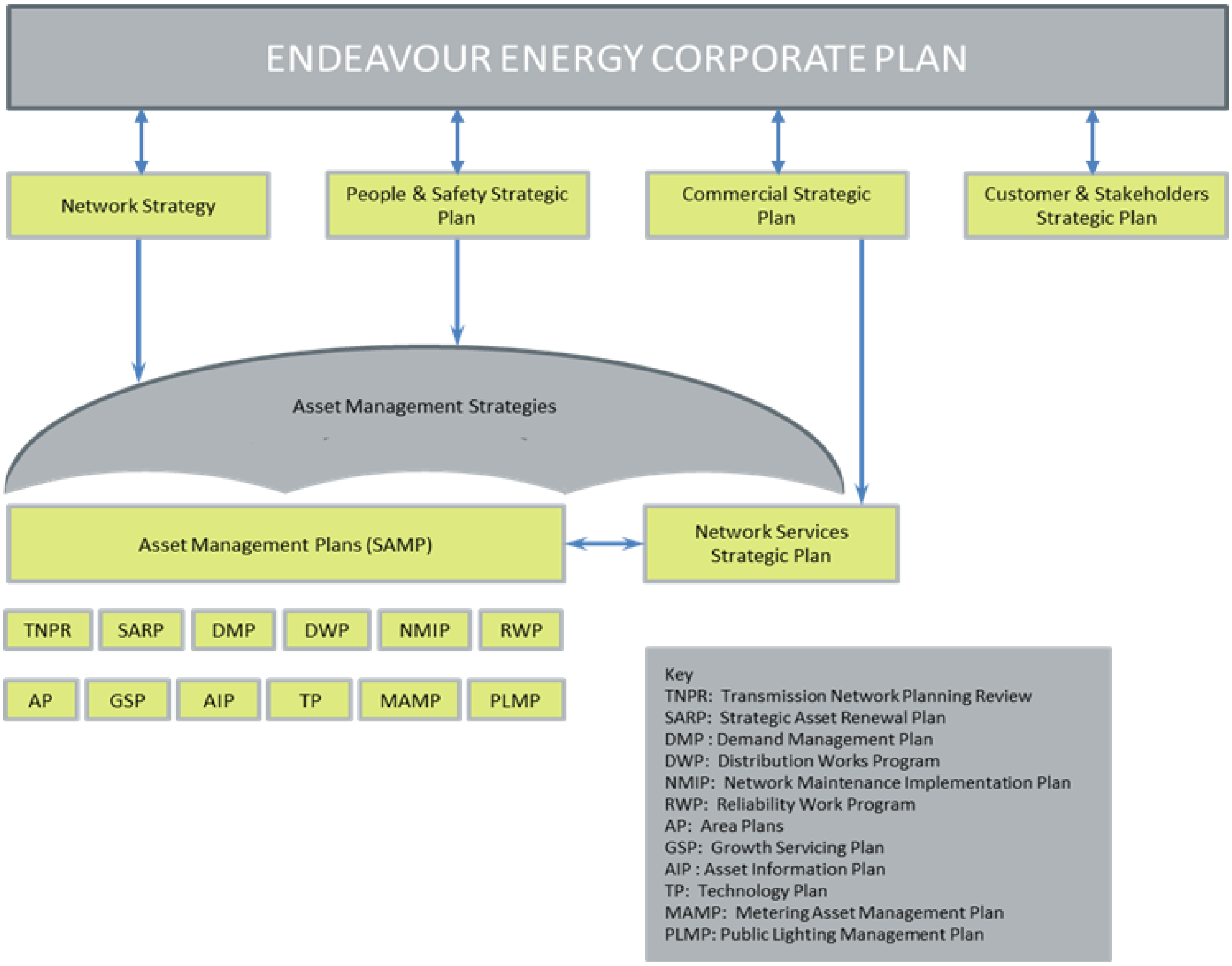
- growth investment to meet future electricity demand applies an "in time" rather than "ahead of time" approach;
- probabilistic planning methods used to determine when incremental increase in capacity is economically justified;
- replacement based on asset condition with complete replacement and piecemeal (component-by-component) replacement strategies based on site factors. Some asset types are allowed to operate until failure where the consequence of failure is low and can be safely managed;
- modest reliability investment to address (poor) performance outliers;
- actively seeking the use of demand/customer side solutions where appropriate. Demand Management and other non-network solutions are regularly assessed for potential credible alternatives to traditional network investment;
- maintenance activities for sub-transmission assets are primarily based on a risk and condition-based preventative approach. Endeavour Energy has been progressively transitioning from routine time-

based maintenance intervals to determining maintenance requirements based on utilisation and condition factors, and using risk and condition assessment techniques such as Failure Mode, Effects and Criticality Analysis (FMECA) and Reliability Centred Maintenance (RCM) processes;

- the maintenance approach for distribution assets has also transitioned to a more risk-based maintenance approach using FMECA and RCM processes and is primarily inspection and condition based with some preventative maintenance activities undertaken when the expected failure mechanism is predictable and manageable; and
- risk-based vegetation management program based on outcomes, as well as annual pre-bushfire season inspection and defect rectification.

Figure 5 below shows the relationship between the Network Strategy and Endeavour Energy's corporate plan. It also shows the "line of sight" from Endeavour Energy's corporate plan to the asset management strategies and associated supporting plans that are focused on achieving the objectives of asset management strategic initiatives and the Network Strategy.

Figure 5: Endeavour Energy's Strategic Planning Framework



5.2 ASSET MANAGEMENT STRATEGIC INITIATIVES

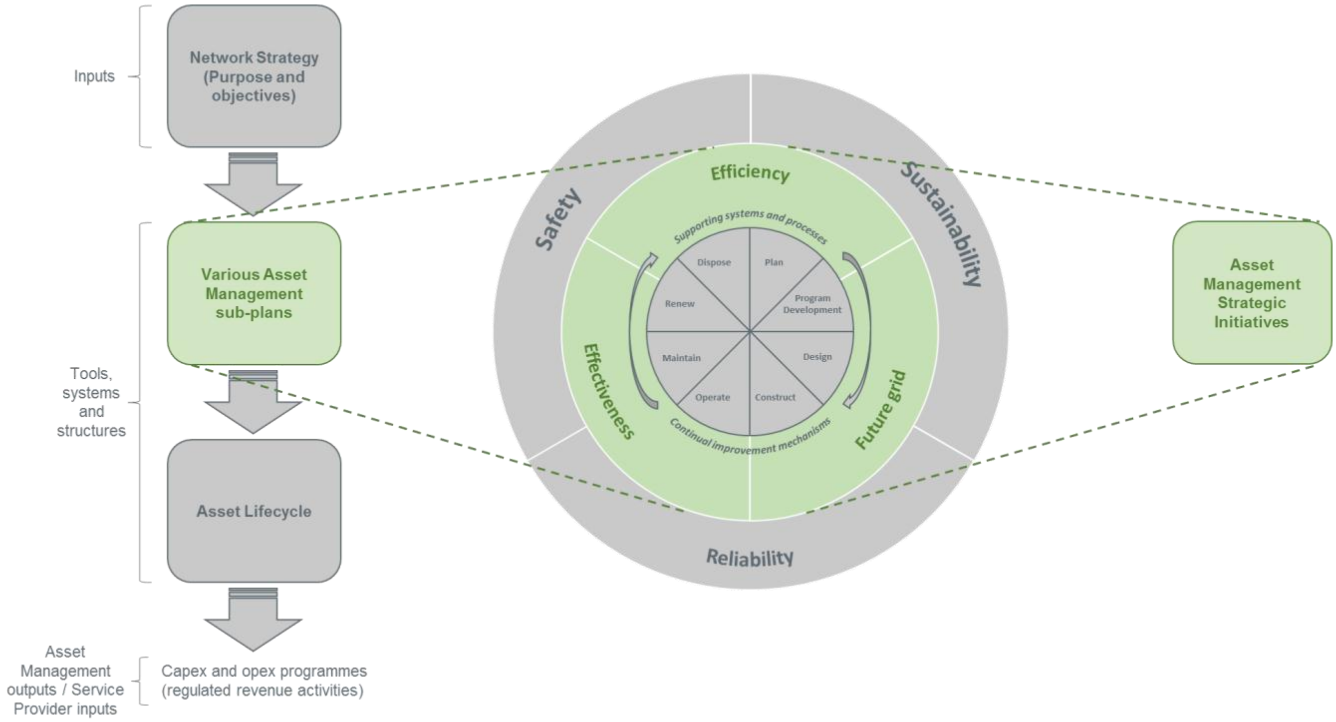
Predicated on our culture of safe, reliable and sustainable asset management, the asset management strategic initiatives are aimed at enhancing Endeavour Energy's "commercial" asset management approach. These are built on a foundation of historically sound asset management and engineering capability that has underpinned Endeavour Energy's business-as-usual asset management processes, combined with a highly skilled and experienced workforce that fully understand the assets under management. Given this business context, to achieve the objectives of the Network Strategy, Endeavour Energy's asset management focus will be directed by three key strategic initiatives:

1. Asset Management Effectiveness - which aims to deliver the required network performance at least cost to customers (i.e. commercial asset management) through improved decision-making and more efficient service delivery.

2. Efficiency and Service Delivery - improvements aimed at achieving productivity improvements through the optimisation of the workforce profile to maximise response efficiency and lowering the cost to serve.
3. Future Grid - preparing and responding commercially to the future grid through the efficient provision of network-connected energy services.

Figure 6 illustrates how the asset management strategic initiatives work in the asset management process to achieve the Network Strategy. The initiatives are further explained below.

Figure 6: The asset management strategic initiatives and the asset management process



5.3 ASSET MANAGEMENT EFFECTIVENESS

The key objective of the commercial asset management approach is to deliver the required network performance outcomes at least cost to customers. In order to deliver on this strategic objective, Endeavour Energy:

- continues to develop our maturity as asset managers through enhanced understanding of asset risk as the driver for capital investment and maintenance practices;
- ensure that we have the "right" information to manage our assets and by managing asset information as an asset category in its own right. This is facilitated by data field capture processes and capabilities to ensure that data is captured when it is created. This is not only efficient but improves accuracy and facilitates better-informed asset management decisions being made; and
- uses benchmarking to assess performance and capability.

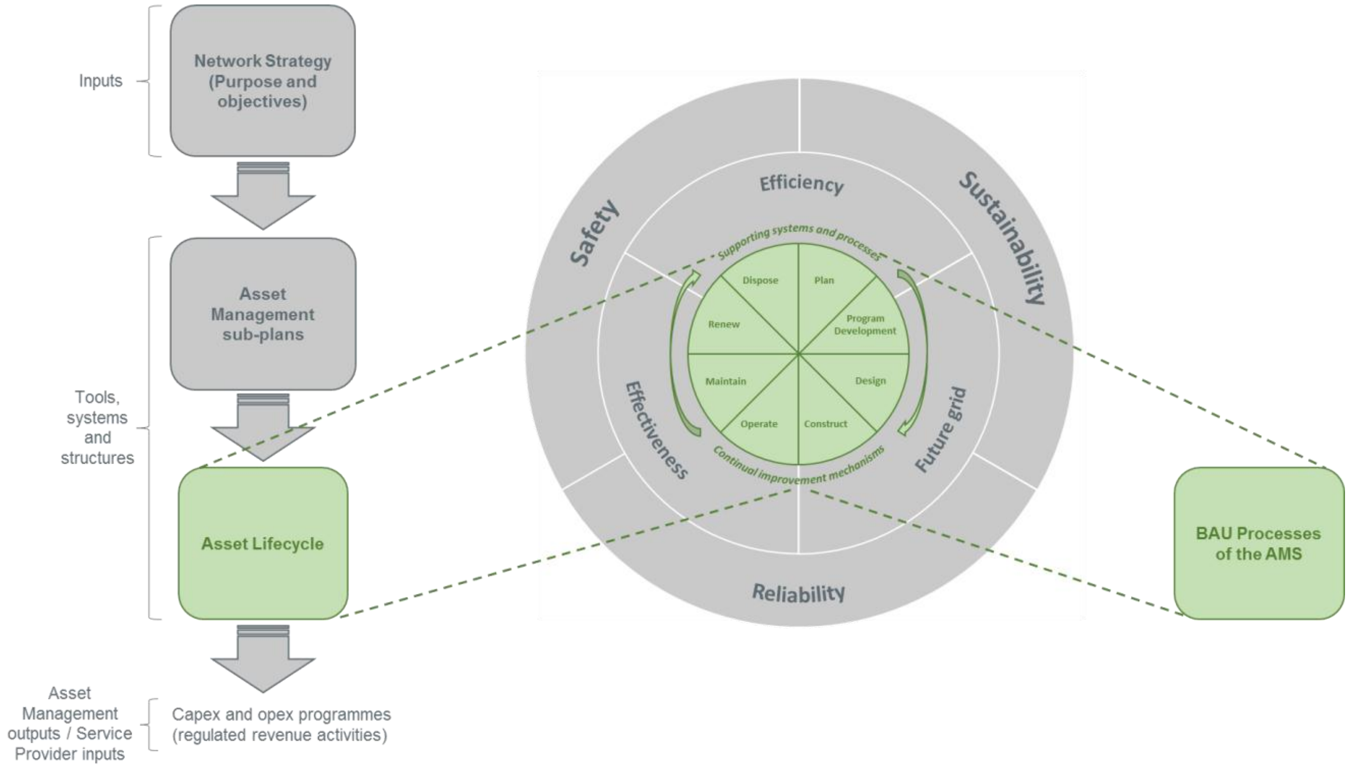
5.4 EFFICIENCY & SERVICE DELIVERY

Endeavour Energy's Delivery Excellence initiative optimises the delivery of asset lifecycle activities, and encompasses:

- delivery capability - the ability to deliver the work specified in the asset management sub-plans, on time and budget; and
- delivery improvement - the initiatives required to improve the safety, reliability and sustainability of the delivery function.

This relationship is shown below in Figure 7.

Figure 7: The Service Provider Strategy implements strategic plans for efficiency in asset management service delivery



5.5 DELIVERY CAPABILITY

Delivery capability is optimised through the Workforce Strategy. This outlines how the work will be delivered including the use of external resources through blended delivery of core work (using contractors to deliver a portion of work that we also deliver internally) combined with outsourcing non-core non-electrical work such as vegetation management.

Blended service delivery has two key advantages of increasing efficiency to reduce the cost of service delivery through competitive tension and increasing flexibility to manage workload peaks and troughs. It also ensures Endeavour Energy avoids resource constraint issues that may adversely affect the proposed timing of project completion..

5.6 DELIVERY IMPROVEMENT

Endeavour Energy seeks to continually improve its delivery capability through strategies designed to increase productivity, improve sustainability, and streamline our incident response to improve reliability.

The plans for future productivity improvements centre around reducing the cost of service provision through increasing the volume of activities completed per full time employee. This is achieved through systematic consideration of how asset management activities are coordinated and executed, and implementing measures to continually improve productivity. It focuses on improving field force productivity through process re-engineering, achieving the optimum blend, and reforming regional and central operations.

Our fault and emergency strategic initiatives focus on optimising the management of response to network incidents having due regard for safety (staff, public and emergency services), customer service and reliability outcomes, and efficiency and cost reductions.

5.7 FUTURE GRID

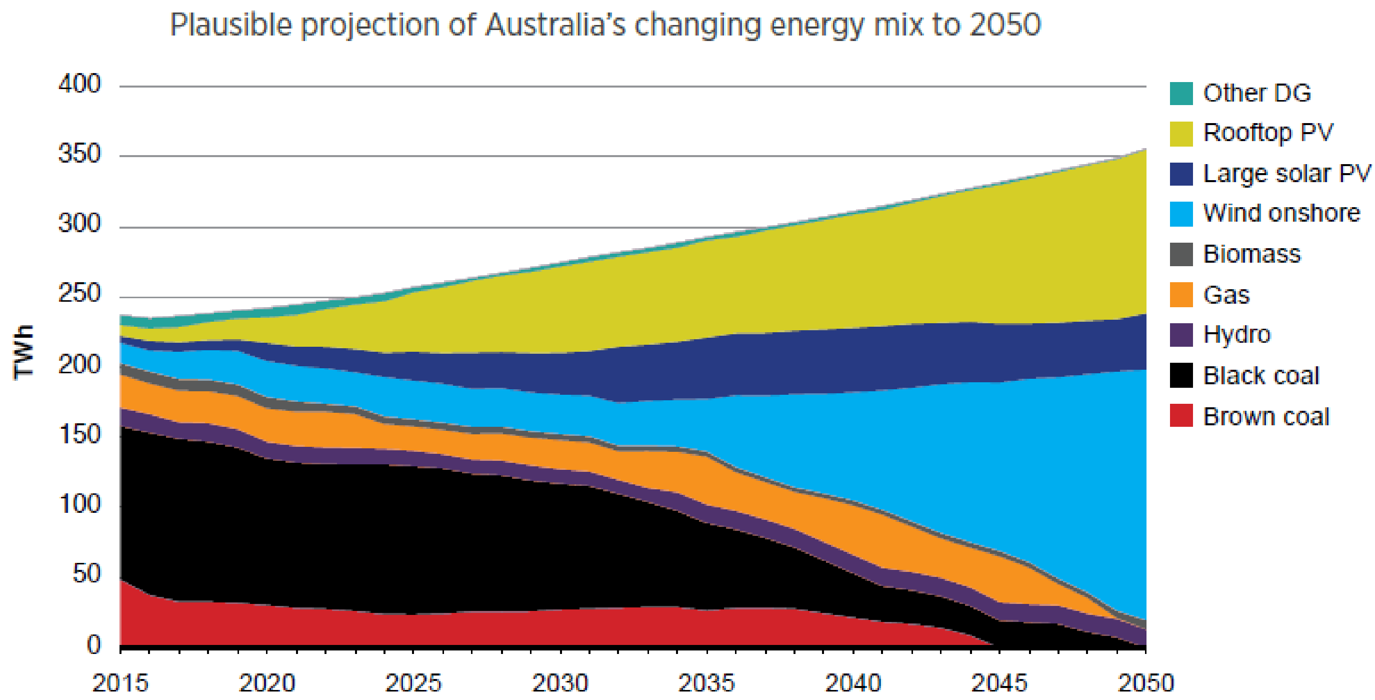
The third focus area is preparing and responding commercially to the future of the electricity network by providing network-connected energy services. The key issues are as follows:

- embedded solar generation is still on the rise, transforming the way customers utilise our network capability and interact with us. Connected customers are no longer passive users of electricity, but are instead producers of their own energy solutions as evident in Figure 8 below. When coupled to the increasing affordability of battery storage, we are facing an unprecedented revolution in electricity supply;

- the role of the network is changing to become a "neural network" rather than a supply network, ensuring that the various distributed generation and supply functions operate in an integrated way. This will drive advanced connectivity, metering, and operational control requirements, integrated with telecommunications requirements; and
- the potential future increase in embedded generation and battery storage can offer business opportunities to use the existing grid in new and interesting ways. We are also looking to develop alternative energy-supply offerings to customers.

These factors may vary over time as technology and the network itself evolves, and as new energy generation, supply and management technologies emerge. The ENA/CSIRO Electricity Network Transformation Roadmap provides a detailed overview of the state of the future grid and necessary steps required of industry participants to optimise the transition.

Figure 8: ENA/CSIRO Network Transformation Roadmap projection of energy mix in 2050

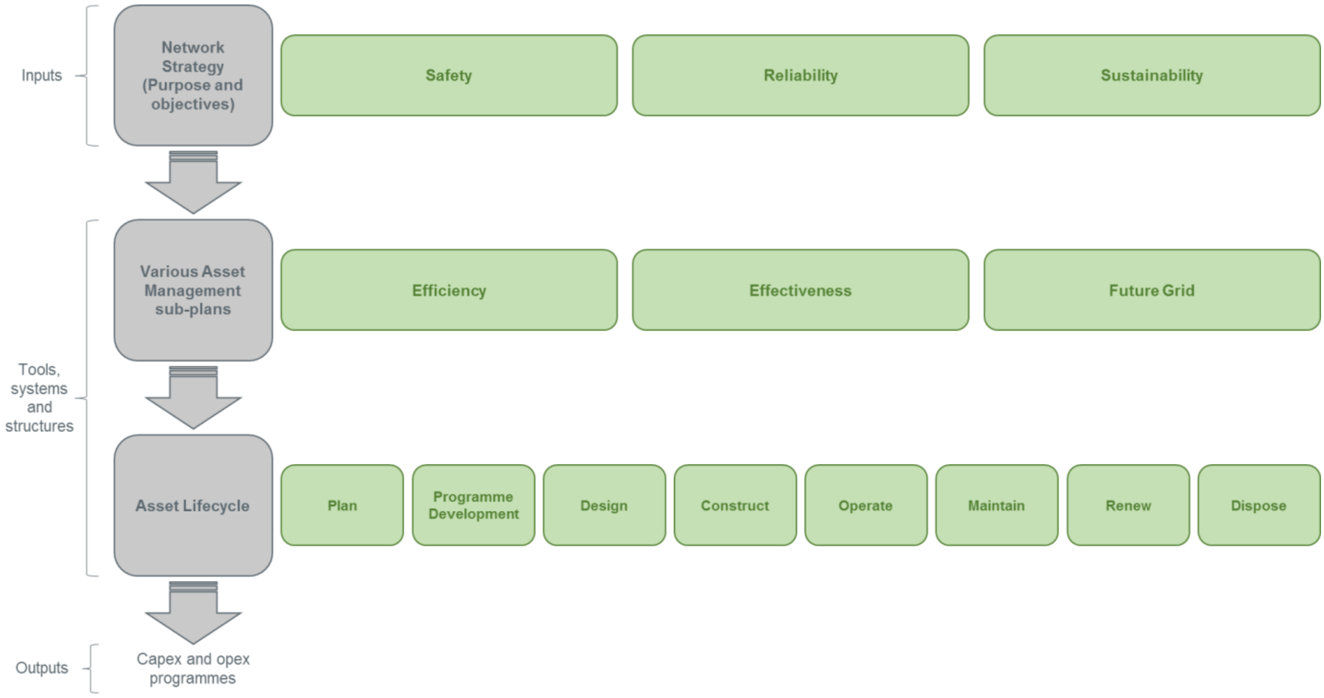


6.0 NETWORK INVESTMENT PLANNING

Endeavour Energy's proposed expenditure forecasts will be largely driven by our approach to asset management. Network investment is driven by the need to address capacity versus demand imbalance and the risks of asset failure impacting network safety and performance. Our Network Asset Management Framework enables the competing requirements of the network to be optimised through the systematic consideration of risk. This enables network assets to be managed to deliver necessary network outcomes at the lowest possible long term cost.

The framework considers the full asset life cycle in several distinct phases as depicted in Figure 9 below:

Figure 9: Asset Management model



6.1 ASSET MANAGEMENT SYSTEM

Endeavour Energy continues to develop an Asset Management System (AMS) to deliver the long-term safety, reliability and sustainability of the network. It provides a framework for effectively managing the network and its assets through the complete asset life cycle. The framework has been developed over many years based on practical asset management experience and is aligned with the principles of ISO 55001.

The planning activities within each phase of the asset life-cycle are as follows:

Plan

We plan the expansion, augmentation, maintenance and renewal of our electrical network to achieve levels of safety, reliability and quality of supply commensurate with community, regulator, customer and shareholder expectations. We coordinate planning with the NSW transmission utility TransGrid and neighbouring distribution utilities to develop effective solutions to satisfy load growth within our supply area and in adjacent franchise areas where our network has influence.

The Plan stage analyses the network capability, identifies the network need, defines the required actions and develops the investment portfolio through a risk prioritisation process.

Programme Development

We develop and approve individual investment programs through consideration of solution options, defining clear investment business cases, development of concept designs and the creation of detailed milestone, resource and cost loaded project plans that when all combined for a portfolio annual works program.

Design

We design our electrical network and network standards/specifications to achieve an optimum balance between network performance and, community and shareholder value over the long term, considering community expectations for health, safety and environmental standards and meeting statutory and regulatory requirements.

Construct

We construct our network in accordance with current design and construction standards with due regard for environmental considerations and efficient work practices and in compliance with the requirements of our Health and Safety Management System (H&SMS).

Operate

We are committed to operating our electrical network in ways that deliver public, contractor and employee safety, maintaining the long-term operability and value of network assets, customer electricity supply reliability and power quality whilst managing to minimum practical levels of impact on the environment. We provide essential operational services on a 24 hour per day basis and at all times are prepared to respond to the wide range of natural disasters and other incidents that threaten the network from time to time.

Maintain

We maintain our electrical assets in accordance with company standards to achieve levels of safety, reliability and quality of supply commensurate with community, regulator, customer and shareholder expectations.

Renew

The long-term integrity, performance and value of the network is dependent upon, amongst other things, the assets of the network operating within acceptable performance standards. We renew these assets when they operate outside these parameters due to their condition, the risks they present to the network or their suitability consistent within other corporate objectives of network capability, reliability, safety, performance, economic efficiency and environmental management.

Dispose

We dispose of redundant network assets in accordance with approved asset plans with due regard for environmental and governance considerations.

To deliver on the desired corporate objectives for asset management, Endeavour Energy develops a Network Strategic Plan that is updated annually. This plan provides a framework for aligning our asset management related activities to the corporate plan. It is the alignment or coordination of activities that will realise value from the assets in the delivery of the required outcomes and achievement of the strategic corporate objectives.

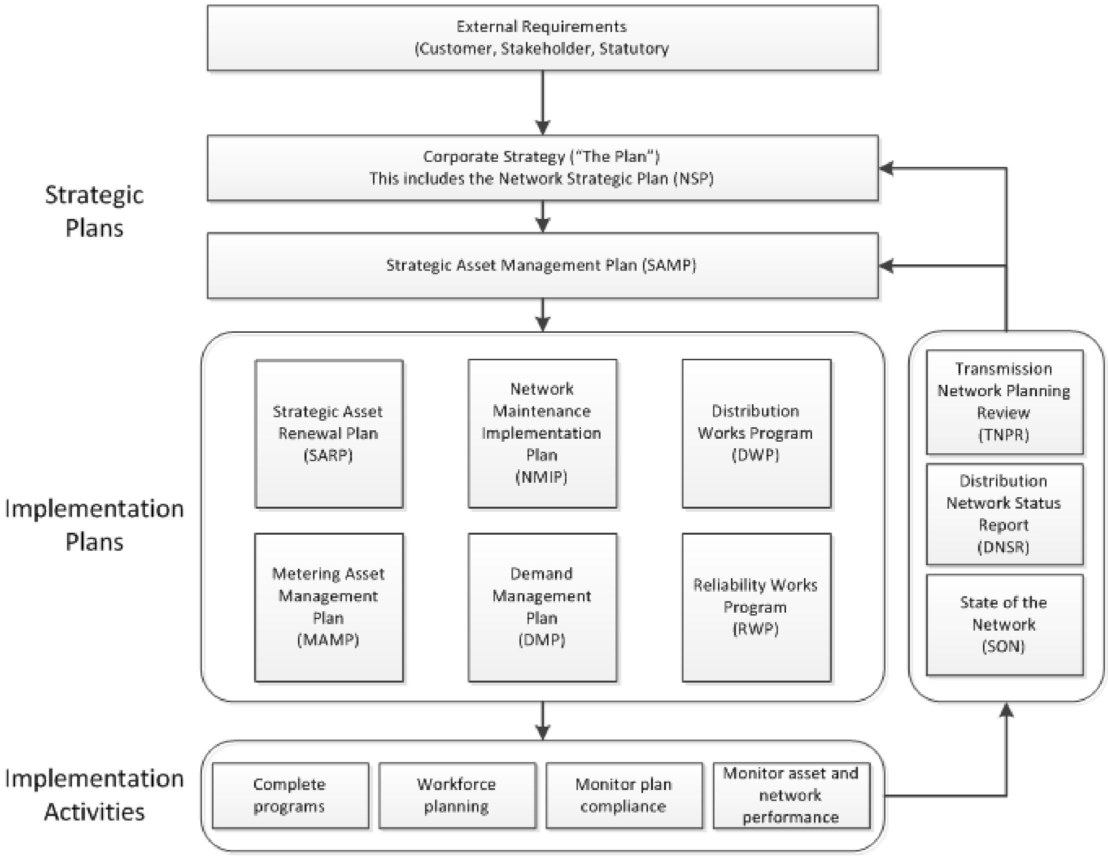
The plan provides the overarching strategic direction, with a particular focus on asset management and how it can be used to realise value from our assets by achieving the right balance between costs, risks and benefits.

The plan seeks to realise that value through applying better practice, whole of life asset management principles, including an investment governance framework and risk based prioritisation of investment. Application of these principles will deliver the network performance objectives at least cost and will create value for customers and shareholders.

The plan is developed in the context of a number of changing environmental factors that have an impact on the way our network asset is managed.

The strategy is implemented through the plans and programs developed using Endeavour Energy's network planning and management framework, integrated and optimised in the Strategic Asset Management Plan (SAMP). The planning framework itself is embedded in a range of internal procedures, plans, standards and policy documents, overseen and managed by the Executive Network Asset Management Committee (ENAMC) chaired by the CEO. This committee oversees and directs Endeavour Energy's Asset Management Strategy, which is the mechanism by which the overall corporate objectives are achieved is outlined below in Figure 10.

Figure 10: Asset Management System framework



6.2 STRATEGIC ASSET MANAGEMENT PLAN

The SAMP assists Endeavour Energy to achieve its purpose from an asset management position through three broad network objectives:

- servicing growth in demand in Endeavour Energy's network area;
- meeting customers' reliability needs; and
- managing the network efficiently and sustainably.

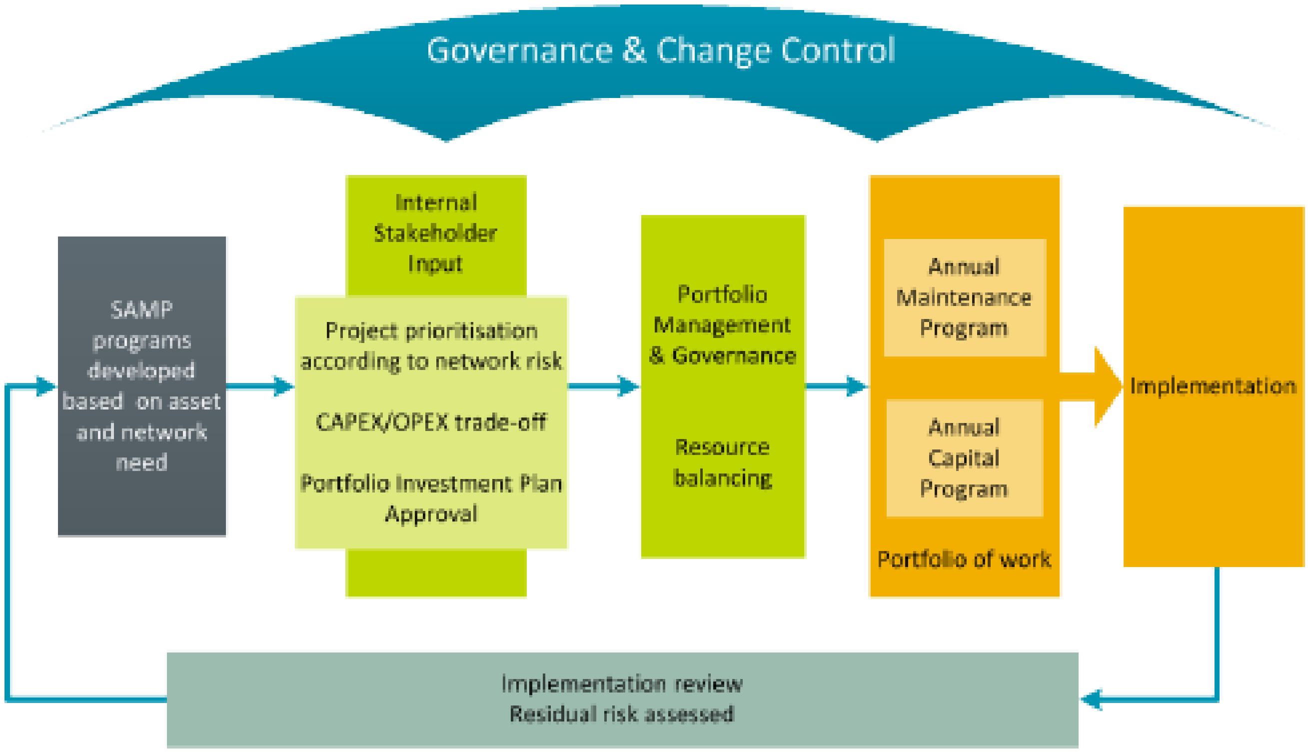
The individual plans within the SAMP are developed in the key network areas and are supported by detailed analysis that explicitly takes into account:

- externally imposed obligations and requirements including service standards, design standards, safety and environmental obligations, and specific asset performance targets;
- information about the network system including loading, condition of assets, performance variability, current capacity, age and the criticality of key assets;
- forecasts of demand growth and connections by location; and
- inputs obtained from stakeholder engagements.

A key function of the SAMP is to prioritise individual asset management projects and programs of expenditure and to discuss and document the trade-offs that are made in developing the year ahead and ten-year network expenditure forecasts.

The SAMP uses a risk-based project prioritisation framework, with appropriate input from relevant stakeholders, to integrate and prioritise these plans into an overall capital and operating expenditure program. By understanding the relative risks associated with the individual component projects and programs, the SAMP also enables the effective evaluation of capital and operating expenditure trade-offs. An annual review is carried out to assess the degree to which each program has achieved its objectives and the residual network risk provides an input into the process for the following year. The ongoing development and implementation of a risk optimised and commercially responsible labour resourcing strategy is a critical factor to the successful delivery of the SAMP.

Figure 11: Network Asset Management Processes



6.3 RISK-BASED PRIORITISATION OF INVESTMENT

Endeavour Energy's investment portfolio planning processes requires that the entire network capital investment portfolio be optimised, integrated, and prioritised on the basis of the treatment of network risk in a manner that is agnostic towards the risk driver itself.

To facilitate this process, Endeavour Energy employs a long-running and well-established methodology to prioritise the competing demands for network investment expenditure on the basis of risk. This prioritisation process is employed as part of the annual investment planning cycle and is supported by Endeavour Energy's Capital Allocation Selection Hierarchy (CASH) decision support tool and our Investment Priority Matrix. These tools are described below.

Capital Allocation Selection Hierarchy (CASH)

Endeavour Energy uses a risk based prioritisation tool, CASH, to enable objective and consistent prioritisation of the various competitors for capital funding.

CASH is used to assist in selecting the projects for inclusion into the capital expenditure planning process each year which best meet Endeavour Energy's business objectives based on addressing risk. CASH assesses the comparative risk between projects and programs to enable the development of a prioritised and holistic investment program. It awards priority to projects and programs which best meet the network objectives asset and network risk.

The CASH ranking methodology considers network risk relating to:

- network condition;
- public safety, environmental or regulatory impact;
- network-initiated fire;
- network reliability;
- company reputation;
- work health and safety for employees; and
- network capacity improvement.

Assessing the various projects and programs on the basis of treating risk and business outcomes enables the development of a consistent and informed view of the relative priority of the competitors for expenditure on the basis of their contribution to mitigating risk and achieving the desired business outcomes.

Investment Priority Matrix

The Investment Priority Matrix is a newly developed tool to assist identifying the items which may need to be included in short-term investment plans and those which could be deferred to a later stage. It is a first-level expenditure candidate priority assessment tool used to target the development of expenditure business cases for inclusion in the proposed capital investment program.

The risk analysis used in the tool is based on an understanding of the criticality of the asset in the network, its condition and likelihood of failure, and the potential impact of any failure. This analysis is used to stratify each expenditure candidate, whether they are potential members of an existing program, or a new project or program.

This process provides outcomes of:

- Projects appropriately phased from short through to longer timeframes;
- The rapid identification of high-priority projects prior to assessment through the more comprehensive risk assessment process; and
- The straightforward identification of low-priority work (at a project or sub-project level) which could be deferred or cancelled.

The Investment Priority Matrix has proved to be useful for pre-testing projects for inclusion into the initial approved investment portfolio as a supplement to the CASH prioritisation process. It is also useful for confirming asset need prior to the development of a specific business case for the second level of approval.

The use of the CASH prioritisation methodology ensures that Endeavour Energy has a thorough understanding of where it should spend its available funding in order to most efficiently and effectively manage network risk and hence maximise benefits for its stakeholders.

Utilising a combination of CASH and the Investment Priority Matrix approach continues to deliver targeted expenditure which supports Endeavour Energy's strategic network objectives for a sustainable and reliable network.

6.4 NETWORK INVESTMENT DRIVERS

6.4.1 Growth impact

Overview

Electricity peak demand is a key driver of network investment. In order to maintain a satisfactory supply of electricity to consumers it is important that infrastructure decisions respond to peak demand as the trigger for the level of network capacity and therefore either investment or the application of demand management initiatives.

It is expected that energy efficiency measures and the installation of photovoltaic systems will reduce demand for the foreseeable future in established areas, which will be offset by demand growth from new customer connections in greenfield land release areas.

The declining trend in demand attributable to the industrial sector appears to have stabilised, with the 2016 summer demand being significantly higher than that of recent years.

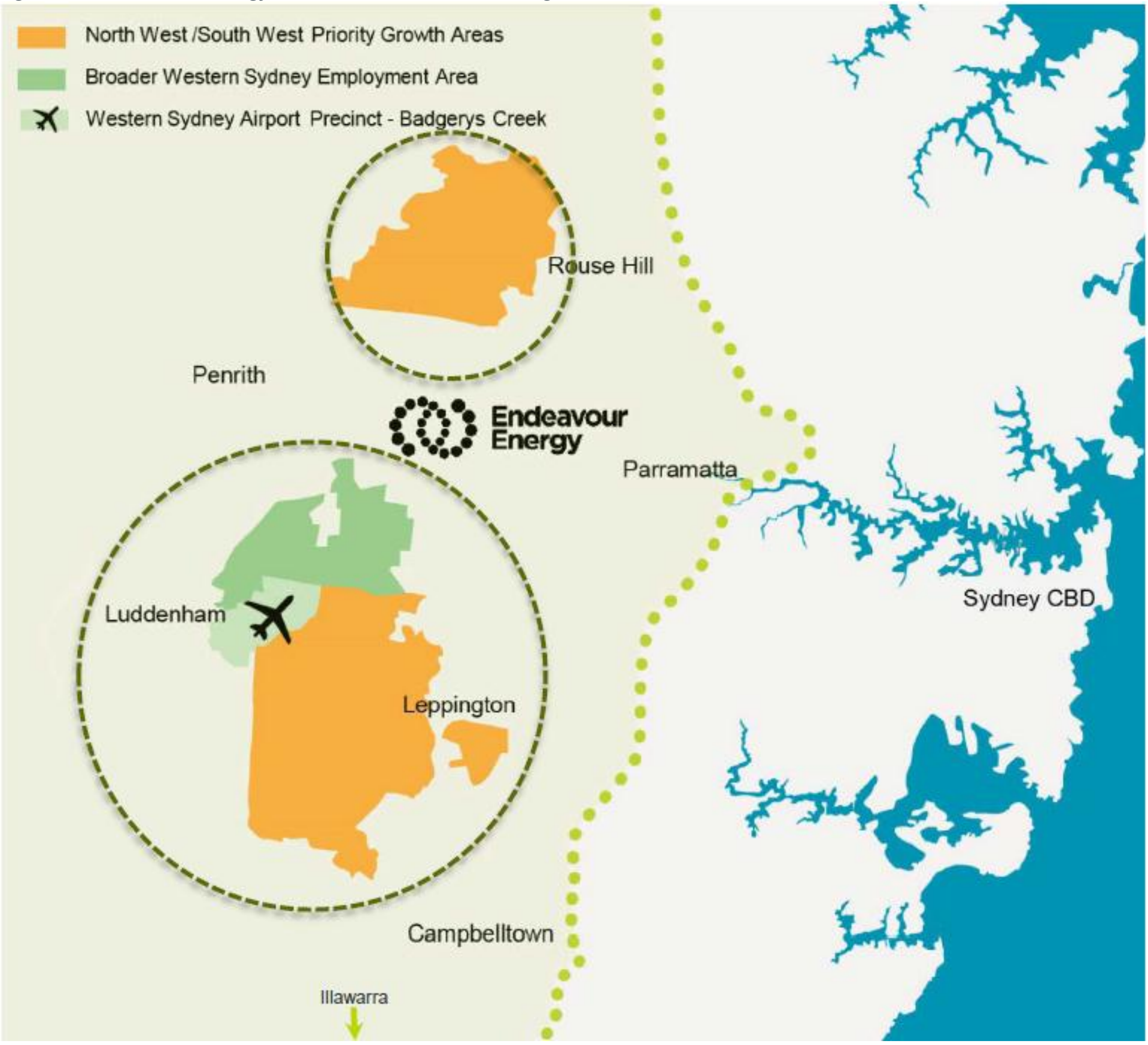
Future positive and negative drivers of electricity demand may include such factors as the rise of battery storage, the use of electric vehicles, new pricing structures and the roll-out of smart meters. Furthermore, Endeavour Energy's demand management initiatives are expected to have a subduing impact on the growth in summer peak demand.

Growth Centres

Over the past five years Endeavour Energy has connected an average of 14,800 new customers to its network each year, representing average customer growth of 1.5% per year. This rate of growth is higher in more recent years and expected to continue to increase.

Over the 10 year forecast horizon, demand growth is expected to be split equally between new release areas in the North West and South West of Sydney (greenfield development) and the already established areas (brownfield redevelopment) within Endeavour Energy's network. Strong economic growth is expected in the Parramatta and Liverpool CBD areas in addition to the North West and South West growth centres over the forecast period, with a series of major transport, health and education projects planned for the regions. The North West Rail Link, currently under construction, will also stimulate further high density residential and commercial development in the North West Growth Sector. Examples of other significant brownfield development areas are the Glenfield to Macarthur Urban Renewal Corridor and the Greater Parramatta to Olympic Peninsula Priority Urban Area.

Figure 12: Endeavour Energy North West and South West growth centres



Recent announcements regarding the establishment of the Western Sydney Airport at Badgerys Creek will drive further demand growth in the area. Commencement of construction is expected to act as a catalyst for significant development in the region and significant growth in demand, particularly in the Broader Western Sydney Employment Area in the longer term. Endeavour Energy's airport supply proposal has been developed to integrate with existing plans for supply to the South West sector and the Broader Western Sydney Employment Area.

6.4.2 Asset end-of-life impact

Asset Renewal and Weighted Average Remaining Life (WARL)

In order to ensure the outcomes from the asset renewal planning process are realistic and measureable, Endeavour Energy has sought to identify a simple indicator to focus renewal planning activity and to ensure that expenditure is appropriately targeted. It is generally recognised that the remaining asset life (adjusted for condition and the spread of condition profiles for an asset class) is a reasonable surrogate for asset health. On this basis, Endeavour Energy utilises Weighted Average Remaining Life (WARL) as a high level indicator of overall asset health. The WARL of the asset base measures the remaining life of the network assets as they exist at a point in time, taking into account both asset age profile and condition factors, assuming that variations in individual asset condition within a class of assets balance out over time.

The WARL is a readily obtainable output from the replacement expenditure model of Endeavour Energy's Value Development Algorithm (VDA) investment modelling tool. The VDA is able to model the impact of expenditure constraints with the impact of retaining un-replaced assets reflected in the WARL indicator. This has provided the opportunity to establish a strategic goal for WARL that in turn has enabled the establishment of a long-term sustainable asset renewal driven expenditure trajectory.

7.0 NETWORK INVESTMENT GOVERNANCE

Investment decisions are informed by a full understanding of the costs, benefits and regulatory requirements and are authorised in accordance with Endeavour Energy's Network Investment Governance Framework (IGF) and delegations policy. This provides clear guidance and accountability in respect of the development, determination and approval of investments, both network (system) and non-system.

Endorsement of the funding required to implement agreed plans and programs is provided by the Investment Governance Committee (IGC) and then approved by the Board or the CEO under delegated authority. Together, this oversight ensures that the content of the asset management plans are prudent and efficient, recognising Endeavour Energy's customer value objective and ensuring that the proposed expenditure is subject to appropriate scrutiny in the planning and delivery phases.

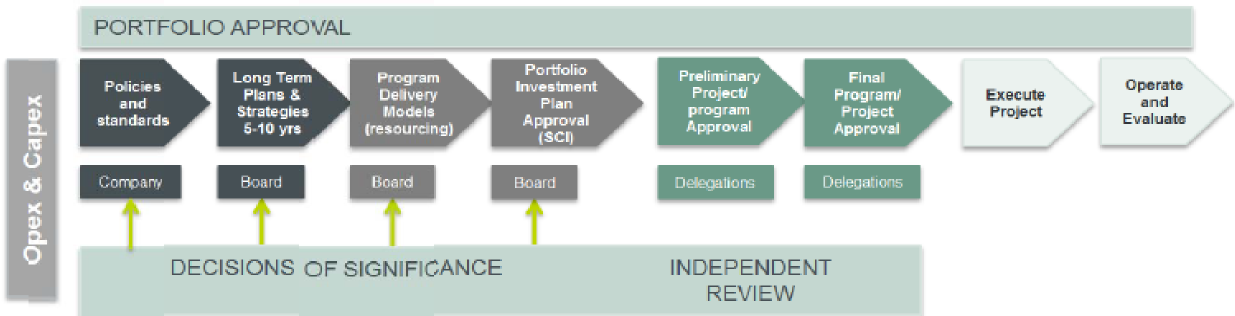
All major network projects and capital programs are required to comply with the procedures set out in the IGF. These procedures, which are designed to give assurance that the network plan translates into an efficient capital program, incorporates the following key elements:

- robust governance processes including oversight by internal governance committees for investments greater than $2 million and the Board for investments greater than $10 million. The internal committees test the need for the investment and prudency of the proposed options, as well as delivery risks and viability of the capital structure under a number of scenarios;
- an integrated, whole-of-business whole-of-life-cycle approach to development and delivery of capital programs and investment that considers impacts of a capital constrained environment;
- accountability of all investment development and delivery stakeholders to the CEO in respect of the development, determination and authorisation of network investments;
- a formal post-project implementation review process which evaluates the benefits delivered against those planned and approved;
- transparent risk-based prioritisation of investments, including non-network options, to enable informed investment decisions based on risk outcomes;
- consistent documentation, options evaluation and project scoping to enhance the transparency of decision-making; and
- multi-staged approval gates to ensure effective review, scrutiny, and decision-making with the number of gates being a function of the size of the investment.

7.1 INVESTMENT GOVERNANCE FRAMEWORK

The key stages of Endeavour Energy's investment gateway governance process are outlined in Figure 13 below.

Figure 13: Key stages of the network investment governance process



Policies, Standards, Regulations

Attributes clear accountabilities for the development of the policies and standards which impact on network investment decisions. This includes endorsement of the technical and risk triggers for investment.

Plans and Strategies 5-10 Years (where applicable)

Involves early development of the long term area plans and strategies prior to submission to the Investment Governance Committee (IGC) and Board for review.

Program Delivery Models (resourcing)

Collaborative development of the Network Workforce (NWF) Plan. The plan considers resource requirements by work or job type, alternative delivery models and current resource allocations. The SAMP Delivery Plan is updated once efficient program delivery models are determined.

Gate 1: Portfolio Investment Plan (PIP) approval

A final PIP is submitted to the Board for review and initial approval each year. The PIP sets out the scope and timing requirements (and estimated delivery costs) of the rolling ten year network capital investment requirements. The approved PIP at Gate 1 will be reflected in the SAMP and informs the baseline for the 2019-24 regulatory proposal. Network investment is prioritised within a risk based investment prioritisation system which enables the Board to make informed decisions based on a detailed understanding of the relationship between risk and expenditure.

Gate 2: Preliminary project/program approval

Preliminary project/program approval is subject to rigorous governance testing of the network need for the proposed investment. Options analysis, including non-network solutions, is undertaken as part of this stage of approval. Independent and peer review test the need for investment and prudency of proposed options. Gate 2 provides approval to:

- complete project/program design;
- place orders for long lead time standard inventory;
- seek pricing from the market for externally delivered works; and

Land and easement acquisitions resulting from an area planning process may occur prior to Gate 2 and would be subject to delegated approval.

Gate 3: Final project/program approval

Following completion of project design, Gate 3 approval provides final investment approval to complete project/program delivery. At this gate governance is primarily focussed on testing the efficiency of the delivery model of the project/program and confirming the timing and cash flows.

Execute project/program

Endeavour Energy continues to manage project and program delivery, regardless whether delivered by internal resources or the market. Continuous monitoring and reporting of individual programs/projects to management provides governance over project/program delivery, time, cost and scope, to ensure the network need is delivered as specified.

All projects/programs are allocated key delivery milestones. These are monitored on a constant basis to provide an early warning of projects that may not be meeting expected delivery outcomes. If a project or program is flagged as at risk of not being delivered within the budgeted direct cost, time or scope, a review process will be commenced. Where a project/program is proposed to be altered, a clearly defined approval process is followed to ensure variations are appropriately endorsed prior to approval under sub-delegation.

Operate and Evaluate – Post project/program reviews

Completion of a post project/program review is an important step to enable lessons learnt during project planning, development and delivery to be documented and incorporated into future projects.

8.0 OPERATING EXPENDITURE FORECASTING

8.1 EXPENDITURE FORECASTING METHODOLOGY

In accordance with the Efficiency Benefits Sharing Scheme (EBSS) and ex-ante 'revealed cost' incentive based regulatory framework, Endeavour Energy relies on a top-down forecasting approach to derive an efficient level of operating expenditure. Endeavour Energy's main top-down approach involves applying the AER's operating expenditure (OPEX) model which applies a base-step-trend approach to forecasting operating expenditure.

The output from the model provides a total operating expenditure forecast that allows a reasonable opportunity to achieve the operating expenditure objectives. A bottom-up forecast is also developed as a reasonableness check on the outputs of the top-down 'revealed cost' base-step-trend. This process also allows us to efficiently allocate the total forecast operating expenditure derived from applying the OPEX model to individual operating expenditure categories.

Table 2 below displays the methods used to forecast expenditure for each operating expenditure activity.

Table 2: Endeavour Energy's operating expenditure forecasting methodology by category summary

Operating Expenditure	Activity/Division	Top Down (Primary)		Bottom Up (Secondary)
		OPEX Model (base-step-trend)	Benchmark & Project Forecast	
Network Maintenance Activity	Vegetation Management	✓		✓
	Preventative Maintenance	✓		✓
	Condition Based Maintenance	✓		✓
	Fault and Emergency	✓		✓
	Line Inspection	✓		✓
Operation & Business Support Divisions	Network Services	✓		✓
	Asset Management	✓		✓
	Company Secretary	✓		✓
	Chief Operating Officer	✓		✓
	Chief Financial Officer	✓		✓
	Strategy & Transformation	✓		✓
	Safety, Human Resources & Environment	✓		✓
	Customer & Corporate Services	✓		✓
Other Expenditure	Non-Network Alternatives		✓	✓
	Self-Insurance		✓	✓
	Debt Raising Costs		✓	✓

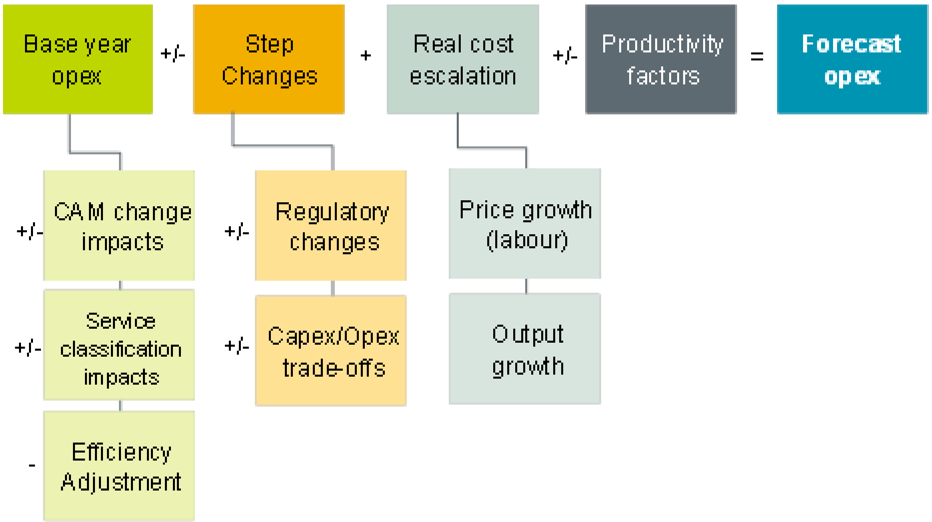
8.2 OPEX MODEL

The AER's OPEX model applies the base-step-trend 'revealed' cost methodology in determining the efficient forecast total operating expenditure. The model provides a forecast based on a series of inputs provided by Endeavour Energy.

The model requires a combination of actual and forecast information to be provided as inputs. The actual information is collected from internal systems and correlates with information provided to the AER and other relevant stakeholders in Regulatory Information Notice (RIN) responses. Forecast information is derived through a combination of external and internal expert analysis and is consistent with the approaches outlined throughout this methodology statement. Each input value is arrived at through established and robust forecasting techniques and is thoroughly assessed and evaluated prior to inclusion.

The OPEX model provides Endeavour Energy with a view of the efficient level of operating expenditure to which our combined or aggregated category level forecasts should not materially exceed. Broadly, the base-step-trend approach contained in the OPEX model can be described as follows:

Figure 14: Base-Step-Trend Forecasting Approach



Efficient Base Year

Endeavour Energy understands the base-step-trend 'revealed cost' forecasting approach necessitates an efficient base year level of expenditure. We conduct analysis to ensure our revealed costs in the base year in these respective categories are inclusive of savings initiatives and reforms and reflect efficient expenditure levels.

We consider the fourth year of the current regulatory control period (which contains actual cost information by the time of the revised proposal and final determination) should be used as the base year. This is because a network's historical costs best reflects the efficient expenditure required to achieve the operating objectives. Also, the EBSS provides the strongest incentive to networks to "reveal" their most efficient cost in the fourth year of a regulatory control period (as improvements made in the fourth year yield the highest carryover benefit). The base year operating expenditure in this year will be appropriately adjusted to remove one-off and non-recurrent costs. For our 2019-24 proposal, the 2017-18 year will form the base year from which our forecast will be developed. Our regulatory proposal will provide evidence, including benchmarking analysis, to demonstrate the efficiency of the proposed base year operating expenditure.

Step Changes

Endeavour Energy will next consider the need to incorporate any step changes into the forecast. These are considered additional costs arising from exogenous events which will impact our operating expenditure in the 2019-24 regulatory control period that were not reflected in the 2017-18 efficient base year or included elsewhere in the proposal.

Endeavour Energy considers step changes may be required following new regulatory obligations and efficient capital and operating expenditure trade-offs. The impact of recent regulatory and compliance changes and the continuous review of efficient service delivery alternatives may result in Endeavour Energy electing to nominate these additional costs as step changes. All proposed step changes will be evaluated against the AER's specific criteria.

Rate of Change

Network operating costs are expected to change over the course of the 2019-24 regulatory period. This is largely a result of the changes in inputs (price of labour and materials) and outputs (network size, demand and customer numbers). As a consequence, forecast expenditure will be adjusted accordingly to reflect these year-on-year changes. According to the AER's Expenditure Forecast Assessment Guideline, Endeavour Energy may also propose a productivity factor to reflect technological and procedural improvements in the industry that are expected to result in cost savings. The rate of change calculation can be expressed as:

Rate of Change = Output Change + Real Price Change – Productivity Change

Importantly, Endeavour Energy will incorporate all expected efficiency gains arising from cost saving initiatives and reforms into expenditure forecasts. The gains will include savings derived from current or future programs. Only efficient forecast trend factors will be proposed and determined through economic analysis and by using the most relevant and up-to-date market data. External economic consultants will be utilised to derive efficient and reliable rate of change forecasts for these factors. The forecasting methods used to derive estimates of the impacts of the corresponding rate of change factors is provided in Table 3 below:

Table 3: Endeavour Energy's approach to rate of change factors

Rate Of Change Factors	Forecasting Methodology
Price Change (labour)	External economic consultants will provide estimates of forecast real cost of labour forecasts.
Non-labour Costs	External economic consultants will provide estimates of forecast real cost of material forecasts. Endeavour Energy will then consider whether it is appropriate to include these price changes for materials or instead rely on the changes being reflected in CPI (as per recent regulatory precedent).
Customer Numbers	Customer growth will be forecast by aggregating the expected number of new net connections in greenfield developments and the existing network. Economic and trend analysis and information from planning authorities will be utilised to derive customer growth forecasts.
Maximum Demand	Estimated using our internally developed forecasting processes.
Route Line Length	Informed by our expectations of new development design and requirements and historical growth rates.
Productivity Factor	Informed by our expected savings associated with current and future efficiency and transformation initiatives.

It should be noted that the output growth factors listed in the table above (customer numbers, maximum demand, route line length) are those utilised by the AER in several determinations recently. We do not consider these proxy factors provide an accurate measure of output growth. We will assess whether more appropriate measures can be relied upon to estimate output growth and advise the AER of this in our 2019-24 regulatory proposal.

8.3 OPERATING EXPENDITURE FORECAST DRIVERS

Endeavour Energy's operating expenditure forecast includes all costs required to inspect and maintain our network assets in accordance with our network procedures and standards. Our forecasting methodology seeks to derive efficient estimates of operating expenditure and is reflective of prudent and responsible network maintenance practices. This involves development of category level forecasts based on the outputs of the top-down OPEX model. The operating expenditure categories relied upon by Endeavour Energy for internal purposes are displayed below.

Table 4: Endeavour Energy's operating expenditure categories

Total Operating Expenditure			
System Network Maintenance	Network Operation & Business Support		Other Expenditure
	Network Overheads	Corporate Overheads	
Vegetation Management	Network Services	Chief Executive Officer	Debt Raising Costs
Distribution Substation	Asset Management	Chief Financial Officer	Self-Insurance
Distribution Mains		Strategy & Transformation	Non-network Alternatives
Transmission Substation		Safety, Human Resources & Environment	
Transmission Mains		Customer & Corporate Services	
Line Inspection		Company Secretary	
Protection & Control			
System Access/Switching			

8.4 NETWORK ASSET MAINTENANCE OVERVIEW

Endeavour Energy's Network Asset Maintenance policy provides the strategy, framework and principles for the planning, funding and execution of maintenance works on the network.

The Network Maintenance Implementation Plan (NMIP) supports this policy and provides the high level functional performance review of Endeavour Energy's network assets and establishes the framework by which the maintenance programs are established in order to fulfil Endeavour Energy's performance requirements. It details the risk assessment process and associated strategies to facilitate the prioritisation and resource allocation across the various maintenance programs.

Its underlying purpose is to provide a focus on maintenance that will contribute to a continuing improvement to the safety, reliability and economic efficiency of the network assets. This is achieved by the strategic targeting of maintenance resources to those assets which present the highest levels of network risk. The NMIP includes:

- identification and quantification of all network assets that need to be maintained;
- identification of the activities required to meet the maintenance objectives and pre-determined performance parameters as defined in asset maintenance standards;
- maintenance plans developed in accordance with Reliability Centred Maintenance (RCM) outcomes and the prevailing maintenance standards;
- analysis of risk and determination of maintenance priorities in accordance with RCM methodology outcomes; and
- calculation of the high level cost and work hours for the maintenance programs.

8.5 NETWORK MAINTENANCE CATEGORIES

Network maintenance expenditure is required to ensure that our network assets continue to provide their predetermined service capacity and quality and to achieve their useful life. The activities involved in each network maintenance cost category can be broadly grouped into the following maintenance activity descriptions:

Vegetation Management

This work, mainly carried out by external contractors, reduces safety hazards and interruptions to supply on our overhead electricity network. Compliance with this policy is a critical control measure associated with management of bushfire and community safety risk. Vegetation management must be done regularly to ensure a reliable and safe electricity supply. It must also be done in a way that is sensitive to environmental and community issues.

Inspection/Investigation

Inspection of equipment (in both a programmed and ad-hoc manner) including assessment of tolerance parameters, identification of defects, post-fault investigations and other scheduled programs or patrols such as inspections for bushfire management or audit of environmental impact. Inspections may be intrusive or non-intrusive.

Preventative Maintenance

Typically intrusive work carried out on a predetermined basis for the purpose of maintaining an asset in a satisfactory operational condition with respect to its prescribed performance parameters.

Condition Based Maintenance

Typically intrusive work triggered by an inspection/investigation maintenance that has assessed the asset's performance parameters as having fallen outside of the predetermined tolerances. This includes the planned repair of defects.

Fault and Emergency

Typically work triggered by any incipient or urgent and unpredicted failure, incident or event which is adversely impacting or may potentially impact on safety or the environment or cause the loss of supply or reduction in quality of supply to customers or impose operational constraints on the network.

8.6 NETWORK MAINTENANCE CATEGORY LEVEL FORECASTING APPROACH

As the top-down OPEX model does not produce category level forecasts Endeavour Energy develops forecasts for the categories described above. Historical data and project level assessment is used to develop detailed category level forecasts for budgeting purposes (subject to the constraints of the overall top-down OPEX model forecast).

For network maintenance, this involves developing unit rates based on historical maintenance costs (inclusive of efficiency programs and reforms) across specific network maintenance activities. These estimates are then applied to the future network maintenance plan volumes for 2019-24 regulatory control period to determine the network maintenance operating expenditure forecasts.

The volume of network maintenance forecast for the 2019-24 regulatory period will be determined from actual network maintenance activities undertaken in the 2014-19 regulatory period, the forecast works in the Capital Plan and the current and forecast asset base. This also includes the technological benefit of newly installed assets with reduced maintenance requirements.

8.7 PRESENT AND FUTURE APPROACH TO MAINTENANCE PLANNING

In recent years, Endeavour Energy has adopted a more sophisticated approach to determining asset maintenance requirements in order better target operating asset investment. This has been to reduce operating expenditure where possible without a deleterious effect on asset performance and risk position of the network. This posture recognises that there is a need to contain asset-related operating expenditure and to continue to operate at the "efficiency frontier". This approach is used to refine the volume trend forecast.

Through the development of the "blended delivery" resourcing model all of the prioritised maintenance required through application of the standards is now identified, programmed and delivered through the Network Maintenance Implementation Plan. Delivery is implemented through a combination of internal and external resources, organised to deliver maintenance outcomes on a lowest-cost, highest-efficiency basis.

Reliability Centred Maintenance Methodology

RCM methodology determines the efficient and effective maintenance regime for individual assets, classes of assets and groups of assets. The methodology is used to determine the maintenance requirements of an asset to ensure that it continues to perform its intended function in its operating environment.

The RCM methodology analyses a variety of factors to provide a transparent view of the risks associated with different scenarios. The FMECA process is a key component which identifies how a system or equipment can fail, and the effect and criticality of the failure. Endeavour Energy uses the FMECA process to determine an efficient and effective maintenance regime for individual assets, classes of assets and groups of assets. The goal of this approach is to optimise Endeavour Energy's network asset operating investment spend whilst not unduly affecting network risk and network performance.

As a result, informed decisions can be made as to the optimised inspection and maintenance regimes, considering cost, safety and reliability. In quantifying risk the tool analyses a breadth of direct and indirect costs in conjunction with probabilities and consequence costs. Programming maintenance activities at appropriate intervals supports the efficiency of our maintenance expenditure plans. The RCM also helps to determine the point at which maintenance no longer provides a suitable and efficient alternative to capital investment.

Maintenance standards are regularly reviewed and updated to reflect changes to our asset base. Standards are compared to those of other utilities to take advantage of external learning opportunities.

8.8 NETWORK OPERATION AND BUSINESS SUPPORT

This operating expenditure group comprises of expenditure attributable (directly or indirectly) in supporting the operation of Endeavour Energy's network system. These network and corporate overhead costs are allocated and attributed in accordance to Endeavour Energy's Cost Allocation Methodology (CAM) as approved by the AER.

Table 5: Endeavour Energy's network and corporate overhead cost categories

Category	Division	Description of Division
Network Overheads	Network Services	Responsible for activities associated with network program delivery, network control and emergency response.
	Asset Management	Manages the activities associated with asset strategy and planning, asset standards, customer connections and program management.
Corporate Overheads	Chief Executive Officer	Responsible for the leadership management of Endeavour Energy.
	Chief Financial Officer	Responsible for Finance, Treasury, Tax, Commercial & Decision Support, Network Regulation and Finance Transactions & Services (e.g. Payroll, Accounts Payable, Network Billing and Accounts Receivable).
	Strategy & Transformation	Manages activities relating to corporate strategy, and transformation strategy and program office
	Safety, Human Resources & Environment	Activities include Employee Relations, HR Operations, HS&E System & Reporting, Health Services & Injury Management, Safety & Environmental Services and HS&E Assurance & Improvements.
	Customer & Corporate Services	Responsible for Property & Fleet, ICT, Procurement & Logistics and customer and stakeholder management.
	Company Secretary	Company secretariat and responsible for activities relating to legal, governance, risk and compliance and internal audit.

8.9 OTHER OPERATING EXPENDITURE

Remaining operating expenditure items that are not attributable to the previous categories are allocated as other expenditure. Expenditure items include debt raising, self-insurance and non-network alternative costs.

Self-insurance and debt raising costs will be set using benchmark costs. We will adopt the AER's method for the calculation of debt raising costs. That is, debt raising costs will be calculated by applying a benchmark debt raising unit rate to the debt portion of our regulated asset values. Self-insurance costs will be developed with reference to benchmark actuarial assessments for cost categories that are best managed through self-insurance. Non-network alternatives will be forecast on an individual project basis identified based on network need.

9.0 CAPITAL EXPENDITURE

Endeavour Energy's network (system) capital expenditure is principally driven by two drivers:

- growth in spatial maximum demand; and
- the asset end-of-life risks for the existing asset base.

There are other drivers for capital investment not directly related to the network itself, but are required to support the needs of the network. Our capital expenditure categories are described below.

Table 6: Endeavour Energy's capital expenditure drivers

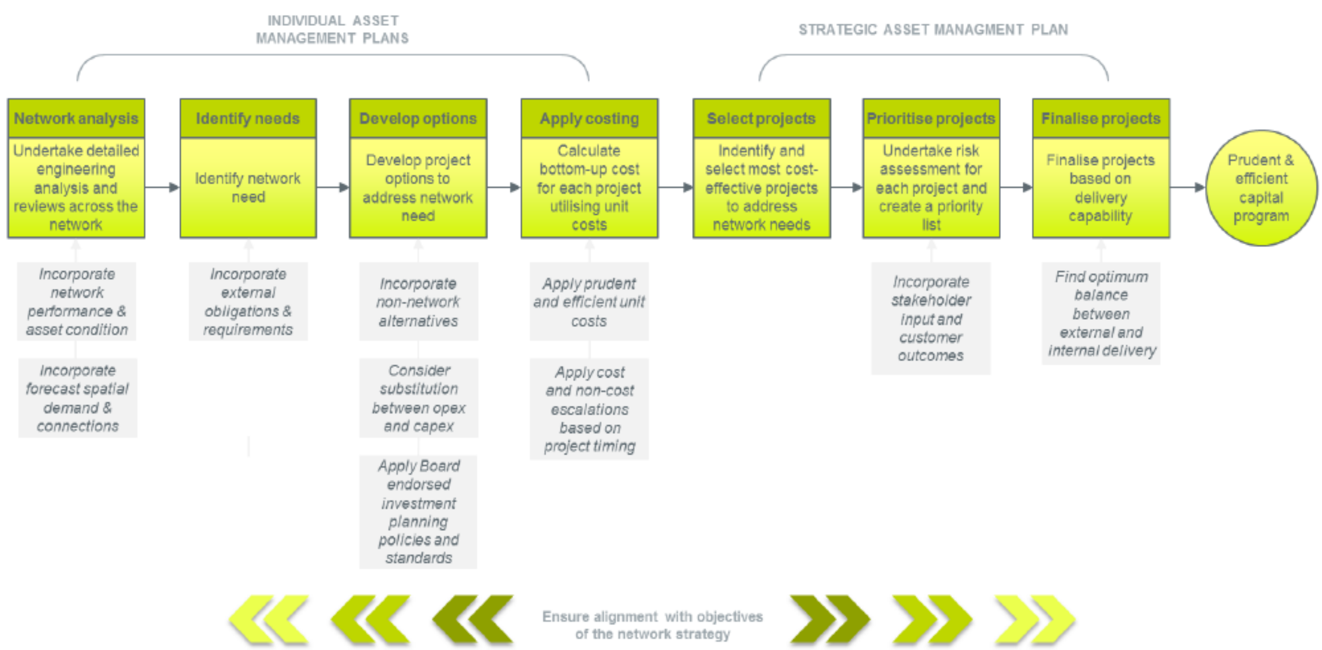
Total Capital Expenditure			
System Capital Expenditure		Non-System Capital Expenditure	
Augmentation (Growth)	Replacement	ICT	Land & Buildings
Reliability	Technology	Other (Furniture, Fittings & Equipment)	Fleet

Endeavour Energy's capital expenditure forecast includes the expenditure required to deliver our individually documented capital projects as outlined in the SAMP. The factors affecting the key drivers of our network capital investment are outlined below.

9.1 SYSTEM CAPITAL EXPENDITURE

The strategic planning process and governance framework outlined in this document support the development of an efficient capital expenditure forecast. An overview of Endeavour Energy's capital expenditure forecasting process is displayed in Figure15 below:

Figure 15: Strategic planning process and governance framework overview



Investment to resolve network needs are identified using detailed engineering analysis of the network, current asset and network condition reports, spatial demand forecasts with a consideration of regulatory obligations and requirements and customer concerns. Once a particular network constraint is identified, project options to address the network need are developed. At this stage we consider a number of options including non-network alternatives and operating expenditure substitution possibilities. Each project option is then costed.

For the majority of capital expenditure categories Endeavour Energy uses a bottom up method to derive the forecast expenditure. Our bottom-up method makes use of:

- historical unit costs (modified where appropriate to reflect site-specific factors and efficiencies);
- volumes based on historical experience, and network need;
- current labour and contractor rates; and
- current material and equipment costs.

We have also used a top-down approach to forecast most capital expenditure categories. Forecast work in these categories is generally constant in scope from year-to-year or related to network growth and can be forecast at a high level. We utilise our VDA model as a top-down verification of our individually derived category level forecasts for augex and repex.

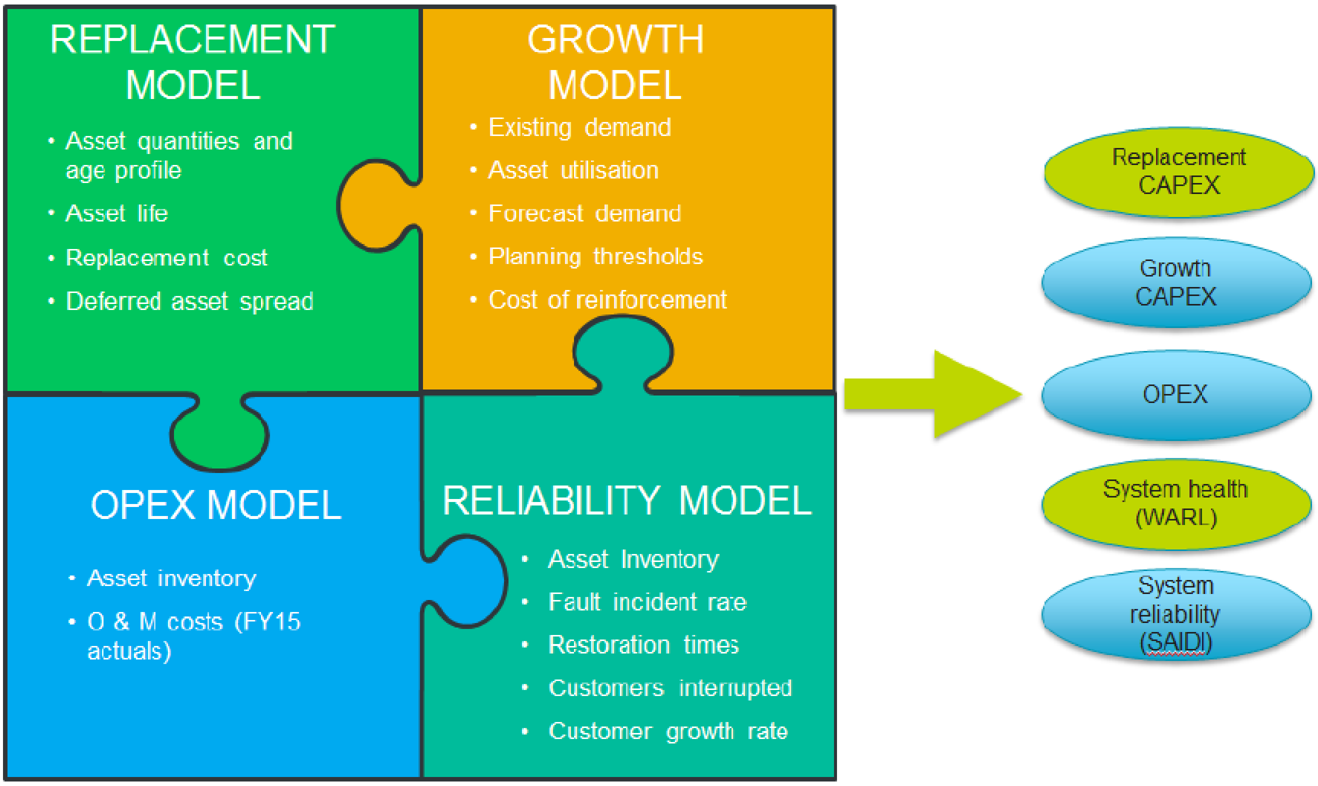
The VDA modelling tool utilises a top-down approach to forecasting to identify the efficient network capital and operating expenditure required to achieve network performance objectives. The VDA is a sophisticated model, integrating a range of capital expenditure drivers and linking investment levels to outcomes including reliability performance, operating expenditure, WARL and future capital expenditure.

The VDA consists of four primary models:

- Replacement Model – Asset Replacement Capital Expenditure Forecasting Model;
- Growth Model – Growth Capital Expenditure Forecasting Model;
- Reliability Model – Network Reliability Model; and
- OPEX Model – Operating Expenditure and Regulatory Financial Model.

The information inputs required by the VDA model and the resultant outputs are displayed below.

Figure 16: VDA model overview



The VDA model is populated with specific asset data and resembles the AER's REPEX and AUGEX models but with added functionality which enables the integration of augex and repex predictions. This provides Endeavour Energy with the ability to model the impact of expenditure constraints on the network asset weighted average remaining life (WARL) indicator in order to test different scenarios.

Recent updates to the VDA have enabled Endeavour Energy to integrate a variety of capital and operating expenditure and reliability scenarios to provide additional modelling outcomes. The integrated model also takes into account augmentation of the network driven by customer funded network connections in addition to growth and renewal investment funded by Endeavour Energy.

Integration of the models allows for a wider consideration of the interrelationships between expenditure categories and facilitates in the top-down forecast an efficient level of total capital expenditure through capturing these potential benefits.

The following capital expenditure categories are not captured in the VDA model:

- Reliability, efficiency and power quality programs; and
- Public lighting and metering.

The following operating expenditure categories are excluded from the VDA model:

- Overheads;
- Public Lighting and Metering; and
- Ancillary network services.

The outputs from the VDA are tested for practicality, realism and stakeholder expectations. This review is undertaken at an asset category level as well as at a whole-of-network level. Thus, the VDA provides validation of our bottom-up derived forecasts of capital expenditure in total and at a category level.

A summary of each of the forecasting approaches used at a capital expenditure driver level is provided below.

9.1.1 Augmentation/Growth (Augex)

Endeavour Energy augments the network to connect new customers and ensure the network is able to meet the forecast local demand. There are two key drivers of augmentation expenditure:

- new customer connections - connection of new customers to the network which necessitates augmentation of the shared network in existing network areas; and
- reinforcement - growth in aggregate demand from customers in the existing network which necessitates augmentation of the shared network (either at the distribution system and/or sub-transmission system level).

Our augex forecasts reflect a probabilistic approach to network planning whereby all viable options to manage identified network limitations are considered (including non-network and demand management) and cost-benefit analysis undertaken in accordance with procedural requirements and regulatory obligations including the RIT-D process. Augmentation planning also evaluates possibilities to utilise excess network capacity to resolve network constraints in lieu of new investment.

Sub-transmission augmentation constraints are identified using 10 year spatial peak demand forecasts. Augmentation constraints in the distribution system are identified by applying the individual zone substation demand forecasts to the feeder loading in each zone. Constraint conditions are determined based on security criteria set in jurisdictional licence conditions.

Expenditure is forecast using a top-down approach in conjunction with bottom-up methods. Our VDA model provides a forecast cost of proposed augmentation projects based on historical unit rates and current labour, contractor and equipment rates. Costs to augment the network due to new customer connections are forecast using analysis of historical expenditure and forecast customer growth rates.

9.1.2 Replacement and Renewal (Repex)

Endeavour Energy invests in the renewal and replacement of assets when the condition of the asset indicates that the continued safe and reliable operation of the existing asset is no longer economically viable. There are also a number of regulatory obligations that drive our investment including public and workplace safety and environmental legislation. The key drivers of repex expenditure are:

- Degradation in the condition of assets on the network, generally as a result of the asset’s age and environmental factors; and
- Safety, environmental or other asset related risks.

Endeavour Energy’s replacement projects are based on specific condition and risk driven requirements but sits within the context of a long-term strategic expenditure plan for asset reinvestment (as informed by the WARL and the VDA model). This approach ensures that Endeavour Energy's proposed investment in asset renewal is targeted and appropriate for the range of asset end-of-life and performance issues being addressed.

A combination of "top-down" and "bottom-up" forecasting approaches are used to resolve the asset renewal expenditure required for each asset class or asset replacement program. Asset specific condition assessments are used to establish the scope of assets that will be potential candidates for renewal. High-level modelling through the VDA informs the size of programs and enables the creation of a long-term view about the appropriateness of the proposed expenditure.

The replacement plans for key assets which have high replacement values and/or perform a critical role in the network (e.g. sub-transmission power transformers) are developed using replacement criteria specified by Endeavour Energy's asset maintenance and performance standards and through individual asset condition and performance assessment regimes. The forecast of replacement costs for these assets is developed using a bottom-up approach based on historical unit rates and current equipment costs and labour rates. Our integrated VDA model is used as a top-down assessment to ensure the proposed expenditure is appropriate and consistent with long-term needs.

Replacement programs for low-value, high-volume assets (e.g. distribution poles) are projected using a top-down or model-based approach. These projections are then optimised by actual asset need determined through condition assessment programs and the size of the asset base. The expenditure projections are based on actual average replacement costs with asset category totals discounted for network/asset growth based replacements as appropriate.

9.1.3 Reliability

Reliability investment is undertaken to ensure compliance with reliability performance targets set out in legislative and administrative requirements (licence conditions), and in particular ensure that customers connected to the worst performing parts of the network receive at least the minimum specified levels of reliability. The main driver of reliability investment is our need to comply with the requirements of jurisdictional Design, Reliability and Performance Licence Conditions and the need to move poor individual feeder performance closer to the average values for the network. This investment is STPIS neutral.

Reliability expenditure forecasts are developed using a bottom up approach based on the proposed responses (following cost-benefit and options analysis) identified through the performance monitoring process, historical unit costs and current equipment costs and labour rates. Importantly, the forecast is analysed to ensure that reliability expenditure is not also included in the forecasts of other categories of capital expenditure.

9.1.4 Demand and Network Management

This category covers a variety of broad based and targeted capital expenditure programs and projects including:

- Demand management programs;
- Distribution management system;
- Distribution, sub-transmission and feeder monitoring; and
- Pilots of operational technology.

The plans and projects in this category have been developed predominantly as prudent and efficient alternatives to traditional network capital investment. As a consequence, their inclusion in network plans represent long-term cost saving benefits to consumers with avoided costs reflected in growth and replacement capital forecasts.

Specific programs are identified on an as needs basis and costs are forecast using a bottom-up approach.

9.2 NON-SYSTEM CAPITAL EXPENDITURE

9.2.1 Information & Communication Technology (ICT)

ICT expenditure is required to ensure the reliability, performance and security of technology systems, data and end point devices. Endeavour Energy's ICT provides the following core capabilities:

- compliance with our jurisdictional licence conditions;
- supporting functions in delivering our network services and corporate functions such as asset management, customer management, and financial reporting; and
- assists in the prudent delivery of services to our customers at a lower cost over time.

ICT expenditure is forecast using a combination of a top-down approach based on historical expenditure for maintaining current IT systems and a bottom-up forecast for new systems based on a demonstrated business need and in accordance with the ICT Investment Plan. Trending expenditure from previous periods and benchmarking against other comparable DNSP's is also used to inform our ICT forecasts.

9.2.2 Land & Buildings

Land and building expenditure relates to network property and corporate buildings which facilitate the efficient delivery of network services. This includes the provision and refurbishment of office and depot accommodation and facilities. It should be noted that substation, easements and other system specific costs are not included in this category.

Expenditure is largely influenced by current asset condition and changes to our operating environment such as changes to staffing levels and customer numbers and location. The need for replacement, upgrades and new assets is determined in the Field Service Centre Strategy and supporting business cases and associated documentation. Expenditure is forecast using a bottom up approach and is supported through the Field Service Centre Strategy and supporting business cases.

9.2.3 Fleet

Fleet expenditure includes the costs associated with the purchase and replacement of new and existing vehicles. Endeavour Energy fleet assets ranges from light passenger (which are leased) to heavy commercial vehicles and includes specialised assets including customised cranes, lifter borers and EWP's. Fleet costs incurred through a lease agreement or otherwise are classified as operating costs and are excluded from this category. The decision to purchase or lease fleet is based on the results of cost-benefit analysis.

Fleet expenditure is directly related to the number of staff employed in field based roles. Replacement is undertaken according to vehicle condition and age. The vehicle requirements of field and office based roles are also periodically reviewed to determine appropriate fleet expenditure. Expenditure in this category is forecast using a bottom-up approach with trend analysis applying a top-down check of estimates.

9.2.4 Furniture, Fittings, Plant & Equipment

Expenditure in this category is made up primarily of capitalised generic and specialised tools used by Endeavour Energy's field based employees and other associated equipment required to support the network construction and maintenance programs. It also includes the furniture and fittings component of the land and buildings program. Forecast unit costs are based on historical expenditure levels and quantities informed by forecast workforce levels and need to acquire and replace equipment as required (depending on condition).

10.0 KEY EXPENDITURE FORECASTING CONSIDERATIONS

There are a number of inputs and considerations that necessarily underpin Endeavour Energy's expenditure forecasts. We outline these considerations and forecasting inputs below.

We note that Schedule 6.1.1 and Schedule 6.1.2 of the Rules require a DNSP's building block proposal to identify the key assumptions that underlie the capital and operating expenditure forecasts. We note that the reasonableness of these assumptions must be certified by Endeavour Energy's Board. Our view is that a 'key assumption' could be best defined as a small number of high level assumptions relating to facts or circumstances, the truth or correctness of which underpins or is highly material to the expenditure forecasts.

For clarity, we will identify, certify and submit a listing of the "key assumptions" that underlie our forecasts at the time of submitting our regulatory proposal in accordance with the Rules. The considerations and forecasting inputs detailed below are not intended to satisfy the Rule requirements outlined above.

10.1 DEMAND & FORECASTING

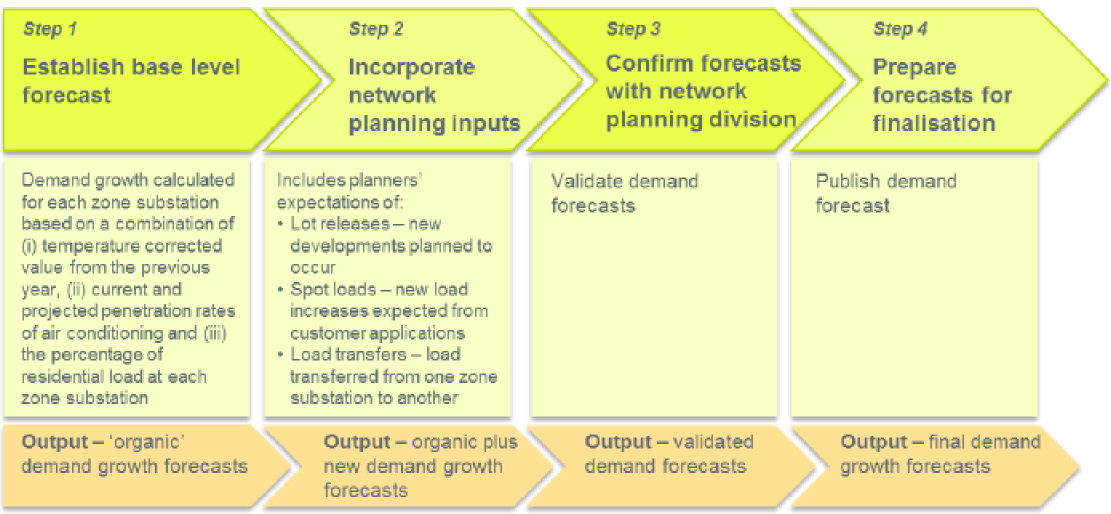
Peak (maximum) demand forecasts are a key input to proposed augmentation capital expenditure. Peak demand forecasts consider the growth from the existing customers as well as the new customer connections.

Endeavour Energy's spatial demand forecasting model uses a bottom-up approach from the zone substation level to the total network. Historical demands are normalised for various weather and calendar effects from which a starting point is established. From this starting point future spot loads, lot releases and load transfers from one substation to another are accounted for in the 10 year forecast horizon.

Spatial demand forecasts are informed by an understanding of proposed industrial, commercial and residential developments gained from developers and local councils and planning authorities such as the NSW Department of Planning and Environment and the Greater Sydney Commission. Collaborative planning approach with industry stakeholders enables Endeavour Energy to derive accurate forecasts of customer numbers, expected customer connection requirements and network area growth. Regular interaction also allows Endeavour Energy to plan for the optimal delivery and timing of augmentation works.

Post model adjustments are applied to the 10 year forecast to account for other drivers that influence demand such as energy efficiency improvements, generation from photovoltaic systems and government energy policies. The forecast at each zone substation is finally aggregated to produce an overall system peak demand forecast for Endeavour Energy's network area. Forecasts of overall system peak demand are compared with the high level demand forecasts produced by the Australian Energy Market Operator (AEMO) to verify the forecasts and methodology. The maximum demand forecasting process is displayed in Figure 17 below.

Figure 17: Demand Forecasting Process



10.2 ASSET CONDITION

In order to ensure the outcomes from the asset renewal planning process are realistic and measureable, Endeavour Energy has sought to identify a simple, high level indicator to focus renewal planning activity and to ensure that expenditure is appropriately targeted. It is generally recognised that the remaining asset life (adjusted for condition and the spread of condition profiles for an asset class) is a reasonable surrogate for asset health.

On this basis, Endeavour Energy utilises Weighted Average Remaining Life (WARL) as a high level indicator of overall asset health. The WARL of the asset base measures the remaining life of the network assets as they exist at a point in time, taking into account both asset age profile and condition factors, assuming that variations in individual asset condition within a class of assets balance out over time.

The WARL is used to determine the effectiveness of our proposed asset replacement programs mitigating the risks associated with an ageing and deteriorating network. The WARL is a readily obtainable output from the replacement expenditure model of Endeavour Energy's Value Development Algorithm (VDA) investment modelling tool. The VDA is able to model the impact of expenditure constraints with the impact of retaining un-replaced assets reflected in the WARL indicator. This has provided the opportunity to establish a strategic goal for WARL that in turn has enabled the establishment of a long-term sustainable asset renewal driven expenditure trajectory.

10.3 PROBALISTIC PLANNING

Endeavour Energy's network planning policies and standards are based on probabilistic planning principles. Once network constraints have been identified, single contingency scenarios (N-1) are considered, however the level of supply security provided will be subject to the outcomes of a reliability risk and cost benefit analysis specific to that situation.

Cost-benefit analysis in the planning process is completed as standard practice - the level of detailed analysis is determined by the materiality of the proposed program or project. Consideration is given to a variety of relevant network risk events as part of the planning process. The results of options analysis and supporting business cases are integral part of the risk based planning approach. Combined, these measures ensure that solutions to network constraints are only proposed if necessitated by the need to manage an unacceptable exposure to risk events.

10.4 ASSET UTILISATION

Utilisation of excess capacity in the network is regularly considered and assessed as an alternative to network investment in the option analysis stage of the planning process. The technical and economic feasibility in using existing capacity in the network (particularly to service the requirements of the initial stages of new, large greenfield developments) is carefully analysed and reflects Endeavour Energy's prudent approach to planning augmentation capital works.

Endeavour Energy will continue to advance asset utilisation when it is safe and prudent to do so. This approach has allowed us to deliver cost saving benefits to customers by deferring (and in some cases avoid) more costly network investment. Our expenditure forecasts for 2019-24 will reflect our view that new, major augmentation works will only be undertaken once it can be demonstrated that the existing network cannot be efficiently reconfigured to meet future customer supply requirements.

10.5 DEMAND MANAGEMENT

Endeavour Energy considers demand management and non-network options to avoid or defer the need for capital intensive network augmentation. Such considerations are carried out regularly through investment options analysis and as part of the RIT-D requirements and incorporated into individual business cases.

Endeavour Energy has a demand management strategy to utilise technology and processes, where they have proven to be cost effective at reducing peak demand, to defer investment in network augmentation. Accordingly, evaluation of the potential viability of demand management in constrained areas is an integral part of the planning process. We anticipate demand management opportunities to increasingly influence our network investment plans due to continual technological and regulatory developments. Our capital expenditure forecasts will incorporate such expectations.

10.6 COST ESCALTORS

Real cost escalation is incorporated in our forecasts to reflect the efficient changes in costs likely to be incurred over the 2019-24 regulatory period. Cost escalation forecasts for each cost type (labour, materials) will be based on the most recently available market data and be informed by the advice of external economic consultants to ensure they are reasonable and realistic.

10.7 VALUE OF CUSTOMER RELIABILITY (VCR)

Derived by AEMO, the VCR represents a customer's willingness to pay for reliable electricity supply. Endeavour Energy's capital investment decisions are informed by the VCR. Evaluating the need for capital investment by explicitly considering the value customers place on the outcomes of proposed investments ensures only valued investment is undertaken.

10.8 CAPITAL/OPERATING EXPENDITURE TRADE-OFF CONSIDERATIONS

The decision whether to replace or maintain an asset(s) requires a consideration of the whole-of-life cost of the asset. Replacement of an existing asset with a new, modern equivalent generally allows for lower maintenance cost and improved asset performance. Conversely, continuing to maintain an existing asset avoids the large lump-sum cost of purchasing the asset.

Endeavour Energy's approach to selecting the most appropriate option is driven by the need to evaluate the impact of the investment decision in Net Present Value (NPV) terms. An increase in capital expenditure needs to be justified by a savings in operating expenditure in present value terms or the need to mitigate a newly identified network risk. Likewise, a proposed reduction in capital expenditure should not result in an increased operating expenditure cost, again in present value terms.

10.9 PROJECT COST ESTIMATION

We have largely used historical and current costs to determine the expected costs of completing works, and have modified this where appropriate to reflect site specific factors. Historical unit costs, current labour and contractor rates and materials and equipment costs have been used to develop the bottom-up forecasts. Indirect costs are allocated to capital expenditure projects according to our cost-allocation method approved by the AER.

Forecasts will also include the efficiency benefits derived from continuing to adopt a blended delivery approach to labour resourcing and open competitive tendering of capital works. Combined with Endeavour Energy's prudent procurement and open and competitive capital works tendering processes this approach will continue to ensure labour cost is maintained at an efficient level.

10.10 RELIABILITY

As part of our obligations under the NSW Design, Reliability and Planning Licence Conditions, we are required to invest in the network to address service reliability issues for those customers specifically identified as being supplied via poorly performing feeders or feeders considered as being at risk of poor performance. Investment is not designed to improve the reliability performance of the overall network. Instead it is targeted to comply with jurisdictional reliability obligations and does not include investment to avoid potential penalties under STPIS.