DRAFT DECISION

AusNet Services Transmission Determination 2022 to 2027

Attachment 5 Capital expenditure

June 2021

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585 165
Email: AERInquiry@aer.gov.au

AER reference: 65242

Note

This attachment forms part of the AER's draft decision on AusNet Services' 2022–27 transmission determination. It should be read with all other parts of the draft decision.

The draft decision includes the following attachments:

Overview

Attachment 1 – Maximum allowed revenue

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

Attachment 7 – Corporate income tax

Attachment 8 – Efficiency benefit sharing scheme

Attachment 9 – Capital expenditure sharing scheme

Attachment 10 – Service target performance incentive scheme

Attachment 11 – Demand management innovation allowance mechanism

Attachment 12 – Pricing methodology

Attachment 13 – Pass through events

Attachment 14 – Negotiated services

Contents

5 Capital expenditure

Capital expenditure (capex) refers to the investment made in the transmission network to provide prescribed transmission services. This investment mostly relates to assets with long lives (30-50 years is typical) and these costs are recovered over several regulatory periods. On an annual basis, the financing and depreciation costs associated with these assets are recovered (return of and on capital) as part of the building blocks that form AusNet Services' total revenue requirement.[1]

Under the regulatory framework, AusNet Services must include a total forecast of the capex that it considers is required to meet or manage expected demand, maintain the safety, reliability, quality, security of its network or comply with all applicable regulations (the capex objectives).

AusNet Services has proposed $797 million ($2021-22) in forecast capex that it considers is required to maintain the safety, reliability and security of energy supply on its network in the 2022–27 regulatory control period. This forecast capex is primarily for the replacement of assets that are reaching the end of their life, and infrastructure that supports the delivery of electricity transmission services.

AusNet Services does not include any forecast capex for network capacity augmentation or new customer connections to meet expected growth in demand. This is because the Australian Energy Market Operator (AEMO) is responsible for planning and procuring augmentation of AusNet Services' shared transmission network.

We must decide whether or not we are satisfied that AusNet Services' forecast reasonably reflects prudent and efficient costs to maintain the safety, reliability and security of the network, and a realistic expectation of future demand and cost inputs (the capex criteria). We must make our decision in a manner that will, or is likely to, deliver efficient outcomes that benefit consumers in the long term (as required under the National Electricity Objective (NEO)).

If we are not satisfied, we must set out the reasons for this decision and a substitute estimate of the total capex for the regulatory control period that we are satisfied reasonably reflects the capex criteria, taking into account the capex factors.

This attachment sets out our draft decision on AusNet Services' forecast capex.

[1] NER, cl. 6A.5.4(a).

5.1 Draft decision

Our draft decision is that we are not satisfied that AusNet Services' forecast capex of $797.7 million ($2012-22) reasonably reflects prudent and efficient costs to maintain the safety, reliability and security of the network.

We have developed a substitute forecast of $753.8 million ($2021-22). We consider this forecast will provide for a prudent and efficient service provider in AusNet Services' circumstances to maintain the safety, reliability and security of electricity supply on the transmission network. Table 5.1 outlines our substitute estimate of forecast capex, and compares this to AusNet Services' proposed forecast capex.

Table 5.1 Draft decision on AusNet Services' total forecast transmission capex ($million 2021–22)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
AusNet Services' proposal	177.4	181.1	179.5	144.9	114.9	797.7
AER draft decision	160.5	170.7	172.7	140.2	109.6	753.8
Difference	-17.0	-10.3	-6.8	-4.6	-5.3	-44.0
Percentage difference (%)	-9.6%	-5.7%	-3.8%	-3.2%	-4.6%	-5.5%

Source: AER analysis.

Note: Numbers may not add up due to rounding.

We do not approve a particular category of capex or specific projects, but rather an overall amount. However, as part of our assessment, we necessarily review categories of expenditure and particular projects in order to test whether AusNet Services' proposed total forecast capex reasonably reflects the capex criteria.

While we have not accepted AusNet Services' total capex forecast, we are broadly supportive of AusNet Services' forecasting approach and find that it is a reasonable basis for determining the prudent and efficient capex for maintaining the safety, reliability and security of the transmission network. In particular, AusNet Services' approach is consistent with the AER's 2019 *Industry Practice application note for asset replacement planning,* and has applied reasonable estimates of the efficient costs of the projects required to maintain its network.

On this basis, AusNet Services' forecast capex forms the basis of our substitute estimate. However, we have identified several components of AusNet Services' forecast that are not prudently required to maintain the safety, reliability or security of the network, or reflect the efficient costs of doing so. This includes a proposed communications upgrade that does not appear to be linked to an asset replacement need, and cost escalations that likely overstate the efficient costs of its capex program.

We also note that AusNet Services is currently in the process of revisiting its forecast capex for its major station renewals, which form a substantial component of its total capex forecast. AusNet Services is updating its project cost estimates, which includes

considering the impact of additional network support costs that may be required to manage outages throughout project construction, and updated forecasts of demand. AusNet Services is also considering whether additional major station projects are necessary to maintain network reliability and security due to the expected closure of the Yallourn power station in 2028, in addition to the expected development of new renewable energy zones in Victoria.

These updates may have material impacts on AusNet Services forecast capex. We do not have the information necessary to reflect these developments in our draft decision. AusNet Services consulted with stakeholders between April and June 2021 about how these updates may affect AusNet Services' revised proposal. This gave stakeholders the opportunity to influence the changes that could be made to AusNet Services' revised proposal.

We expect AusNet Services' revised proposal to provide updated estimates of its major stations projects and that these updated estimates will be fully informed by all available information on the prudent investment needs of the network, including the views of stakeholders.

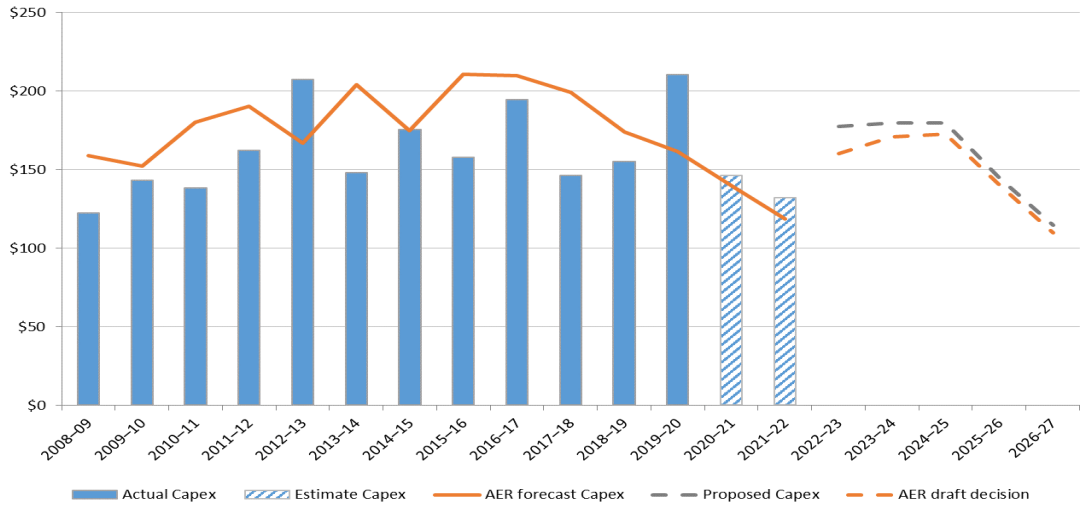
5.2 AusNet Services' proposal

AusNet Services proposed forecast capex of $797.7 million ($2021–22) over the 2022–27 regulatory period.[2] This represents an increase of approximately 8 per cent compared to actual and expected expenditure over the current period.

Figure 5.1 outlines AusNet Services' historical capex trend, its proposed forecast for the 2022–27 regulatory control period, and our draft decision.

[2] This forecast capex is consistent with the amount included in AusNet Services submitted post-tax revenue model. AusNet Services regulatory proposal references a total capex forecast of $796.2 million ($2021–22). This amount does not appear to include the small amount for the capitalisation of lease expenditure that AusNet Services has proposed for the 2022–27 regulatory control period.

Figure 5.1 AusNet Services' historical vs forecast capex ($2021–22, million)



Source: AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020; AER analysis.

As shown in Figure 5.1, AusNet Services proposed a step in up in forecast capex from the expected actual capex at the end of the current regulatory period, before declining towards the end of the next regulatory period. AusNet Services stated that the increase in forecast capex largely reflects:[3]

- the higher expenditure to replace major station assets and ground-wire and insulator line assets, based on their condition, and
- higher technology expenditure, including cyber security investment to comply with an anticipated change in regulatory obligations.

Table 5.2 contains AusNet Services' breakdown of its capex proposal in more detail. As highlighted by AusNet Services, the majority of forecast capex is $424 million for the renewal of major stations (53%), with an additional $213 million (27%) for non-station asset replacement. The next largest capex category is information technology (10.5%), followed by 'safety, security and compliance' (6.8%) and non-network (2.6%).

[3] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 70.

Table 5.2 AusNet Services forecast capex categories

	Forecast capex ($2021-22)	Proportion of total	Change from 2017-22
Major station renewal	424 million	53.3%	18%
Asset replacement program	213 million	26.8%	-14%
Information technology	83 million	10.5%	14%
Safety, security and compliance	54 million	6.8%	48%
Non-network	22 million	2.6%	17%
Total	**797 million**	**100%**	**8%**

Source: AER analysis; AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 70.

Note: Non-network capex includes the additional amount of capitalised leases expenditure.
Numbers may not add up due to rounding.

AusNet Services has stated that forecast capex in major switching stations is a significant component of its capex forecast because these stations are 'important nodes in the national interconnected transmission system'.[4] The Consumer Challenge Panel, sub-panel 23 (CCP23) submission supports the capex forecast in this context of the transition of the NEM:

> Enhancing the capacity of switching stations will be central to the reliability, security and stability of the existing transmission network, and the security of supply to Victorian consumers, as the new ISP projects and REZ developments continue through 2023-27 and beyond.
>
> Subject to the outcome of the AER's review and the regulatory investment test (RIT-T) (see below), CCP23 supports AusNet Services' major switching station capex plans. We accept that this investment is necessary to support AEMO's Victorian ISP program and to ensure a reliable and secure supply to Victorian consumers given the Victorian Governments' ambitious targets for renewable energy generation in Victoria. As such, the expenditure is likely to be in the long-term interests of all Victorian electricity consumers. Without these investments, the potential market benefits of the REZ program will not be realised.[5]

AusNet Services has applied an economic risk-based approach to asset replacement for its major stations and asset replacement program.[6] This approach quantifies the expected consequences from an asset failure in terms of the security of electricity supply, safety, environmental damage and collateral damage. The prudent timing of asset replacement is then calculated when the benefits of avoiding these consequences of an asset failure exceed the cost of investment in new assets.

---

4 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 75.

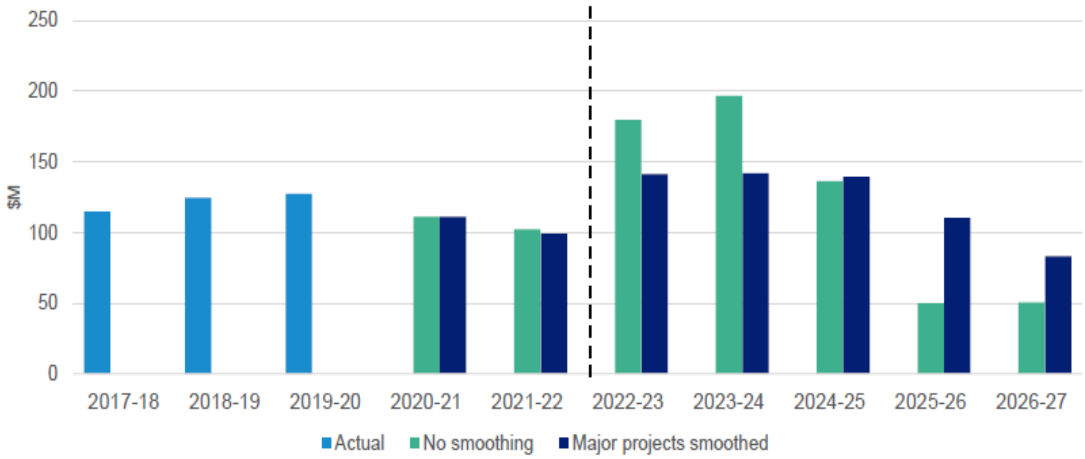
5 CCP23, *Advice to AER on AusNet Services Transmission regulatory proposal*, 12 February 2021, pp. 42–43.

6 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, pp. 89–93.

This economic risk-based approach to asset replacement is industry good practice and AusNet Services has made incremental improvements to several of the planning inputs over the current regulatory period. AusNet Services will also undertake a regulatory investment test for transmission (RIT-T) for each of its major station renewals, which will determine the preferred network option that will maximise economic benefits.

AusNet Services stated that the direct outcome of its major station economic analysis is a likely front-loading of capex in the next regulatory period. It sought stakeholder feedback on the deliverability risks associated with a front-loaded capex profile. As shown in Figure 5.2, AusNet Services addressed the delivery risk associated with its capex program by deferring five major station projects by two or three years.[7]

Figure 5.2 AusNet Services' smoothed and unsmoothed capex



Source: AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 129.

In addition, AusNet Services also conducted a top-down review to consider whether there is overlap or potential for synergies between the different components of its bottom-up assessment. AusNet Services identified some overlap between its major station projects and its other replacement program, and removed the proposed costs for these specific assets from either its replacement program or major projects.[8]

AusNet Services has not proposed augmentation related capex as AEMO is responsible for planning and procuring augmentation of AusNet Services' shared transmission network. However, AusNet Services has considered the impact of major augmentation projects on its replacement projects (including projects identified in AEMO's Integrated System Plan). It has deferred the proposed replacement of one major station asset due to the benefits provided by the Victoria to New South Wales Interconnector (VNI) minor project, and has identified synergies between one major

[7] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, pp. 128–129.

[8] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 94.

station (the $63 million Sydenham terminal station replacement project) and the Western Victorian Transmission Project.[9]

As noted previously, AusNet Services is currently considering the impact of several upcoming market developments on network reliability and security. This includes the expected closure of the Yallourn power station by 2028 and the development of new renewable energy zones in Victoria. While AusNet Services did not have the opportunity to consider these developments in its initial proposal, we expect it will consider these matters as part of its revised proposal.

5.3 Reasons for draft decision

We reviewed AusNet Services capex drivers, programs and projects to inform our view on a total capex forecast that reasonably reflects the capex criteria. We conducted top-down analysis such as examining trends and forecast costs compared with historical capex, and inter-relationships between cost categories. To complement this, we conducted bottom-up analysis of AusNet Services specific major programs and projects.

As shown above in Figure 5.1, AusNet Services is proposing an 8 per cent increase in capex compared to capex incurred (or expected to be incurred) in the current regulatory control period. While AusNet Services is forecasting a reduction in its asset replacement program, it expects that an increase in major station renewals will more than offset the reduction. AusNet Services has also proposed new investment in cybersecurity and a large step increase in its insulator replacement program.

AusNet Services' capex forecast adopts an economic risk-based methodology to determine the investment needed to maintain the safety, reliability and security of electricity supply on its network. This methodology was a key focus of our review as it determines whether AusNet Services has identified the projects and works that is prudently necessary to maintain the network, and no more.

We found that AusNet Services has adopted a prudent methodology that ensures that its capital investment decisions are justified with regard to all relevant costs and benefits. This approach is also consistent with the AER's 2019 *Industry Practice application note for asset replacement planning* in terms of the application of risk-based cost-benefit analysis, the identification of projects, and the relevant identification of the consequences of asset failure in terms of network safety, reliability and security. In this regard, it is consistent with good industry practice.

These findings apply to AusNet Services' forecast asset replacements for its major stations renewals, its broader asset replacement program, and its program for specific assets to maintain safety and security or meets compliance obligations. This comprises the bulk of AusNet Services total capex forecast. We also consider that AusNet

[9] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 88.

Services has applied reasonable cost-benefit analysis in determining the prudent capex for new cybersecurity obligations.

AusNet Services has also conducted an effective top-down and deliverability review. As a result, it has chosen to defer some major projects, removed duplication with asset replacement programs and optimised its civil works program. This lends further support to AusNet Services overall capex forecast as it has ensured that it had forecast no more than necessary to meets the needs of its network.

In addition to reviewing AusNet Services forecasting methodology and top-down reviews, we also considered the efficient costs of its proposed asset replacement programs. We consider that AusNet Services has estimated the likely realistic costs of its replacement projects and programs, and that it has an incentive to keep its cost estimates within a reasonable range.

The CCP23 was supportive of AusNet Services' capex forecast. It highlighted the benefits of AusNet Services' major station renewals in terms of supporting AEMO's Victorian integrated system plan (ISP) program and to ensure a reliable and secure supply to Victorian consumers, and was supportive of AusNet Services asset replacement forecasting methodology.

Overall, we are supportive of AusNet Services capex forecasting approach and find that it is a reasonable basis for determining the prudent and efficient capex for the 2023–27 regulatory control period. However, we have identified several specific aspects of the forecast that we consider AusNet Services had not demonstrated to be prudently required to maintain the safety, reliability or security of the network, or reflect the efficient costs of doing so.

First, AusNet Services has proposed $24 million for a specific communications project that does not appear to support an underlying network replacement need. This project forms part of AusNet Services' asset replacement program. However, we consider that this proposed program is not required to maintain the safety, reliability or security of the network. We have not included the capex for this project in our substitute estimate, which we discuss in section 5.3.2.

Second, we found that AusNet Services has escalated its estimated project costs in a manner that we consider is not necessary to reflect the efficient costs of maintaining the safety, reliability and security of its network. In particular:

- AusNet Services has escalated its total asset replacement program costs with a risk allowance which it considers is necessary to account for risk that prices and volumes of its replacement activities will be higher than forecast. As set out in section 5.3.2, we consider that a prudent operator can mitigate or avoid this risk when undertaking its replacement program
- AusNet Services has further escalated its project and program costs for expected increases in the labour component of its external contracted services. As set out in section 5.3.6, we are not satisfied that AusNet Services has supported this increase with compelling evidence, and that AusNet Services can likely mitigate this increase through its management of its contracted services.

For these reasons, we are not satisfied that AusNet Services' total forecast capex reasonably reflect the prudent and efficient costs to maintain the safety, reliability and security of the network. Nor are we satisfied that they a realistic expectation of future demand and cost inputs. We have adjusted AusNet Services' forecast for these specific factors in forming a substitute estimate of total capex that meets the capex criteria.

Table 5.3 set out our substitute estimates and the adjustments we made to AusNet Services proposed capex categories. The largest adjustment is to AusNet Services' asset replacement program, reflecting removal of the communications upgrade program and asset replacement risk allowance. The remaining adjustments are to remove the proposed escalation of external labour costs, which is spread over the various categories.

Table 5.3 AER draft decision substitute estimate ($million 2021–22)

	AusNet Services forecast	AER draft decision	Difference ($)	Difference (%)
Major station renewal	424.2	422.0	-2.2	-0.5%
Asset replacement program	213.4	173.1	-40.3	-18.9%
Information technology	83.8	83.0	-0.8	-0.9%
Safety, security and compliance	54.2	53.7	-0.5	-0.9%
Non-network	22.2	22.0	-0.2	-0.9%
Total	**797.7**	**753.8**	**-44.0**	**-5.5%**

Source: AER analysis; AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020.

Note: Non-network capex includes the additional amount of capitalised leases expenditure.
Numbers may not add up due to rounding.

While we have reviewed specific projects and the underlying costs, we do not determine forecasts for individual projects or determine which programs or projects AusNet Services' should or should not undertake. This is consistent with our ex-ante incentive-based regulatory framework, and is often referred to as the 'capex bucket'.

Once the ex-ante capex forecast is established, there is an incentive for AusNet Services to provide services at the lowest possible cost, because the actual costs of providing services will determine its returns in the short term. If it reduces its costs, the savings are shared with consumers in future regulatory control periods. This incentive-based framework recognises that AusNet Services should have the flexibility to prioritise its capex program given its circumstances in the regulatory control period and due to changes in information and technology over time.

Our decision on total capex also does not limit AusNet Services' actual spending. AusNet Services may need to undertake programs or projects that it did not anticipate during the reset. It also may not need to complete some of the programs or projects

proposed if circumstances change. We consider a prudent and efficient business would consider the changing environment throughout the regulatory control period and make decisions accordingly.

The remainder of this section sets out our assessment of AusNet Services' proposed forecast capex components, specifically:

- section 5.3.1 considers our assessment of major station renewals
- section 5.3.2 considers our assessment of asset replacement
- section 5.3.3 considers our assessment of safety, security and compliance
- section 5.3.4 considers our assessment of information technology
- section 5.3.5 considers our assessment of non-network programs, and
- section 5.3.6 considers our assessment of real cost escalation.

5.3.1 Major stations renewals

AusNet Services proposed $424 million to replace aging assets (e.g. transformers and circuit breakers) in fifteen switching stations and connection stations, in addition to four ongoing station projects from the current regulatory control period. AusNet Services stated that its major connection and switching stations are aging and some of its assets are in poor condition.[10] The reliability of these stations is critical to managing the reliability and security of both the Victorian transmission system as well as the national, interconnected power system.

Major station replacement capex comprises the single largest proportion of AusNet Services' total forecast capex (53%), and is the key driver for the increase in forecast capex compared to the current regulatory control period.

Figure 5.3 shows that AusNet Services' forecast major station capex is 18 per cent higher than actual and expected capex it incurred for major station renewals in the current regulatory control period. AusNet Services stated that it has focused on critical major CBD stations in the current period, and will now shift towards its aging switching stations and rural connections stations.[11] This will involve a step up in major stations works. It also expects that some of these stations will be more expensive and complex than the CBD stations as they involve replacing higher voltage equipment.[12]

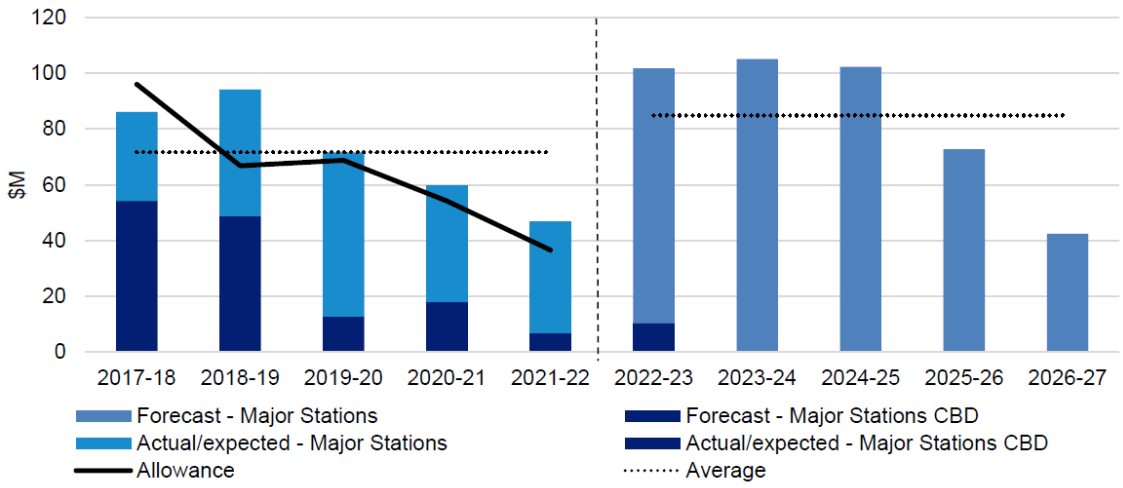
---

10 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, pp. 100–101.

11 AusNet Services, *Revenue proposal 2023–27*, 29 October 2020, p. 98.

12 AusNet Services, *Revenue proposal 2023–27*, 29 October 2020, pp. 98–99.

Figure 5.3 AusNet Services major station actual and forecast capex ($million, 2021–22)



Source: AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 99.

We consider that AusNet Services has reasonably justified the need for these major station projects, as there is a risk that an asset failure at these stations will affect the safety, reliability and security of the network. AusNet Services adopts good industry practice in identifying and quantifying the impacts of the failure of aging assets on network safety, reliability and security, and undertakes prudent cost-benefit and options analysis to consider whether major station renewal is required.

We also consider that AusNet Services has likely identified the efficient costs of its major station projects. However, AusNet Services is currently going through a process of updating and refining the costs of a number of these projects, and they may materially change. This includes considering the impact of additional network support costs that may be required to manage outages throughout project construction, as well as refinements to the scope of individual projects, and project risk costs.

AusNet Services is also considering whether additional major station projects may be necessary to maintain network safety, reliability and security in the context of the expected closure of the Yallourn power station in 2028 and the development of Victorian renewable energy zones in the coming regulatory period. AusNet Services did not have an opportunity to consider these developments when it prepared its initial regulatory proposal.

In this context, while we consider that AusNet Services' forecast major station capex is likely to be reasonably necessary to meet the requirements of its network, this is based on the information currently available, which is likely to change. We expect AusNet Services' revised proposal to provide updated estimates of its major stations projects and that these updated estimates will be fully informed by all available information.

The remainder of this section outlines our assessment of AusNet Services' forecasting methodology for its major stations and its project cost estimates.

AusNet Services' forecasting methodology is prudent

AusNet Services adopts a quantified risk based cost-benefit analysis to forecast its major station capex.[13] The benefits are avoiding the costs of asset failure and the cost is the proposed network investment. The optimal timing of the project is when the benefits of avoiding an asset failure exceed the annualised cost of the investment.

To determine the expected costs of asset failure, AusNet Services' approach considers the probability of asset failure, and the consequences from an asset failure. The following consequences are quantified and together form the 'baseline risk' cost:[14]

- supply security risk – load at risk that would not be supplied in the event of an asset failure, evaluated based on AEMO's terminal station demand forecast and the latest value of customer reliability and the expected time to replace the asset
- health and safety risk – the hazards to the safety of any person in an event of asset explosive failure (for example human injury and fatality) evaluated based on the likelihood of lost time accident, death or injuries occurring, and statistical valuations of the costs of death and injury
- environmental risk – the threat of adverse effects on the environment, for example environmental impacts due to oil leaks
- plant collateral damage risk – the potential collateral damage of adjacent plant due to an asset explosive failure
- market modelling – the wholesale market price increase when an asset failure impacts on market energy flows.

These are relevant risks to maintaining the safety, reliability and security of electricity supply on AusNet Services' transmission network.

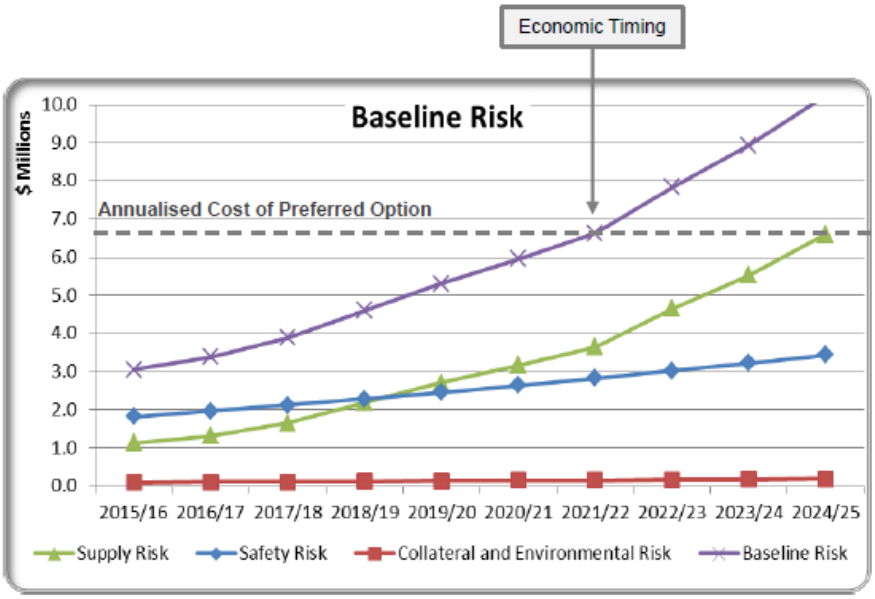
Figure 5.4 illustrates how AusNet Services determines the economic timing of a project by comparing the annualised cost of a project against the net incremental benefits of avoiding the consequences of asset failure.

---

[13] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, pp. 89–93; AusNet Services, *AMS 10-24 Asset Renewal Planning Guide, 2023-27 Transmission Revenue Reset*, 29 October 2020; AusNet Services, *AMS 01-09 Asset Risk Assessment Overview, 2023–27 Transmission Revenue Reset*, 29 October 2020.

[14] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 91; AusNet Services, *AMS 10-24 Asset Renewal Planning Guide, 2023–27 Transmission Revenue Reset*, 29 October 2020, pp. 14–28; AusNet Services, *AMS 01-09 Asset Risk Assessment Overview, 2023–27 Transmission Revenue Reset*, 29 October 2020. pp. 17–24.

Figure 5.4 Example of AusNet Services economic assessment approach



Source: AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 93.

Our 2017 revenue determination for AusNet Services stated this approach to quantifying risks is necessary to ensure that capital investment decisions are justified with regard to all relevant costs and benefits, and is consistent with good industry practice.[15] Importantly, it is also consistent with the AER's 2019 *Industry Practice application note for asset replacement planning* in terms of the application of risk-based cost-benefit analysis, options analysis and the selection of risks from asset failure. We published this note in January 2019 to:[16]

> …provide guidance and examples on how NSPs could meet the NER requirements to demonstrate the prudency and efficiency of network asset investment on asset retirement and de-rating decisions.

While we consider AusNet Services' approach is consistent with good industry practice, it will only forecast the prudent timing of station replacements where the underlying model inputs are realistic. In this context, we reviewed the inputs and assumptions underpinning AusNet Services' models to ensure they are realistic.

The most important risks quantified in AusNet Services' models are safety risk and security of supply risk (as shown in the blue and green lines in Figure 5.3).

AusNet Services has made incremental improvements to its safety risk inputs in recent years. The updates to safety risk address a key concern we raised in our 2017 determination. In our decision, we considered that AusNet Services had applied simplistic assumptions relating to quantifying the impact of explosive asset failures on

---

15 AER, *Final Decision, AusNet Services' transmission determination 2017-22*, Attachment 6, April 2017, p. 19.

16 AER, *Industry practice application note — Asset replacement planning*, January 2019, p. 1.

injuries and fatalities, and this likely overstated safety risk.[17] Nevertheless, our final decision accepted AusNet Services approach, and stated:[18]

> Further research and analysis is required to support these estimates or to identify preferable alternative values and approaches. However, for this decision, we propose to apply those inputs as proposed by AusNet Services.
>
> AusNet Services should, as it has undertaken to do, review its safety risk quantification methodology, modelling, inputs and assumptions prior to the next revenue determination to ensure its approach is reasonable, robust and consistent with good industry practice.

AusNet Services has since updated its risk assessment to address concerns we raised in regards to its assessment and quantification of safety risk. Specifically it now quantifies the impact of asset failures on injuries and fatalities using a statistical based approach that estimates the likelihood of a lost time accident, death or injury when there is an asset failure (taken from Ofgem's *DNO Common Network Asset Indices Methodology*) and quantifies the consequences using several widely accepted statistical measures.[19] This is a significant improvement on previous approaches.

In relation to security of supply risk, AusNet Services has adopted the AER's 2019 value of customer reliability to quantify the impact on customers from outages, and has improved its modelling of multiple-asset failures. It has otherwise maintained its overall estimation approach.

A key input into determining the security of supply risk is the forecast of the likelihood that an asset will fail and interrupt electricity supply.[20] If AusNet Services realistically estimates the risk of asset failure, this will ensure that it has identified the timing of asset replacement in a way that minimises the likelihood of failure and maintains network reliability and security. However, if AusNet Services overstates the likelihood of asset failure, then it will likely identify that asset replacement is required earlier than that which is prudently required.

AusNet Services has few major failures on its network as it typically seeks to replace an asset before it fails catastrophically.[21] To estimate the likelihood that an asset will fail, it instead assesses the condition of the asset and then uses a probability distribution and a rate of change formula to estimate the likelihood the asset will fail

---

17 AER, Draft Decision, *AusNet Services transmission determination 2017-18 to 2021-22: Attachment 6 - Capital expenditure*, July 2016, pp. 51 and 52.

18 AER, *Final decision, AusNet Services transmission determination 2017-22*, Attachment 6, April 2017, p. 23.

19 These include the statistical value of life from the Australian *Best Practice Regulation Guidance Note Value of Statistical Life*, and lost time accident cost from *Safe Work Australia's The Cost of Work-related Injury and Illness for Australian Employers, Workers and the Community*. See AusNet Services, *AMS 01-09 Asset Risk Assessment Overview, 2023-27 Transmission Revenue Reset*, 29 October 2020, p. 36.

20 AusNet Services, *AMS 10-24 Asset Renewal Planning Guide, 2023–27 Transmission Revenue Reset*, 29 October 2020, p. 15.

21 AusNet Services, *Response to AER Information Request #015*, 23 April 2021.

each year.[22] This is a common method set out in our *Industry Practice application note for asset replacement planning*.[23]

AusNet Services has not provided us with the underlying data and statistical calculations for these formulas, or otherwise provided supporting information to show that the resulting failure rates reflect the realistic likelihood that an asset will fail.

This makes it difficult for us to be wholly satisfied that the underlying modelling is producing an outcome that realistically reflects the risk and consequences of asset failure. We have not identified the need for an adjustment to AusNet Services' methodology or inputs at this stage, based on the information available. However, we propose to revisit this issue in AusNet Services' revised proposal and work with AusNet Services on the specific information we need to make an informed final decision in regards to AusNet Services' proposed capex.

Project cost estimates are reasonable but likely to change

In addition to the quantified costs of asset failure, the other key input that determines the optimal timing of a project are the project costs themselves.

To estimate project costs, AusNet Services engaged a consultant to develop an initial scope of works for the options for each station renewal. This includes estimates of project component costs (e.g. asset purchase and installation) and an allocation of overheads and project risk allowance. AusNet Services stated that it will then refine its cost estimate as it selects a preferred project option and proceeds through the planning process (e.g. proceeding through the RIT-T process).

AusNet Services applies these project cost estimates in its cost benefit modelling, and its regulatory proposal. AusNet Services selects the project option that maximises the net benefits within the economic models, and uses these to develop its capex forecast.

AusNet Services' approach that applies the outcome of its economic models means it likely faces an incentive to limit the proposed costs of its major station projects to within a reasonable range. This provides us with some comfort that its cost estimates are within a reasonable range because:

- if it overstates the project costs, this will increase the capex forecast but it will also reduce the cost-benefit of the project and potentially defer the optimal timing of the project into the next regulatory control period (or otherwise lead to the selection of an alternative option within the modelling)
- conversely, it if understates project costs this will reduce the capex forecast but increases the likelihood that the project will satisfy a cost-benefit and potentially bring forward the timing of the project.

---

[22] AusNet Services, *AMS 01-09 Asset Risk Assessment Overview, 2023–27 Transmission Revenue Reset*, 29 October 2020, pp. 25–27.

[23] AER, *Industry practice application note — Asset replacement planning*, January 2019, pp. 44–46.

Throughout our assessment process, AusNet Services has informed us that it has updated the costs of five of its major station projects since submitting its revenue proposal. These projects have progressed beyond the initial project specification stage of the RIT-T. The costs of some projects have increased, while others decreased.

AusNet Services has also provided information around changes in project risk allowances for its projects. AusNet Services and its consultant initially applied a common risk allowance for each project based on a top-down assessment of risk associated with project scope, costings and delay. However, it has now refined these risk allowances to reflect identified project specific risks and applied probabilistic methods to derive each project's risk allowance.

The updated risk allowances vary between projects. However, the project specific risk allowances appear to be generally lower for those projects that have proceeded into the RIT-T process as the scope of works becomes more uncertain. The updated risk allowance is consistent with the amounts we endorsed in our 2017 revenue decision for AusNet Services, where we noted that the "planning estimates include an allowance for 'project specific uncertainties' of, on average, around 5.6 per cent."

AusNet Services has also identified that it may need to acquire network support services to allow it to manage outages while it performs work on some of its major station projects. This is due to a risk identified by AEMO that system strength in Victoria would decline when AusNet Services interrupts supply to perform the renewal works, and that system support is required. The acquisition of network support will add to the costs of major station projects.

It is not clear at this stage whether these changes to project costs and risk allowances will lead to a material increase or decrease in the AusNet Services capex forecast, as an increase in costs may be offset by a deferral of specific projects. For AusNet Services' revised proposal, we expect that AusNet Services will demonstrate the impact that these changes in project costs will have on the prudent timing of its major station projects, and the overall impact on forecast capex for the 2022–27 regulatory control period.

5.3.2 Asset replacement programs

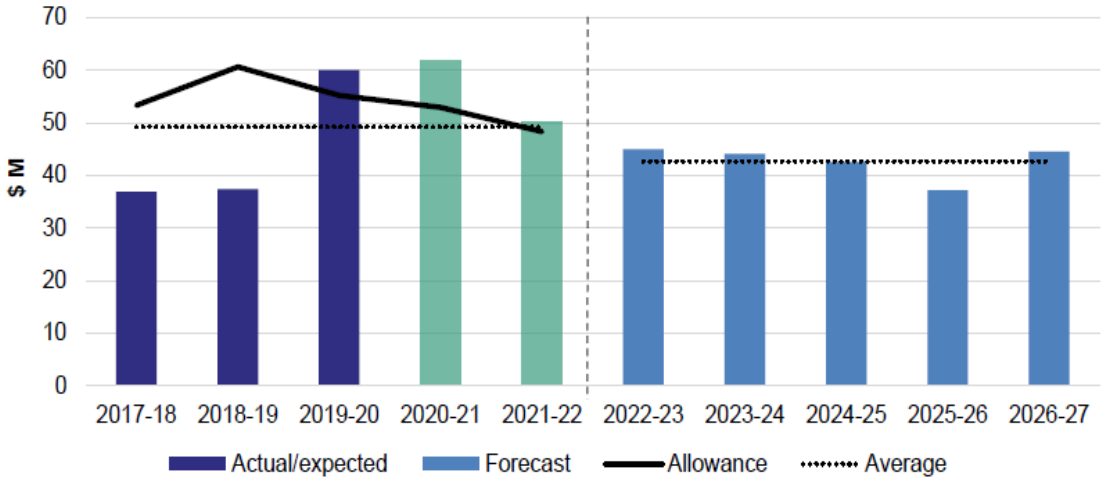
AusNet Services' replacement programs involve numerous programs of work, including the replacement of components such as ground wires, circuit breakers and communications assets. AusNet Services stated that assets installed in the 1970s and 80s are displaying signs of deterioration and are approaching the end of their technical lives. Asset replacement is required to manage the safety and reliability of the network.

This asset replacement program involves the replacement of specific types of assets across AusNet Services' entire network, in contrast to major station projects, which

target the replacement of deteriorated assets at a single location.[24] However, AusNet Services adopts a similar economic approach to asset replacement, which determines the prudent timing of asset replacement where the consequence of failure exceeds the cost of replacement.

AusNet Services proposed to undertake capex of $213.4 million ($2021–22) on asset replacement programs in the next regulatory period. Figure 5.5 shows that AusNet Services' forecast repex is 13 per cent ($32.8 million) lower than actual and expected capex in the current regulatory control period.[25] The actual capex in the current period was in turn lower than our estimate of asset replacement needs in the current regulatory period.

Figure 5.5 AusNet Services actual and forecast repex ($million, 2021–22)



Source: AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 106.

AusNet Services submitted that its top-down review of whether there is any overlap between its major station projects and its other replacement programs identified that some of the circuit breakers and switches it proposed to replace were included within the scope of three of its major station projects, and these were subsequently removed from the replacement program scope. AusNet Services submitted that it also reviewed its civil works replacement program and tailored the scope of works to avoid overlaps with the major stations works.[26]

We consider that AusNet Services has adopted a relatively prudent approach to forecast its asset replacement program. This is supported by our review of AusNet Services' proposed major station capex. The trend towards lower forecast asset replacement capex in the next regulatory control period also provided us with some

[24] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 93.
[25] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 106.
[26] AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 94.

initial comfort that AusNet Services' forecast may be reasonable, given that replacement program expenditure is typically more likely to be consistent across regulatory control periods than major project capex.

The CCP23 submission also supports AusNet Services' approach to asset replacement, stating:

> CCP23 considers a replacement program based on condition rather than age, and including probabilistic analysis and a cost-benefit framework, is most appropriate approach to forecasting ongoing BAU replacement activity. To this extent, we consider that AusNet Services has a relatively mature approach to repex forecasting along with a well-established governance structure.[27]

However, while the CCP23 considered that AusNet Services approach to assessing asset failure risk is appropriate, it stated that it is aware of instances where the inputs to this assessment process has resulted in an excessive risk assessment overall.

We consider that AusNet Services has not provided all the necessary information for us to understand the calculation of the inputs to its risk assessment. The inputs to the replacement program models are less transparent than major stations, with the exception of asset failure rates. In particular, the inputs for the probability of failure, costs of failure (i.e. consequential costs) and repair times are hard-coded into its models and with little supporting information on their calculation. This makes it difficult for us to be wholly satisfied that the underlying modelling is producing an outcome that realistically reflects the risk and consequences of asset failure.

We propose to revisit this issue in AusNet Services' revised proposal and work with AusNet Services on the specific information we need to make an informed final decision in regards to AusNet Services' proposed replacement capex program.

Notwithstanding our overall view that AusNet Services' asset replacement programs may be reasonable, we have identified two specific aspects of AusNet Services forecast which do not reflect an underlying replacement need or has overstated the efficient costs of asset replacement. These are:

- AusNet Services proposed $23.4 million to replace a number of its microwave radio devices with underground optical fibre. We consider this approach by AusNet Services to replace its network communications systems is not supported by AusNet Services' assessment of the condition of its assets, or that it is required to meet a regulatory obligation
- AusNet Services proposed $14.8 million in a risk allowance to account for price and volume uncertainty across its replacement program. We consider that a prudent operator in AusNet Services can mitigate or avoid this risk when undertaking its replacement program.

---

[27] CCP23, *Advice to AER on AusNet Services Transmission regulatory proposal*, 12 February 2021, p. 46.

We discuss these two issues in more detail below.

Upgrade of communications systems is not supported by asset condition

AusNet Services has proposed $85.8 million for the replacement of parts of its network communications systems.[28] This is the largest component of AusNet Services' asset replacement program outside of major stations. This forecast is 39 per cent higher than the estimated communication systems replacement expenditure in the current period.

AusNet Services' communications network is the physical communications network used in the control and protection of the electricity network, as well as providing other regulated and unregulated communications services. AusNet Services' replacement program includes the replacement of routers and multiplexer equipment with modern equivalents. AusNet Services' justification for this program is supported by a risk-based assessment of asset failure utilising cost-benefit analysis.

A key driver of the increase in communications systems capex is $23.4 million to replace existing point-to-point microwave radios with up to 260 km of optical fibre, including 134 km of underground optical fibre.[29] These radios form part of the backbone of AusNet Services' communications network. Currently, AusNet Services has little underground optical fibre. We consider that the addition of this technology would be a departure from historical replacement practices and appears to represent a significant augmentation of AusNet Services' communications network.

In the current regulatory period, AusNet Services replaced more than half of its existing radio devices, which still appear to remain an important component of its communications network.[30] Furthermore, only four radio devices are due for replacement out of a total population of 85 based on asset condition.[31] This suggests that condition-based replacement is not the primary driver for this new optic fibre.

We consider it likely that AusNet Services' proposal to install underground optical fibre networks may be part of a broader network upgrade process, with drivers that are not related to deteriorating asset condition. As noted previously, network augmentation is not within the scope of this revenue determination.

AusNet Services' proposal to invest in underground optical fibre is within the Victorian Government's 2021 Renewable Energy Zone development plan. This plan states that replacement of some of AusNet Services radios with underground fibre is a project that will "add telecommunications network capacity" to support the connection of new

---

28 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 106.

29 AusNet Services, *Response to AER information request – asset replacement programs capital expenditure (communications)*, 1 April 2021, pp. 10–11.

30 AusNet Services, *Response to AER information request – asset replacement programs capital expenditure (communications)*, 1 April 2021, p. 9.

31 AusNet Services, *Response to AER information request – asset replacement programs capital expenditure (communications)*, 1 April 2021, p. 9; AusNet Services, *AMS 10-56 Communications Systems, 2023–27 Transmission Revenue Reset*, 30 September 2020, p. 21.

renewable energy generators in the South West region of Victoria.[32] The Victorian Government has announced a $540 million fund to finance projects that will support the development of renewable energy zones.[33]

This suggests that this fibre optic investment is a network augmentation project that will support renewable energy development. Further, as set out in AusNet Services' communications asset management strategy, AusNet Services' objective is to maintain the availability of the communication network at the current level with the 'development of a "next generation" communications architecture' and 'enhancing communications service cyber security systems'.[34]

We consider that whilst some communications assets will need to be replaced in the next regulatory control period, we are not satisfied that AusNet Services has justified the need to change its communications network replacement practices and replace assets that are currently in serviceable condition through what appears to be augmentation using an alternative upgraded technology. We therefore do not accept AusNet Services proposed $23.4 million for optical fibre installations as part of its communications network capex of $85.8 million.

On the basis that AusNet Services' remaining communications network capex of $62.4 million is consistent with its historical average, we consider that this amount is likely to reasonably reflect its communications network replacement needs over the next regulatory period.

Replacement costs risk allowance is not efficient

AusNet Services has applied a risk allowance on top of the expected costs of its replacement program to account for uncertainty in the pricing and volume of the component activities.[35] AusNet Services has applied a $14.8 million risk allowance in addition to its total underlying replacement program costs.

AusNet Services' risk allowance for its replacement program is similar to the quantum of allowance it applied to its major station projects. AusNet Services does not apply a risk allowance to any of its other capex programs. AusNet Services submitted that its asset replacement program is exposed to similar risks as its major stations, including political, feasibility, planning, environmental, community, design, delivery and commercial risk.[36] AusNet Services also submitted that the application of a risk

---

32 Victorian Department of Environment, Land, Water and Planning, *Victorian Renewable Energy Zones Development Plan – Directions Paper*, 23 February 2021, pp. 9 and 22.

33 Victorian Department of Environment, Land, Water and Planning, *Victorian Renewable Energy Zones Development Plan – Directions Paper*, 23 February 2021, pp. 15–16.

34 AusNet Services, *AMS 10-56 Communications Systems, 2023–27 Transmission Revenue Reset*, 30 September 2020, p. 5.

35 AusNet Services, *Revenue proposal 2023–27*, *Appendix 4B: Project Cost Estimating Methodology*, 29 October 2020, pp. 13–15.

36 AusNet Services, *Response to AER information request #12 (follow-up questions)*, 14 April 2021, p. 5.

allowance in replacement programs is standard practice in cost estimation and is consistent with the approach it had taken in previous reset proposals.[37]

Our expenditure forecast assessment guideline acknowledges that TNSPs face uncertainty when developing their capex forecasts.[38] Invariably there is a difference between what TNSPs forecast for particular project costs and what they actually incur. We consider there are two types of risks for TNSPs project estimates, namely:[39]

- inherent risks representing uncertainty associated with the cost build-up of the project. This is borne out of assumptions used in estimating the unit cost and volumes of the inputs for the project
- contingent risks representing uncertainty created by events outside the cost build-up estimate. These events can include unforeseen weather impacts, industrial action, safety, planning approval and design development.

We also noted that that risk is more appropriate for transmission as:[40]

- transmission projects typically involve longer planning and construction lead times than distribution projects. This lag may result in greater divergence between the assumptions used in the forecast and the actual cost because circumstances change
- transmission projects may be unique or with limited precedent compared with distribution projects. Hence, cost items used in the estimation process may be based on relatively less experience.

We consider that these risks are more relevant to AusNet Services' major station projects than its asset replacement program. AusNet Services can more readily mitigate these risks across a program of replacement works because:

- AusNet Services can adjust the volumes and timing of its replacement activities within and across its five-year period regulatory periods. AusNet Services may be able to avoid replacing some assets, and may need to replace additional assets based on updated condition assessment. Overall, we would not expect this variation to be asymmetrical such that AusNet Services would necessarily replace more assets than forecast
- the pricing of its replacement activities may vary from forecast, similar to its volumes of work. However, as per volumes, the increase of prices for some assets may be offset by the reduction in prices of others. We would not expect the overall variation in prices to be asymmetrical such that the prices of assets will, on average, be higher than forecast. AusNet Services has not demonstrated any systemic under-forecasting bias in its cost estimates

---

37 AusNet Services, *Response to AER information request #12 – follow-up email*, 1 April 2021.

38 AER, Expenditure forecast assessment guideline explanatory statement, November 2013, p. 59.

39 AER, *Expenditure forecast assessment guideline explanatory statement*, November 2013, p. 58.

40 AER, *Expenditure forecast assessment guideline explanatory statement*, November 2013, p. 59.

- the largest risk factors quantified by AusNet Services for major station projects are the impact of changes in project scope, contractor delay and weather. However, these are unlikely to significantly affect AusNet Services replacement program as it has more capacity to adjust the timing and order of its replacement activities within its program to maintain overall costs and avoid cost over-runs across the period.

For these reasons, we have removed the $14.8 million risk allowance from AusNet Services' asset replacement program in our draft decision.

5.3.3 Safety, security and compliance

AusNet Services proposed an additional $54.4 million in replacement capex for safety, security and compliance.[41] This program is similar to AusNet Services' asset replacement program discussed above as the replacement is driven by condition-based economic assessment. The major difference is that these assets relate to protecting the safety and security of AusNet Services' staff and infrastructure, and are required to meet its obligations under Occupational Health and Safety Regulations 2007. This capex is not related to meeting any bushfire-related safety obligations.[42]

The proposed forecast capex is 47 per cent higher than the equivalent program of works in the current regulatory period, but 40 per cent lower than the annual average for the 2014–17 regulatory control period.[43] The primary drivers for the increase in proposed capex from the current regulatory period are the replacement of insulators (forecasting $28.7 million) and communications assets (forecasting $12.8 million). These two categories represent the majority of the total capex for this program.

AusNet Services submitted that the replacement of insulators is based on the age and condition of the assets in its network. AusNet Services submitted that it undertook relatively little insulator replacement in the current regulatory period given the age and condition of its assets. However, in preceding periods it undertook significant replacement of its porcelain insulator strings (replacing over 29 per cent of its insulators since 2006). AusNet Services noted whilst its proposed insulator replacement program is a large increase in expenditure relative to the current regulatory period, it is consistent with expenditure in earlier periods.[44]

AusNet Services submitted that the increased expenditure requirement for communications assets is also driven by a step up in security and compliance driven communications equipment replacement. AusNet Services stated that underpinning this is the replacement of critical communications and monitoring equipment, as well as end of life DC systems and site security improvements required to protect the communications and SCADA equipment.[45]

---

41 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 115.

42 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 115.

43 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 97.

44 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, pp. 117–118.

45 AusNet Services, *Response to AER Information Request #012 (Public)*, 10 March 2021.

AusNet Services has adopted an economic based cost-benefit approach to forecasting the capex for these programs, similar to its asset replacement program. As we found for AusNet Services other asset replacement programs, it adopts a prudent methodology to identify the prudent need and timing for these works and the efficient costs of doing so.

While AusNet Services has proposed an increase in capex for insulators and communications assets, it has also forecast a significant decrease in other costs compared to its historical expenditure. In particular, AusNet Services has proposed $2.4 million capex for fall arrest systems, which is significantly lower than $24.2 million we assessed as being prudent and efficient for the current regulatory period.[46]

AusNet Services stated that a significant reduction in expenditure for the installation of tower fall arrests is due to adopting a new approach for installing fall arrests and introducing different inspection techniques. AusNet Services submitted that this reflected a re-examination of the residual risk to its employees regarding falls from structures during inspections and maintenance works, which found this risk to be lower than previously understood. This has allowed AusNet Services to defer or avoid significant capex for tower fall arrests and this is likely to continue.

AusNet Services also stated that a reduced volume of instrument transformer replacements on a standalone basis also contributed to the underspend expected for this category. AusNet Services submitted that this was because many instrument transformer replacement projects were integrated with major station rebuild projects during the current regulatory period, including the replacement of instrument transformers as part of urgent and unforeseen circuit breaker replacement projects in the Latrobe Valley that were not forecast at the last revenue determination.[47]

We consider that these reductions in capex reflect AusNet Services pursuing efficiencies and synergies in its capex programs, which provides confidence that its overall forecast reflects the prudent activities required to maintain network safety.

5.3.4 Information and communications technology

AusNet Services proposed $84 million for information and communications (ICT) capex, which is 14 per cent higher than the ICT capex that it expects to incur in the current regulatory control period.

AusNet Services' ICT program is shared between its transmission and distribution businesses, with project costs allocated across the distribution and transmission components of the business. We accepted AusNet Services proposed distribution ICT capex in our April 2021distribution revenue determination, and consequently we accept the transmission component of this same program in this decision. The combined cost

---

[46] AusNet Services, *Response to AER Information Request #012 (Public)*, 10 March 2021.

[47] AusNet Services, *Response to AER Information Request #012 (Public)*, 10 March 2021.

of this program will be reflected in the respective distribution and transmission components of network charges.

One source of difference between distribution and transmission is forecast capex for cyber security and intelligent network operations systems. The 14 per cent increase in AusNet Services' ICT capex reflects $16.7 million to comply with new cyber security requirements that are specific to its transmission business. There is a corresponding $27.9 million opex step change for these upgrades.

The main driver of AusNet Services' cyber security capex is that it is required to reach Maturity Indicator Level (MIL) 3 of the Australian Energy Sector Cyber Security Framework (AESCSF) by 2024.[48] In our assessment of AusNet Services distribution capex and opex proposals, we considered MIL2 sufficient for its distribution network. However, a higher level of maturity is required for the transmission network due to the critical nature of the infrastructure to energy supply. AusNet Services submitted that reaching MIL 3 will require a step increase in people, processes and resources needed to monitor, identify, and respond to cyber security attacks.[49]

The CCP23 submission agreed that there are increasing regulatory requirements on all networks to upgrade their ICT resilience to cyber-attack, and supports investment due to increasing renewable energy penetration and the added complexity this creates in maintaining a reliable and secure supply.[50] It also noted that AusNet Services' forecast is consistent with the AER's ICT forecasting assessment guideline to the extent that it separates recurrent and non-recurrent expenditure, with NPV analysis required only for the non-recurrent expenditure. CCP23 considered that AusNet Services' proposal is reasonable, particularly given the challenges of managing the network in the face of growing renewable energy generation.

We note that AusNet Services conducted cost benefit analysis for its proposed cybersecurity program. Our review indicates that that there are likely positive, albeit minor, benefits for the proposed capex projects. On this basis, we consider that the capex for the cybersecurity is reasonable.

However, we note that the cybersecurity capex has linkages with the opex step change for cybersecurity, and this step change is more material than capex ($27.9 million). In Attachment 6, we explain that we have insufficient information to determine the efficient opex required for the cybersecurity step change. We encourage AusNet Services to provide further information and evidence relating to the efficient costs for the project in its revised proposal. To the extent that this information changes the

---

48 AEMO, in collaboration with industry and government stakeholders including the Australian Cyber Security Centre, Critical Infrastructure Centre, and the Cyber Security Industry Working Group, has developed the Australian Energy Sector Cyber Security Framework (AESCSF). This framework is intended to manage the threat cyber-attacks pose to the wider national and economic security.

49 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 121.

50 CCP23, *Advice to the AER on AusNet Services electricity transmission revenue proposal*, 12 February 2021, p. 52.

corresponding capex required for the project, we expect AusNet Services to provide an update to the forecast capex in its revised proposal.

5.3.5 Non-network programs

AusNet Services proposed $20.6 million ($2021-22) in forecast capex for non-network capex for major vehicles, buildings, tools and equipment.[51] This is 17 per cent (or $3 million) higher than the amount of expenditure AusNet Services expects to incur in the current regulatory control period, reflecting modest increases in motor vehicle purchases and buildings capex. The remaining non-network capex is consistent with historical expenditure for this category.

While AusNet Services' forecast capex for non-network assets is slightly more than the current period costs, it is significantly lower than what we forecast was the prudent and efficient capex in the current regulatory period. This reflects efficiencies that AusNet Services has been able to achieve for expenditure on motor vehicles and tools and equipment due to outsourcing.[52] These efficiencies are reflected in AusNet Services proposal for the next regulatory control period, which lends support to the forecast.

We also note that AusNet Services submitted that historically it maintained a fleet of vehicles comprising both owned and leased vehicles but that recently it shifted to a model where all vehicles are company-owned. AusNet Services submitted that its proposed vehicles capex forecast reflects this ownership model, which will require an increase in capex to reflect the capitalisation of leases. A reduction in AusNet Services operating costs will offset this additional capex, as reflected in its opex base year.[53] This approach is consistent with the change in Accounting Standard AASB 16 Leases.

We consider AusNet Services' proposal to increase its proportion of owned rather than leased vehicles is consistent with the practice of other electricity service providers in Australia and may result in cost efficiencies.

5.3.6 Real cost escalations

AusNet Services has applied real labour cost escalation to its capex forecast. This is to account for an expected increase in labour costs (e.g. wages) throughout the next regulatory control period.

AusNet Services applied a forecast of the EGWWS (Electricity, Gas, Water and Waste Services) Wage Price Index to forecast costs of its internal labour, and a forecast of the Construction Wage Price Index to the forecast costs of labour in its external contracts. AusNet Services assumed no real growth in materials costs.[54]

---

51 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 125.

52 AusNet Services, *Response to AER Information Request #012 (Public)*, 10 March 2021.

53 AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 126.

54 AusNet Services, *Revenue proposal 2022–27*, 29 October 2020, p. 80.

The total contribution of AusNet Services' real cost escalation to its proposed capex forecast is $9 million, of which $2.1 million is for internal labour and $6.9 million for external labour. AusNet Services' labour escalation forecasts included legislated increases in the Superannuation Guarantee, which is consistent with our approach in our recent decisions for the Victorian electricity distribution networks.

We accept AusNet Services' proposed internal labour escalation rates. This is consistent with AusNet Services' approach to escalating its internal labour operating expenses, which we consider in Attachment 6 of this decision.

However, we have not accepted AusNet Services proposal to escalate the labour component of it external contracted costs.

AusNet Services' external labour cost proposal

AusNet Services applied an escalation to external labour because it expects an increase in the labour component of its contractors' costs. Vendor quotes are not currently available due to the lead-time between lodgement of its revenue proposal and delivery of the proposed capital program. However, AusNet Services has estimated that the labour costs for its external contractors will increase and so it has applied escalation to current estimates of the costs for its asset replacement projects.

AusNet Services' proposal is a departure from the AER's historical practice and recent AER decisions for distribution businesses (including for AusNet Services). Historically, we have not applied labour escalation applied to external contracted labour costs for distribution or transmission capex forecasts. This was because:

- there was insufficient evidence showing that existing external labour contracts include forecast escalations
- lack of bottom-up evidence to support the proposition that businesses have incurred contract price increases that align to the growth in labour price indices
- contracted services can be adjusted to address changes in the labour market and/or economic climate to manage overall contracted costs
- forecasting labour price growth for contracted services, without taking into account productivity growth, would likely overstate the growth in the price of contracted services.

AusNet Services explained why it expects its external contracted costs to increase above current estimates:

- AusNet Services' primary main contractors have confirmed that the labour costs in actual recent project costs increased by between 3 and 4 per cent per annum
- approximately half of AusNet Services' transmission capex forecast comprises major station projects that will span three to four years. In these circumstances,

AusNet Services considers it has limited ability to adjust its use of contracted services to address changes in the labour market and/or economic climate

- A material increase in demand for skilled workers that will be needed to deliver large-scale energy infrastructure projects (including those set out in the ISP) during the next regulatory period
- In light of the unprecedented scale of infrastructure development taking place prior to and during the next regulatory period, a departure from the contracted labour cost escalation approach set out in the AER's recent distribution determinations is required for this transmission reset.

The CCP23 submission did not support AusNet Service's proposal. It stated that it would prefer the AER's approach adopted to labour escalation in the distribution decisions (zero real escalation) unless there is compelling evidence to alter this position.

We agree with the CCP23. We are not satisfied the information currently available supports an increase in AusNet Services expected external contracted costs.

AusNet Services has not provided evidence of the actual costs it expects to incur for its contracted services for transmission projects in the forthcoming regulatory period (e.g. via tendered costs for its major stations), and whether is expected to increase in line with forecasts of construction industry wages. AusNet Services acknowledged that vendor quotes were not available at the time of preparing the cost estimates included in its revenue proposal. Similarly, it has not provided evidence that the forecast growth in the construction wage price index will be representative of the growth in the costs of its contracts going forward.

To the extent that some of its contracted costs are expected to increase, AusNet Services can likely prudently mitigate these increases by adjusting its contracted services. Although we acknowledge the potential for some demand and supply pressures on suitably skilled construction workers in the near term, we consider that sufficient flexibility exists for AusNet Services to manage its overall pool of contracted services to manage costs. This can involve altering the timing of individual projects and programs within its overall portfolio of works.

This flexibility may be less than that available for AusNet Services distribution network, as some of its projects are expected to extend for three or more years. However, it has a large number of projects over which to manage its contracted cost pool within its transmission network, as well as across both distribution and transmission networks. Furthermore, AusNet Services is better placed than consumers to control the price of its external contracted services, and should bear the majority of the cost of any such risk.

5.4 Ex-post statement of efficiency and prudency

We are required to provide a statement on whether the roll forward of the regulatory asset base from the previous period contributes to the achievement of the capital expenditure incentive objective.[55] The capital expenditure incentive objective is to ensure that where the regulatory asset base is subject to adjustment in accordance with the NER, only expenditure that reasonably reflects the capex criteria is included in any increase in value of the regulatory asset base.[56]

We have reviewed AusNet Services' capex performance for the 2017–18 to 2019–20 regulatory years. This assessment has considered AusNet Services' out-turn capex relative to the regulatory allowance given the incentive properties of the regulatory regime for a transmission business to minimise costs.

Where AusNet Services has spent more than its capex allowance for these years, we can review the efficiency of this overspend and make a determination on the capex that should be rolled into the RAB.

Table 5.4 shows AusNet Services' actual net capex against the forecast regulatory allowance for this period, including the three years of the ex post review period. This shows that AusNet Services has spent less than its capex allowance. On this basis, we are satisfied that AusNet Services actual capex should be rolled into the RAB.

Table 5.4 AusNet Services' actual net capex versus capex allowance – 2017–22 regulatory control period ($million, nominal)

Category	2017–18	2018–19	2019–20	2020–21	2021–22	Total
Total net capex allowance	183.3	163.1	161.5	154.0	118.4	780.3
Total net actual capex	127.7	143.8	192.6	151.0	131.1	746.2
Capex overspend / (underspend)	(55.6)	(19.3)	31.1	(3)	12.7	(34.1)

Source: AusNet Services, AER.

[55] NER, cl. 6A.14.2(b).

[56] NER, cl. 6A.5A(a).

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
augex	Augmentation expenditure
capex	capital expenditure
CESS	capital expenditure sharing scheme
CPI	consumer price index
EBSS	efficiency benefit sharing scheme
F&A	framework and approach
ISP	AEMO's integrated system plan
MAR	maximum allowed revenue
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
opex	operating expenditure
PTRM	post-tax revenue model
RAB	regulatory asset base
repex	replacement expenditure
RFM	roll forward model
RPP	revenue and pricing principles
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
WACC	weighted average cost of capital