FINAL DECISION

AusNet Services Distribution Determination 2021 to 2026

Attachment 5 Captial expenditure

April 2021

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's final decision on the distribution determination that will apply to AusNet Services for the 2021–26 regulatory control period. It should be read with all other parts of the final decision.

The final decision includes the following attachments:

Overview

Attachment 1 – Annual revenue requirement

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 – Customer service incentive scheme

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5 Capital expenditure

Capital expenditure (capex) refers to the money required to build, maintain or improve the physical assets needed to provide standard control services (SCS). Generally, these assets have long lives and a distributor will recover capex from customers over several regulatory control periods. A distributor's capex forecast contributes to the return of and return on capital building blocks that form part of its total revenue requirement.

Under the regulatory framework, a distributor must include a total forecast capex that it considers is required to meet or manage expected demand, comply with all applicable regulations, and to maintain the safety, reliability, quality, security of its network (the capex objectives).[1]

We must decide whether or not we are satisfied that this forecast reasonably reflects prudent and efficient costs and a realistic expectation of future demand and cost inputs (the capex criteria).[2] 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)).[3]

If we are not satisfied, we must set out the reasons for this decision and a substitute estimate of the total of the distributor's required capex for the regulatory control period that we are satisfied reasonably reflects the capex criteria, taking into account the capex factors.[4]

The *AER capital expenditure assessment outline* explains our and distributors' obligations under the National Electricity Law and Rules (NEL and NER) in more detail.[5] It also describes the techniques we use to assess a distributor's capex proposal against the capex criteria and objectives.

Total capex framework

We analyse and assess capex drivers, programs and projects to inform our view on a total capex forecast. However, we do not determine forecasts for individual capex drivers or determine which programs or projects a distributor 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 distributors to provide services at the lowest possible cost, because the actual costs of providing services will determine their returns in the short term. If distributors reduce their costs,

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1 NER, cl. 6.5.7(a).
2 NER, cl. 6.5.7(c).
3 NEL, ss. 7, 16(1)(a).
4 NER, cl. 6.12.1(3)(ii).
5 AER, *Capex assessment outline for electricity distribution determinations,* February 2020.

the savings are shared with consumers in future regulatory control periods. This incentive-based framework recognises that distributors should have the flexibility to prioritise their capex program given their circumstances and due to changes in information and technology.

Distributors may need to undertake programs or projects that they did not anticipate during the reset. Distributors also may not need to complete some of the programs or projects proposed if circumstances change. We consider a prudent and efficient distributor would consider the changing environment throughout the regulatory control period and make decisions accordingly.

Importantly, our decision on total capex does not limit a distributor's actual spending. We set the forecast at a level where the distributor has a reasonable opportunity to recover its efficient costs. As noted previously, distributors may spend more or less than our forecast in response to unanticipated changes.

5.1 Final decision

We do not accept AusNet Services' revised capex forecast of $1432.9 million ($2020–21). We are not satisfied that its total net capex forecast reasonably reflects the capex criteria. Our substitute estimate of $1384.1 million is 3 per cent below AusNet Services' revised forecast and is 21 per cent below its actual expenditure in the 2016–20 regulatory control period. We are satisfied that our substitute estimate reasonably reflects the capex criteria. Table 5.1 outlines our final decision.

Table 5.1 Final decision on AusNet Services' total net capex forecast ($ million, 2020–21)

	2021–22	2022–23	2023–24	2024–25	2025–26	Total
AusNet Services' revised proposal	333.4	331.3	276.6	248.1	243.4	1432.9
AER final decision	334.6	320.0	265.5	234.1	229.9	1384.1
Difference ($)	1.2	-11.3	-11.1	-14.0	-13.5	-48.8
Difference (%)	0.3	-3.4	-4.0	-5.6	-5.6	-3.4

Source: AusNet Services' revised post-tax revenue model (PTRM) and AER analysis.

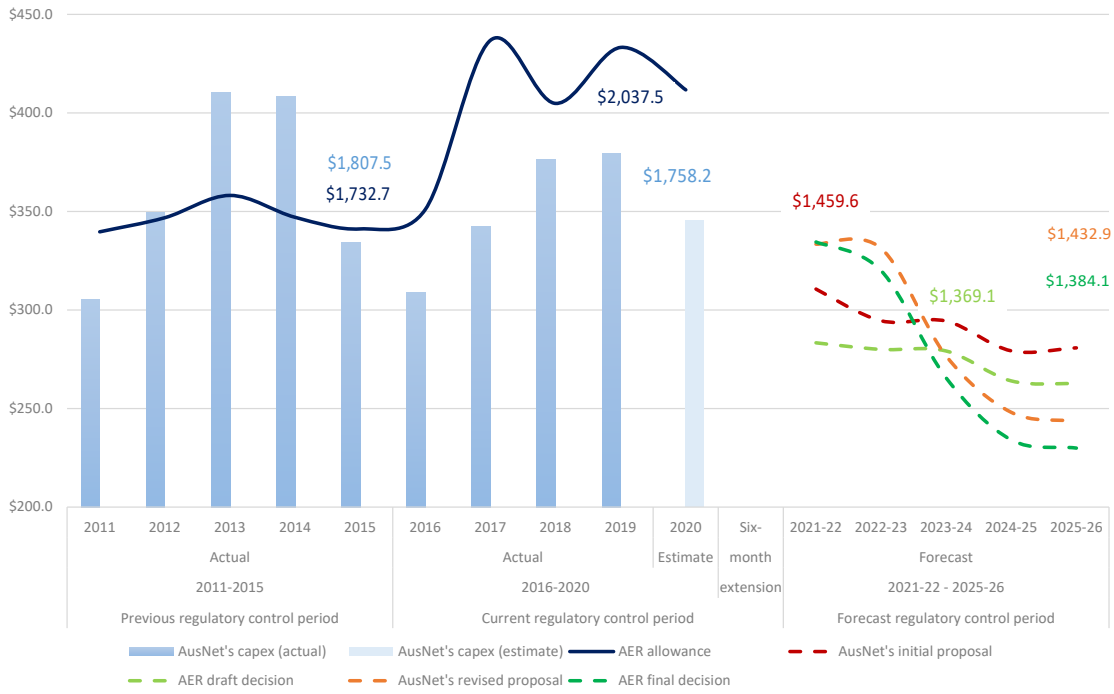
Note: Numbers may not sum due to rounding.

5.2 AusNet Services' revised proposal

AusNet Services' revised capex forecast for the 2021–26 regulatory control period is $1432.9 million. This is 21 per cent lower than its actual capex of $1758.2 million over the current regulatory control period.[6]

Figure 5.1 outlines AusNet Services' historical capex performance against its initial and revised proposals, and our draft and final decisions.

Figure 5.1 AusNet Services' historical vs forecast capex snapshot ($ million, 2020–21)



Source: AusNet Services' revised proposal and AER analysis.

Note: The capex figures reported refer to five-year totals over a regulatory control period. The 2020 estimate has been included in this chart for indicative purposes. We have not used this estimate in our trend comparison.

AusNet Services accepted most aspects of our draft decision. However, it made amendments to the following:

- Its Rapid Earth Fault Current Limiter (REFCL) forecasts for Kalkallo and ongoing compliance
- Its connections forecast, to account for a change in capital contributions due to a decrease in its Weighted Average Cost of Capital (WACC)

[6] In this attachment we compare forecast capex with actual capex in the current period; i.e. calendar year 2016 to 2019 pro-rated to five years.

- The allocation of metering costs between SCS and Alternative Control Services (ACS)
- Real cost escalations to include BIS Oxford's updated forecasts.

5.3 Reasons for final decision

We are not satisfied that AusNet Services' total capex forecast reasonably reflects the capex criteria. We are therefore required to set out a substitute estimate.[7] We are satisfied that our substitute estimate represents a total capex forecast that reasonably reflects the capex criteria and forms part of an overall distribution determination that contributes to achieving the NEO to the greatest degree.

We typically analyse a distributor's total capex forecast from a top-down perspective. This top-down review forms the starting point of our capex assessment to determine whether further detailed analysis is required, but is also used throughout our review process to test the results of our bottom-up assessment.

In our draft decision, we relied more on top-down analysis than our typical category driven analysis to form our substitute forecast capex. This is due to the material decrease in AusNet Services' capex trend and significant top-down efficiency adjustments applied to its total forecast capex. Our adjustments to AusNet Services' initial proposal reflected adjustments to take into account the effect of COVID-19 on connections and real cost escalations.[8]

We have maintained our top-down position from our draft decision. We were satisfied that our total capex forecast reasonably reflected the capex criteria. However, we noted some areas for REFCL augmentation capex (augex), real cost escalations and connections could be updated for further information in our final decision.[9] Our top-down assessment of AusNet Services' capex forecast is attachment 5 of our draft decision.[10]

AusNet Services revised proposal included updates to these categories. However, its revised proposal included new information for REFCL augex and connections that was not a part of its initial proposal and were not identified as areas that required updated information in our draft decision.

However, we also recognise that AusNet Services' did not include augex at Doreen zone substation that could have been added into its revised proposal as a result of

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7 NER, cl. 6.12.1(3)(ii).

8 AER, *Draft decision AusNet Services distribution determination 2021–26 - Attachment 5 - Capital expenditure*, September 2020, pp. 15–17.

9 AER, *Draft decision AusNet Services distribution determination 2021–26 - Attachment 5 - Capital expenditure*, September 2020, p. 15.

10 AER, *Draft decision AusNet Services distribution determination 2021–26 - Attachment 5 - Capital expenditure*, September 2020, p. 11–15.

updated demand growth.[11] AusNet Services identified its Customer Forum feedback as a key reason for not including this project in its revised proposal.

As AusNet Services' revised proposal included materially new information that we had not previously assessed, we have undertaken a bottom-up assessment of AusNet Services' REFCL program and its connections forecast.

We discuss our in-depth assessment of these categories in Appendix A.

Stakeholder submissions

The Consumer Challenge Panel, sub-panel 17 (CCP17) noted that our focus on top-down assessment in our draft decision presented a challenge for consumer groups to consider any detail of AusNet Services' revised proposal. The CCP17 considered that if we were to undertake a top-down assessment again, we should focus on connections and REFCL capex as these two categories departed the most from our draft decision.[12] The CCP17 also noted the difficulty in analysing the revised proposal and that where public information was available it was not transparent and potentially misleading.

We agree with the CCP17's submission and as discussed above we have focussed our assessment approach on the areas that depart from our draft decision. We also agree that some areas of AusNet Services' revised proposal were not clear, particularly where there were comparisons with historical capex or our draft decision. We sought additional information from AusNet Services about its forecasts for connections and for REFCL augex.

Energy Consumers Australia (ECA) noted that our focus on historical costs and our assumption that these were considered 'normal' levels of capex may lead to inefficient levels being set due to increased bushfire related capex.[13]

Victorian Community Organisations (VCO) identified similar points to the ECA. The VCO, through its consultants Headberry Partners P/L, expressed concerns that we considered AusNet Services' initial replacement capital expenditure (repex) proposal as reasonable, subject to some minor adjustments.[14] The VCO references Figure 9-17 in AusNet Services' regulatory proposal as evidence that the proposed repex increase is much greater than our observed 4 per cent increase, and therefore needs to be assessed more closely.[15]

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11 AusNet Services, *Revised Regulatory Proposal 2021–26*, December 2020, p. 58.

12 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, pp. 88–89.

13 ECA, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 10.

14 VCO, Submission on the Victorian EDPR Revised Proposal and draft decision *2021–26* – Headberry Partners - Report to the Sponsoring Organisations January 2021, p. 40.

15 VCO, Submission on the Victorian EDPR Revised Proposal and draft decision *2021–26* – Headberry Partners - Report to the Sponsoring Organisations January 2021, p. 40.; AusNet Services, *Electricity Distribution Price Review 2021–26*, January 2020, p. 76.

We welcome VCO's submission and understand why it may have viewed AusNet Services' proposal in this way. AusNet Services has not categorised its total forecast capex in its regulatory proposal in the same way as in the Regulatory Information Notices (RINs). The VCO references the regulatory proposal but our draft decision analysis relied on RIN data.

Consistent with our typical approach, to allow for comparison of the forecast with historical trend as well as with other businesses, we have relied on the categorisation of total capex in AusNet Services' RINs. Using RIN data, we found that AusNet Services' repex forecast was in line with its current regulatory control period spend.

We also note that our draft top-down assessment took into account non-recurrent capex in the current regulatory control period in our trend assessment. We noted the significance of bushfire related capex in the current regulatory control period. However, even taking this into account, AusNet Services' forecast capex remained materially below historical capex. We also noted that although some categories may increase, other categories, such as recurrent ICT had materially decreased. Where we identified issues with a specific category of capex, we considered its effect on total capex in forming our substitute estimate.

We received several submissions about Distributed Energy Resources (DER) and the use of the value of DER (VaDER).[16]

As highlighted in our draft decision, we commissioned the CSIRO and CutlerMerz to conduct a study into potential methodologies for determining the VaDER in response to stakeholder submissions on our consultation paper 'Assessing Distributed Energy Resources (DER) Integration Expenditure'.[17] We published the CSIRO and CutlerMerz's final value of DER 'VaDER: methodology study' in November 2020 following the release of our draft decision.[18]

We will continue to consider this advice and recommendations, and the Australian Energy Market Commission's current DER rule change consultation process during our ongoing stakeholder engagement and in finalising our DER integration expenditure guideline. We will continue to engage with stakeholders on the development of the DER guideline in the context of these proposed rule changes, which are due for finalisation in mid-2021.

AusNet Services responded to our DER concerns in its revised proposal. We also note that the risk of consumers paying for over-forecast DER capex is mitigated by AusNet Services' commitment to not benefit from the underspend by excluding this category of capex from future capital expenditure sharing scheme (CESS) calculations.

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16 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 85; VCO, Submission on the Victorian EDPR Revised Proposal and draft decision *2021–26*, January 2021, p. 23; Spencer&Co, *Report to Energy Consumers Australia - a review of the Victorian Distribution Networks - Revised Proposals 2021–26*, January 2021, p. 13.

17 AER, *Assessing DER Integrated Expenditure – Consultation Paper,* November 2019.

18 CSIRO and CutlerMerz, *Value of distributed energy resources: Methodology study – Final report,* October 2020.

The Energy Users Association of Australia (EUAA) identified concerns with the relationship between the New Reg process and our level of scrutiny of AusNet Services' capex forecast.[19] The ECA identified similar concerns.[20]

Our focus on the use of a top-down assessment approach was due to multiple aspects of AusNet Services' forecast performing well at the overall capex level. Customer engagement and the New Reg process was an important aspect of AusNet Services' capex forecast. However, stakeholder engagement provided views regarding specific categories of capex (such as DER) rather than overall capex. We note AusNet Services' adjustments across a range of capex categories following its New Reg consultation contributed to AusNet Services' capex forecast performing well in a top-down assessment. We then used this information in conjunction with other top-down assessment techniques such as trend analysis.

Other adjustments

In addition to our assessment of connections and REFCL, we have applied modelling adjustments that are consistent with our draft decision. These include:

- Updating our Consumer Price Index (CPI) real cost escalation forecasts for the most recent forecasts from BIS Oxford and Deloitte Access Economics.
- Adjusting capitalised overheads using our standard 75/25 fixed and variable ratio to reflect our lower substitute capex forecast.
- Maintaining our draft decision metering cost allocations between ACS and SCS. More information on why we have maintained our position is in attachment 16.

Table 5.2 summarises the reasons for our substitute estimate by capex driver. This reflects the way we have assessed AusNet Services' revised total capex forecast. Our findings for each capex driver are part of our broader analysis and should not be considered in isolation. We do not approve an amount of forecast expenditure for each individual capex driver. However, we use our findings for each of the capex drivers to assess a distributor's proposal as a whole and arrive at a substitute estimate for total capex where necessary. In addition, as noted above, our decision regarding total capex does not limit a distributor's actual spending.

Table 5.2 Summary of our findings and reasons by capex driver

Issue	Findings and reasons
Repex	AusNet Services' revised proposal accepted our draft decision for repex with the exception of adopting different metering costs allocated between ACS and SCS. We have maintained our draft decision

[19] Energy Users Association of Australia, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 9.

[20] ECA, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 10

Issue	Findings and reasons
	allocation of costs between ACS and SCS.
DER capex	AusNet Services' revised proposal accepted our DER capex forecast.
Augex	AusNet Services accepted our augex draft decision. However, it included updates for its REFCL forecast. We have accepted the majority of AusNet Services' augex forecast but have not included one REFCL project that can be deferred beyond the forecast regulatory control period.
Connections capex	AusNet Services' revised proposal accepted our connections volumes but updated its forecast to reflect a change in its capital contributions and more recent unit rates. We do not consider that AusNet Services' method for adjusting forecast capital contributions for its changed WACC and price path is reasonable. We have also updated connections to reflect more recent Housing Industry Association (HIA) forecasts.
ICT capex	AusNet Services accepted our draft decision for ICT capex.
Other non-network capex	AusNet Services accepted our draft decision for other non-network capex.
Capitalised overheads	AusNet Services accepted our capitalised overheads forecast but adjusted its forecast to reflect our fixed and variable overhead methodology for its revised capex forecast. We have updated this calculation to reflect our substitute capex forecast.
Modelling adjustments	Our substitute capex forecast includes updated CPI and real cost escalations.
Asset disposals	AusNet Services accepted our draft decision for asset disposals.

A Capex driver assessment

This appendix describes our detailed analysis of AusNet Services' capex driver category forecasts for the 2021–26 regulatory control period. These categories are: REFCL and connections capex. All dollar amounts are presented in real $2020–21 unless otherwise stated.

We used various qualitative and quantitative assessment techniques to assess the different elements of AusNet Services' proposal to determine whether it reasonably reflects the capex criteria. More broadly, we seek to promote the NEO and take into account the revenue and pricing principles set out in the NEL.[21] In particular, we take into account whether our overall capex forecast will provide AusNet Services with a reasonable opportunity to recover at least the efficient costs it incurs to:

- provide direct control network services
- comply with its regulatory obligations and requirements.[22]

When assessing capex forecasts, we also consider:

- the prudency and efficiency criteria in the NER are complementary. Prudent and efficient expenditure reflects the lowest long-term cost to consumers to achieve the expenditure objectives.[23]
- past expenditure was sufficient for the distributor to manage and operate its network in previous periods, in a manner that achieved the capex objectives.[24]
- the capex required to provide for a prudent and efficient distributor's circumstances to maintain performance at the targets set out in the service target performance incentive scheme (STPIS).[25]
- the annual benchmarking report, which includes total cost and overall capex efficiency measures, and considers a distributor's inputs, outputs and its operating environment.
- the interrelationships between the total capex forecast and other constituent components of the determination, such as forecast operating expenditure (opex) and STPIS interactions.[26]

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21 NEL, ss. 7, 7A and 16(1)–(2).

22 NEL, s. 7A.

23 AER, *Better regulation: Expenditure forecast assessment guideline for electricity distribution*, November 2013, pp. 8–9.

24 AER, *Better regulation: Expenditure forecast assessment guideline for electricity distribution*, November 2013, p. 9.

25 The STPIS provides incentives for distributors to further improve the reliability of supply only where customers are willing to pay for these improvements.

26 NEL, s. 16(1)(c).

A.1 Augex

The need to build or upgrade the network to address changes in demand and network utilisation typically triggers augex. The need to upgrade the network to comply with quality, safety, reliability and security of supply requirements can also trigger augex.

A.1.1 Final decision

We are not satisfied that AusNet Services' revised augex forecast reasonably reflects the capex criteria. We include $214.4 million for augex in our substitute estimate of total capex. This is $5.4 million or 2 per cent lower than AusNet Services' revised forecast. We are satisfied that our substitute estimate forms part of a total capex forecast that meets the capex criteria.

A.1.2 AusNet Services' revised proposal

AusNet Services included $219.7 million for forecast augex in its revised proposal for the 2021–26 regulatory control period. AusNet Services accepted most aspects of our draft decision. However, it updated its REFCL forecast to address some of the concerns we raised in our draft decision.[27]

A.1.3 Reasons for final decision

We have maintained our draft decision assessment of AusNet Services' augex with the exception of its updated REFCL program.

AusNet Services' revised proposal included $151.2 million for REFCL augex for bushfire mitigation obligations. Following the 2009 Victorian Bushfires Royal Commission, legislative amendments were introduced to reduce the likelihood of bushfire starts from electrical equipment faults.[28] These amendments place regulatory obligations to achieve certain protection performance requirements (referred to as 'required capacity') at 22 of AusNet Services' zone substations.[29] A REFCL is a protection device typically installed at a zone substation used to achieve the required capacity to reduce the risk of faulted power lines starting bushfires.

AusNet Services has materially changed the composition of its REFCL program since the initial proposal. We have reviewed the changes and our assessment is that most of the revised proposal reasonably reflects the capex criteria. Based on the available information, we consider REFCL-related works at one zone substation can reasonably be deferred into the next regulatory control period. Our final decision substitute includes $145.7 million for REFCL augex.

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27 AusNet Services, *Revised Regulatory Proposal 2021–26*, December 2020, p. 58.

28 *Electricity Safety (Bushfire Mitigation) Regulations 2013* (Vic), *Electricity Safety Amendment (Bushfire Mitigation Civil Penalties Scheme) Act 2017* (Vic) and *Electricity Safety (Bushfire Mitigation Duties) Regulations 2017* (Vic).

29 Achieving required capacity involves reducing the voltage and current on faulted power lines as defined in the *Electricity Safety (Bushfire Mitigation Duties) Regulations 2017*, regulation 7.

What has changed since the initial proposal?

Our draft decision did not adjust the proposed REFCL capex of $147.3 million because we acknowledged that AusNet Services would likely materially change its REFCL forecast in the revised proposal in two areas. First, AusNet Services indicated it may include an update to its Kalkallo zone substation REFCL solution that was not included in the original proposal. Second, a key issue we raised in our draft decision was the material capex proposed for the construction of three new zone substations proposed by AusNet Services as part of its ongoing compliance program.[30] AusNet Services identified that two REFCLs was the maximum number that could be installed at a single zone substation due to software limitations, which necessitated the construction of new zone substations to install sufficient REFCL capacity to meet the bushfire mitigation obligations. In our draft decision, we noted that Powercor proposed three REFCLs at several zone substations and we therefore considered this approach could reasonably be adopted by AusNet Services.

The revised proposal is $3.8 million higher than the initial proposal, which consists of:

- an additional $30.4 million net for Kalkallo zone substation[31]
- a reduction to the ongoing compliance program by $26.6 million, comprising:
    - a $41.6 million reduction due to implementing the three REFCL approach at two of its zone substations (therefore avoiding construction of two new zone substations), and proposing to implement a Remote REFCL on a feeder at another zone substation.
    - a $15.5 million increase due to updated costs associated with five zone substations.
    - a $0.5 million decrease to the remaining tranche two and three capex associated with changes in escalation.

Stakeholders expressed concern with the lack of transparency in the changes

We have closely interrogated the additional information provided by AusNet Services. The CCP17 submitted that it found the changes in the revised proposal REFCL forecast somewhat difficult to follow, especially in the case where the cost reductions were positively emphasised and the increased costs for Kalkallo were not as clear.[32] We agree the changes could have been better explained for stakeholders to follow, and consequently we provide the below clarifications to assist understanding of the changes.

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30 AusNet Services refers to this as its 'augmentation program' for tranche one and two zone substations where there is forecast growth in capacitance in excess of the expected REFCL capacity.

31 The total amount in the forecast period for the revised Kalkallo solution is $38.6 million. The initial proposal already included $8.1 million, as the capex was expected to be incurred in the forecast period from the tranche 3 final decision. Therefore, the net addition to the forecast capex is $30.4 million.

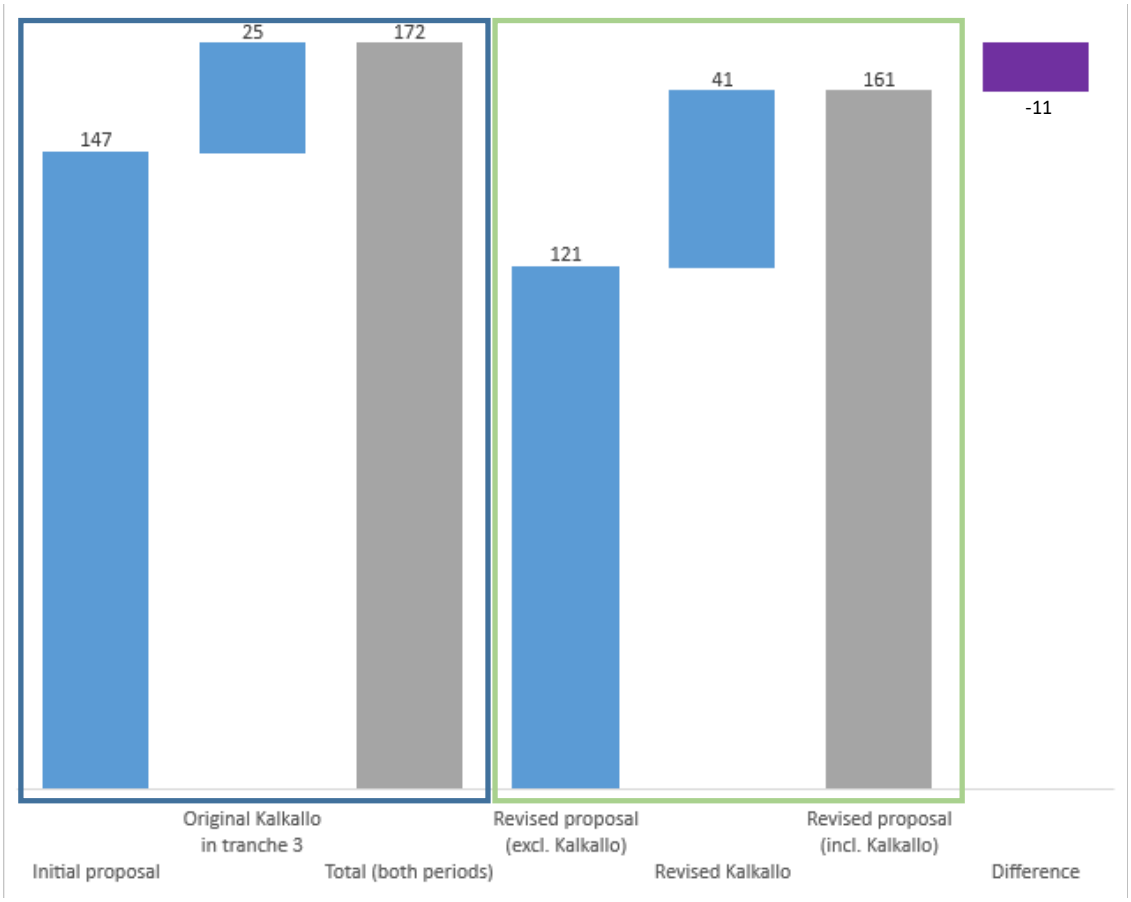
32 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, pp. 91–92.

Figure 1 illustrates the total capex in three periods: the current regulatory control period, the January to June 2021 six-month extension, and the 2021–26 regulatory control period. We highlight that:

- At face value, it appears that AusNet Services has increased the capex requirement for REFCL by $3.8 million. This is largely driven by a shift of current regulatory control period capex for Kalkallo into the 2021–26 regulatory control period and revising the proposed solution as the tranche three option was not a viable long-term option.
- The total REFCL capex requirement that AusNet Services expects to incur is $11.0 million lower than that included in the initial proposal. This is due to the $26.6 million reduction in the ongoing compliance program that is partly offset by the $15.6 million increase for the revised Kalkallo solution.
- The total proposed capex for Kalkallo has increased by $15.6 million from the $25.0 million in the tranche three final decision to the $40.6 million.[33] The current regulatory control period capex has been shifted into the 2021–26 regulatory control period. We consider the shift in capex has been appropriately adjusted for with a CESS adjustment and a revenue adjustment.

[33] The total $40.6 million capex includes $2.0 million in the January to June 2021 six-month extension. Therefore, $38.6 million is included in the forecast regulatory control period.

Figure 2 Total changes to AusNet Services' expected REFCL capex ($ million, 2020–21)



Source: AER analysis

Notes: Numbers may not sum due to rounding. The total capex includes amounts from the current period, the six-month extension, and the 2021–26 regulatory control period.

In the following section, we describe our assessment of the revised Kalkallo solution and how the shift in capex has been accounted for.

Our assessment of the revised Kalkallo solution

The revised Kalkallo solution is reasonable

We have assessed the proposed solution for Kalkallo and consider it is reasonable given the difficulties in the Kalkallo network, which have been discussed since tranche three in 2019. Our tranche three final decision was made on the best available information at the time, and recognised there may be an updated joint solution with Jemena, as Jemena operates three feeders from Kalkallo zone substation.[34] We

[34] For our final decision for Jemena, see: AER, *Final decision Jemena distribution determination 2021–26 - Attachment 5 - Capital expenditure*, April 2021, pp. 5-16–5-17.

recognise the stakeholder concerns about the increase in cost for Kalkallo and highlight the identified difficulties, as Kalkallo serves a network with existing high capacitive current and forecast growth in capacitive current due to underground networks.[35] The REFCL capacity must exceed the capacitive loading in the network in order to meet the regulations. In the case of Kalkallo, the existing network size requires more than three REFCL units and would potentially require building multiple zone substations in future to meet the required capacity.

AusNet Services' proposed solution essentially intends to reduce the network size by segmenting the network, which involves:[36]

- REFCL-protecting the overhead line on two feeders using a Remote REFCL on each feeder[37]
- installing isolation transformers to separate fully underground network segments and therefore lower the capacitive current
- reconductoring existing overhead line with covered conductor[38] suitable for Energy Safe Victoria (ESV) exemption in the sections between the zone substation and the Remote REFCLs. AusNet Services is progressing the exemption with ESV.

In arriving at our decision, we considered:

- benchmarking costs and reviewing the proposed design. We are satisfied with AusNet Services' proposed costs as they are consistent, reasonable and benchmark well. Despite the Remote REFCL being a new approach, it is essentially a REFCL with an isolation transformer plus associated equipment so we have been able to compare these costs.
- the options analysis was comprehensive. AusNet Services and Jemena engaged technical consultant WSP to undertake detailed options analysis for compliance in the Kalkallo area.[39] AusNet Services has proposed an innovative approach to resolve a complicated issue in the Kalkallo network.
- the proposed solution can meet the longer-term forecast capacitance growth. AusNet Services has indicated that no further work is currently projected (out to 2043) to manage capacitance at Kalkallo.[40] Isolation transformers and Remote REFCL allow for the deferral of zone substation construction, as load growth is not

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35 Underground cables have about 30–40 times the capacitance of overhead conductors.

36 AusNet Services, *Revised Regulatory Proposal 2021–26, REFCL deployment summary report for Kalkallo zone substation AMS 20-408*, December 2020, pp. 13–17.

37 Remote REFCL has been developed by AusNet Services as an alternative option to achieving the required capacity. The Remote REFCL utilises an isolation transformer and REFCL to create a separate downstream network from the zone substation to lower the capacitance seen by the REFCL, where the REFCL protects downstream overhead line. It is installed on the feeder, instead of the typical installation at the zone substation.

38 Covered conductor provides greater reduction in fire consequence than REFCL-protected bare wire. AusNet Services, *Stakeholder workshop for proposed Kalkallo REFCL implementation*, 16 March 2021.

39 WSP, *Economic options to maintain REFCL compliance at Kalkallo and Coolaroo zone substations*, December 2019.

40 AusNet Services, *information request 075*, January 2021.

the driver for investment. In the future, if load growth does justify construction of a new zone substation (after demand management and other non-network options are considered), the isolation transformers and REFCL units are salvageable and can be redeployed in other parts of the network.

- the additional information we requested from AusNet Services has sufficiently satisfied us that the proposed capex is prudent and efficient. Further, we have had multiple meetings with AusNet Services to discuss the technical aspects of the solution.

AusNet Services' adjustments to account for the shift in project timing

As there was a partial capex allocation for Kalkallo in the current regulatory control period, AusNet Services proposed to account for the shift in project timing with a:

- CESS adjustment of -$4.5 million to account for the shift of current regulatory control period capex to the 2021–26 regulatory control period.
- Revenue adjustment of -$0.7 million to pass back to customers the revenue received but not spent for Kalkallo.[41]

We accept the proposed adjustments.

Changes to the ongoing compliance program

We are satisfied that the proposed capex for ongoing compliance at seven out of eight zone substations is prudent and efficient. In particular, the significant reduction in capex for adopting the three REFCL approach at two zone substations is appropriate and consistent with Powercor's approach. We have reviewed the updated solutions and revised costs for these zone substations, and are satisfied the proposed capex is prudent and efficient.

Additional works at Ringwood North can reasonably be deferred

AusNet Services proposes to install a second REFCL unit at Ringwood North zone substation because it is likely to approach the REFCL capacity in 2026–27, which is in the subsequent regulatory control period.[42] We requested updated capacitance forecasts from AusNet Services to support the ongoing compliance program for tranche one and two zone substations where REFCL capacity is likely to be exceeded in the 2021–26 regulatory control period.[43]

On the balance of the information provided, we do not accept that the proposed capex is prudent because the project can reasonably be deferred into the subsequent regulatory control period (2026–2031). Specifically:

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41 AER, *Final decision AusNet Services distribution determination 2021–26 - Attachment 1 - Annual revenue requirement*, April 2021, p. 1-5.

42 AusNet Services, *Revised Regulatory Proposal 2021–26 - REFCL compliance maintained planning report for Ringwood North zone substation AMS 20-402*, December 2020, p. 15.

43 AusNet Services, *information request #075*, January 2021.

- the forecast exceedance is marginally higher by 1.7 A at the end of 2027.[44] Given the proposed timing of works, there is sufficient lead time to undertake these works in the subsequent regulatory control period.
- compared to the initial capacitance forecasts we requested,[45] AusNet Services has changed the isolation rate from 20 per cent to zero for the Central Region.[46] This change is unsupported and suggests there is no opportunity for isolating sections of underground network segments and reducing capacitance. This change results in a 25 per cent increase to the capacitance forecast at Ringwood North compared to the original forecasts. Including the original forecast capacitance growth suggests that the likely exceedance is not until the end of 2028.
- should the capacitance exceed the REFCL capacity sooner than forecast, AusNet Services can manage this within the total capex portfolio as the proposed costs are 0.4 per cent of the total forecast capex. Further, there may be lower cost options to manage the capacitance in the interim and defer the installation of the REFCL unit into the subsequent regulatory control period if required.

Capacitance forecasting for future resets

Powercor and AusNet Services used different approaches to forecasting capacitive charging current. Ongoing compliance was a significant component of the REFCL forecast capex. This is due to the forecast growth in network capacitance, primarily driven by growth in underground networks with no bushfire risk. We will closely consider these forecasts compared to the actual capacitance at the next reset if required. We encourage the distributors to continue considering alternative options and exploring possible exemptions to lower costs for consumers for neutral or improved bushfire-risk outcomes.

A.2 Connections capex

Connections capex is expenditure incurred to connect new customers to the network and, where necessary, augment the shared network to ensure there is sufficient capacity to meet new customer demand.

A.2.1 Final decision

We are not satisfied that AusNet Services' revised capex forecast reasonably reflects the capex criteria. We include $278.7 million for gross connections and $106.6 million for capital contributions. This is a 47 per cent and 67 per cent decrease relative to AusNet Services' revised proposal. The total effect on net connections is $36.2 million.

We consider AusNet Services’ contributions would decrease by materially less if it used a calculation method that better reflects the intention of the regulatory framework.

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44 The existing REFCL unit at Ringwood North has a capacity of 125 A.

45 AusNet Services, *information request 004,* April 2020.

46 Isolation rate is an assumption about the proportion of sites suitable for installing isolation transformers.

In addition, AusNet Services did not originally account for the effect of its proposal to charge large embedded generators for the economic tax cost of their connections, or the effect of a recent Federal Court ruling regarding the tax treatment of gifted assets. However AusNet Services has agreed with our proposed regulatory accounting treatment for this issue, in response to an information request.

The change to gross connections is due to regulatory accounting treatments reflecting AusNet Services' proposed taxation charges for large embedded generators and a recent Federal Court decision regarding the taxation treatment of 'gifted' assets. The change to capital contributions is based on accounting for the effect that changes to AusNet Services' WACC and price path, using an approach consistent with our guideline. We have also updated our adjustment for COVID-19 for more recent HIA data, and applied it to residential connections only.

A.2.2 AusNet Services' revised proposal

AusNet Services initially proposed $529.6 million for gross connections and $352.3 million for capital contributions. Our draft decision revised these both down by 8 per cent (for net connections of $177.3 million), based on the estimated effect of COVID-19 on the construction industry.

In AusNet Services' revised proposal it forecast $530.1 million for gross connections and $321.9 million for capital contributions; an increase in net connections of $48.2 million compared to our draft decision. AusNet Services introduced adjustments to its forecast contributions for the effects of changes to its WACC, prices and marginal costs of reinforcement; it increased unit rates based on updated data; and forecast higher volumes for large embedded generator connections.[47]

A.2.3 Reasons for draft decision

Effect of WACC and Prices on Capital contributions

Generally, customers pay a capital contribution to connect to the network to cover the costs of connecting them (incremental cost), insofar as they exceed the net present value of the network use charges they are expected to pay over the life of that connection (incremental revenue). AusNet Services argued that changes to distribution tariffs and the WACC over the next regulatory control period will lead to lower capital contributions, by increasing incremental revenue.

In its connections capex model, AusNet Services did not provide calculations showing the basis for its forecast decline in capital contributions. In response to information requests, AusNet Services provided samples of connections offers with contributions re-calculated using an updated WACC and price path.[48]

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47 AusNet Services, *Revised Regulatory Proposal 2021–26*, December 2020, p. 51.

48 AusNet Services, *Information request 084*, March 2021.

We appreciate the information AusNet Services has provided to outline its understanding of this issue. However, we are not satisfied that AusNet Services' calculation method is consistent with the intention of the regulatory framework. AusNet Services' forecast contributions include a charge for the net present value of future incremental opex, calculated as 1.2 per cent of capital costs per year with real escalation. However, our connection charge guideline specifies that operating and maintenance costs (opex) should "have no net impact on the capital contribution payable".[49] AusNet Services also calculated the net present value of incremental revenue based on all forecast distribution use of system (DuOS) charges, including the portion recovering opex. These allowances for opex in incremental cost and in incremental revenue do not cancel out, as typically incremental opex is smaller than any given customer's share of total opex costs.

In effect, AusNet Services has calculated total incremental cost less total incremental revenue, rather than excluding opex entirely from both sides of the capital contribution formula. AusNet Services' connections policy states that opex will be included in both incremental cost and in incremental revenue, but does not state that the amount of opex will be different in these two cases. We consider that in applying its connections policy, AusNet Services should either include an amount for opex in incremental cost that exactly offsets the amount of opex included in incremental revenue, or exclude opex from both incremental revenue and incremental cost. These two approaches are equivalent.

We consider that the approach most consistent with the intention of the regulatory framework is to exclude opex by multiplying incremental revenue by one minus an operating and maintenance costs (O&M) ratio. The O&M ratio is opex over the current regulatory control period as a proportion of total revenue, calculated from the PTRM.

Our final substitute forecasts contribution ratios by category based on applying this method to the samples AusNet Services provided.

Effect of COVID-19

Our draft decision adjusted connections in the first year of the next regulatory control period, based on dwellings forecast made by the HIA. AusNet Services largely accepted this adjustment, though considered it conservative, and noted they would update their forecast based on new information.

We consider that recent stimulus announcements by the Victorian government justify reversing our COVID-19 adjustment for non-residential connections for all businesses. We also have revised down our HIA adjustment for residential connections based on updated HIA forecast data (from a 42 per cent reduction in the first year to a 37 per cent reduction).

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[49] AER, *Connection charge guidelines for electricity retail customers*, June 2012, p. 15.

Gifted Assets

In a recent decision, the Federal Court has ruled that the value of assets that are 'gifted' to distribution businesses (in effect constituting a capital contribution) are not taxable income. Before this ruling, we treated gifted assets as both a part of gross capex and capital contributions. This was to allow businesses to recover costs from consumers for the economic tax cost they expected to incur from receiving them.

In response to an information request, AusNet Services agreed to our regulatory accounting treatment to implement this decision.[50] This is to remove gifted assets (excluding rebates) from the gross capex and the capital contributions forecasts. This ensures revenue is no longer recovered from consumers for this purpose.

Large Embedded Generators

We accept AusNet Services' proposal in its revised connections policy to charge large embedded generators the economic tax cost of connecting to the network. However, AusNet Services' revised proposal did not account for this change in policy, which would involve double recovering this tax cost.

We engaged with AusNet Services on this issue to develop an appropriate regulatory treatment. The change to AusNet Services' connections policy will mean these connections are entirely funded by the connecting customer. This will mean this cost no longer needs to be recovered from consumers. Similar to the treatment of gifted assets, our final decision removes large embedded generators from both forecast gross capex and capital contributions. This also removes forecasting risk for this category of connections for AusNet and its customers.

[50] AusNet, *Information request 084*, March 2021.

Shortened forms

Shortened form	Extended form
ACS	alternative control services
AER	Australian Energy Regulator
augex	augmentation expenditure
capex	capital expenditure
CCP17	Consumer Challenge Panel, sub-panel 17
CESS	capital expenditure sharing scheme
CPI	Consumer Price Index
DER	Distributed Energy Resources
distributor	distribution network service provider
DUoS	distribution use of system
ECA	Energy Consumers Australia
EUAA	Energy Users Association of Australia
HIA	Housing Industry Association
ICT	information and communications technology
NEL	National Electricity Law
NEO	National Electricity Objective
NER	National Electricity Rules
O&M	operating and maintenance
opex	operating expenditure
PTRM	post-tax revenue model
REFCL	Rapid Earth Fault Current Limiter
repex	replacement capital expenditure
RIN	regulatory information notice
SCS	standard control services
STPIS	service target performance incentive scheme
VaDER	value of distributed energy resources

Shortened form	Extended form
VCO	Victorian Community Organisations
WACC	weighted average cost of capital