
Expenditure Forecasting Methodology

Transmission Revenue Reset for the Regulatory Control Period
beginning April 2027

Friday, 21 March 2025

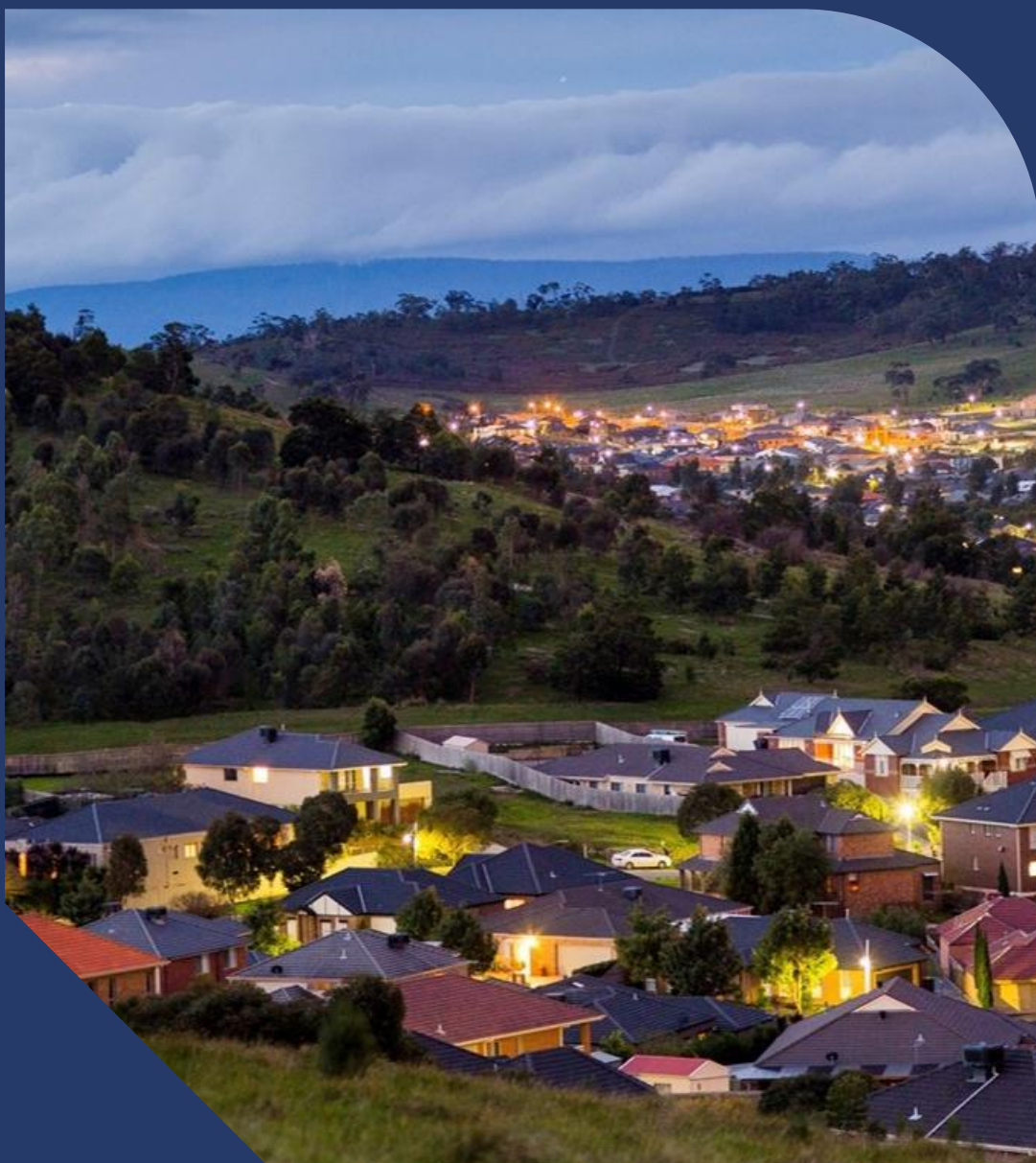


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1. Introduction

The purpose of this document is to set out the methodologies that AusNet Services intends to use to prepare its expenditure forecasts for the Transmission Revenue Review (TRR) for the regulatory period beginning 1 April 2027.

This document is a requirement under clause 6A.10.1B of the National Electricity Rules (NER). The AEMC explained the intended purpose and scope of this document in the following terms:

"The Commission accepts that responsibility for developing a NSP's proposal should remain with the NSP. This includes the development of an expenditure forecast in a manner that the NSP views as appropriate. It is the AER's role to assess the NSP's proposal using any tools it views as appropriate. Nevertheless, it remains important for the AER to receive information which enables it to effectively assess a NSP's proposal and be aware of how the NSP plans to forecast its expenditure.

...

*The Commission views the early engagement with NSPs, as well as broader industry engagement in developing the guidelines, as beneficial. It will potentially save time and effort for both parties once the regulatory process has commenced."*¹

The methodology set out in this document is intended to be consistent with the AER Expenditure Forecast Assessment Guideline. This guideline explains the AER's approach to assessing whether a TNSP's expenditure forecasts satisfy the Rules requirements, and the information the AER requires for the purpose of that assessment.

In this guideline, the AER highlights the following principles should be followed in developing an expenditure forecasting methodology:

- "Validity;
- Accuracy and reliability;
- Robustness;
- Transparency;
- Parsimony; and
- Fit for purpose."²

AusNet Services has developed its forecasting methodology for the forthcoming TRR in accordance with these principles.

In addition to notifying the AER of our forecasting methodology, this document explains how customer input is being taken into account in developing our expenditure plans. It also explains how our plans will be subject to benchmarking to ensure that AusNet Services' forecast expenditure satisfies the rule requirements in relation to efficiency and prudence.

AusNet Services does not expect its expenditure forecasting methodologies to be amended in its Revenue Proposal. However, if a change proves to be necessary, a detailed explanation for the change will be provided in the Revenue Proposal.

¹ AEMC, Rule Determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012; National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012, 29 November 2012, p. 108.

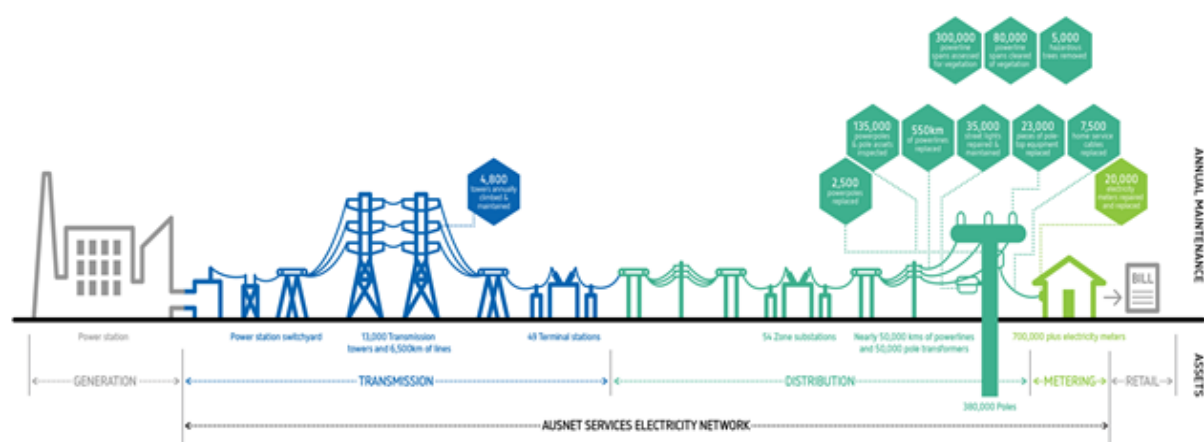
² AER, Better Regulation, Expenditure Forecast Assessment Guideline for Electricity Transmission, October 2024.

2. Transmission Arrangements in Victoria

2.1. Introduction

AusNet's transmission network includes more than 6,500 kilometres of transmission lines that transport electricity from power stations to electricity distributors and large customers. The network operates at 500kV, 330kV, 275kV, 220kV and 66kV and includes those assets between the 'point of connection' with generators and distribution companies (Figure 1).

Figure 1- Facilities and assets in the Victorian transmission network



Our TRR proposal will outline the planned projects, work programs and revenue we require to maintain and operate a safe, reliable and efficient transmission network that meets the long term needs of our customers and the wider community. This approach is consistent with the National Electricity Objective and the operating expenditure objectives and capital expenditure objectives in the NER. In preparing our expenditure plans, AusNet Services ensures that it complies fully with its legislative and regulatory obligations.

The purpose of this chapter is to provide important background information on the major changes occurring within the energy system, the transmission arrangements in Victoria – which are unique in Australia – and AusNet Services' approach to asset management, which affects both capital and operating expenditure.

2.2. Energy System Transformation

2.2.1. Victorian Planning Arrangements

In Victoria, the transmission network planning functions are separated from network ownership and operation. These arrangements differ from other NEM jurisdictions, where planning and responsibility for augmentation is not separated from the incumbent transmission company (although independent planning oversight occurs in South Australia). Notably, these arrangements have implications for the definition of prescribed services, which are subject to the revenue cap.

The responsibilities of the parties within the Victorian arrangements for electricity supply are set out in Victorian legislation, the licences, guidelines and codes administered by the Essential Services Commission and Victorian derogations in Chapter 9 of the National Electricity Rules (NER). Together these describe the model for the procurement and provision of transmission services in Victoria.

2.2.2. AEMO as planner and procurer of augmentations

Established on 1 July 2009, following the merger of VENCORP and NEMMCO, AEMO is a non-profit organisation responsible for planning and procuring augmentations on the shared transmission network. Its responsibilities include:

- procuring bulk shared network services from AusNet Services and other providers;
- providing transmission use of system services to transmission customers (including administering transmission pricing); and
- planning and requisitioning augmentation to the shared transmission network, to ensure existing and expected demand is met.

AEMO applies a probabilistic planning approach to reliability, whereby the costs of an improvement in reliability are compared with the assessed benefits of that improvement under different scenarios. In this way, every investment decision is made with regard to the degree of reliability that can be economically justified. An explicit value of customer reliability is a key input into this process.

To ensure consistency and minimise total costs to customers, AusNet and AEMO conduct joint planning to identify the most efficient and economic solutions to maintaining network reliability and security and accommodating growth. This includes consideration of overlaps between replacement and augmentation projects, as well as the ongoing need for existing assets operated and maintained by AusNet Services.

2.2.3. Connected parties

In Victoria, parties connected to the transmission network are responsible for the planning and augmentation of their connection assets. Therefore, the five Victorian distribution businesses are responsible for planning and directing the augmentation of those facilities that connect their distribution systems to the shared transmission network. The Victorian distributors plan and direct the augmentation in a way that minimises costs to customers, taking into account distribution and transmission losses that occur within the transmission connection facilities.

Other connected parties (major consumers or generators) are responsible for their own connection planning, although they can choose to delegate this task to a distributor.

In the event that a new connection or an augmentation of an existing connection is required, the connected parties must consult with and meet the reasonable technical requirements of AEMO, AusNet Services and other affected parties.

Each year the Victorian distributors publish the Transmission Connection Planning Report that assesses the network planning criteria, the risks of lost load and options for meeting forecast demand.

2.2.4. Upcoming changes to Victorian planning arrangements (VicGrid)

There are significant changes currently underway to fundamentally change the way energy infrastructure is planned and delivered in Victoria. The Victorian Government, through VicGrid, are developing and implementing a new statewide approach for planning renewable energy and transmission infrastructure.

This new approach includes delivering a long-term strategic plan for renewable energy infrastructure and transmission development in Victoria – the Victorian Transmission Plan (VTP). The first VTP, to be published in mid-2025, will take a 15-year view of transmission and renewable energy zone development in Victoria – we refer to this as the 2025 VTP. The second plan, to be published in 2027, will take a 25-year view, as will subsequent plans published every 4 years. The 2025 VTP is being developed with a 15-year view to enable a timely and smooth transition from coal-fired generation by ensuring Victoria has sufficient renewable energy and connecting transmission in place.

The changes to Victorian planning arrangements are yet to be finalised. VicGrid state a draft VTP is intended to be published early 2025. VicGrid is required to publish the final VTP by 31 July 2025.³

2.2.4.1. Implications for the AusNet 2027-32 TRR

The upcoming changes to Victorian planning arrangements have direct implications for the Ausnet 2027-32 TRR. Similar to the existing planning arrangements (involving joint planning between AusNet and AEMO), it will be necessary to conduct joint planning between AusNet, AEMO and VicGrid to identify the most efficient and

³ Engage Victoria, Developing the 2025 Victorian Transmission Plan, February 2025.

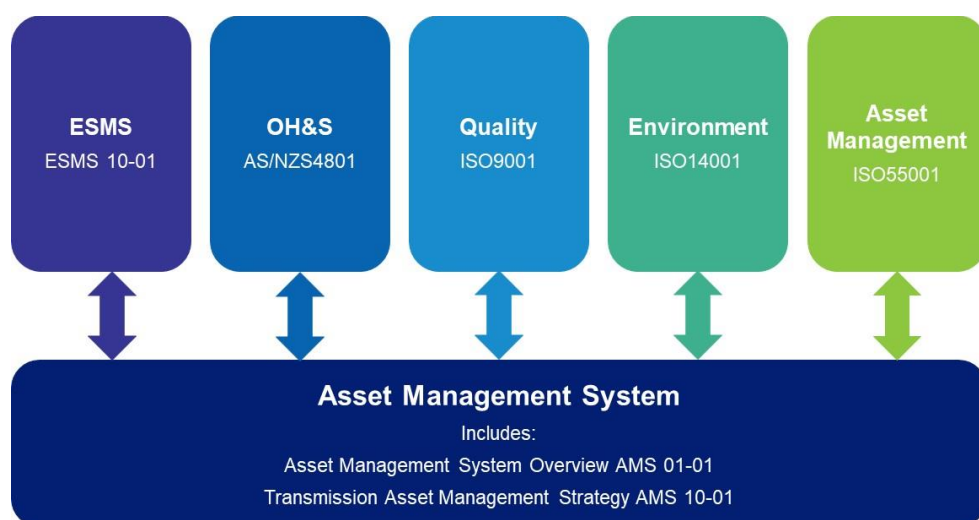
economic solutions to maintaining network reliability and security and accommodating growth. Ausnet's TRR will be subject to uncertainty until further clarity on the VTP and joint planning efforts have occurred.

2.3. Asset management systems

AusNet Services is committed to providing a safe, efficient and reliable transmission network. In addition to our Electricity Safety Management Scheme (ESMS), which is approved by Energy Safe Victoria, AusNet Services maintains quality assurance over its Asset Management System through certification to AS/NZS 4801 – Occupational Health & Safety Management Systems, ISO 9001 – Quality Management Systems, ISO 14001 – Environmental Management System and ISO 55001 – Asset Management Systems.

The figure below depicts these policies, processes, procedures and standards, which together define our strategic objective of providing our customers with a safe and reliable electricity supply.

Figure 2 - Asset management system certification and approval



AusNet Services' asset management policies, processes, procedures and practices provide important context for the expenditure plans and forecasts for the forthcoming regulatory period. In particular, the Asset Management System (AMS) aims to stabilise the risks associated with the electricity transmission network. Asset risk is expressed as the probability of asset failure (determined using asset condition data) multiplied by the impact of that failure on network safety, reliability and availability. This approach to asset management establishes an economic basis for evaluating investment decisions, which is discussed in further detail in Chapter 3.

AusNet Services was the first transmission company in Australia to obtain PAS 55 certification for its AMS. In early 2014 AusNet Services asset management practices were certified to ISO 55001, the internationally recognised successor to PAS 55. The adoption of ISO 55001 enables an organisation to achieve its objectives through the effective and efficient management of its assets. It is applied where physical assets are a critical factor in achieving business objectives and its application provides assurance that those objectives can be achieved consistently and sustainably over time. Organisations can get their asset management systems certified to ISO 55001 in a similar manner to other management systems, such as ISO 9001 and ISO 14001. AusNet's Asset Management System is substantially aligned to the requirements for ISO 55001, and AusNet is committed to achieving full ISO55001 accreditation and certification by October 2025.

Certification demonstrates robust and transparent asset management policies, processes, procedures, practices and a sustainable performance framework. Certification is an indicator that AusNet Services remains an effective, efficient and competent asset manager able to demonstrate an industry leading approach to asset management.

2.4. Customer and stakeholder engagement

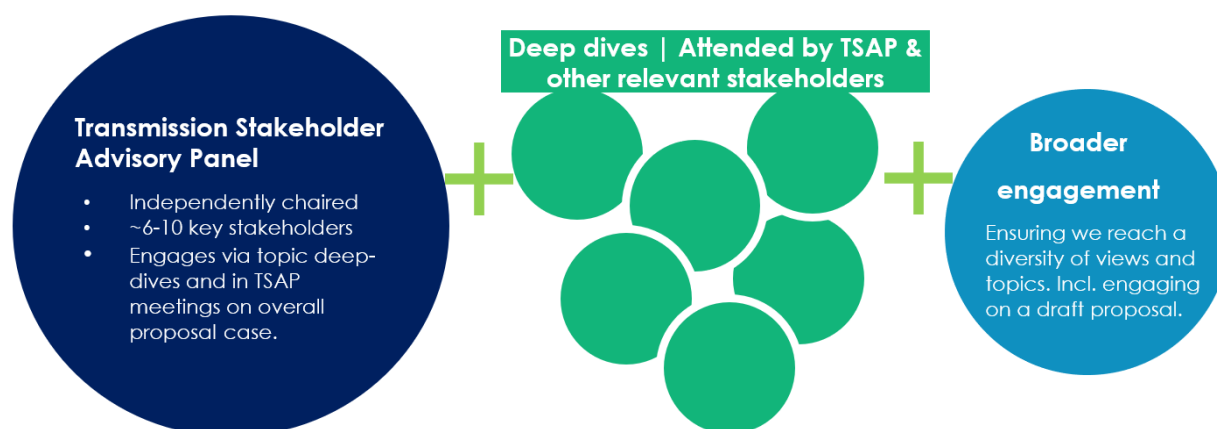
Our TRR 2027-32 “living” engagement plan is designed to be broad (covering many topics) and deep (engaging in detail on the things that matter to customers) and meet the expectations outlined by the AER in its Better Resets Handbook.

Our engagement program was initially developed through a co-design process with customer representatives and other stakeholders, and builds on our ongoing customer research, our own experience engaging across our three regulated networks and engagement guidelines and best practices. It is and will continue to evolve until late 2025, when we submit our proposal to the AER for review. The current version is published on our Community Hub site.

2.4.1. Our engagement approach

Our engagement approach includes three workstreams:

Figure 3 - Ausnet engagement approach



2.4.2. Transmission Stakeholder Advisory Panel (TSAP)

We have refreshed and are frequently meeting with our Transmission Stakeholder Advisory Panel (TSAP) throughout the process of creating our TRR 2027-2032 proposal. The TSAP, previously known as the Transmission Customer Advisory Panel (TCAP) was originally established as part of the stakeholder engagement undertaken while we were preparing our regulatory plans for the TRR 2022-2027.

Since the TRR 2022-2027 engagement process concluded in early 2022, we continued to meet regularly with the TCAP. These meetings helped us stay abreast of customers' evolving needs, views and preferences and provide updates on progress delivering the TRR 2022-27 works program and evolutions of the industry. It also means many TSAP members have continuity with the previous TRR process and familiarity with the transmission sector and its challenges.

The TSAP's role is to:

- provide credible, evidence-based insights and advice that enable AusNet to better understand its customer and stakeholders' diverse needs, circumstances, perspectives, interests, and preferences, in the context of the TRR 2027-2032
- engage constructively with other members and AusNet to provide feedback on economic and technical regulatory inputs to the Revenue Proposals, such as expenditure forecasts.

2.4.2.1. TSAP membership

Its membership (current as of February 2025) includes:

- Glenn Orgias (Chair of panel), *Independent*
- Alex Crosby, *Independent*
- Andrew Richards, *Energy Users' Association of Australia (EUAA)*
- David Markham, *Australian Energy Council (AEC)*
- Gavin Duffy, *St Vincent De Paul*
- Harshal Patel, *Beca*
- Rebecca Xuereb, *Independent*
- Richard Robson, *Citipower, Powercor & United Energy*
- Roy Unny, *Independent*
- Tennant Reed, *Ai Group*
- Theodora Karastergiou, *Jemena*

2.4.2.2. TSAP topics planned

Topics planned for TSAP meetings (current as of February 2025, but likely to evolve) include:

- Collaborating on the topics for TSAP engagement and meeting agendas
- The capex program and its elements
- Opex
- Other relevant planning processes including:
 - The Victorian Transmission Plan (VTP)
 - Victorian Annual Planning Report (VAPR)
 - AEMO Integrated System Plan (ISP)
- Overall affordability and value of our proposal
- Risk allocation.

2.4.3. Deep dives

Topics planned for deep dives, attended by the TSAP and a broader group of relevant stakeholders (current at February 2025, but likely to evolve) include:

- The new connections process
- Landholder and customer engagement
- Resilience, and
- Planning for net zero.

2.4.4. Direct transmission customers

AusNet's direct transmission customers are those parties whose facilities are connected to the shared transmission network – namely, generators, distributors and large users. AEMO is also a major stakeholder, as AEMO acts as the provider of transmission use of system services in Victoria, and is responsible for planning and procuring new shared transmission network capacity, as well as connecting generators and customers to the shared transmission network.

AusNet liaises very regularly with these customers on matters such as service performance, new works, and operational matters including issues relating to planned and unplanned outages.

All directly-connected load customers have a standing invitation to participate in TSAP meetings, and several have done so in the past.

In addition to engaging with our TSAP, we will also conduct broader engagement to ensure that all interested stakeholders and customers are able to contribute to the process of drafting the TRR 2027-2032. This will be done through a range of channels including surveys, forums and meetings.

2.4.5. Connecting TRR 2027-32 engagement with existing and ongoing research and engagement activities

Engagement is not a one-in-five-year activity for us. Additionally, customers and stakeholders repeatedly tell us they are busy and need to use their time effectively, and we have an obligation to customers to be efficient with our time and investments. We extend this to engaging on the TRR 2027-32 and commit to, wherever practical and desirable, leveraging existing engagement and research activities in this engagement program.

Extensive, high-quality engagement with Victorian energy users is being undertaken by AusNet, the five distribution networks, AEMO, VicGrid and others, which we will seek to use and build on this in our engagement for TRR 27-32.

Some of these existing programs are below.

2.4.5.1. AusNet's Customer Consultative Committee (CCC)

Our Customer Consultative Committee (CCC) will be kept closely informed on the TRR engagement program's progress. As AusNet's "peak" business-as-usual engagement forum, with oversight over AusNet's other engagement forums and research program as well as our business operations and work programs, the CCC will have the role of:

- Helping coordinate between TRR-specific engagement and AusNet's business-as-usual engagement
- Helping keep AusNet accountable with regard to delivering on commitments made through the TRR 2027-32 process.

2.4.5.2. Leveraging business-as-usual research and engagement programs where practical

We will continue to leverage insights gained from our various other ongoing initiatives including research and engagement with:

- **Renewable developers** connecting to our network, with whom we engage extensively and annually survey for feedback
- **Commercial and industrial energy users**, including our directly connected customers, who engage with us Directly on an as-needed basis for operational and strategic matters
- **Victorian electricity users**, who have been engaged extensively on their changing electricity needs and expectations since 2022 (continuing into 2025) by the five Victorian electricity distribution networks for their Electricity Distribution Price Reviews (EDPR) 2026-31.
- **New transmission infrastructure**, which although is out of scope for the TRR 2027-2032, we will be able to leverage the learnings from projects we have engaged on in Gippsland and the West of Victoria, and
- **The Energy Charter**, as a full signatory of The Energy Charter, we engage and participate in #BetterTogether initiatives which are aimed at achieving tangible outcomes for customers and communities in the energy sector. These initiatives help to provide a deeper understanding of energy users including their wants and needs which will be utilised in our TRR 2027-2032.

2.4.6. Value of Customer Reliability

AusNet's expenditure plans for the forthcoming regulatory period are underpinned by the AER's Value of Customer Reliability (VCR). The VCR represents the value consumers place on having a reliable electricity supply. The VCR was recently reviewed and updated by the AER in December 2024.⁴ In developing the values, the AER surveyed 5,923 residential and business customers of various sizes and industries across eastern and south-eastern Australia and the Northern Territory. The VCRs developed by the AER are specific to climate zones and locations (regional or urban). We have used the latest VCR in developing our network investment plans, reflecting customers' current preferences regarding both price and reliability.

⁴ AER, Values of customer reliability, Final report on VCR values, December 2024

2.5. AER's assessment guideline

The AER's expenditure forecast assessment guideline provides an explanation of how the AER intends to assess whether forecast expenditure satisfies the NER requirements.

AusNet welcomes the AER's guidance on its assessment approach. AusNet will ensure that its Revenue Proposal provides the AER with sufficient information to enable it to conduct its assessment in accordance with its guidelines. The expenditure forecasting methodologies described in this document provide the first step in this process. The detailed application of these methodologies, together with the supporting analysis and models, will be provided to the AER and other stakeholders in the Revenue Proposal.

3. Capital Expenditure Forecasting

3.1. Objectives

AusNet Services' objectives are to ensure that its forecast capital expenditure complies with the NER and promotes the NEO.

In 2023, the NEO as updated to now includes references to the following:⁵

- the achievement of targets set by a participating jurisdiction—
 - for reducing Australia's greenhouse gas emissions; or
 - that are likely to contribute to reducing Australia's greenhouse gas emissions."

The relevant NER provisions are summarised below.

NER 6A.6.7 requires AusNet Services to propose a total forecast capital expenditure for the relevant regulatory control period which it considers is required in order to achieve each of the following capital expenditure objectives:

- meet the expected demand for prescribed transmission services over the period;
- comply with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services;
- maintain the quality, reliability and security of supply of prescribed transmission services; and
- maintain the reliability, safety and security of the transmission system through the supply of prescribed transmission services.
- contribute to achieving emissions reduction targets through the supply of prescribed transmission services.

The AER must accept the total forecast of capital expenditure if it is satisfied that it reasonably reflects the following capital expenditure criteria (capex criteria):

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

At a high level, therefore, AusNet Services' forecasting methodology is focused on identifying an overall program of capital work that will prudently and efficiently maintain the quality, reliability and security of supply of prescribed network services. This approach reflects both the NEO and the capital expenditure objectives and criteria in the NER.

In broad terms, AusNet Services relies on the following robust planning and governance processes to drive capital expenditure forecasts that comply with the NER requirements:

- Asset management practices, which deliver an optimal balance between quality, safety, reliability and security of electricity supply with price and efficient investment for the long-term interests of consumers.
- Asset replacement planning, based on a risk-based economic evaluation, is used to ensure the investment option that maximises net benefits for most or all scenarios and sensitivities is selected. The investment timing of the selected option is also assessed to ensure an efficient timing of network investment.

⁵ DCCEE, Energy and Climate Change Ministerial Council, Incorporating an emissions reduction target into the national electricity objective, 6 June 2023.

- Investment decision-making practices are supported by a robust project governance framework, which incorporates continuous improvement to ensure projects are delivered at lowest efficient cost.

In addition to replacement capital expenditure, the forecasts must also include non-network capital expenditure, which comprises buildings and property, vehicles, other and IT. This category of capital expenditure provides essential support to the business.

3.2. Group 3 assets

AusNet Services' network capital expenditure forecast relates only to the replacement of shared transmission network assets and transmission connection assets, and excludes any expenditure to augment the transmission system. As explained in chapter 2, AEMO is responsible for planning the augmentation of the shared transmission network in Victoria, and the five Victorian distribution businesses have responsibility for planning the augmentation of transmission connections to their distribution networks.

In planning network replacements, AusNet Services will consult with AEMO and the Victorian distributors in relation to future network and transmission connection augmentations, in order to ensure that asset replacement and capacity augmentation works are optimised, and all opportunities for cost synergies are identified.

During any regulatory control period, AEMO or a distribution business may request that AusNet Services augments the transmission network or distribution connection service. Although these assets provide prescribed transmission services, they sit outside the regulated asset base and are governed by commercial contracts until the subsequent revenue determination, when they are rolled into the regulated asset base. AusNet Services refers to the assets that provide these services as 'Group 3 assets'.

At each revenue reset, Group 3 assets completed since the last revenue reset are rolled into the regulated asset base for the first time. The purpose of this process is to recognise those investments undertaken in the previous regulatory control period and ensure that AusNet Services earns an appropriate regulated return. These new additions to the regulated asset base are subject to the same rules regarding depreciation and escalation as other assets that provide prescribed transmission services. The regulatory arrangements governing the roll-in of these assets are set out in NER 11.6.21(c).

Given the roll-in process, the forthcoming Revenue Proposal will relate only to the provision of prescribed services as at 30 September 2026, being the practical cut-off date for the roll-in of existing Group 3 assets. Accordingly, the expected costs and revenues associated with the provision of any prescribed services above the level being provided as at 31 December 2019 will be excluded from the forthcoming revenue cap.

The figure below shows the different regulatory approach to replacement capital expenditure and Group 3 assets. Specifically, AusNet Services' forecast replacement capital expenditure is included in the regulatory asset base and remunerated through the revenue cap. As explained above, however, Group 3 assets are remunerated through commercial contracts initially and subsequently rolled into the regulated asset base.

Operating expenditure associated with the growth of the asset base due to Group 3 roll-ins will be forecast as part of the Revenue Proposal (discussed in chapter 4 of this document).

Figure 4 - Replacement and group 3 capital expenditure

Replacement	Group 3
• Replacement capex on AusNet Services existing assets which provide prescribed services • Forecast replacement capex including in the forecast Regulated Asset Base	• Augmentation and connection capex for prescribed services (not negotiated or contestable) as required by AEMO or distribution business • No forecast Group 3 included in the forecast Regulated Asset Base

3.3. Overview of forecasting methodology

This section provides an overview of AusNet Services' capital expenditure forecasting methodology, which comprises replacement and non-network capital expenditure.

AusNet Services forecasting approach for replacement capital expenditure has two stages:

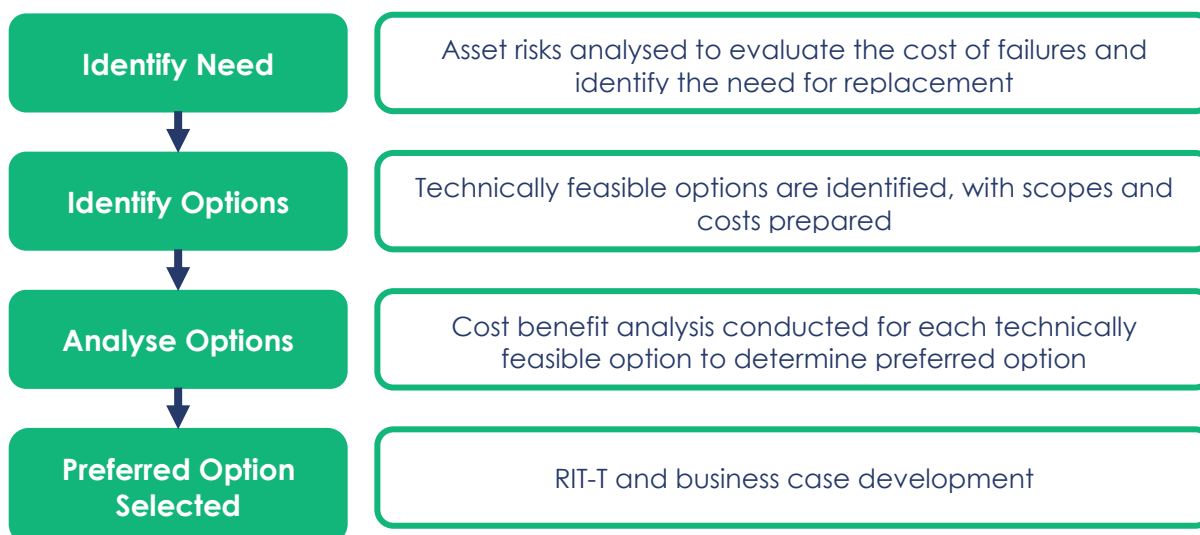
- Stage 1: Project based evaluation (bottom up); and
- Stage 2: Aggregation and efficiencies (top down).

Each of these stages is described in turn. This section concludes with a description of AusNet Services forecasting methodology for non-network capital expenditure.

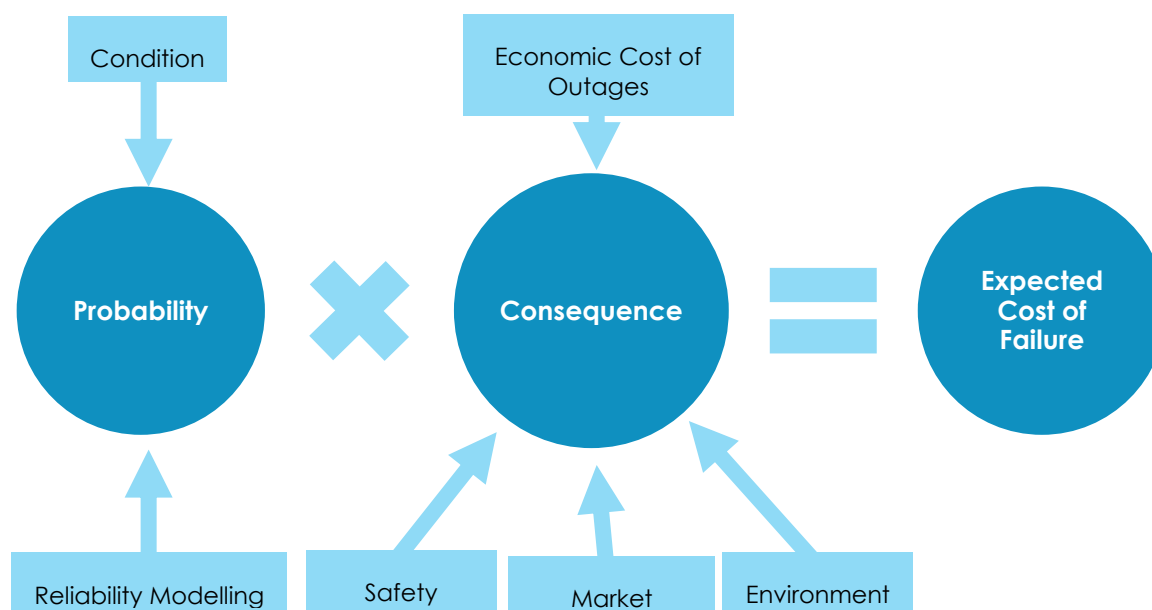
3.3.1. Project based evaluations

AusNet seeks to deliver optimal electricity transmission network performance at efficient cost by ensuring that all decisions to replace or maintain network assets are economically justified and appropriately consider all relevant criteria. The relevant criteria include safety, demand for network services, market impact, performance and condition of network assets, reliability and security of supply, technological advancements, the changing nature of generation and demand and the impacts of climate change on network assets. The figure below depicts the process for determining a project-based replacement decision.

Figure 5 - Project estimates and bottom up forecast



The first step in the process is to evaluate the need for an asset replacement. This assessment is based on asset class modelling that identifies those assets that present the highest risk, based on asset condition and consequences of failure. This approach is an economic evaluation, which focuses on the expected cost of failure, as depicted in the figure below.

Figure 6 – Economic Evaluation Method

The next step is to examine the technically feasible options to address the identified risk. The costs and benefits (in terms of expected avoided costs of asset failure) of each option are examined. Any relevant feedback from stakeholders is taken into account in the evaluation process. The option that delivers the maximum net benefit, in Net Present Value (NPV) terms, is the preferred option.

Once the preferred option has been selected and the RIT-T completed a business case is prepared to support business and board approval of the proposed investment.

A detailed project scope and detailed project cost can then be estimated. AusNet Services employs a detailed technical scope of works (refined from the preferred option) and current unit costs for installing the assets. This resulting cost estimate is the most likely cost of the project and assumes the scope of work will not change during the detailed design and construction phases. The cost estimate does not capture likely changes in unit costs, but accounts for the expected cost of various project contingencies (estimated using Monte Carlo analysis).

The economic timing of the preferred option is established by comparing the annualised total cost of the selected option with the annual benefits. Under this evaluation approach, the economic timing is identified as the point in time at which the annual benefits just exceed the annualised cost. The economic timing reflects by when the preferred option must be implemented.

Sensitivity studies around the discount rate, VCR, asset failure rate and demand scenarios are conducted to test the robustness of the economic evaluation. This ensures that the proposed replacement capital expenditure is economic under a range of reasonable scenarios and sensitivity studies for key input assumptions.

3.3.2. Aggregation and top down review

While project based evaluations underpin the replacement capital expenditure forecasts, a number of other factors are taken into account in developing a forecast for total replacement expenditure. In particular, a number of synergies and savings may become apparent as bottom up forecasts are aggregated. For example:

- Minor replacement works may be included in a major replacement project to attain synergies in project design, project management and project establishment costs.
- Project based replacements may be combined with AEMO's shared network augmentation requirements or the distributors' connection augmentation needs.
- Project timing is reviewed so that projects with highest expected cost of failure are addressed more quickly, while lower risk projects may be deferred.

Where these savings are identified, they are reflected in the total replacement capital expenditure forecast.

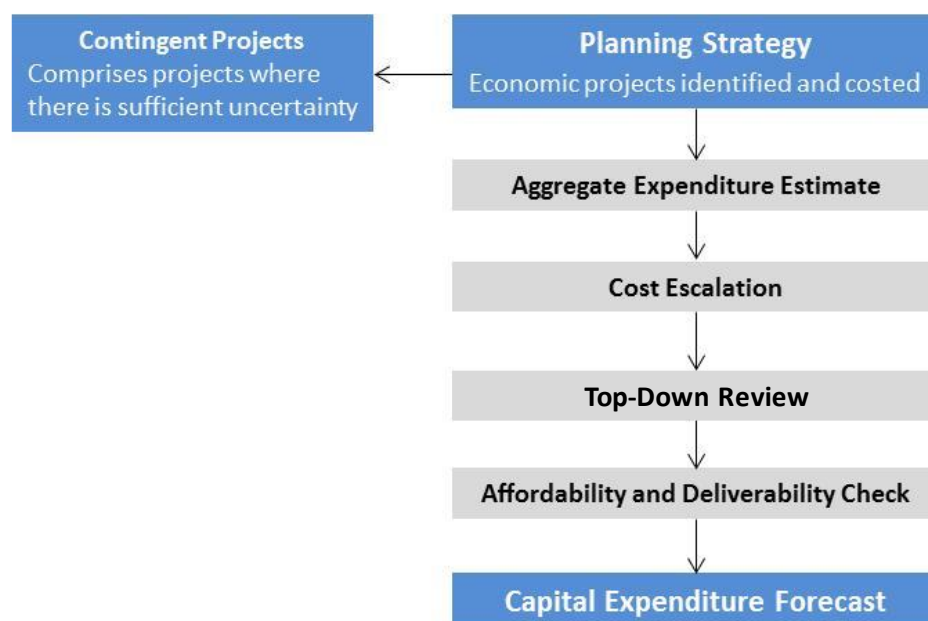
In addition, the aggregation process also requires additional steps to ensure that the forecasts satisfy the NER requirements, including:

- The identification of contingent projects, which are projects that may not proceed in the forthcoming regulatory period;
- The application of consistent cost escalation assumptions for labour and material costs over the forthcoming regulatory period; and
- A review of the affordability and deliverability of the total replacement capital expenditure forecasts.

The figure below shows how the economic projects identified and costed on a bottom up basis (from stage 1) are subject to a series of adjustments and checks to determine the total forecast replacement capital expenditure.

AusNet Services' assumptions and inputs to the forecasting methodology are discussed in the following section.

Figure 6 - Capital expenditure forecasting method



3.3.3. Non-network capital expenditure

In addition to replacement capital expenditure, AusNet Services must also forecast its non-network capital expenditure requirements. With the exception of corporate ICT systems, capital expenditure on non-network assets is generally recurrent in nature, which reflects the economic life cycles of each asset type. ICT expenditure is forecast based on AusNet Services' corporate ICT strategy. New or changed regulatory obligations, such as emerging cyber security requirements, can also influence the ICT forecast.

3.4. Assumptions and inputs

The key assumptions and inputs underpinning AusNet Services' capex forecast are outlined below.

3.4.1. Compliance and Laws, Codes and Standards

AusNet Services must comply with all applicable regulatory and legislative requirements. These requirements, which are summarised in the figure below, are key inputs to the forecasting methodology.

Figure 7 – Examples of relevant applicable compliance instruments

Victorian codes and standards	Australian Standards	Electricity Safety Management Plan	National Electricity Rules
• System performance obligations • Energy Safe Victoria Act 2005	• AS/NZS 7000 • AS 62053 • AS 2067	• Approved by ESV • Safety system operation	• System security obligations • Connection obligations • Metering obligations • Economic regulation

AusNet Services is also required to comply with health and safety, environmental and security obligations which impact on the design and operation of the network. These obligations and the related internal standards cover matters such as:

- safe access for work on towers;
- management of fire hazards;
- changes to the Occupational Health and Safety Act 2004 requiring additional reviews of safety issues at the design stage of a project and additional liability (and therefore cost) for designers;
- management of various pollutants and environmental effects (oil discharge, noise and greenhouse gas emissions); and
- physical security.
- These obligations and standards are subject to changes. For example, in 2024 the Electricity System Code was revoked by the ESC (Essential Services Commission) to streamline obligations and reduce complexity of Victoria's energy regulatory framework.

These obligations have a substantial bearing on the level of forecast capital expenditure that will be incurred by AusNet Services in the provision of prescribed transmission services over the forthcoming regulatory control period. Pursuant to NER 6A.6.7(2), AusNet Services' capital expenditure forecast includes the forecast costs of complying with all applicable regulatory obligations or requirements associated with the provision of prescribed transmission services.

3.4.2. Demand forecasts

Terminal station demand forecasts are used to assess load at risk under transformer or other asset outage conditions, and that assessment forms part of the economic evaluation of AusNet Services' asset replacement investment decisions.

AusNet Services uses the latest AEMO Transmission Connection Point Forecasts. This forecast, which was most recently released in 2024 (to be updated with subsequent releases), is AEMO's electricity maximum demand forecasts (active and reactive power) at transmission connection point level, over a 10-year outlook period. Sensitivity analysis for a number of input assumptions as well as demand forecast are used for the major stations projects to ensure that the replacement capex forecast is robust.

3.4.3. Value of customer reliability

As discussed in section 2.5.1, we will adopt the latest VCR released by the AER ([2024 VCR determination](#) at time of this report). These VCR values will be updated should the AER published updated values.

3.4.4. Asset condition reports

As already noted, asset condition is an important input in developing our replacement capital expenditure forecasts.

AusNet measures asset condition with reference to an asset health index, on a scale of 1 to 5. The 1 to 5 range of the index is consistent across all asset types and relates to the expected remaining asset life. The table below provides a simple explanation of the range of asset health assessments.

Table 1 - Asset health reporting

Health Index	1	2	3	4	5
Description	As new	Signs of wear	Starting to deteriorate	Deteriorating	Advanced deterioration

Various techniques are used to measure the health of different types of assets. The table below provides an overview of the condition assessment methods used for major asset types.

Table 2 - Condition assessment methods

Asset Type	Condition Assessment Methods
Transformers	Offline electrical testing Dissolved gas analysis SF ₆ analysis
Power Cables	Visual inspection of cable joints for signs of corrosion
Insulators	Visual inspection for degradation
Circuit Breakers	Gas and oil sampling Offline electrical testing SF ₆ analysis
Switchgear	Visual inspection for corrosion Thermal imaging
Conductors	Visual inspection for corrosion

AusNet will be relying on asset condition assessments to determine efficient capital expenditure requirements for the forthcoming regulatory period.

3.4.5. Failure rate ratings

Asset failure risk information flows from AusNet Services' Reliability Centred Maintenance (RCM) asset management techniques, which centre on asset condition (rather than age) to guide optimal replacement timing. This approach takes into account performance requirements and actual failure data to assign failure rates to individual network assets or classes of assets.

Failure Mode Effect Criticality Analysis (FMECA) based on historical asset performance data is undertaken to determine typical root causes of functional failures, and the resulting effects these causes have on key performance measures including network safety, reliability and availability. Asset condition data collected using the methods shown in Table 4 is used to determine dynamic time-based probability of failures and the remaining service potential of the asset in that lifecycle phase.

This probability of failure derived from the asset condition is multiplied by the consequences of failure to determine the expected cost of the failure, or the asset failure risk.

The consequences considered include:

- Loss of supply
- Market impact
- Safety
- Environmental

In 2018 AusNet Services, in collaboration with other Victorian electricity networks, conducted a review of the methodology used to quantify safety risk, to ensure alignment with industry best practice. This review led to several

improvements and refinements to this methodology, which are now reflected in the models used by AusNet Services to determine the economic timing for asset replacement projects.

The safety impact is estimated using the value of statistical life published in the Australian Government's *Best Practice Regulation Guidance Note Value of Statistical Life*, a probability of consequence value to account for the fact that not every asset failure results in someone being injured, and a disproportionality value to account for the expectation of the community that more should be spent on reducing safety risks.

The environmental impact is valued based on historical environmental clean-up costs and a probability of consequence factor.

As noted in relation to asset condition assessments, AusNet Services will be relying on the accuracy of the failure risk ratings to determine the efficient capital expenditure requirements for the forthcoming regulatory period.

3.4.6. Unit rates and S curves

The unit rates to derive project estimates will be established from internal standard costs, which will reflect the best available actual data. Forecast cost escalators will be applied to project estimates.

S-curves will be used to define the profile and timing of expenditure over the term of a major capital project. The S-curves applied by AusNet Services will reflect actual historic experience.

3.4.7. Cost escalators

Cost escalators for labour and materials will be applied after initial project estimates have been determined. When applying cost escalators, we will consider the most appropriate measures of cost escalation for the following inputs:

- Labour (internal, external, and general/site labour)
- Materials (including aluminium, copper, steel, crude oil, construction costs);

The escalators will be supported by independent reports from suitably qualified consultants in combination with information that specifically relates to AusNet Services (such as Victorian-specific labour market factors).

The same escalators will be used in developing the operating expenditure forecast.

3.4.8. Capex efficiency

AusNet Services has a strong culture of continuous improvement when delivering its capital programs. As discussed in section 3.3.2, in preparing our forecast we will conduct a top down review to assess whether it is appropriate to include a portfolio-level saving.

3.4.9. Capex/opex trade-offs

AusNet Services recognises the importance of optimising capital and operating expenditure in order to minimise total asset life cycle costs. The objective of minimising asset life cycle costs is embodied in AusNet Services' Asset Management Strategy. AusNet Services' Revenue Proposal will explain how the forecast operating and capital expenditure interlink and describe any capex-opex trade-offs that are inherent in the expenditure forecasts.

3.4.10. Deliverability

AusNet Services tests its preliminary capital expenditure forecasts against deliverability considerations prior to finalising its forecasts. Specifically, AusNet Services considers:

- The funding implications of the proposed capital expenditure in the context of its commitments in relation to AusNet Services' electricity and gas distribution businesses; and
- The deliverability of the proposed program, in terms of resource requirements and scheduling of works.

3.4.11. Benchmarking

To the extent possible, AusNet Services will benchmark its capital and operating expenditure forecasts to undertake a top-down assessment of its forecasts and validate that these comply with the NER requirements. Where appropriate, bottom-up benchmarking will also be undertaken to validate the efficiency of elements of the capital expenditure forecast.

4. Operating Expenditure Forecasting

4.1. Objectives

As noted in relation to capital expenditure, AusNet Services' objective is to ensure that its forecast operating expenditure complies with the NER and promotes the NEO. The equivalent NER provisions relating to operating expenditure are set out in NER 6A.6.6.

4.2. Base-step-trend approach

The AER's expenditure assessment guideline explains that it prefers a 'base-step-trend' approach to assessing most operating expenditure categories. However, when appropriate, the AER may assess some operating expenditure categories using other forecasting techniques, such as by applying an efficient benchmark.

The base-step-trend approach commences by establishing an efficient base year, which is the starting point for estimating future operating expenditure requirements. The following process is applied to the base year:

- A trend or 'rate of change' is applied to reflect future changes in input costs, growth and productivity.
- Step changes may be added (or subtracted) for any other costs not captured in the base operating expenditure or the rate of change.
- Other costs that were excluded from the base year are incorporated.

AusNet Services proposes to adopt a 'base-step-trend' forecasting approach for operating expenditure. As explained in the next section, the application of this approach has been adapted to reflect AusNet Services' particular circumstances and cost categories.

4.3. Operating expenditure methodology

For the purposes of forecasting operating expenditure, AusNet Services categorises expenditure as either controllable or non-controllable.

There are two main categories of controllable operating expenditure for AusNet Services' regulatory reporting purposes:

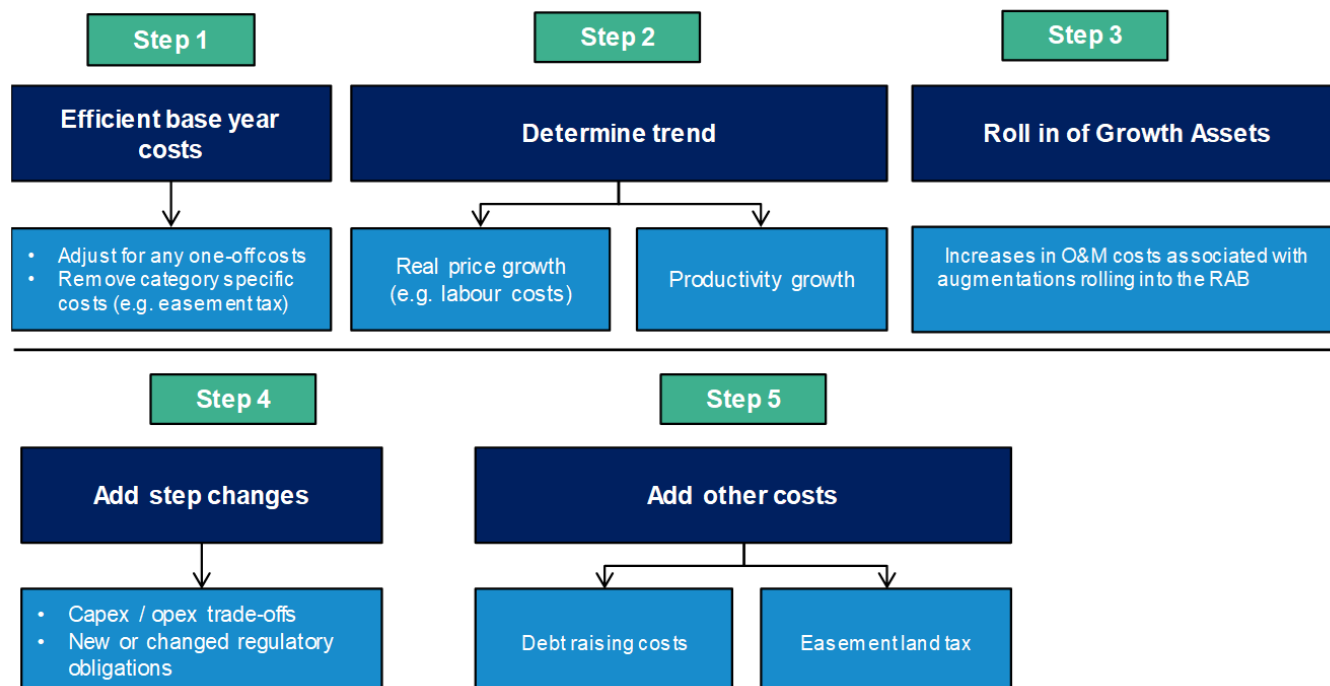
- Maintenance and operations – system recurrent costs directly attributable maintaining and operating the transmission network including maintenance and other costs such as insurance and taxes; and
- Corporate support – non-system recurrent costs that encompass activities and services which are not directly related to maintaining or operating the network including finance, Information Technology (IT) and Human Resources (HR).

The majority of controllable operating and maintenance expenditure will be forecast by applying cost escalators to a base year. The base year must be appropriately adjusted for the costs of one-off events in that year and scoped so that new functions or increased activities (e.g. to meet future compliance obligations or asset growth) are taken into consideration.

In addition to the controllable operating expenditure described above, AusNet Services also incurs non-controllable costs such as easement land tax. These costs items must also be included in the forecast operating expenditure.

The figure below illustrates the forecasting methodology described above, which comprises five steps.

Figure 8 - Overview of operating expenditure forecasting methodology



Each step in the forecasting methodology will require a number of assumptions and inputs. AusNet Services' Revenue Proposal will provide a comprehensive explanation of each step and the basis for the resulting forecast. In the following section, AusNet Services highlights the issues that will be addressed in detail in the Revenue Proposal.

4.4. Assumptions and inputs

4.4.1. Step 1 – efficient base year

The AER's assessment guideline explains its approach to assessing the efficiency of the base year in the following terms:

"The 'revealed cost' approach is our preferred approach to assessing base opex. If actual expenditure in the base year reasonably reflects the opex criteria, we will set base opex equal to actual expenditure for those cost categories forecast using the revealed cost approach. We will use a combination of techniques to assess whether base opex reasonably reflects the opex criteria. We will likely assess base year expenditure exclusive of any movements in provisions that occurred in that year.

*We intend to not rely on the expenditure of a particular base year when we identify material inefficiencies in that expenditure. In this case, we may adjust the base year or substitute an appropriate base year. When determining whether to adjust or substitute base year expenditure, we will also have regard to whether rewards or penalties accrued under the EBSS will provide for the TNSP and its customers to fairly share efficiency gains or losses."*⁶

AusNet's Revenue Proposal will provide the AER with detailed information demonstrating the efficiency of the proposed base year.

⁶ AER, Better Regulation, Expenditure Forecast Assessment Guideline for Electricity Transmission, October 2024.

4.4.2. Step 2 – determine trend

As noted in relation to the forecast capital expenditure, AusNet Services will rely on a suitably qualified independent expert to forecast labour cost escalators for the forthcoming regulatory period.

In relation to material cost escalators, the operating expenditure includes a wide range of costs ranging from field costs (protective clothing, minor tools, fuel and oil, fees and tolls, etc) to back-office costs (postage, freight and transport, cleaning, hospitality, office supplies, etc). Given the general nature of these costs, AusNet Services is likely to assume that these costs will increase at the same rate as CPI.

The overall rate of change to apply to the opex forecast is likely to include a productivity adjustment (based on an appropriate industry average) and the cost escalators determined in step 2.

These proposed adjustments will be explained in detail in AusNet Services' revenue proposal.

4.4.3. Step 3 – roll in of group 3 assets

As discussed in section 3.2, Group 3 assets will be rolled into the RAB at the commencement of the forthcoming regulatory control period. The growth in the asset base necessitates a commensurate increase in operating expenditure, associated with the on-going maintenance of these assets.

4.4.4. Step 4 – step changes

A step change arises where business conditions change such that future recurrent operating expenditure will differ from historic levels, including new regulatory obligations or where operating expenditure can be efficiently substituted for capital expenditure. AusNet Services will provide evidence regarding the efficient cost of any step changes in its Revenue Proposal. AusNet Services will also demonstrate that the costs arising from the step change are not accounted for elsewhere in the operating expenditure forecast.

4.4.5. Step 5 – other costs

AusNet Services will forecast each of the non-controllable cost elements (easement land tax and debt raising costs) by adopting a forecasting approach that is appropriate for each element.

5. Closing comments

This document has provided an overview of the methodology that AusNet proposes to use to prepare the forecasts of its operating and capital expenditure that will form part of its Revenue Proposal for the regulatory control period commencing on 1 April 2027. This document has been prepared in accordance with clause 6A.10.1B of the Rules.

AusNet Services considers that the forecasting methodologies set out in this submission will deliver expenditure forecasts that comply with the Rule requirements and, where possible, reflect customer views and concerns. AusNet Services' Revenue Proposal will set out the company's expenditure forecasts that result from the application of the methodologies described in this submission.

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