

Final Decision

AusNet Services Transmission Determination 2022 to 2027 Attachment 5 Capital expenditure

January 2022

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Note

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

As a number of issues were settled at the draft decision stage or required only minor updates, we have not prepared all attachments. The final decision attachments have been numbered consistently with the equivalent attachments to our draft decision. In these circumstances, our draft decision reasons form part of this final decision.

The final 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 12 – Pricing methodology

Attachment 13 – Pass through events

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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

This attachment sets out our final decision on AusNet Services' transmission capex forecast. Our final decision is based on our analysis of AusNet Services' revised proposal, information we have received from AusNet Services, as well as submissions we have received on AusNet Services' revised proposal and our draft decision.

5.1 Final decision

Having regard to the capex expenditure factors,² our final decision is to accept AusNet Services' total forecast capex of \$818.7 million (\$2021–22) on the basis that we are satisfied it reasonably reflects the prudent and efficient costs to maintain the safety, reliability and security of the network.³

We note that AusNet Services' revised proposal capex forecast, submitted on 1 September 2021, was \$820.5 million.⁴ However, AusNet Services subsequently identified an error and revised its South West Communications Loop (South West Comms Loop) upgrade project capex down by \$1.8 million. This reduced total capex forecast to \$818.7 million.⁵

Table 5.1 outlines our final decision for AusNet Services' forecast capex for the 2022–27 regulatory control period.

Table 5.1 Final decision on AusNet Services forecast capex (\$million, 2021–22)

	2022–23	2023–24	2024–25	2025–26	2026–27	Total
AER final decision	146.5	157.7	193.3	178.6	140.8	818.7

Source: AER analysis.

Note: Numbers may not add up due to rounding.

¹ NER, cl. 6A.5.4(a).

² NER, cl. 6A.6.7(e).

³ NER, cl. 6A.6.7(c).

⁴ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 42.

⁵ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

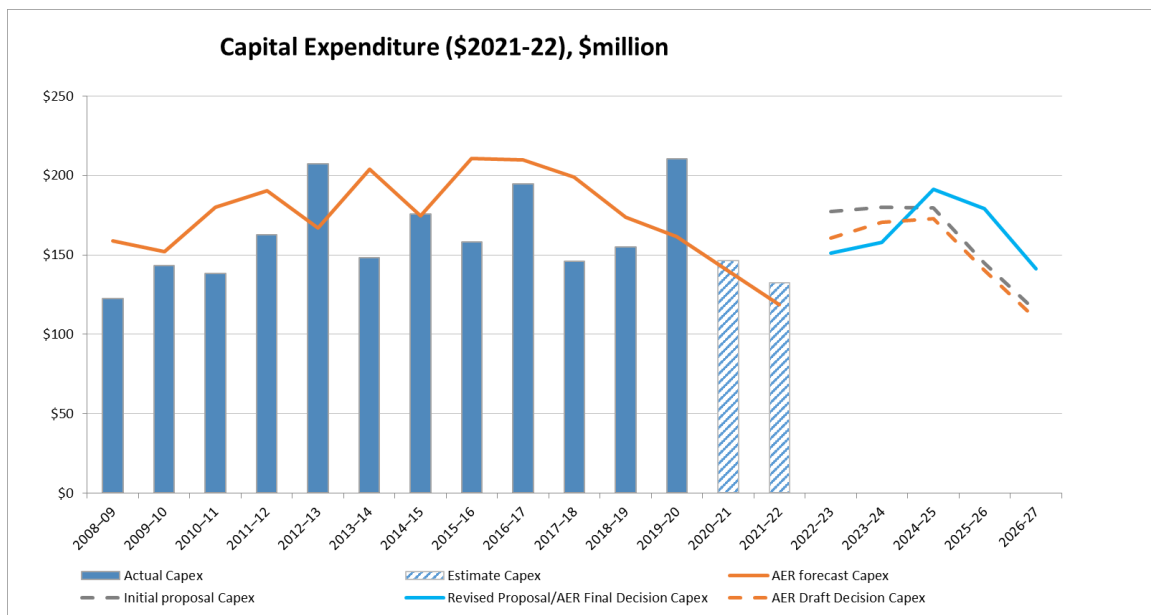
We do not approve a particular category of capex or specific projects, but rather an overall amount. This is consistent with our ex-ante incentive-based regulatory framework and is often referred to as the ‘capex bucket’. However, as part of our assessment, we do review categories of expenditure and particular projects to test whether AusNet Services’ proposed total capex reasonably reflects the capex criteria.

5.2 AusNet Services’ revised proposal

In its revised proposal, AusNet Services proposed a total forecast capex of \$820.5 million (\$2021–22) for the 2022–27 regulatory control period.⁶ AusNet Services’ proposed capex is \$88.3 million (or 12.1 per cent) higher than the actual/estimated capex over the 2017–22 regulatory control period.⁷ It is also \$66.7 million (or 8.8 per cent) more than our draft decision capex allowance for AusNet Services’ 2022–27 regulatory control period.⁸

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

Figure 5.1 Comparison of AusNet Services’ past and forecast capex (\$million, 2021–22)



Source: AER, *Final decision PTRM for 2017–22*; and AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021.

⁶ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 42.

⁷ AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 70 and AER analysis.

⁸ AusNet Services, *Revenue Proposal 2023–27*, 29 October 2020, p. 70, AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, pp. 40–42 and AER analysis.

AusNet Services' revised proposal responded to our draft decision in which we accepted most of the forecast capex in AusNet Services' initial proposal, except for:⁹

- the South-West Comms Loop upgrade project
- the proposed risk allowance from the replacement capex program
- the external labour escalation rates.

The overall impact of the draft decision was to reduce the proposed capex by \$44 million, or 5.5 per cent, over the 2022–27 regulatory control period.¹⁰ In its revised proposal, AusNet Services accepted our draft decision on the external labour escalation rates but not the proposed risk allowance for replacement capex or the South West Comms Loop upgrade.

AusNet Services submitted that the key drivers of change to the initial proposal are:¹¹

- new Australian Energy Market Operator (AEMO) demand forecasts outlining both higher maximum demands and materially lower minimum demands on the Victorian network. Lower minimum demand is exacerbating operational challenges across the network
- the release of the Victorian Government's \$1.6 billion energy budget in November 2020 and the Renewable Energy Zone Development Plan Directions Paper in February 2021. These set out proposed generation and transmission network investments supporting the Victorian Government Climate Change Strategy commitment to reduce carbon emissions by 45–50 per cent by 2030 and to net zero by 2050
- the formation of a new entity, VicGrid, tasked with coordinating the overarching planning and development of Victorian renewable energy zones (REZ). This new entity is expected to manage the \$540 million of REZ funding that will be used to strengthen the grid and unlock the potential for new renewable generation as part of the \$1.6 billion energy budget. AEMO indicated it would include the Victorian Government's budget initiatives affecting REZs in all scenarios used to develop the next Integrated System Plan (ISP) to be released in July 2022
- the announcement by EnergyAustralia in March 2021 that the closure of the 1480MW Yallourn Power Station (Yallourn) would be brought forward from 2032 to 2028
- significant changes to rates, taxes and AEMO fees.

AusNet Services' revised proposal contains changes in relation to the major station projects capex, a new contingent project and changes to the scope and timing of some projects in response to the Victorian Government renewable projects announcement

⁹ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

¹⁰ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

¹¹ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, pp. 9–10.

and the expected early closure of Yallourn.¹² AusNet Services also updated the capex forecast to reflect more accurate cost estimates that have become available for several projects. AusNet Services' updated capex forecasts for major stations, represent an increase of \$20.7 million or 5 per cent compared to its initial proposal.

AusNet Services' revised proposal includes the South-West Comms Loop upgrade project which was not accepted in our draft decision.¹³ AusNet Services submits that the project is required to maintain reliability and comply with its National Electricity Rules (NER) obligations relating to the performance of its communications network. AusNet Services' revised proposal provided further information demonstrating that the installation of optical fibre to support modern equivalent communications technology is the lowest cost replacement option and consistent with its historical asset replacement practices.¹⁴

AusNet Services' revised proposal also provided further information in relation to the risk allowances for its replacement program to demonstrate that the inclusion of these allowances is consistent with providing an efficient and prudent capex allowance.¹⁵ AusNet Services submitted that its historical data shows that such an allowance is warranted, as its actual capex on replacement programs has, on average, been in line with cost estimates (including a risk allowance).

AusNet Services' revised proposal includes a new project for the installation of Phasor Measurement Units (PMUs), which was not included in its initial proposal.¹⁶ This project has been included in its updated forecast in response to a direction issued by AEMO under clause 4.11.1(d) of the NER requiring AusNet Services to install PMUs at specified locations on AusNet Services' network.¹⁷

Overall, the inclusion of the new major project related to the closure of Yallourn has increased total capex, while the updated project cost estimates, network support costs and demand/energy forecasts have led to a deferral of capex within the upcoming regulatory control period (as shown in Figure 5.2 below).

¹² AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

¹³ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

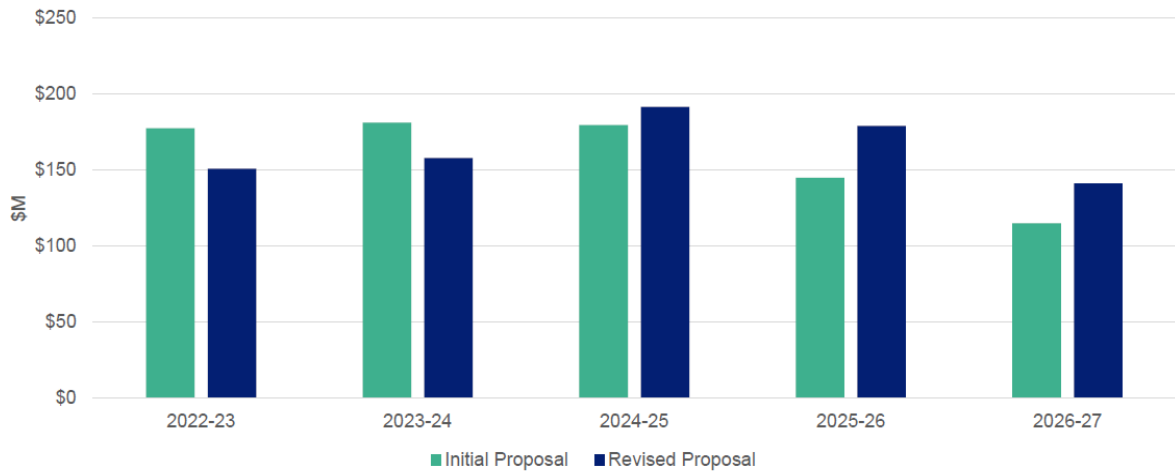
¹⁴ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

¹⁵ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

¹⁶ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

¹⁷ AEMO, *Notice under clause 4.11.1(d) – Remote monitoring equipment*, 20 January 2022.

Figure 5.2 Initial Proposal and Revised Proposal capex forecast (\$million, 2021–22)



Source: *AusNet Services, Revised revenue proposal 2023–27*, 1 September 2021, p. 43.

Table 5.2 below compares AusNet’s Services initial proposal, our draft decision and its revised proposal on each of the capex categories:

Table 5.2 Comparison of proposal, draft decision and revised proposal capex (\$million, 2021–22)

	Initial proposal	Draft decision	Revised proposal	Difference between draft and revised (and drivers)
Major station projects	424.2	422.0	444.8	\$23 million. Predominately the additional Yallourn project (\$16 million) and changes to various projects that has resulted in an increase.
Replacement programs	213.4	173.1	208.9	\$36 million. AusNet Services has not accepted our draft decision for the South-West Comms Loop (\$22 million) and risk allowances (\$14 million).
Safety, security and compliance	54.2	53.7	62.5	\$9 million. This is the new PMU’s required by AEMO (\$9.7 million), and approximately \$1 million in capex reductions in other projects.

	Initial proposal	Draft decision	Revised proposal	Difference between draft and revised (and drivers)
Information and communications technology	83.8	83.0	82.4	External cost escalation removed.
Non network	22.2	22.0	21.8	External cost escalation removed.
Total	797.7	753.8	820.5	66.7

Source: AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, pp. 40–42, AER, *Draft decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, and AER analysis.

5.3 Stakeholder submissions

We received two submissions from stakeholders regarding AusNet Services’ revised capex forecast, one from the Consumer Challenge Panel, sub-panel 23 (CCP23)¹⁸ and the other from the Energy Users Association of Australia (EUAA).¹⁹

CCP23 observed that AusNet Services constructively engaged with its Consumer Panel (and others) and that, in the main, its revised proposal capex reflects the outcomes of this engagement.²⁰

CCP23 had largely agreed with the AER’s conclusions in the draft decision on the proposed capex for major station projects, and that the information provided by AusNet Services to justify its proposed major station projects was likely to change due to ongoing developments in the Victorian generation mix, state government policy and updated costing and demand forecasts. CCP23 noted that while the capex cost has increased by \$21 million there will be minimal impact on total revenue because of the postponement of some major projects to later in the 2022–27 regulatory control period.²¹

CCP23 commented on the following key aspects of AusNet Services’ revised capex forecast:

- CCP23 had initial concerns regarding the South-West Comms Loop project but acknowledge that AusNet Services has provided a clearer explanation of the

¹⁸ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021

¹⁹ EUAA, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021

²⁰ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, p. 24.

²¹ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, pp. 14–15.

project and economic evaluation. They conclude that the project is in the long-term interest of consumers generally²²

- CCP23 still remain concerned with the 7.5 per cent risk allowance being applied across all AusNet Services' replacement capex²³
- CPP23 consider that the PMU project is a regulatory requirement and support its inclusion in principle, subject to the AER's examination of the efficiency of the proposed costs and the requirements in AEMO's final direction²⁴
- CCP23 consider that the contingent project meets the statutory requirements, has a clear project trigger and should be approved.²⁵

The EUAA submission commended the development of AusNet Services' consumer engagement and expressed confidence that member feedback, through its co-design process had been considered in its revised proposal.²⁶

5.4 Reasons for final decision

Based on our review of AusNet Services' asset management practices, as well as an economic and technical review of the capex projects proposed by AusNet Services, we are satisfied that total forecast capex of \$818.7 million (\$2021–22)²⁷ in the 2022–27 regulatory control period reasonably reflects the capex criteria.²⁸ We consider this provides AusNet Services with a reasonable opportunity to recover at least the efficient costs it incurs in providing direct control network services.²⁹

²² CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, p. 19.

²³ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, pp. 20–21.

²⁴ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, p. 21.

²⁵ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, pp. 24–25.

²⁶ EUAA, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, pp. 1–2.

²⁷ AusNet Services' revised proposal capex forecast, submitted on 1 September 2021, was \$820.5 million, however, AusNet Services subsequently revised the South West Comms Loop upgrade project capex down by \$1.8 million, reducing total capex forecast to \$818.7 million.

²⁸ NER, cl. 6A.6.7(c).

²⁹ NEL, ss. 7A(2) and 16.

Table 5.3 sets out AusNet Services' capex amounts by driver for the 2022–27 regulatory control period.

Table 5.3 Final decision assessment of required capex by capex driver 2022–27 (\$million, 2021–22)

Category	(\$million, 2021–22)
Major station projects	444.8
Replacement programs	207.1
Safety, security and compliance	62.5
ICT	82.4
Non network	21.8
Total capex	818.7

Source: AER analysis.

Note: Numbers may not add up due to rounding.

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

- section 5.4.1 – major station renewals
- section 5.4.2 – asset replacement
- section 5.4.3 – safety, security and compliance
- section 5.4.4 – non-network programs
- section 5.4.5 – information technology
- section 5.4.6 – real cost escalation
- section 5.4.7 considers our assessment of the contingent project.

5.4.1 Major station renewals

AusNet Services' revised proposal includes \$444.8 million (\$2021–22) to replace aging assets at 15 major switching and connections stations. This is the largest component of AusNet Services' capex proposal. AusNet Services stated that its major connection and switching stations are aging and some of its assets are in poor condition.

We consider that AusNet Services has reasonably identified the need, timing and estimated capex required for these major stations in its revised proposal. This is consistent with our findings in the draft decision.³⁰

³⁰ AER, *Draft decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, pp. 13–19.

AusNet Services' initial proposal included \$424 million for its major stations. In our draft decision, we found that:

- AusNet Services had reasonably justified the need and timing for its major station projects. 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
- AusNet Services had likely identified the efficient costs of its major station projects, including the application of project risks.

CCP23 broadly supported AusNet Services' approach to the initial proposal for major stations, including the economic based approach.³¹

As noted above, AusNet Services' revised proposal has updated the economic modelling for each of its major stations based on the new information outlined previously (e.g. updated demand forecasts and the early closure of Yallourn), as well as updated cost estimates for each project. Our draft decision anticipated that AusNet Services' major station cost estimates may change in response to this new information.³²

The new information AusNet Services has considered since its initial proposal, and the publication of our draft decision, has led to a small increase in its total major station capex. This is due to the following key changes:

- an additional major station project (\$16 million) that was not included in the initial proposal. This relates to the closure of Yallourn and the change in risk profile for assets at the nearby terminal station. AusNet Services also identified an additional contingent project related to the closure of Yallourn (see section 5.4.7 below)
- material increases in project cost estimates for five major stations primarily due to scope change and refined unit cost estimates, worth approximately \$50 million
- reductions in costs, including \$31 million for the removal of one major station project as it intersected with forecast augmentation to support the development of a Victorian REZ.

We support AusNet Services' approach to updating its major station capex within the revised proposal. While the capex has increased above the level we accepted in our draft decision, AusNet Services has continued to apply its good practice on the economic modelling approach and in determining project costs. We consider AusNet Services' approach to deferring the timing of its major projects in light of updated project cost information is indicative of the application of good electricity industry practice.

³¹ CCP23, *Advice to AER on AusNet Services Transmission regulatory proposal*, 12 February 2021, p. 43.

³² AER, *Draft decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, pp. 5–6.

AusNet Services also provided us with additional data and statistical information to support the calculation of its asset failure assumptions, as we requested in the draft decision.³³ We found that AusNet Services may have potentially over-estimated the probability of its asset failing but did not consider that this will affect the need and timing of AusNet Services' major stations in its revised proposal.

AusNet Services has also identified that network support is required for three major stations. This is because outages required while undertaking replacement work will undermine system strength and network support services will be required during construction activity. AusNet Services has accounted for network support costs in its economic assessments for those major station projects, which has led to increased project costs. However, as noted above, it has not included these network support costs in its capex proposal. We support this approach given there remains some uncertainty over the costs of network support.

AusNet Services consulted with consumer and industry representatives, and its revised proposal is reflective of their views. Consumer consultation supported the changes in major projects (including the new project related to the early closure of Yallourn), the approach to applying network support costs into project modelling (and with these costs being recovered through pass-throughs).³⁴ Consumers were also supportive of updating the revised proposal to include all new information such as updated demand and energy forecasts.

Our final decision accepts AusNet Services' revised major substations replacement capex of \$444.8 million (\$2021–22).

5.4.2 Asset replacement programs

AusNet Services' replacement programs includes the replacement of components such as ground wires, circuit breakers and communications assets.

In our draft decision, we identified two specific aspects of AusNet Services' forecast which we considered did not reflect an underlying replacement need or the efficient costs of asset replacement. These are:

- AusNet Services proposed \$23.4 million for the South West Comms Loop, to replace a number of its microwave radio devices with underground optical fibre
- AusNet Services proposed \$14 million in a risk allowance to account for price and volume uncertainty across its replacement program.³⁵

³³ AER, *Draft decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, pp. 17–18.

³⁴ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, p. 15.

³⁵ AER, *Draft decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, pp. 22–25.

5.4.2.1 South west communications loop upgrade project

AusNet Services' revised proposal includes \$84.0 million (including overheads) for the replacement of parts of its network communications systems. 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. 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.

AusNet Services' communications network is the physical communications network used in the control and protection of the electricity network. 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.

AusNet Services advised that the equipment models it uses are no longer supplied and supported in Australia and overseas, and future requirements for new installations or increased service needs cannot be met.³⁶ AusNet Services submitted that a like-for-like replacement of the existing equipment would not be prudent or practical, as it would pose an unacceptable risk to the reliability of the transmission network over the long-term.³⁷

AusNet Services identified new technology to replace the existing routers and multiplexer equipment, which will increase the communication network bandwidth required for existing legacy services to operate reliably. AusNet Services undertook an economic evaluation that demonstrated its preferred option for meeting the increased bandwidth requirements, the installation of optical fibre cable, is the lowest cost option.³⁸

In our draft decision we found that whilst some communications assets will need to be replaced in the next regulatory control period, we were not satisfied that AusNet Services had justified the need to change its communications network replacement practices and replace assets that are currently in serviceable condition. We provided AusNet Services with an opportunity to better explain the project in the revised proposal.

AusNet Services' revised proposal includes the South West Comms Loop upgrade project. AusNet Services submitted that the project is required to maintain reliability and comply with its NER obligations relating to the performance of its communications network.³⁹ While offering some ancillary benefits, the installation of optical fibre to

³⁶ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

³⁷ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

³⁸ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

³⁹ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37.

support modern equivalent communications technology is the lowest cost replacement option, and lower cost than the existing radio technology option.

We reviewed AusNet Services' revised proposal, and more detailed technical information and explanations provided by AusNet Services in response to our information requests and meetings.⁴⁰ AusNet Services' information request response identified an error and revised the forecast South West Comms Loop project capex down by \$1.8 million, from \$24 million to \$22.3 million, in the revised proposal.⁴¹

We found the additional project information provided by AusNet Services demonstrated that the replacement of the communication technology is prudent, as the existing radio technology is obsolete, and the capacity requirements are not sufficient for the new communication equipment. Furthermore, this information demonstrated that the optical fibre cable option is technically superior, and lower cost, than the radio microwave technology option.

CCP23 submitted that while it had some initial concerns with the South West Comms Loop project, AusNet Services has now provided a clearer explanation of the project and its economic evaluation.⁴² CCP23 indicated that it is in the long-term interests of consumers generally for the project to proceed as a replacement project. CCP23 has, however, requested that the AER clarify whether the positive evaluation of the Optical Fibre Ground Wire option (relative to the more microwave towers option) is dependent on, or at least substantially affected by, the prospect of expanded communication requirements under the Victorian REZ program. We found that the preferred option does not appear to be dependent on expanded communication requirements under the REZ program.

Our final decision accepts AusNet Services' revised proposal South West Comms Loop project of \$22.3 million (\$2021–22).

5.4.2.2 Replacement costs risk allowance

AusNet Services' revenue proposal 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.⁴³ Our draft decision considered that these risks are more relevant to AusNet Services' major station projects than its asset replacement program more broadly and that AusNet Services can more readily mitigate these risks across a

⁴⁰ AusNet Services provided more detailed information and explanations, in relation to the South West Comms Loop project, in a response information request #20, 8 October 2021, and in a meeting with AER staff on 15 October 2021.

⁴¹ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

⁴² CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, p. 19.

⁴³ AusNet Services, *Revenue proposal 2023–27, Appendix 4B: Project Cost Estimating Methodology*, 29 October 2020, pp. 13–15.

program of replacement works.⁴⁴ We accepted the risk allowance on major substation projects but removed the risk allowance from AusNet Services' broader asset replacement program in our draft decision.⁴⁵

AusNet Services did not accept our draft decision. In its revised proposal, although AusNet Services accepted that asset replacement programs will typically involve unit costs that are comparatively well understood compared to the works at major stations, it identified several asymmetrical factors it considers affects the costs of delivering its asset replacement program. This included new design standards, management of latent site conditions, technological change, asset condition and system strength issues.⁴⁶

We sought further information regarding AusNet Services' asset replacement risk allowance.⁴⁷ In response, AusNet Services submitted:⁴⁸

- the condition assessments underpinning its revenue proposal's expenditure forecasts, although based on the best information available at the time of preparing these forecasts (one to two years prior to submission), reflect a robust assessment of condition at that point in time, rather than a forecast of future condition
- notwithstanding AusNet Services considers asset condition risk is not the dominant driver of the need for a risk allowance, it identified a number of factors, including deterioration in asset condition over time and site-specific integration issues, that mean this risk is, on average, more likely to manifest as additional scope and expenditure, rather than reduced scope and expenditure, relative to the cost estimates reflected in its revenue proposal.⁴⁹

For major stations capex, AusNet Services' risk allowances reflect the outcome of Monte Carlo Analysis which is a sampling technique performed to simulate project risk cost outcomes on a probabilistic basis, based on the likelihood of occurrence and range of potential cost impacts across each of the identified risks. For its asset replacement program, AusNet Services adopts a broad-based 7.5 per cent risk allowance which is included in its proposed unit rates. The difference in these forecasting approaches reflects the less detailed information that is currently available for the individual projects that comprise its asset replacement programs.⁵⁰

AusNet Services does at some future point in time undertake replacement program cost estimates using Monte Carlo Analysis of asymmetric risks, consistent with its risk allowance forecast approach for major stations capex which we accepted as 7.5 per

⁴⁴ AER, *Draft Decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, pp. 24–25.

⁴⁵ AER - *Draft decision - AusNet Services transmission determination 2022–27 – Capex model – June 2021*.

⁴⁶ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 68.

⁴⁷ AER, *AusNet Services Information Request #20*, 24 September 2021.

⁴⁸ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

⁴⁹ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

⁵⁰ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 67.

cent of project station capex.⁵¹ AusNet Services submitted that the Monte Carlo Analysis of replacement capex risk allowance has historically been at 7.5 per cent of unit rates.⁵²

AusNet Services considers that replacement capex risks are not accounted for in the direct cost component of its proposed unit rates and are only quantifiable once detailed design is undertaken and site-specific checks are conducted during the preparation of business case cost estimates, or during project delivery (i.e., after submission of its revised proposal). These factors are downside asymmetrical risks.⁵³ AusNet Services provided additional examples in its response to our information request where replacement project actual costs have exceeded preliminary cost estimates, including a risk allowance.⁵⁴ AusNet Services considers it is not possible to offset these cost increases by deferring its asset replacement programs until these risks are realised.⁵⁵

To demonstrate the robustness of its forecasting approach for asset replacement programs, AusNet Services compared preliminary cost estimates (including a risk allowance) with actual and expected outturn costs for a portfolio of approximately 80 asset replacement projects totalling \$280 million. AusNet Services' preliminary cost estimate reflects the less detailed information that is presently available at the revised proposal. This analysis shows that its preliminary cost estimates, which includes a risk allowance of 7.5 per cent, are similar to actual outturn costs, including estimated actual costs for works in progress.⁵⁶

AusNet Services considers the factors driving its historic asymmetric cost outcomes are likely to persist in the 2023–27 regulatory control period.⁵⁷ AusNet Services noted other issues that may drive increased future costs compared to recent experience, including the cancellation of outages due to system strength issues or other AEMO power system security concerns, such as a lack of reserve, solar shake-off and minimum demand. AusNet Services considers it may be more efficient to defer an outage than incur network support costs due to prevailing wholesale market conditions, or where the required network support cannot be obtained within the timeframes needed to support the outage.⁵⁸

In its response to our information request, AusNet Services provided:⁵⁹

- examples of asset replacement programs, including risk allowances derived through Monte Carlo Analysis, where its actual historic replacement asset capex

⁵¹ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 67.

⁵² AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 67.

⁵³ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 68.

⁵⁴ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

⁵⁵ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 68.

⁵⁶ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 67 and *Appendix 3B - Asset replacement programs cost data*, 1 September 2021

⁵⁷ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 69.

⁵⁸ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 69.

⁵⁹ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

risk allowance has generally been in line with the 7.5 per cent risk allowance included in its proposed unit rates

- additional evidence on how low system strength and other power system security issues are impacting the cost and timely delivery of asset replacement projects, including evidence of several projects impacted by outage cancellations in terms of additional costs and delays.

We consider the further information provided by AusNet Services in its revised proposal and our information request supports the claim for a 7.5 per cent risk allowance for its asset replacement projects. We:

- consider the asymmetrical factors AusNet Services identified as affecting the costs of delivering its asset replacement program are reasonable
- acknowledge that:
 - AusNet Services faces the requirement to provide an ex-ante cost estimate with its revised proposal that reflects the less detailed information that is currently available for the individual projects that comprise its asset replacement programs
 - this detailed information only becomes available for asset replacement programs as part of the detailed design and cost estimating phase, at which point Monte Carlo Analysis is undertaken to derive project-specific risk allowances
- accept that a number of factors identified by AusNet Services mean asset condition risk (reflecting condition assessment reports one to two years prior to revenue proposal submission) is, on average, more likely to manifest as additional scope and expenditure, rather than reduced scope and expenditure, relative to the cost estimates reflected in AusNet Services' revenue proposal
- acknowledge that AusNet Services has provided evidence that, on average, shows that its actual asset replacement program risk allowances historically have generally been in line with the 7.5 per cent risk allowance included in its proposed unit rates. AusNet Services demonstrated that its preliminary asset replacement cost estimates, which includes a risk allowance of 7.5 per cent, are similar to actual outturn costs
- consider that AusNet Services has demonstrated that the factors driving its historic asymmetric cost outcomes are likely to persist in the 2022–27 regulatory control period, particularly in relation to the cancellation of outages due to system strength issues.

In its advice on AusNet Services' revised proposal, CCP23 remained concerned with a 7.5 per cent risk allowance being applied across all replacement category activity as it considers the risks identified by AusNet Services as largely common to business as usual replacement activity. CCP23's preference is that if specific risks are adding asymmetrically to specific project costs, then AusNet Services can set this out in an individual project business case. CCP23 is also concerned that a broad-based 7.5 per

cent replacement capex risk allowance is not sufficiently nuanced to any asymmetrical risks for each specific project.⁶⁰

Whilst we acknowledge CCP23's concerns, we consider that the replacement capex risks identified by AusNet Services are generally not business as usual risks, but specific risks related to AusNet Services' circumstances and likely to impact on the delivery cost of a number of projects within AusNet Services' asset replacement program. We consider that the replacement capex risks are specific to AusNet Services' circumstances because:

- The management of latent site conditions, system strength and other power system issues are likely asymmetric factors impacting on the cost of its asset replacement program and expected to persist in the 2022–27 regulatory control period.
- AusNet Services is required to provide an ex-ante cost estimate with its revised proposal and reflects the less detailed information that is currently available for the individual projects that comprise its asset replacement programs. Preliminary estimates available at the time of AusNet Services' revised proposal do not include a number of factors that AusNet Services has been able to identify and are likely to lead to an asset condition risk which is, on average, more likely to manifest as additional scope and expenditure.
- AusNet Services accept that actual unit cost of its asset replacement programs are comparatively well understood, but that a number of asymmetrical factors affect the costs of delivering its asset replacement program.

We consider these specific replacement capex risks, and the supporting evidence provided by AusNet Services, support the inclusion of a 7.5 per cent risk allowance in AusNet Services' proposed replacement asset program unit rates. The evidence shows that AusNet Services faces a number of asymmetrical risk factors that impact on the costs of delivering its asset replacement program.

The risk factors identified by AusNet Services are supported by data that shows that historically its actual asset replacement program risk allowances have been in line with the 7.5 per cent risk allowance included in its proposed unit rates. That is, AusNet Services has demonstrated that its actual costs form the basis of its asset replacement capex forecasts. Without this empirical evidence, it is unlikely that we would have accepted a 7.5 per cent risk allowance for AusNet Services' proposed replacement asset program.

We consider AusNet Services' risk allowance reflects the actual replacement capex risks faced by AusNet Services as well as its forecasting approach. On this basis, we do not consider AusNet Services' asset replacement risk allowance represents business as usual risks.

⁶⁰ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, pp. 20–21.

5.4.3 Safety, security and compliance

AusNet Services accepted our draft decision allowance of \$53.7 million (\$2021–22) for safety, security and compliance capex after adjustments to reflect updated labour escalators. AusNet Services has, however, included \$9.7 million capex for a new project involving the installation of PMUs and reduced the capex for its other projects by approximately \$1 million.

The new project has been included in its updated forecast in response to a direction issued by AEMO under clause 4.11.1(d) of the NER requiring AusNet Services to install PMUs at specified locations on AusNet Services' network.⁶¹

Most of the required expenditure for this new project will be incurred in 2022–23 and involves upgrading or replacing PMUs and installing 19 new PMUs at various locations on the transmission network. The PMUs will allow AEMO to discharge its market and power system security functions by remotely monitoring and investigating, current and potential, power system security issues.

We accept AEMO's direction demonstrates there is a need to install PMUs at specified locations on AusNet Services' network. However, we undertook further analysis of the unit cost of the installation of each PMU to determine if this expenditure was efficient.⁶²

AusNet Services' forecast PMU capex indicated the cost per PMU ranges from \$467,000 to about \$490,000.⁶³ We concluded AusNet Services' average PMU cost was efficient as a new PMU is expected to cost around \$500,000.

We accept AusNet Services' forecast capex of \$9.7 million for the new PMU's based on AEMO's direction stipulating the need and scope, including location and timing of the PMU's to be installed on AusNet Services network during the 2022–27 regulatory control period. We also consider AusNet Services' estimated cost per PMU to be reasonable.

Our final decision accepts AusNet Services' revised proposal safety, security and compliance capex of \$62.5 million (\$2021–22).

5.4.4 Non-network

Our draft decision accepted \$22.0 million (\$2021–22) of AusNet Services' proposed \$22.2 million (\$2021–22) non-network capex, with the difference being a small adjustment of \$0.2 million to remove AusNet Services' proposed escalation of external labour costs.⁶⁴

⁶¹ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 37; AEMO, *Notice under clause 4.11.1(d) – Remote monitoring equipment*, 20 January 2022.

⁶² AER analysis of AusNet Services, *Revised revenue proposal 2023–27*, Appendix 3, 1 September 2021.

⁶³ AER analysis of AusNet Services, *Revised revenue proposal 2023–27*, Appendix 3, 1 September 2021.

⁶⁴ AER, *Draft decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, p. 12.

AusNet Services' revised proposal accepted our draft decision non-network capex allowance of \$22.0 million, with further minor adjustments AusNet Services made to reflect updated labour escalators and capitalised leases.⁶⁵ Our final decision accepts AusNet Services' revised proposal non-network capex of \$21.8 million (\$2021–22).

5.4.5 Information and communications technology

AusNet Services' proposed \$84 million (\$2021–22) for information and communications (ICT) capex is 14 per cent higher than the ICT capex that it expects to incur in the current regulatory control period due to increased cyber security requirements.⁶⁶ 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. AusNet Services' proposal included cost benefit analysis which identified economic benefits for its proposed ICT capex projects.

Our draft decision accepted \$83 million (\$2021–22) of AusNet Services' proposed \$84 million in ICT capex, with the difference being a small adjustment of \$0.8 million to remove AusNet Services' proposed escalation of external labour costs.⁶⁷

AusNet Services' proposed ICT capex includes \$16.7 million to comply with new cyber security requirements that are specific to its transmission business.⁶⁸ The main driver of AusNet Services' cyber security capex is the requirement to reach Maturity Indicator Level (MIL) 3 of the Australian Energy Sector Cyber Security Framework (AESCSF) by 2024.

AusNet Services' revised proposal accepted our draft decision ICT capex allowance of \$83 million with a further minor adjustment AusNet Services made to reflect updated labour escalators.⁶⁹ Our final decision accepts AusNet Services' revised proposal ICT capex of \$82.4 million (\$2021–22).

5.4.6 Real cost escalations

Our draft decision accepted AusNet Services' proposed internal labour escalation rates. However, we did not accept AusNet Services' proposal to escalate the labour component of the external contracted costs for its proposed capex program.⁷⁰

In its revised proposal, AusNet Services adopted our draft decision on internal labour cost escalation, which is consistent with AusNet Services' initial proposal. AusNet Services has updated its internal labour escalators to reflect a more recent

⁶⁵ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 73.

⁶⁶ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 119.

⁶⁷ AER, *Draft decision, AusNet Services transmission determination 2022–27, Capital Expenditure Model (Draft decision tab)*, 30 June 2021.

⁶⁸ AER, *Draft decision, AusNet Services transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, p. 27.

⁶⁹ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 73.

⁷⁰ AER, *Draft decision, AusNet Services' transmission determination 2022–27, Attachment 5 – Capital Expenditure*, June 2021, pp. 28–30.

forecast it has obtained from BIS Oxford Economics.⁷¹ This update is considered in our opex attachment 6.

Although AusNet Services considers there are reasonable grounds to expect real increases in external labour costs over the 2022–27 regulatory control period, AusNet Services has adopted our draft decision to apply zero real cost escalators to external labour.⁷² Our final decision is to apply no real cost escalation to external labour for AusNet Services' proposed capex program.

Our approach is supported by CCP23, who consider it is appropriate to apply no real cost escalation to external labour in the absence of compelling evidence to change.⁷³

5.4.7 Contingent projects

AusNet Services' revenue proposal did not identify any contingent projects for the 2023–27 regulatory control period. In its revised revenue proposal, however, AusNet Services has proposed a contingent project for the replacement of three 500kV/220kV transformers at Hazelwood Terminal Station (Hazelwood) due to the earlier than expected closure of Yallourn in 2028.

The announcement by EnergyAustralia in March 2021 that it would retire Yallourn in mid-2028 instead of 2032 was made after AusNet Services' revenue proposal was submitted.⁷⁴ AusNet Services submitted that this announcement required it to reassess its asset replacement plans because withdrawing Yallourn's installed generation capacity of 1,450 MW earlier than expected increases the criticality of network assets connecting other generation sources (including interconnectors and grid-scale batteries).⁷⁵

AusNet Services considers:

- three of the four 500kV/220 kV transformers at Hazelwood that have been in service since 1970 are now in poor condition
- when the asset failure risk of these transformers exceeds the cost of replacement, it will be economic to replace them
- the connection of new renewable generation in the region will significantly increase the consequences of failure of these transformers and bring forward the point at which it is economic to replace them.⁷⁶

⁷¹ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 75.

⁷² AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 75.

⁷³ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, p. 22.

⁷⁴ <https://www.energyaustralia.com.au/about-us/media/news/energyaustralia-powers-ahead-energy-transition>

⁷⁵ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 77.

⁷⁶ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 78.

The need and timing of this project at an estimated cost of \$45 million (\$2021–22) is dependent on the capacity and timing of generation that is committed to be connected to the 220kV network in the Latrobe Valley area which contains the Gippsland REZ. AusNet Services considers once 1,550 MW of renewable generation is committed before Yallourn is closed, or 3,000 MW after Yallourn is closed, to the Latrobe Valley area 220kV network, the replacement of three of the four power transformers at Hazelwood will become economic. However, as the timing of when these thresholds are met is uncertain, AusNet Services is proposing this as a contingent project.⁷⁷

AusNet Services proposed the following trigger events for its contingent project:⁷⁸

1. New generation capacity exceeding an aggregate of 1,550 MW (prior to the closure of Yallourn Power Station) or 3,000 MW (after the closure of Yallourn Power Station) is committed at the current or future connection points on the 220 kV Latrobe Valley transmission network.
2. Completion of a RIT-T to address the identified need of “maintain reliable, safe and secure prescribed transmission network services having regard to current and projected generation connections to the Latrobe Valley 220 kV transmission network” where the preferred credible option demonstrates that network investment at Hazelwood Terminal Station is economic during the 2023–27 regulatory control period.
3. The AER determines that the proposed investment satisfies the RIT-T.
4. A commitment from AusNet Services to proceed with the project, subject to the AER amending the revenue determination pursuant to the NER.

Contingent projects are usually significant network augmentation projects (or a replacement project in the case of AusNet Services’ proposed contingent project) that are reasonably required to be undertaken to achieve the capex objectives. However, unlike other proposed capex projects, the need for the project within the regulatory control period and the associated costs are not sufficiently certain. Consequently, expenditure for such projects does not form part of the total forecast capex that we approve in this determination. Such projects are linked to unique investment drivers and are triggered by defined ‘trigger events’. The occurrence of the trigger event must be probable during the relevant regulatory control period.⁷⁹ The cost of the projects may ultimately be recovered from customers in the future if certain predefined conditions (trigger events) are met.

5.4.7.1 Assessment approach

We consider whether:

⁷⁷ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 78.

⁷⁸ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, pp. 78–79.

⁷⁹ NER, cl. 6A.8.1(c)(5).

- the proposed contingent project is reasonably required to be undertaken in order to achieve any of the capex objectives⁸⁰
- the proposed contingent project capital expenditure is not otherwise provided for in the capex proposal⁸¹
- the proposed contingent project capital expenditure reasonably reflects the capex criteria, taking into account the capex factors⁸²
- the proposed contingent project capex exceeds the defined threshold⁸³
- the trigger events in relation to the proposed contingent project are appropriate.⁸⁴

AusNet Services' revenue proposal included a description of the contingent project, proposed trigger events, project requirement, proposed capex and demonstration of rules compliance.⁸⁵ We sought additional information in respect to its proposed contingent project, this included:⁸⁶

- information and modelling that demonstrates the economic justification for this project and the analysis of options
- further information demonstrating the need for this project at the relevant thresholds before and after the closure of Yallourn
- any forecasts or information that would support 1,550 MW of committed generation being probable in the next regulatory control period.

Given the uncertainty about the timing and requirements for the contingent project, at this stage, it is not necessary to assess the costs and technical scope of the project in detail. Rather, we reviewed whether the contingent project is reasonably likely to be required in the 2022–27 regulatory control period based on the materiality and plausibility of the trigger conditions. This gives us a high-level view of whether the project is reasonably required to be undertaken in the regulatory control period to achieve any of the capex objectives and reflect the capex criteria.

We also considered whether the proposed trigger events for the project are appropriate. This includes having regard to the need for the trigger event:

- to be reasonably specific and capable of objective verification⁸⁷

⁸⁰ NER, cl. 6A.8.1(b)(1).

⁸¹ NER, cl. 6A.8.1(b)(2)(i). Relevantly, a TNSP must include forecast capex in its revenue proposal which it considers is required to meet or manage expected demand for prescribed transmission services over the regulatory control period (see NER, cl. 6A.6.7(a)(1)).

⁸² NER, cl. 6A.8.1(b)(2)(ii).

⁸³ NER, cl. 6A.8.1(b)(2)(iii).

⁸⁴ NER, cl. 6A.8.1(b)(4).

⁸⁵ AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, pp. 79–80.

⁸⁶ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

⁸⁷ NER, cl. 6A.8.1(c)(1).

- to be a condition or event which, if it occurs, makes the project reasonably necessary in order to achieve any of the capex objectives⁸⁸
- to be a condition or event that generates increased costs or categories of costs that relate to a specific location rather than a condition or event that affects the transmission network as a whole⁸⁹
- to be described in such terms that it is all that is required for the revenue determination to be amended⁹⁰
- to be a condition or event, the occurrence of which is probable during the 2022–27 regulatory control period but the inclusion of capex in relation to it (in the total forecast capex) is not appropriate because either:
 - it is not sufficiently certain that the event or condition will occur during the regulatory control period or if it may occur after that period or not at all, or
 - assuming it meets the materiality threshold, the costs associated with the event or condition are not sufficiently certain.⁹¹

5.4.7.2 Position on contingent project

We consider AusNet Services' proposed contingent project should be classified as a contingent project for the 2022–27 regulatory control period. This project may be reasonably required to be undertaken in order to maintain the quality, reliability, and security of supply, or to meet or manage the expected demand for transmission services over the 2022–27 regulatory control period.⁹²

This is supported by CCP23 who were satisfied that the proposed contingent project meets the statutory requirements.⁹³

Our review of the requirements for the proposed contingent project is set out below.

Review of trigger events

We consider there are two important triggers for the contingent project proposed by AusNet Services to be accepted:

- that the project is reasonably necessary to be undertaken in order to achieve any of the capital expenditure objectives
- to be an event or condition, the occurrence of which is probable during the regulatory control period.

⁸⁸ NER, cl. 6A.8.1(c)(2).

⁸⁹ NER, cl. 6A.8.1(c)(3).

⁹⁰ NER, cl. 6A.8.1(c)(4).

⁹¹ NER, cl. 6A.8.1(c)(5).

⁹² NER, cl. 6A.8.1(b)(1).

⁹³ CCP23, *Submission to AER on the Draft Decision and AusNet Services Transmission 2022–27 Revised Proposal*, October 2021, p. 25.

Project reasonably necessary

For the project to be reasonably necessary to be undertaken, we must be satisfied that:

- there will be a need for the project. That is, the risk cost due to the loss of one of the three transformers will be high enough that it is likely that expenditure to reduce this risk is justified
- the proposed expenditure is likely to be the most economic option
- a more thorough assessment of the need and the option(s) to meet that need will be done prior to the expenditure (a requirement of the RIT-T).

We consider that should the proposed threshold renewable generation trigger be met, it is reasonably likely that the project would be required. We also consider that AusNet Services' proposed triggers of the completion of a RIT-T to address the identified need of the project and the AER determining the proposed investment satisfies the RIT-T, provide for a more thorough assessment of the need prior to any expenditure.

Proposed new generation thresholds probable

AusNet Services' revised proposal did not provide any detailed information as to the 'likelihood' or 'probability' of the threshold of committed generation being met.

In response to our information request,⁹⁴ AusNet Services stated that based on recent AEMO generation information forecasts, it is probable that a share of Victoria's potential new generation exceeding 1,450 MW (3 per cent of the total for Victoria) will become committed to connect to the 220 kV Latrobe Valley network, which is in the Gippsland REZ, during the next regulatory control period. AusNet Services noted the wind resources in the Gippsland REZ, and the rapidly increasing capacity of new large scale renewable generation plant more generally in Victoria, as well as the potential 2.2 GW Star of the South offshore wind farm project in the Gippsland region as evidence of potential new generation. AusNet Services considered that the connection of 1.5 GW to the 220 kV Latrobe Valley network by 2028 is probable.

AusNet Services included an AEMO map based on AEMO generation forecasts showing fuel technology (generation) categories for each Victorian REZ.⁹⁵ We reviewed an updated AEMO map of Victorian REZ generation forecasts to the one provided by AusNet Services, which includes 2,200 MW of wind generation within the Gippsland REZ at the application stage.⁹⁶ We consider this map supports AusNet Services' claim that connection of 1.5 GW to the 220 kV Latrobe Valley network by 2028 is probable.

⁹⁴ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

⁹⁵ AusNet Services, *AER Information Request #20 response*, 8 October 2021.

⁹⁶ AEMO, https://aemo.com.au/-/media/files/electricity/nem/network_connections/generation-maps/vic-map.pdf?la=en, 3 October 2021.

We also reviewed AEMO's July 2020 REZ ISP Scorecard⁹⁷ and Draft 2022 ISP.⁹⁸ Although AEMO's 2022 Draft ISP did not support development of renewable generation capacity greater than 1,550 MW in the Gippsland REZ during the next regulatory control period, we consider there is on-going interest in the development of renewable energy resources in the Gippsland region. We anticipate further progress on the development of these renewable energy resources, and it is likely that a number of projects will be advanced during the next regulatory control period.

Based on the information provided by AusNet Services and our own investigations, we consider the commitment of 1,550 MW (prior to the closure of Yallourn) or 3,000 MW (after the closure of Yallourn) during the 2022–27 regulatory control period is probable.

We are satisfied that the trigger events proposed by AusNet Services meet the NER requirements and we approve AusNet Services' proposed contingent project.

5.5 Ex-post statement of efficiency and prudence

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. The capex 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.

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 decide 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.

⁹⁷ AEMO, *2020 ISP Appendix 5: Renewable Energy Zones*, July 2020.

⁹⁸ AEMO, *Draft 2022 ISP*, December 2021.

Table 5.4 AusNet Services' actual net capex versus capex allowance – 2017–22 regulatory control period (\$million, 2021–22)

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	152.7	141.6	133.7	699.5
Capex overspend / (underspend)	(55.6)	(19.3)	(8.8)	(12.4)	(15.3)	(80.8)

Source: AusNet Services, *Revised revenue proposal 2023–27*, 1 September 2021, p. 111.

Note: Numbers may not add up due to rounding. Please refer to Attachment 2 for details in relation to the cost of capitalised leases.

Shortened forms

Shortened form	Extended form
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
capex	capital expenditure
CCP23	Consumer Challenge Panel, sub-panel 23
CESS	capital expenditure sharing scheme
CPI	consumer price index
GW	gigawatt
ISP	AEMO's integrated system plan
MW	megawatt
NEL	National Electricity Law
NER	National Electricity Rules
opex	operating expenditure
PMU	phasor measurement unit
PTRM	post-tax revenue model
RAB	regulatory asset base
REZ	renewable energy zones
RFM	roll forward model
RIT-T	regulatory investment test for transmission
TNSP	transmission network service provider