# FINAL DECISION

## Powercor
## Distribution Determination
## 2021 to 2026

## Attachment 5
## Capital expenditure

April 2021

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585 165
Email: VIC2021-26@aer.gov.au

AER reference: 63602

# Note

This attachment forms part of the AER's final decision on the distribution determination that will apply to Powercor 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

Attachment 13 – Classification of services

Attachment 14 – Control mechanisms

Attachment 15 – Pass through events

Attachment 16 – Alternative control services

Attachment 18 – Connection policy

Attachment 19 – Tariff structure statement

Attachment A – Negotiating framework

# Contents

# 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. Appendix A outlines further detailed analysis of our final decision.

## 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

---

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.

services will determine their returns in the short term. If distributors reduce their costs, 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 at least 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 Powercor's revised capex forecast of $1836.3 million.[6] We are not satisfied that its total net capex forecast reasonably reflects the capex criteria. Our substitute estimate of $1728.4 million is 6 per cent below Powercor's revised forecast and 8 per cent below the forecast we assessed. We assessed a slightly higher forecast, because we considered Powercor's Ballarat West contingent project is more appropriately included as forecast capex. 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 Powercor's total net capex forecast ($ million, 2020–21)**

| | 2021–22 | 2022–23 | 2023–24 | 2024–25 | 2025–26 | Total |
|---|---|---|---|---|---|---|
| Powercor's revised proposal | 406.1 | 439.9 | 367.3 | 321.6 | 301.4 | 1836.3 |
| AER final decision | 387.9 | 421.6 | 337.3 | 289.1 | 266.6 | 1728.4 |
| Difference ($) | -13.6 | -12.9 | -24.8 | -27.3 | -29.4 | -107.9 |
| Difference (%) | -3 | -3 | -7 | -8 | -10 | -6 |

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

Note: Numbers may not sum due to rounding.

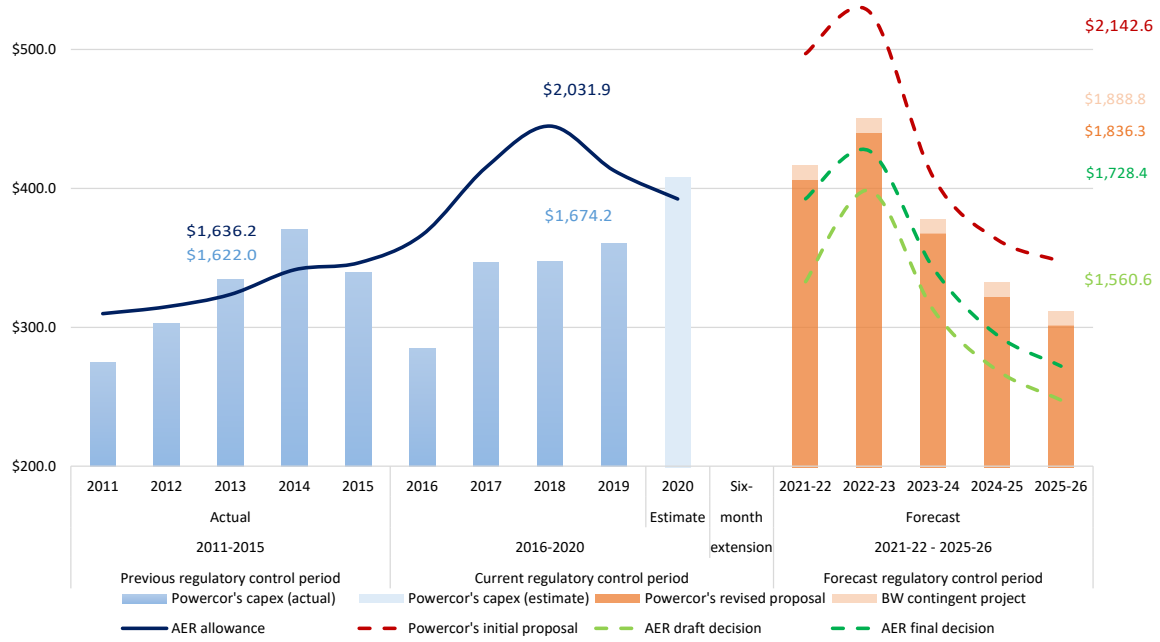
## 5.2 Powercor's revised proposal

Powercor's revised capex forecast for the 2021–26 regulatory control period is $1836.3 million. This is 10 per cent higher than its actual capex of $1674.2 million over

[6] All dollar amounts are presented in real $2020–21 unless otherwise stated.

the current regulatory control period.[7] Powercor's revised proposal accepted some aspects of our draft decision, reducing its forecast capex by 14 per cent relative to its initial proposal. Figure 5.1 outlines Powercor's historical capex performance against its initial and revised proposals, and our draft and final decisions.

### Figure 5.1 Powercor's historical vs forecast capex snapshot ($ million, 2020–21)




Source: Powercor's revised proposal and AER analysis.

Note: The capex figures reported refer to five-year totals over the 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.

## 5.3 Reasons for final decision

We conducted top-down analysis such as examining trends and forecast costs compared with historical capex. To complement this, we conducted bottom-up analysis of specific capex drivers including programs and projects where Powercor's forecast was significantly higher than its historical capex.

We are not satisfied that Powercor's total capex forecast reasonably reflects the capex criteria. In particular, some elements of forecast replacement capex expenditure (repex) and augmentation capital expenditure (augex) were not adequately justified and forecast capitalised overheads were overstated. We are therefore required to set

[7] In this attachment we compare forecast capex with actual capex in the current regulatory control period, i.e. calendar year 2016 to 2019 prorated to five years.

out a substitute estimate.[8] 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.

In coming to our decision, we asked Powercor many questions across multiple information requests. Powercor was receptive to our questions and in most cases provided useful responses within the requested timeframes. We acknowledge that our questions are likely to have presented additional resourcing challenges, particularly due to COVID-19, and appreciate Powercor's cooperation and assistance.

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. We apply both top-down and bottom-up reviews so that our decision is fully informed. Key aspects of our top-down assessment of Powercor's revised proposal are outlined below.

### Net capex trend

While we acknowledge Powercor's efforts to reconsider its forecast in light of concerns raised about its initial proposal in our draft decision. We encourage it and other distributors to include more substantiated capital expenditure requirements in its initial proposal. Powercor's initial forecast was 28 per cent above its current regulatory control period actual capex, with insufficient evidence to support its forecast in full.

Despite a reduction from its initial proposal, Powercor's revised capex forecast is still 10 per cent higher than its actual capex over the current regulatory control period. The capital expenditure sharing scheme (CESS) was applied in the current regulatory control period. As a result, actual capex is a strong indicator of efficient costs and we therefore place significant weight on a distributor's revealed actual capex.

In addition, Powercor's higher forecast relative to the current regulatory control period, is combined with an underspend of approximately 14 per cent. This resulted in a significant CESS payment of $56.3 million. This highlights that Powercor has demonstrated in the current regulatory control period that it can manage and maintain its network within the allowances provided.

### Stakeholder submissions

The Consumer Challenge Panel, sub-panel 17 (CCP17), submitted that Powercor's revised proposal engaged stakeholders on significant issues such as wood pole replacement, customer service schemes and future networks. However, the CCP17 highlighted that there may have been a missed opportunity to present the revised proposal 'as a whole', including the contingent projects and new activities, to

[8] NER, cl. 6.12.1(3)(ii).

Powercor's customer advisory panel (CAP) for its consideration.[9] We agree that stakeholders would have benefited from a broader consideration of Powercor's revised capex proposal, particularly given the inclusion of its two contingent projects.

The CCP17 and Energy Consumers Australia's (ECA) consultant Spencer&Co submitted that with the exception of Powercor's pole replacement program, its revised capex forecast is more in line with its historical expenditure.[10] However, Victorian Community Organisations (VCO) submitted that Powercor's revised proposal increase from our draft decision is likely to exceed its requirements.[11] This position is consistent with our final decision, where our substitute estimate provides an allowance more in line with Powercor's historical expenditure. VCO's consultant Headberry Partners also raised concerns regarding Powercor's revised proposal, submitting that its overall capex needs should be significantly lower than the amount sought in its revised proposal.[12]

To support our top-down review, consistent with the draft decision, we assessed the additional bottom-up material Powercor provided to support its revised capex forecast. Our assessment highlighted that Powercor's revised repex, augex and connections forecasts would not form parts of a total capex forecast that reasonably reflects the capex criteria, having regard to the capex factors. Table 5.2 outlines the capex amounts by driver that we have included in our substitute estimate of $1728.4 million.

## Table 5.2 Capex driver assessment ($ million, 2020–21)

| Driver | Powercor's revised proposal | Forecast assessed | AER final decision | Difference ($) | Difference (%) |
|---|---|---|---|---|---|
| Repex | 529.9 | 529.9 | 478.5 | -51.4 | -10 |
| DER capex | 63.6 | 63.6 | 63.7 | 0.1 | 0 |
| Augex[13] | 281.8 | 334.2 | 292.2 | -42.0 | -13 |
| Gross connections | 651.1 | 651.1 | 651.4 | 0.3 | 0 |
| ICT capex | 144.3 | 144.3 | 144.4 | 0.2 | 0 |
| Other non-network capex | 224.9 | 224.9 | 224.9 | 0.0 | 0 |
| Capitalised overheads | 285.9 | 285.9 | 228.6 | -57.3 | -20 |
| **Gross capex** | **2181.5** | **2233.9** | **2083.8** | **-150.1** | **-7** |

9 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 111.

10 Spencer&Co, *Report to ECA, A review of Victorian Electricity Distributors' revised proposals 2021–26,* January 2021, p. 5.

11 VCO, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26,* January 2021, p. 6.

12 Headberry Partners, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26,* January 2021, p. 36.

13 We assessed a slightly higher augex forecast, as we considered Powercor's Ballarat West contingent project is more appropriately forecast capex.

| Driver | Powercor's revised proposal | Forecast assessed | AER final decision | Difference ($) | Difference (%) |
|---|---|---|---|---|---|
| less capital contributions | 332.2 | 332.2 | 342.4 | 10.2 | 3 |
| less asset disposals | 13.0 | 13.0 | 13.0 | 0.0 | 0 |
| **Net capex** | **1836.3** | **1888.8** | **1728.4** | **-160.3** | **-8** |

Source: Powercor's revised capex model and AER analysis.

Note: Numbers may not sum due to rounding. Modelling adjustments are incorporated into each line item and relate to Powercor's consumer price index (CPI) and real price escalation assumptions.

Table 5.3 summarises and Appendix A details the reasons for our substitute estimate by capex driver. This reflects the way we have assessed Powercor's revised total capex forecast. Our findings on 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 on the different 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 on total capex does not limit a distributor's actual spending.

## Table 5.3 Summary of our findings and reasons by capex driver

| Issue | Findings and reasons |
|---|---|
| Repex | Powercor accepted much of our draft decision for repex. We accept its revised forecast for switchgear and the 2009 Victorian Bushfires Royal Commission (VBRC) repex. We do not consider that its revised forecast for wood poles repex is prudent and efficient. Our final decision includes an allowance for wood poles repex that is higher than our draft decision and acknowledges the need for Powercor to address its ageing population of lower durability class 3 poles. |
| DER capex | Powercor's revised proposal accepted our draft decision on distributed energy resources (DER) integration capex. Powercor stated it would develop a unified approach to solar enablement and digital network investment as part of a broad future network strategy that accommodates customer choices for all forms of DER. |
| Augex | We have retained the traditional augex forecast from our draft decision that Powercor accepted in its revised proposal. Our final decision has included Powercor's Ballarat West rapid earth fault current limiter (REFCL) project in forecast capex, which is consistent with our draft decision. Our final decision also reallocates a portion of two of Powercor's augex programs to alternative control services (ACS) capex, also consistent with our draft decision. |
| Connections capex | We do not accept Powercor's connections and capital contributions forecasts, as its forecast changes in capital contributions were inconsistent with the way it actually charges customers. In addition, it did not account for |

| Issue | Findings and reasons |
|---|---|
| | the effect of its proposal to charge large embedded generators for the economic tax cost of their connections. |
| ICT capex | Powercor accepted the majority of our draft decision for information and communications technology (ICT) capex, including our top-down trend-based assessment of recurrent ICT capex and our minor adjustments to its intelligent engineering program. Our assessment focused on Powercor's reproposed smaller customer enablement program and a new field service management solution program. We accept Powercor's revised ICT capex forecast and have included this forecast in our substitute estimate of total capex. |
| Other non-network capex | Powercor's revised proposal accepted our draft decision for other non-network capex. Powercor amended its asset disposals to reflect its historical disposals. |
| Capitalised overheads | We do not consider capitalised overheads should be forecast on the same basis as expensed overheads. Powercor has also not accounted for the relationship between direct capex and capitalised overheads. Our final decision applies an average of current regulatory control period actual capitalised overheads. We then adjust for the rate of change and the difference between actual and forecast direct capex. |
| Modelling adjustments | Modelling adjustments relate to Powercor's CPI and real price escalation assumptions. We have updated Powercor's labour price growth to be consistent with our opex decision, as set out in attachment 6. DAE's real labour escalation forecast for 2021–22 is a nine-month forecast to account for the transition from calendar to financial year in the opex rate of change. We have amended this forecast to reflect a 12-month figure to be consistent with Powercor's capex model. |
| Asset disposals | We accept Powercor's revised forecast for asset disposals. |

Based on both our top-down and bottom-up assessments, we are not satisfied that Powercor's revised capex forecast reasonably reflects the capex criteria. We are satisfied our substitute estimate reasonably reflects the capex criteria, as our substitute estimate is more in line with Powercor's actual capex over the current regulatory control period. In addition, as noted above, most stakeholder submissions supported a final decision capex allowance lower than Powercor's revised proposal.

# A Capex driver assessment

This appendix outlines our detailed analysis of Powercor's capex driver category forecasts for the 2021–26 regulatory control period. These categories are repex, DER integration capex, augex, connections capex, ICT capex, other non-network capex and capitalised overheads. 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 Powercor's revised 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.[14] In particular, we take into account whether our overall capex forecast will provide Powercor 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.[15]

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.[16]
- Past expenditure was sufficient for the distributor to manage and operate its network in previous periods, in a manner that achieved the capex objectives.[17]
- 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).[18]
- 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 opex and STPIS interactions.[19]

---

14 NEL, ss. 7, 7A and 16(1)-(2).

15 NEL, s. 7A.

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

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

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

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

## A.1 Repex

Repex must be set at a level that allows distributors prudent and efficient costs to meet the capex objectives. Replacement can occur for a variety of reasons, including when:

- an asset fails while in service or presents a real risk of imminent failure
- a condition assessment determines that it is likely to fail soon or degrade in performance, such that it does not meet its service requirement and replacement is the most economic option[20]
- the asset does not meet the relevant jurisdictional safety regulations and can no longer be safely operated on the network
- the risk of using the asset exceeds the benefit of continuing to operate it on the network.

The majority of network assets will remain in efficient use for far longer than a single five-year regulatory control period (many network assets have economic lives of 50 years or more). As a result, a distributor will only need to replace a portion of its network assets in each regulatory control period.

### A.1.1 Final decision

We are not satisfied that Powercor's revised repex forecast reasonably reflects the capex criteria. We have included $478.5 million for repex in our substitute estimate of total capex. This is $51.4 million (10 per cent) lower than Powercor's revised forecast. We are satisfied that our substitute estimate forms part of a total capex forecast that meets the capex criteria.

### A.1.2 Powercor's revised proposal

Powercor included $529.9 million for forecast repex in its revised proposal for the 2021–26 regulatory control period. In response to stakeholder feedback, it stated that 'excluding poles, our revised forecast is lower than for the 2016–20 regulatory control period.'[21]

Powercor accepted most elements of our draft decision on repex but did not accept our decision on wood poles, switchgear and VBRC repex. Powercor provided additional information in its revised proposal that justifies its proposed repex for switchgear and VBRC repex. However, we are not satisfied that Powercor's proposed wood poles repex is prudent and efficient, or required to achieve sustainable safety outcomes.

---

[20] A condition assessment may relate to the assessment of a single asset or a population of similar assets. High-value/low-volume assets are more likely to be monitored on an individual basis, while low-value/high-volume assets are more likely to be considered from an asset category wide perspective.

[21] Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 75.

### A.1.3 Reasons for final decision

Powercor accepted most elements of our draft decision on repex and as a result its revised forecast is substantially lower than its initial repex forecast. We commend Powercor for considering the concerns we raised in our draft decision and stakeholder concerns regarding affordability, and better demonstrating its investment need. As a result, we accept all elements of Powercor's revised repex forecast other than for wood poles.

In coming to our position on wood poles repex, we have considered stakeholder and community concerns about the ongoing safety of Powercor's wood poles network.[22] We are acutely aware of the importance of safety risk and typically accept safety-related funding where sufficient evidence is provided. In this case, we are not satisfied that the amount of repex proposed is required to manage safety risks over the 2021–26 regulatory control period. We consider that the intervention volumes that we have provided for in our final decision will allow Powercor to achieve and maintain sustainable safety outcomes at an acceptable cost to consumers.

#### Switchgear

Powercor's revised proposal included a reduced forecast for switchgear. However, it submitted that our draft decision did not adequately account for its CRO-tagged interrupter program.[23] It submitted that the program commenced in the latter half of 2019 and was therefore not fully reflected in historical capex or adequately accounted for by our repex model.

Powercor also noted that a number of switchgear assets (including high voltage (HV) fuses and surge diverters) were not included in the repex model and were not otherwise adequately considered.[24] Having regard to this information and noting that Powercor's original business case for its CRO-tagged interrupter program was reasonable, we have included Powercor's forecast into our substitute estimate of total capex.

#### VBRC repex

In our draft decision, we did not accept the majority of Powercor's forecast for VBRC repex. In Powercor's initial proposal, its forecast for VBRC repex appeared to be above and beyond business-as-usual repex, and much of the costs of this program were included in our allowance for overhead conductors and pole top structures repex. We also highlighted the lack of supporting material including cost-benefit analysis.

---

22 For example: CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, pp. 113–114; ESV, *Powercor – Wood Pole Management, Sustainable Wood Pole Safety Management approach – Detailed Technical report*, December 2019, pp. 14–16; Powercor, *BUS 4.02 Wood pole management*, December 2020, p. 7.

23 Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 86.

24 Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 85.

In its revised proposal, Powercor provided a business case and models to support a reduced forecast of $8 million, which includes a proactive program to replace HV fuses and surge diverters in the highest bushfire consequence area. We are satisfied that the proposed repex is prudent and efficient.

### Wood poles

We do not consider that Powercor's wood poles repex forecast of $200.0 million (28,825 interventions[25]) is prudent and efficient, and it would not form part of a capex forecast that reasonably reflects the capex criteria. We have included $148.3 million (22,361 interventions) for wood poles repex in our total capex allowance.

In our draft decision, we raised a number of concerns with Powercor's initial forecast. This included a lack of cost-benefit or options analysis, a lack of clarity regarding how the forecast would address specific concerns about increasing failure rates and some issues with the use of the EPC as a forecast tool. In its revised proposal, Powercor addressed some of our concerns, including proposing visual inspection and faults-driven forecasts that are in line with historical repex. We commend Powercor on providing quantified risk analysis to support the risk-driven component of its forecast.

Responding to ESV's recommendations, Powercor is improving its wood pole inspection practices by better understanding its pole condition using its newly developed wood pole assessment tool, the EPC.[26] Since its initial proposal, Powercor has continued to develop, test and refine its EPC. For example, its tip-load assumptions are now based on a sample of actual measured tip loads. These refinements are reflected in its revised proposal. Despite these changes, we are not satisfied that the EPC results in prudent and efficient intervention volumes when used as a forecasting tool.

Our forecast is 33 per cent higher than our draft decision. We have taken into account stakeholder views that many of Powercor's poles are approaching end-of-life, which we have found to be a legitimate concern. In coming to our position, we have considered Powercor's circumstances including ESV's investigation into its wood pole management practices, Powercor's efforts to improve its practices and the higher risk of bushfires in rural Victoria relative to other regions. In future determinations, we will expect to see further evidence, including cost-benefit analysis, to support any additional increases.

#### Powercor's revised proposal

Table A.1 shows the components of Powercor's revised wood poles forecast.

---

[25] This includes Powercor's forecast of 473 interventions under its faults program, which are not included in its business case. Interventions are replacements or reinforcements (staking).

[26] Powercor, *BUS 4.02 Wood pole management*, December 2020, p. 8.

## Table A.1 Powercor's revised proposal compared with initial proposal ($ million, 2020–21)

| | Initial proposal | | Revised proposal | |
|---|---|---|---|---|
| | Repex ($ million) | Interventions | Repex ($ million) | Interventions |
| Compliance-driven interventions: pole calculator | 127 | 15 983 | 151 | 20 117 |
| Compliance-driven interventions: non-pole calculator | 66 | 8 231 | 36 | 3 479 |
| Risk-driven interventions | 53 | 15 556 | 7 | 4 756 |
| Faults program | 11 | 845 | 7 | 473 |
| Total wood poles repex forecast | 256 | 40 615 | 200 | 28 825 |

Source: Powercor models 4.02 and 4.11.

Powercor's revised repex forecast (in dollar terms) is 22 per cent lower than its initial proposal and its revised intervention volumes are 29 per cent lower. The decrease reflects reductions to the *compliance-driven interventions: non-pole calculator*, *risk-driven interventions* and *faults program* components of its forecast. Its revised *compliance-driven interventions: pole calculator* forecast is higher than its initial forecast. The *compliance-driven interventions – pole calculator* component of the forecast, which Powercor forecast using the EPC, makes up 76 per cent of its wood poles revised repex forecast.

### Assessment

Overall, Powercor has not shown that its forecast for wood poles repex is prudent and efficient. Powercor's forecast likely overstates its wood poles repex requirements for the 2021–26 regulatory control period.

- We have a number of concerns with Powercor's forecast of the *compliance-driven interventions: pole calculator* component. This includes issues with the underlying data and the application of the EPC as a forecasting tool to arrive at its forecast volumes.
- Powercor's risk model used to forecast the *risk-driven interventions* component is reasonable and is consistent with sound cost-benefit analysis. However, we have some concerns with the input data because the EPC was used to determine pole condition.
- We do not have any significant concerns with the *compliance-driven interventions: non-pole calculator* (also known as visual inspections) and *faults program components* of its forecast, which are based on historical repex.

In the next section, we detail our assessment of the *compliance-driven interventions: pole calculator* component of Powercor's forecast.

### Compliance-driven interventions: pole calculator

To forecast condition-based intervention volumes, Powercor applied two primary tests to its 'aged' pole population data:

- EPC[27] – Powercor deemed poles with a serviceability index (SI) of less than 0.65 as unserviceable (requiring intervention)
- SWT test – Powercor deemed poles with less sound wood than 30mm for durability class 1 or 35mm for durability classes 2 and 3 as unserviceable, even if the EPC assesses a pole as serviceable.[28]

Powercor used the total number of poles classified as unserviceable by either of these two tests to determine the final serviceability classification.

### Our review of the EPC

Our review of the EPC finds that it is unlikely to forecast intervention volumes that are prudent and efficient. We are concerned about its use as a capex forecasting tool, due to issues with the forecasting methodology, assumptions and underlying data that the forecasting methodology relies on.

In principle, we agree that the EPC marks a step forward for Powercor pole inspection practices. Powercor has performed field testing since its initial proposal to calibrate its pole tip loading assumptions. Results from destructive testing suggest that the EPC is a more accurate predictor of pole serviceability than the current pole calculator, although further calibration work will be beneficial to make it a more efficient and accurate inspection tool.

However, our concerns relate not to the EPC as a tool for pole inspections in the field, but to its application as a forecasting tool to predict future intervention volumes. We outline our concerns below.

#### *The outcomes of the EPC are not supported by Powercor's own cost-risk model*

Powercor did not use cost-benefit analysis to determine its compliance-driven programs. However, it did run its risk model on its EPC volumes and found that only around 6,500 of the around 20,000 interventions forecast by the EPC were economic.

---

[27] Powercor's current pole calculator is an algorithm that determines a pole's serviceability. It has regard to the design capacity, type of wood, length of pole, and the remaining sound wood thickness (SWT). The SWT is the amount of structurally sound wood left that gives the pole strength against snapping. In addition to these factors, the EPC has regard to the load at the pole tip (e.g. whether the pole carries in-line conductors, is at a T-junction, or a termination, and whether it carries HV conductors) and a wood fibre strength degradation factor based on wood species and age of pole to arrive at a 'serviceability index'. Powercor made these additions to improve its fault-finding accuracy relative to the current pole calculator. ESV supports the development of the EPC and expects that it will help Powercor to decrease its failure rates.

[28] Powercor took its current pole condition data and applied a decay rate of 1mm/year to estimate pole condition by the end of the 2021–26 regulatory control period. See Powercor, *RRP BUS 4.02 Wood pole management*, December 2020, p. 16.

Powercor stated that 'all compliance-driven interventions are required irrespective of this risk-assessment.'[29] We do not agree with this position.

Firstly, Powercor sets its own engineering thresholds for its compliance-driven program and in this case its proposed engineering standards result in a forecast substantially higher than its current standards. However, it did not demonstrate that these changes would deliver a net consumer benefit. Secondly, the relevant safety legislation includes requirements for a business to minimise safety, property and bushfire risks as far as practicable.[30] In this context, it is appropriate to quantify risks to assess whether proposed capex is grossly disproportionate to the benefits of reduced safety risks and disproportionate to reduced property risks.

*It is unclear that the serviceability index (SI) and sound wood thickness (SWT) thresholds would result in efficient intervention volumes*

Powercor's forecast of 20,117 interventions using the EPC and SWT tests is substantially higher compared with using the current pole calculator (6,706 interventions).[31] This significant difference in volumes between the EPC and the current pole calculator is not fully explained, and we are concerned that the SI and SWT thresholds will result in the EPC condemning many poles earlier than is necessary.

While the EPC may find more unserviceable poles because it has regard to additional factors, we would also expect it to leave in service some poles that the current pole calculator would otherwise condemn (for example, because the EPC has regard for lower loading conditions on a pole). Powercor has not demonstrated that the SI and SWT thresholds are sufficiently calibrated to achieve good pole inspection accuracy and ensure prudent timing of intervention.

*The EPC overstates the number of reinforced poles that require replacement*

The EPC model takes into account the ground-line SWT to determine the SI. For reinforced poles, the ground-line SWT is not a relevant factor to determine a pole's strength. This is because the stake provides the majority of the structural strength at ground-line level and so the weakest point is above ground line at the top of the stake. In the field trial results, we found that the EPC incorrectly identified around 12 per cent of reinforced poles as unserviceable because of ground-line SWT, when they had sufficient SWT above ground line.

In addition, we found that 20 per cent of the EPC's unserviceable poles in Powercor's field trial results were condemned only because of missing data and not because of the

---

29 Powercor, *Revised regulatory proposal 2021–26, BUS 4.02, Wood pole management*, December 2020, p. 22.

30 *Electricity Safety Act 1998*, S. 98.

31 Powercor, *Information request 079*, January 2021. Powercor notes that a full forecast available using the current pole calculator was not available so it proxied this by using its enhanced pole calculator and only having regard to the sound wood threshold classification (set to 1.40). It stated that this will under-state 'true' volumes, as when determining the serviceability classification, the current pole calculator includes any 'missing' diameter (e.g. due to cracks) that may be present at the inspection site.

underlying pole condition. This overstates the number of poles that are deemed unserviceable in Powercor's pole population and adds to our concerns that the forecast EPC volumes are not prudent and efficient.

*Powercor's destructive testing revealed that the EPC was classifying poles as unserviceable at a rate far higher than what was actually observed*

Our examination of Powercor's destructive testing report revealed that the EPC was more accurate than the current pole calculator in identifying unserviceable poles. However, it classified poles as unserviceable at a rate three times higher than actual unserviceable poles.[32] While the results are not conclusive due to small sample size, these indicative results raise concerns about the accuracy of the EPC and the likelihood that the combined SI and SWT thresholds overstate Powercor's intervention requirements for the forecast period.

*Input data used to calculate the compliance-driven volumes are unreliable and are likely to impact the forecast*

Powercor used existing pole condition data to estimate average decay rates and SWT. These inputs were used in the calculations for the serviceability index and SWT test. Powercor acknowledged that the data are not reliable.[33] The limited time series and variability of the data raises questions about its impact on the accuracy of the compliance-driven forecast.

*The addition of the sound wood thickness (SWT) test may be overly conservative*

Further to the EPC assessing the serviceability of a pole, Powercor also has regard to the SWT in isolation. This means that a pole with a SWT below 30mm for class 1 or 35mm for other classes will be condemned, even if the SI suggests the pole is serviceable. This additional test, as well as the sound-wood thresholds chosen, reinforces our concerns noted above that the EPC (SI in conjunction with the SWT test) may condemn a large number of poles prematurely. It also seems to undermine the robustness of the EPC, which already has regard to SWT in determining the SI.

*Forecast staking rates are relatively low and may not lead to efficient outcomes*

When we exclude the *risk-driven interventions* component (to make a like-for-like comparison with historical interventions), Powercor's forecast staking rate is only 25 per cent.[34] This is far lower than its long-term average staking rate of around 40 per cent. The forecast staking rate is an important factor when considering efficient repex because staking a pole costs around one-tenth of a pole replacement. It is therefore often more efficient to stake a pole and extend its life by around 15 years where achievable. A higher staking rate means less repex is required to intervene on poles at a given volume and therefore lower costs to consumers.

---

32 REVO Group performed destructive testing of Powercor's poles in January 2021. The report is confidential.

33 Powercor, *Information request 079,* January 2021.

34 While overall staking rates appear reasonable, they are bolstered by the proactive (risk-driven) program (which is a proposed new program for the forecast period) which is 99 per cent reinforcements.

*Powercor's claim that it will be obligated to a prescribed serviceability threshold is not correct*

In its business case Powercor submitted that:

> We consider ESV, as the technical regulator, is best placed to make judgement on the prudency of our proposed serviceability threshold. We will be submitting a revised bushfire mitigation plan (BMP) to ESV in December 2020 that explicitly refers to this threshold. The acceptance of our BMP will make the application of this threshold a binding compliance obligation.[35]

We have examined the BMP. The commitment that Powercor has made to ESV in its BMP is that replacement volumes will be confirmed following our determination. We therefore expect that the BMP will be updated to reflect our final decision, and will be consistent with our final decision.

*Powercor's forecast does not take into account its inspection practice improvements*

Powercor has worked with ESV to improve its inspection practices. One of the most visible outcomes is the development of the EPC. The expected improvement in inspection accuracy would result in more unserviceable poles being correctly identified. As a result, we would expect pole failure rates to fall if the historic intervention volumes are maintained, all else being equal. Powercor has not assessed the improvement it may achieve and has not factored this improvement into its forecast.

### EMCa's findings

In addition to our own assessment of Powercor's forecast, we also engaged EMCa to examine the reasonableness of the *compliance-driven interventions: pole calculator* component of Powercor's pole volume forecast. We have considered and agree with EMCa's conclusion that 'the EPC is not sufficiently developed to meet the requirements of, or reasonably reflect the expenditure criteria.'[36]

Issues that EMCa has identified are in line with our analysis and conclusions:

- concerns with the robustness of the underlying input data, as acknowledged by Powercor, casts some doubt on the outputs of the EPC model
- anomalies in the EPC formulas, e.g. data inconsistencies that resulted in the calculation of SI above ground level for reinforced poles determined to be zero
- conservative assumptions (e.g. the adoption of a higher SWT threshold that is consistent with the higher safety factor of 1.40) likely results in higher pole intervention volumes than may be prudent
- inadequate justification to support the assumed much lower reinforcement rate in its revised forecast

---

35 Powercor, *Revised regulatory proposal 2021–26, – BUS 4.02 – Wood pole management*, December 2020, p. 27.

36 EMCa, *Powercor, Review of aspects of proposed wood pole replacement*, April 2021, p. 29.

    - A higher reinforcement level than has been proposed by Powercor is more commensurate with a strategy of early identification and intervention in the pole's life to rapidly and cost effectively reduce risk

- insufficient evidence to demonstrate that the pole trial results have been used in appropriately calibrating the serviceability index, particularly given the significant movement in serviceability classification observed
- the lack of economic analysis (such as cost-benefit analysis) to demonstrate that the forecast intervention volumes are prudent and efficient
    - A cost-benefit analysis should incorporate a quantified risk assessment, where the most beneficial option is selected, through assessment of multiple options. Options may be based on different assumptions or variables using the same forecasting method
    - The intervention volume forecasting method that Powercor has used does not seek to balance risk, consequence and efficiency, rather it is a deterministic approach.[37]

EMCa found a number of components of the EPC model were reasonable, including its tip load assumptions and the use of both SI and SWT in the assessment of serviceability. EMCa also noted that 'the characteristics of the poles classified as unserviceable from the Pole trial appear to align with the poles that are considered most at risk of failure as identified by ESV' and the field trial and destructive test results show that the EPC more accurately identifies the condition of the pole compared with the current pole calculator.[38]

### Stakeholder views

A number of stakeholders have acknowledged that Powercor's wood pole population is ageing and in-principle support an increase in volumes from current intervention levels, but are also cautious about setting a level of expenditure that is too high. In its study of Powercor's wood poles, ARMS Reliability suggested Powercor could require up to eight times higher replacement volumes over the next 20 years.[39] ESV raised its concerns about the high number of lower durability class 3 poles approaching 50 years of age and beyond.[40] In the CCP17's presentation to the AER Board, it also acknowledged the high proportion of old low-durability poles. However, it also noted in its submission that this was 'not only as a result of assets ageing…but because something has "gone wrong" with the process of long-term, stable asset management.'[41]

---

37 EMCa, *Powercor – Review of aspects of proposed wood pole replacement,* April 2021, pp. 12–29.

38 EMCa, *Powercor, Review of aspects of proposed wood pole replacement,* April 2021, p. 23.

39 Powercor, *ARMS Reliability, CP/PAL Wooden power poles, RCM study report*, October 2019.

40 ESV, *Powercor sustainable wood pole safety management, Detailed technical report*, December 2019. ESV also raised concerns about this issue in meetings with us.

41 CCP17*, Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 113.

### Submissions

The CCP17 submitted that 'there is a valid case for Powercor to undertake the increase in pole replacement volumes 'but stresses that the response should not 'overshoot the mark'.[42] The CCP17 supported the CESS adjustment that we made in the draft decision and submits that 'an even greater share of the expected remediation costs in the forecast regulatory control period should be carried by Powercor.' It also submits that efficiency should be considered closely and supports the use of our repex model to guide this consideration.[43]

ECA recognised the significant effort that both Powercor and the AER have put into poles repex.[44] ECA's consultant, Spencer&Co, notes that it is satisfied with the information provided by Powercor in support of its forecast, but it will rely on us being satisfied that the models being used to set the level of expenditure produce sound outcomes.[45] Spencer&Co submitted that Powercor's proposed wood pole program has the potential to set a precedent for the wider industry. It is therefore important that we are satisfied that Powercor's updated models and its sister networks are based on good data, accurate assumptions and produce reasonable outcomes when tested. The outcome of the change in asset management practices needs to be considered in the context of network risk and affordability, particularly in the current economic circumstances.[46]

ESV submitted that it has to be satisfied that the distribution businesses are managing their assets in a manner that ensures they are doing all they can as far as is practicable to prevent harm to the community.[47] ESV submitted that it is in the process of reviewing the sustainable pole management practices of all the Victorian electricity distribution businesses with the aim to 'regulate the distribution and transmission businesses to ensure they are doing all that is practicable to maintain public safety (a requirement of the Electricity Safety Act).'[48] ESV noted that it examined Powercor's pole management practice following the Victorian St Patrick's Day fires in 2018. It found Powercor's asset management practices would not provide sustainable safety outcomes and a four to eight fold increase in intervention volumes should be maintained to provide confidence that sustainable safety outcomes will be delivered. Finally, ESV noted that its assessment of Powercor's performance is ongoing.[49]

Groundline Engineering supported Powercor 'to lift planned pole replacement numbers in line with good asset management practice, sustainable replacement volumes,

---

42 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 115.
43 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 116.
44 ECA, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 11.
45 Spencer&Co, *Report to ECA, A review of Victorian Electricity Distributors' revised proposals 2021–26,* January 2021, p. 10.
46 Spencer&Co, *Report to ECA, A review of Victorian Electricity Distributors' revised proposals 2021–26,* January 2021, p. 10.
47 ESV, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, March 2021, p. 1.
48 ESV, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, March 2021, pp. 1–2.
49 ESV, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, March 2021, p. 2.

community expectations and the reality of the extreme bushfire-prone environment that we live in.'[50] It also sees staking as an interim procedure in limited situations for up to two years. As such, it thinks that Powercor's forecast staking rate is too high.[51]

VCO stated that the draft decision's challenge to all three proposed poles repex programs, through comparison to historical outcomes, is appropriate.[52] VCO accepted that Powercor is adjusting its processes but submitted that 'calibration of these processes against historical results…is a reasonable challenge from the regulator.'[53]

### Substitute estimate

We have included $148.3 million for wood poles repex in our substitute estimate of total capex. This amount is commensurate with at least 22,361 pole interventions over the 2021–26 regulatory control period, as shown in table A.2.

### Table A.2 Wood poles interventions allowance for 2021–26 regulatory control period

| | Number |
|---|---|
| Replacements | 13,197 |
| Reinforcements | 9,164 |
| **Total interventions** | **22,361** |

Source: AER analysis.

We have adopted a staking rate of 41 per cent, which is in line with Powercor's long-term average rate. The EPC is intended to detect some unserviceable poles with a SWT greater than Powercor's historical SWT threshold. This earlier intervention will likely enable Powercor to stake poles at a higher rate than the historical average. A higher staking rate will allow Powercor to achieve higher intervention volumes at the same level of repex.

We have taken into account historical failure rates and Powercor's population age profile. In addition, we have considered the concerns raised by stakeholders and the community about the ongoing safety of Powercor's wood poles network.

Consumers and stakeholders including ESV and CCP17 expressed concerns about the safety of Powercor's ageing poles network, including a large population of lower

---

50 Groundline Engineering, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 20.

51 Groundline Engineering, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 15.

52 VCO, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 6.

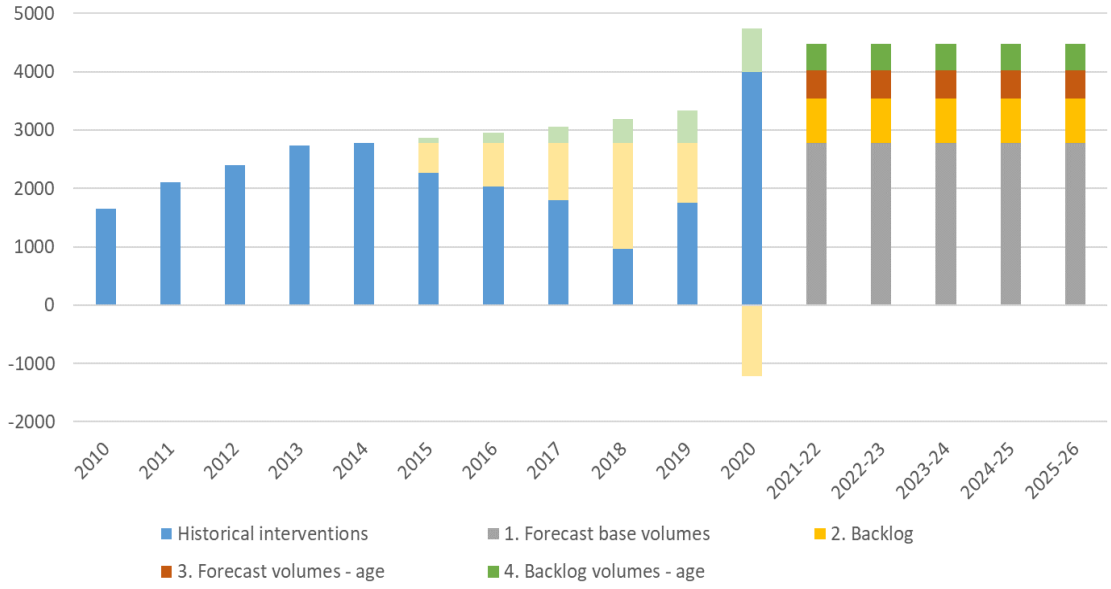
53 VCO, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 20.

durability class 3 poles that are approaching end of life.[54] Our draft decision took into account historical replacement practices and failure rates but did not explicitly address the question of the ageing population.

For our final decision, we have responded to the ageing population question by using the repex model to account for the change in Powercor's wood pole population age profile over time. Consistent with our draft decision, we maintain that historical volumes represented sustainable intervention levels and that poles were under-replaced in the current regulatory control period. We then used the repex model to estimate the volume of additional interventions required due to the pole population ageing over time.

Given our substitute estimate is based on historical volumes, it inherently includes compliance-driven (based on measured condition and visual inspections) and fault-driven volumes. The additional volumes we have included allows Powercor to identify and target interventions to further improve safety performance of the network. Figure A.1 shows how we arrived at the intervention volumes we have included in our substitute estimate.

## Figure A.1 Build-up of final decision on Powercor's wood poles intervention volumes (number)




Source: AER analysis and Powercor's Category Analysis Regulatory Information Notice data.

Note: The net backlog in 2020 is negative because Powercor's intervention volumes[55] were higher than the volumes that we estimate were required in that year.

[54] Powercor, *BUS 4.02 Wood pole replacement program*, January 2020, p.p. 8–11; CCP17, *Advice to the AER on the Victorian Electricity Distributors' Regulatory Proposals for the Regulatory Determination 2021–26*, June 2020, pp. 86–88; ESV, *Powercor – Wood Pole Management, Sustainable Wood Pole Safety Management approach – Detailed Technical report*, December 2019, pp. 14–16.

The components of our intervention volumes are:

1. Base volumes – 13,885 interventions
    - We assumed that Powercor's historically high 2014 volumes are sufficient to maintain safety levels. Failure rates in the 2011–15 regulatory control period (0.35 failures per 10,000 poles per year) were lower and more stable than the current regulatory control period (0.60 failures per 10,000 poles per year).[56]
2. Backlog volumes – 3,840 interventions
    - We estimated Powercor's under-replacement over 2015–20 by comparing actual interventions with 2014 volumes.[57] We assumed these backlog volumes represent potentially outstanding interventions that must be addressed in the forecast regulatory control period. These additional volumes may help Powercor to improve its current safety performance.
3. Additional volumes to account for ageing pole population – 2,374 interventions
    - This is a top-up to account for the impact of Powercor's ageing pole population over time. Additional intervention volumes above 2014 volumes may be required in the forecast regulatory control period to maintain safety performance. We used the repex model to identify these volumes by estimating the changing age profile over the 2021–26 regulatory control period.
4. Additional backlog volumes to account for ageing pole population – 2,262 interventions
    - This top-up is analogous with step 3 and takes into account the ageing of Powercor's assets over the backlog period.

Our assessed intervention volumes (4,472 per year) are 4.6 times higher than Powercor's historically low 2018 volumes (970 interventions) and is within ESV's ballpark range of what is required to provide confidence that sustainable safety outcomes will be delivered.

### Reasons for our substitute estimate

*Our substitute estimate strikes an appropriate balance between costs and safety*

Consistent with ESV's objective of promoting sustainable safety outcomes,[58] we have arrived at a substitute estimate that we expect will deliver safety outcomes over the

---

55 Powercor estimates around 4,000 interventions were completed in 2020. Powercor, *Information request 073,* January 2020, p. 16.

56 In our draft decision, we identified 2013 as the base year from financial year data converted to calendar years, but have updated this to 2014 based on Powercor's original calendar year data.

57 In our final decision, we have included 2019 and 2020 volumes for the backlog. The additional volumes identified in step 4 means that there is a backlog in these years that we did not account for in the draft decision.

58 ESV, *Submission - Powercor's revised regulatory proposal 2021 to 2026*, March 2021.

longer term because we have sought to understand changes in observed failure rates and the pole network age profile. We have analysed historical intervention practices and failure rates and taken into account the likelihood of failure for all unserviceable poles in the population. If Powercor intervenes at the volumes that we have included in our substitute estimate, we expect to see lower failure rates and improved safety outcomes for Powercor's customers while saving them over $50 million compared with Powercor's forecast.

*We have addressed concerns about Powercor's ageing population*

We acknowledge the concerns raised by a number of stakeholders including ESV and this is reflected in our substitute estimate. We acknowledge that there exists a substantial backlog that is resulting in higher risks than are acceptable to the community and this needs to be addressed. This adds to the uncertainty around the future replacement rates and our forecast therefore assumes a replacement rate considerably higher than past practice. Accordingly, we have included additional volumes that will allow Powercor to manage these risks, in particular to replace higher volumes of its older lower durability class 3 pole population.

*Our substitute estimate is based on actual asset performance*

Because of our concerns with Powercor's forecasting methodology, we cannot reliably use it as the basis for our substitute estimate. Instead, we have looked at past performance and replacement practices, which is consistent with many of our previous capex decisions. In the circumstances, we think this is the best starting point upon which to build our substitute estimate. We then analysed the data to determine Powercor's future replacement needs in terms of improved safety outcomes at a reasonable cost, in the context of Powercor's poles network age profile. The five-year regulatory cycle means that we will have the opportunity to reassess Powercor's wood pole performance in a timely manner to ensure safety is effectively managed into the future.

*The regulatory framework allows flexibility for further investment if needed*

ESV's investigations into the asset management practices of the Victorian distributors is ongoing.[59] In the event that new information comes to hand, ESV, by way of a regulatory obligation, could require Powercor to intervene on higher volumes than what we have included in our substitute estimate. In this case, the regulatory framework allows Powercor seek approval to pass through to consumers a positive pass through amount to ensure that it is fully funded to comply with any new safety obligations.[60]

In addition, we provide for a total capex allowance in our regulatory determination. Powercor is free to adjust the mix of capex projects and programs it has put forward in its proposal year by year to respond to changes in risk across its portfolio. Our regulatory framework recognises that circumstances may change over the course of

---

59 ESV, *Submission - Powercor's revised regulatory proposal 2021 to 2026*, March 2021.

60 NER, cl. 6.6.1.

the regulatory control period and that a distributor may need to reallocate capex to manage its risks. It is also free to spend more than its total capex allowance and can recover the majority of these additional funds at the end of the 2021–26 regulatory control period if we find that the capex was required. Importantly, Powercor's obligations and duties to minimise safety, property and bushfire risks as far as practicable are not diminished by our capex decision.[61]

*Higher volumes and improvements in inspection practices will both lead to improved safety outcomes*

We performed a risk assessment and found that pole failures are likely to decrease significantly relative to the current regulatory control period if Powercor intervenes at the volumes we have assessed.[62] This is largely because our assessed intervention volumes are a substantial step up over historical intervention rates. They are almost double the average intervention rate over the 10 years to 2020, around 60 per cent higher than the historically high volumes in 2014 and higher than Powercor's estimated 4,000 interventions in 2020.

The current pole inspection practices across the industry are not precise due to the inherent complexities involved in assessing pole condition. This results in a small volume of serviceable poles being misclassified as unserviceable and staked or replaced. It also leads to some unserviceable poles being misclassified and not staked or replaced. Improvement in inspection accuracy should lead to a material improvement in the safety outcomes and more efficient costs. Powercor proposes to continue to improve its inspection practices in the 2021–26 regulatory control period, in addition to its proposed higher intervention volumes.

In 2019, Powercor increased its inspection frequency for poles nearing end-of-life (added controls – serviceable poles) and it is committed to improved training and quality assurance practices. The introduction of the EPC also means that Powercor will have regard to factors that it previously did not, such as tip load and age-based fibre strength degradation, to help improve the accuracy of its inspection program. We expect that these changes will lead to lower failures and better safety outcomes in 2021–26 and beyond.

---

61 *Electricity Safety Act 1998*, S. 98.

62 Our risk analysis was intended only as a sense check and based on Powercor's destructive testing results. We estimated that pole failures may decrease by between 40 per cent (if Powercor's forecast pole intervention volumes prove to be accurate and Powercor does not intervene above what we have assessed) and 75 per cent (if our assessed intervention volumes prove to be accurate and Powercor intervenes at the volume we have assessed) relative to the current regulatory control period. This is based on a number of assumptions: (1) EPC will find double the amount of poles than are actually unserviceable; (2) EPC will miss one in four unserviceable poles; (3) all unserviceable poles (with a safety factor below 1.25 or SI below 0.65) will fail under maximum allowable wind load (1 in 50 year wind) when wind load is perpendicular (half of the time).

## A.2 DER integration capex

DER includes solar photovoltaic (PV), energy storage devices, electric vehicles (EVs) and other consumer appliances that are capable of responding to demand or pricing signals. Increasing DER penetration represents a change in the way that consumers interact with electricity networks and the demands that are placed on networks.

DER integration expenditure addresses increasing DER penetration on the network. This includes managing voltage within safety standards and allowing solar customers to dynamically export back onto the grid. DER integration capex includes:

- augmenting the network to physically provide greater solar PV export capacity
- ICT capex to develop greater visibility of the low voltage network and manage changes being driven by technological developments (batteries and EVs).

### A.2.1 Final decision

We accept that Powercor's revised DER integration capex forecast forms part of a total capex forecast that reasonably reflects the capex criteria. We have included this amount in our substitute estimate of total capex.

### A.2.2 Powercor's revised proposal

Powercor's revised proposal includes a DER integration capex forecast of $63.6 million. Its revised proposal accepted our draft decision on DER integration capex. Powercor stated it would develop a unified approach to solar enablement and digital network investment as part of a broad future network strategy that accommodates customer choices for all forms of distributed energy.[63]

### A.2.3 Reasons for final decision

Powercor's revised proposal stated that it will increase its network's DER hosting capacity in a smart way by leaning on technology such as its dynamic voltage management system.[64] It also highlighted that it is seeking to get the most out of its existing network by:

- expanding its demand management capabilities by developing a platform to facilitate market-led demand management across its low-voltage assets, which will reduce augmentation costs for all customers
- developing dynamic operating envelopes to better manager DER, including ensuring DER operates within the bounds of the network's capacity to minimise disruption and ensure customers get fair access.[65]

---

63 Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 2.
64 Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 90.
65 Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 90.

We endorse Powercor's revised approach and it is one we suggest all distribution networks should adopt. Stakeholder submissions from the CCP17, ECA, Spencer&Co and the VCO agreed.[66] The VCO submitted that it supports Powercor's acceptance of our draft decision and reducing network augmentation spending while maintaining the budget for developing smart grid capabilities.[67] It commended Powercor on making a strong case for smart-grid programs such as dynamic voltage management, adding that these functionalities will allow network constraints to be safely managed.

Powercor also stated that it will need to accommodate additional solar and battery installations due to the Victorian Government's expanded solar homes program.[68] It noted that it will manage the impacts on its network within the program accepted in our draft decision. We acknowledge that the expanded program is likely to increase DER penetration on Powercor's network. However, the reduction in Victoria's minimum feed-in tariff by one third from 1 July 2021 will help to balance this trend.[69]

### Value of DER (VaDER)

Powercor accepted our draft decision on the amount of capex required to facilitate and integrate DER on its network. Our decision supports Powercor accommodating solar PV growth on its networks to achieve consumer expectations regarding the Victorian Government's Solar Homes program.

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'.[70] We published the CSIRO and CutlerMerz's final value of DER 'VaDER: methodology study' in November 2020 following the release of our draft decision.[71]

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.

---

66 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26,,* January 2021, p. 9; ECA, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 4; Spencer&Co, *Report to ECA, A review of Victorian Electricity Distributors' revised proposals 2021–26,* January 2021, p. 13; VCO, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 7.

67 VCO, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, pp. 21–22.

68 Powercor, *Revised regulatory proposal 2021–26,* December 2020, pp. 9–10.

69 Renew Economy, *Victoria regulator slashes FiT by one third*, February 2021.

70 AER, *Assessing distributed energy resources integration expenditure,* November 2019; See: https://www.aer.gov.au/system/files/AER%20Assessing%20Distributed%20Energy%20Resources%20%28DER%29%20Integration%20Expenditure%20consultation%20paper%20-%2028%20November%202019.pdf.

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

## A.3 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.3.1 Final decision

We do not accept that Powercor's revised augex forecast would form part of a total capex forecast that reasonably reflects the capex criteria. This is due to our assessment of Powercor's Ballarat West REFCL project and our reallocation of a proportion of its proposed network communications expenditure to ACS capex. This reallocation is consistent with our draft decision and is discussed below. We have retained the forecast for traditional augex from our draft decision that Powercor accepted in its revised proposal.

### A.3.2 Powercor's revised proposal

In its revised proposal, Powercor accepted our draft decision forecast for traditional augex, which we based on its historical expenditure. For REFCL and bushfire-related augex, Powercor did not accept our draft decision efficiency adjustments in full and it shifted its proposed Ballarat West REFCL to a contingent project. For other augex, Powercor did not accept our reallocations of a proportion of its proposed network communications expenditure to ACS capex.

### A.3.3 Reasons for final decision

#### Traditional augex

We have retained the $93.9 million forecast for traditional augex from our draft decision that Powercor accepted in its revised proposal. However, in accepting our forecast, Powercor stated that it was concerned with our assessment approach. Powercor considers that a short history of augmentation expenditure may not be representative of future expenditure. It considers this because augex is driven by local demand growth in relation to local hosting capacity, and because past expenditure may not have been prudent and efficient.[72]

We continue to recognise that during a period of flat system peak demand growth, some local augmentation will usually be necessary due to differences in local growth rates. As demand per customer declines, maximum demand will nevertheless tend to increase in areas with a strongly growing customer base, offsetting decreases in other areas. However, Powercor has not demonstrated or argued that this difference in growth rates between areas is likely to get larger. Where system demand is not growing, this is one factor that conceivably could drive higher traditional augex than

[72] Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 87.

historically, if it were demonstrated to exist. A second possibility is that augex could be 'lumpy' where the number of projects is small. A third possibility is that if the network has been expanded for demand growth that did not eventuate, augex is likely to decline in the following regulatory control period.

To check for all these possibilities, our draft decision also forecasts augex from the bottom-up, using the Australian Energy Market Operator's (AEMO) terminal station demand forecasts. Powercor raised a number of concerns with this method:[73]

- It stated that we did not produce reconciled forecasts at the zone substation and feeder level. However, we used AEMO's terminal station forecasts to produce zone substation and feeder level forecasts based on a reconciliation procedure similar to Powercor's and shared these forecasts with Powercor.[74]
- Powercor argued that we should have performed full energy at risk assessments. However, for the purposes of our bottom-up calculations, it was appropriate to take demand in the year in which Powercor forecast a need for augmentation as our threshold. In effect, we took Powercor's energy at risk assessment as a given. Since AEMO and Powercor maintained constant ratios between their probability of exceedance (POE) 50 and their POE10 forecasts, this also in effect accepted Powercor's weighting of these two forecasts in its energy at risk calculations.
- Powercor argued that it was unreasonable to ask for business cases for the augex in this category that was unsupported ($49.7 million). However, where businesses seek an increase in expenditure, it is reasonable to expect justification for the drivers of any increase in prudent and efficient costs.[75]

Finally, our draft decision stated we would check if AEMO's 2020 terminal station forecasts indicated a need to revise our traditional augex forecast. For Powercor's network, AEMO forecast non-coincident summer maximum demand declining at 0.12 per cent per year over the forecast regulatory control period. This is essentially flat maximum demand, consistent with the assumption of our draft decision.

### REFCLs

Powercor's revised proposal included $137.9 million for REFCL augex for bushfire mitigation obligations. Following the VBRC, legislative amendments were introduced to reduce the likelihood of bushfire starts from electrical equipment faults.[76] These amendments place regulatory obligations to achieve certain protection performance requirements (referred to as 'required capacity') at 22 of Powercor's zone substations.[77] A REFCL is a protection device typically installed at a zone substation

---

73 Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 88.

74 Response provided by email, 6 October 2020.

75 NER, cl. 6.5.7(c)(1).

76 *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).

77 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.

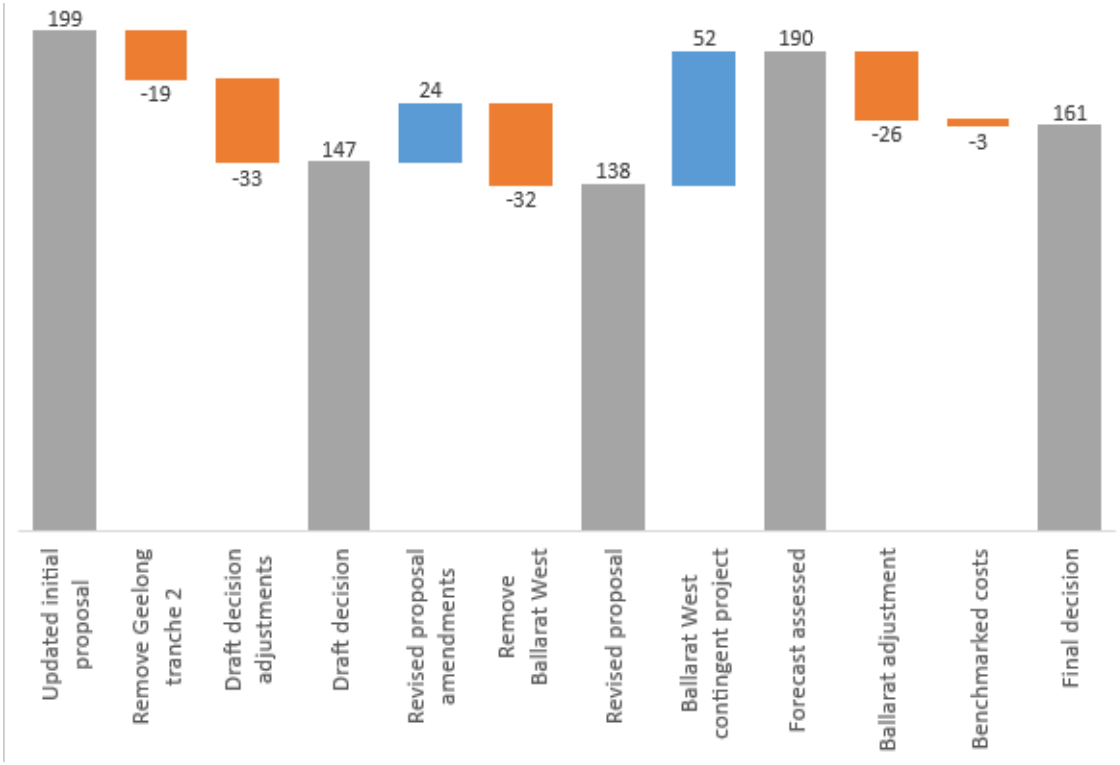
used to achieve the required capacity to reduce the risk of faulted power lines starting bushfires.

Our draft decision assessed that $145.5 million was prudent and efficient for Powercor to meet its obligations. Powercor's revised REFCL forecast is lower than our draft decision, but this is driven by Powercor shifting $32 million for its Ballarat West zone substation from forecast capex to a proposed contingent project. We have not included this as a contingent project but have instead included an amount of capex in our substitute estimate of total capex, because it is likely Powercor will need to maintain compliance at Ballarat North and Ballarat South zone substations in the forecast regulatory control period, and the costs associated with the project are sufficiently certain to be included in the capex forecast.

Figure A.3 illustrates the changes since the amended initial proposal.[78] Powercor's revised proposal is $24 million higher than our draft decision, including $17 million not related to Ballarat West. Figure A.2 also shows the total forecast assessed amount for REFCL of $190 million represents the sum of the proposed Ballarat West REFCL contingent project and the total REFCL capex forecast. Overall, our final decision includes $161 million for REFCL augex, which is $29 million (15 per cent) lower than the forecast assessed.

[78] On 13 July 2020, Powercor amended its REFCL forecast from $177.4 million to $198.7 million due to revising its proposed solution to achieving compliance in the North Western Geelong area.

## Figure A.2 Summary of changes to Powercor's REFCL forecast augex ($ million, 2020–21)




Source: AER analysis

Note: Forecast assessed refers to Powercor's revised proposal REFCL forecast plus the proposed $52 million contingent project, which we assessed as forecast capex.

Powercor has provided better supporting information for most of its REFCL program in its revised proposal. However, we are not satisfied that its Ballarat West forecast costs, GFN installation costs and transformer unit costs for its Gheringhap zone substation are prudent and efficient.

### Ballarat West

#### Assessment of contingent project

We consider this contingent project should be included as part of forecast capex rather than as a contingent project. Consistent with NER clause 6.6A.1(b)(2)(i), as this project is provided for as part of our substitute estimate of total capex, it is not a contingent project.[79] This position is consistent with our draft decision and Powercor's initial proposal, which included this project as capex.

Powercor's revised proposal noted that the driver of the shift to a contingent project was due to emerging uncertainties around the timing, costs and scope of the new zone

[79] NER, cl. 6.12.1(3)(ii).

substation.[80] Powercor also noted that it required more time to consult with key stakeholders. It considered that if we did not accept the contingent project, then a capex allowance would be required.[81] As set out below, we consider this expenditure is more appropriately accounted for in the capex forecast, and not as a contingent project.

In coming to this view, we have assessed the need for the project, the costs associated with the project, the drivers of Powercor's proposed shift to a contingent project and its proposed triggers. Powercor initially proposed that a Ballarat West zone substation trigger event occurs if:[82]

1. Powercor applies or reapplies a regulatory investment test for distribution (RIT-D) to a project which has the objective of ensuring that the Ballarat North zone substation and/or Ballarat South zone substation will continue to be 'complying substations' within the meaning of the *Electricity Safety Act 1998* (Vic)
2. Either:
    (a) no notice of dispute in relation to Powercor's conclusions in the final project assessment report is given to the AER within the time frame provided for in the National Electricity Rules;
    (b) the AER rejects all notices of dispute in relation to Powercor's conclusions in the final project assessment report or makes a determination, based on the grounds of dispute, that Powercor will not be required to amend the final project assessment report; or
    (c) Powercor complies with a determination by the AER directing Powercor to amend the final project assessment report.
3. Powercor has committed internally to proceed with the project subject to the AER amending the distribution determination for the 2021–26 regulatory control period in accordance with the National Electricity Rules.

In considering whether the trigger that was initially proposed was appropriate[83], we had regard to the need for the trigger event to be a condition or event, which, if it occurs, makes the undertaking of the project reasonably necessary to achieve the capex objectives.[84] We considered that the proposed trigger event did not in itself make the undertaking of the project reasonably necessary in order to comply with regulatory obligations or to otherwise achieve the capex objectives. We considered the proposed trigger related to the means to comply with existing regulatory requirements.

---

80 Powercor, *Revised regulatory proposal 2021–26, APP04 Uncertainty appendix*, December 2020, p. 24.

81 Powercor, *Revised regulatory proposal 2021–26, APP04 Uncertainty appendix*, December 2020, p. 24.

82 Powercor, *Revised regulatory proposal 2021–26, APP04 Uncertainty appendix*, December 2020, p. 27. Powercor also proposed two other triggers relating to applying a regulatory investment test and to commit internally to proceed with the project.

83 NER, 6.6A.1(b)(4).

84 NER, 6.6A.1(c)(2).

In response to our concerns, Powercor stated that it did not consider that it is a requirement of the NER that, to be appropriate, a trigger event must be a condition or event, the future occurrence of which makes the proposed contingent project reasonably necessary to achieve the capex objectives. Powercor submitted that the need for a trigger event to be such a condition or event is one of a number of mandatory considerations which the AER must consider, but it is not a pre-condition to a proposed trigger event being appropriate.[85] Nonetheless, Powercor proposed to amend its triggers by including an additional trigger (in point 1 below) and revising point 1 from above (in point 2 below):[86]

1. Powercor has undertaken modelling, or received modelling commissioned from a third party, of network growth in the Ballarat region and associated growth in total zone substation capacitive charging at the Ballarat North and Ballarat South zone substations which demonstrates that either Ballarat North zone substation, or Ballarat South zone substation, or both zone substations will cease to be 'complying substations' within the meaning of the *Electricity Safety Act 1998* (Vic) within the 2021–26 regulatory control period
2. Powercor applies or reapplies a RIT-D to a project that is reasonably required to ensure that the Ballarat North zone substation and/or Ballarat South zone substation will continue to be 'complying substations' within the meaning of the *Electricity Safety Act 1998* (Vic).

Powercor stated that the need for the proposed contingent project in the next regulatory period, while expected and even probable, remained dependent on the realisation of its network growth expectations in the period. Powercor noted that if it must undertake works within the next regulatory period in order to continue to comply with its bushfire mitigation related regulatory obligations, it will do so. Powercor noted that the NEL 'dictates' that it must be provided with a reasonable opportunity to recover at least the efficient costs (NEL, s 7A).[87]

Clause 6.6A.1(c)(2) refers to the need for a trigger event to be a condition or event, the future occurrence of which will make the proposed contingent project reasonably necessary to achieve the capex objectives. Under clause 6.6A.1(b)(4), this is a matter that we must have regard to in determining whether a proposed trigger event is appropriate. We had regard to such a need and other matters in clause 6.6A.1(c) in assessing the proposed trigger event.

We further acknowledge that the revised trigger event goes some way towards addressing our concerns about the initial version of the proposed trigger event, and the updated trigger event relates to actual network growth in the Ballarat region increasing over the forecast regulatory control period, such that network capacitance exceeds the

---

85 Powercor, *Information request 088*, February 2021, p. 2.

86 Powercor, *Information request 088*, February 2021, p. 5.

87 Under section 16(2)(a) of the NEL, we must 'take into account' the revenue and pricing principles set out in section 7A when exercising our discretion in making those parts of a distribution determination relating to direct control network services.

current REFCL capabilities of the substations. This would result in Powercor being non-compliant with its REFCL obligations, unless the project is undertaken.

We recognise that forecasting demand growth and capacitance often includes some element of uncertainty. This type of uncertainty is inherent with many types of augmentation capex projects. CCP17 also considered the uncertainties of this project are identical to other large scale zone substation projects and it should be included in augex.[88]

In this case, we consider that the need for the project and costs associated with the project are sufficiently certain for it to be included in the capex forecast in accordance with clause 6.5.7, rather than be treated as a contingent project.[89]

We have assessed the capacitance forecasts of this project and other REFCL compliance-related projects. We have found no evidence to consider the need for the contingent project is any more uncertain than the other REFCL projects included in the proposed forecast capex. Our draft decision included capex for each of the zone substations in Powercor's proposed REFCL ongoing compliance program. The capacitance forecasts were a key consideration of that assessment and our position on the capacitance forecasts remains unchanged.

Based on Powercor's capacitance forecasts, the actual capacitance for each busbar at Ballarat North and Ballarat South in the forecast regulatory control period would need to be around 70–80 per cent lower than forecast and therefore we are confident capex will be required in the forecast regulatory control period.[90] Powercor has also indicated that compliance testing at Ballarat North and Ballarat South has revealed that both networks have had higher measured capacitance than forecast.[91] Compared with other zone substations included in Powercor's ongoing compliance program, works at Ballarat North and Ballarat South are required earlier in the forecast regulatory control period to maintain compliance. Therefore, we see no reason for this project to be treated differently to other REFCL projects in our final decision.

Issues around the project scope were partly caused by Powercor not adequately considering alternative options for maintaining compliance and not undertaking stakeholder engagement. It is incumbent on Powercor to undertake this type of engagement in the ordinary course of preparing its initial and revised proposals. Powercor was unable to evidence any stakeholder engagement on this issue and it indicated its intention to undertake stakeholder engagement in 2021 after the reset process had been completed.[92]

---

88 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 117.

89 NER, cll. 6.6A.1(2)(i) and 6.6A.1(5).

90 AER analysis of Powercor, *Information request 6 – Q10 capacitive charging currents*, April 2020.

91 Powercor, *Information request 088 Q3*, February 2021, p. 9.

92 Powercor, *Information request 077 Q1,* January 2021, p. 2.

The reset process is an opportunity for all stakeholders, including us, to consider a distributor's forecast capex as a whole. When setting a capex forecast, we do not approve specific projects or programs. The incentive framework is designed to provide distributor's with a prudent and efficient amount (or 'bucket') of capex and it is up to the distributor to allocate this capex according to its requirements, attempting to find efficiencies where possible.

The contingent projects framework is intended for large identified capital projects that are sufficiently uncertain, either in respect of timing or cost, that they cannot be included in the capex forecast at the regulatory reset. However, we are cautious about considering forecast capex outside the reset process into the contingent project framework, because it can lead to stakeholders being precluded from considering the total forecast capex as a whole, including any interrelationships and the potential to take account of any related capex efficiencies.

### Assessment of proposed capex

Our final decision assessment maintains our draft decision position to include $26 million in our substitute estimate of total capex. We consider this is sufficient for Powercor to maintain compliance with the 'required capacity' at the Ballarat North and Ballarat South zone substations. Powercor has several feasible and lower cost options available to meet the identified compliance need in the forecast regulatory control period.

In our draft decision, we assessed the initially proposed $31 million for Ballarat West zone substation, and included $26 million in our substitute estimate of total capex based on cost benchmarking. We were concerned that Powercor's zone substation cost estimate did not compare favourably with equivalent costs of other distributors. Powercor had also not adequately considered a reasonable range of options to meet its REFCL compliance obligations in the Ballarat area.

In its revised proposal, Powercor maintained that the proposed Ballarat West substation is required to enable the REFCL installations to meet the increasing capacitive loads associated with expansion of the underground network in the area. Powercor also suggested the proposed Ballarat West substation will also be required to meet expected future load growth by 2030.

As discussed above, Powercor's revised proposal included a contingent project with capex of $52 million to establish a fully configured substation at Ballarat West to meet its compliance obligations. This estimate includes additional works to avoid the uncertainty associated with constructing a 66 kV line along the Avenue of Honour. Powercor has indicated that a Ballarat West zone substation may not even be the preferred solution after a comprehensive area study and RIT-D is undertaken to determine the efficient option[93]. We acknowledge that this is possible.

---

[93] Powercor, *Information request 088*, February 2021.

Powercor has not undertaken substantive analysis of the overall development of the network in the Ballarat area, along with supporting options assessments, and it has not adequately considered the range of options available to meet its REFCL compliance obligations in the Ballarat area.

We have considered the available options and their likely capital costs, and have assessed that there are feasible and lower cost options available to Powercor to meet its compliance obligations. For example:

1. Isolation transformers[94] estimated to cost $22 million.[95] Powercor did not consider isolation transformers in its revised proposal, and when we asked about this option, aside from a general statement about growth in network capacitance and demand, it did not explain or provide supporting analysis as to why isolation transformers could not efficiently meet the identified need.[96]
2. A mini zone substation at the Ballarat West substation, estimated at around $20 million.[97] Powercor dismissed this option on the basis of reliability requirements under its network planning policies, which are not in themselves regulatory obligations.[98]
3. Remote REFCLs, as proposed by both AusNet Services and Jemena. These REFCL units are installed at an appropriate location along the feeders instead of at the zone substation.

There are also likely to be other options not yet considered that may be used instead of, or in combination with, the above options. These might include feeder reconfiguration or the use of covered conductor. Overall, based on our assessment of the project, the proposed capex, and the range of available options, we consider that including $26 million in our substitute estimate of total capex is sufficient for Powercor to maintain compliance with its REFCL obligations in the Ballarat area.

*GFN labour hours*

Powercor's proposal of 2,400 labour hours per GFN installation is not well supported. This position is consistent with our previous tranche three assessment and Powercor did not provide sufficient supporting evidence for us to change our position.[99] We requested evidence of the labour hours for each zone substation. Powercor is approaching completion of tranche two sites (by 30 April 2021) so there are likely to be around 14 zone substations (several with multiple GFNs) with completed or

---

94 Isolating transformers are devices that can be used to separate underground networks such as underground residential developments to lower the capacitance 'seen' by the REFCL installed at the zone substation, therefore maintaining the required capacity.

95 Powercor, *Information request 011a Q2,* May 2020.

96 Powercor, *Information request 077 Q2,* January 2021, p. 3.

97 Powercor, *Revised regulatory proposal 2021–26, BUS 6.08 REFCL ongoing compliance,* January 2020, pp. 14–17.

98 Powercor, *Information request 088 Q2,* January 2021, pp. 7–8.

99 AER, *Final decision – Powercor contingent project application – REFCL tranche 3*, January 2020, p. 44.

near-completed GFN installations.[100] Powercor's response was based on the average of only four zone substations stating that it takes an average of 7,000 hours per GFN, as the basis for supporting its proposed 2,400 hours.[101] No further supporting documentation was provided.

We maintain our draft decision on this issue, which is to include 1,600 labour hours per GFN consistent with the final decision for Powercor's contingent project tranche three. The benchmarking against the tranche two estimates and AusNet Services undertaken in contingent project tranche three remains appropriate as it is for undertaking the same work. AusNet Services is lower cost than Powercor's proposal, and AusNet Services has revised these estimates upwards since the contingent project tranches. Therefore, we have based our decision on updated values to confirm that AusNet Services' costs for the same work still remain lower than what we approved for Powercor in tranche three and our draft decision. We also consider there is likely to be productivity improvements over time given Powercor's experience with its REFCL program.

ECA's consultant, Spencer&Co, recommended that we reconsider some of our draft decision efficiency adjustments and revisit Powercor's actual costs.[102] We have done so where there is sufficient supporting evidence to justify the costs. In our final decision, we have accepted an increased portion of REFCL costs based on additional information provided by Powercor. We also consider that benchmarking distributors' REFCL costs continues to be appropriate.

*Transformer unit costs*

Our draft decision included a reduction for benchmarking transformer unit costs. We have updated this benchmarking based on new information for proposed new zone substations, and applied this to the proposed new zone substation in Gheringhap. We maintain that the proposed transformer unit costs for a new build zone substation are high relative to benchmarked new zone substation builds for AusNet Services and Jemena. Powercor has not supported this relative difference in costs and has not identified any specific site conditions that would warrant additional costs to a typical installation.

*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 with actual capacitance at the next reset if required. We encourage distributors to continue considering alternative options and

---

100 Powercor's REFCL program as set out in: Powercor, *Revised regulatory proposal 2021–26, – BUS 6.08 – REFCL ongoing compliance,* January 2020, p. 5.

101 Powercor, *Information request 077 – Q7*, January 2021, p. 5.

102 ECA, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 11.

exploring possible exemptions to lower costs for consumers for neutral or improved bushfire-risk outcomes.

## Upgrading regional supply

### Draft decision

Powercor's initial augex forecast included a project to upgrade power line capacity in part of its network – specifically to upgrade single wire earth return (SWER) feeders in Tyrendarra, Strathdownie, Cape Bridgewater and Gorae West to three-phase supply. Our draft decision agreed with our consultant EMCa's analysis and most stakeholder submissions, which argued that all of Powercor's customers should not pay for this project.

Instead, we stated it was reasonable to expect the beneficiaries of the project to pay for some proportion of the upgrade cost via capital contributions. To the extent that the project is funded through capital contributions, it would be outside Powercor's regulated asset base and would not increase the network tariffs for other customers.

EMCa's analysis also stated that operators in the area were not competing with each other or other major power users to secure adequate power due to the issues associated with the SWER lines.[103] This highlighted that there was not a clear need for an upgraded supply.

Our conclusion was to not include Powercor's upgrading regional supply project in our substitute estimate of total capex in the draft decision. Our draft decision also noted that we do not determine which programs or projects a distributor should or should not undertake, and our decision on total capex does not limit a distributor's actual spending.

### Stakeholder submissions

Powercor did not repropose this project in its revised proposal. However, we received nearly 90 submissions from local consumers, businesses, councils and industry organisations supporting the project. The majority of stakeholder submissions stated:

> The purpose of this letter is to express support for upgrading single phase power to three phase infrastructure in south-west Victoria. To achieve our regions' goals of renewable energy and water sustainability leadership, as well as to maintain and enhance our position as a world class tourism destination and Victoria's largest food and fibre producer, we need infrastructure that supports innovation and business growth.

While we acknowledge the strong support from the local community, the submissions did not evidence broader market benefits of the project for Powercor customers nor provide sufficient evidence to support the assertions about the power supply in the

[103] EMCa, *Review of aspects of Powercor's regulatory proposal 2021–26,* September 2020, p. 107.

region. In addition, when considering the long-term interest of consumers, the NEO asks us to consider all consumers.[104] Where businesses propose projects that benefit a particular type or subgroup of consumers, it is particularly important that their customer engagement evidences strong general support. Other consumer groups such as the CCP17, ECA and Spencer&Co did not comment on this project in their submissions on the draft decision and revised proposal, and Powercor's Customer Advisory Panel did not provide any guidance or support on this project.

### Co-funding possibilities

Many stakeholder submissions requested that the Victorian Government help fund the upgrade of SWER lines to three-phase feeders. The Victorian Government's Agriculture Energy Investment Plan provides $30 million to support infrastructure and business development projects.[105]

In addition, Infrastructure Victoria's draft 30-year infrastructure strategy recommended co-funding outdated power supply infrastructure upgrades between the Victorian Government, distributors and local businesses.[106] This would allow new investment and expansion opportunities for dairy farmers in south-west Victoria.

### Overall consideration

As highlighted above, it is likely that the costs to all Powercor customers to fund this investment could be reduced, either through capital contributions or Victorian Government assistance, to an amount that is immaterial to Powercor's total capex forecast.[107] We do not consider it is in the long-term interests of all of Powercor's customers to include an additional amount attributable to this project in our substitute estimate of total capex.

We encourage Powercor to work with its customers and other stakeholders to respond to the community expectations regarding this issue. In previous regulatory control periods, Powercor has managed its capex budgets to spend less than its allowances. Powercor could similarly manage its budget in the forecast regulatory control period to deliver this project for affected stakeholders within the capex allowance provided in our final decision.

## Other augex programs

Consistent with our draft decision and ACS final decision, we have reallocated a proportion of Powercor's proposed network communications expenditure to ACS

---

104 AEMC, *Applying the energy market objectives,* July 2019.

105 Victorian Government, *Backing agriculture for Victoria's strong future,* November 2020; See: https://www.premier.vic.gov.au/backing-agriculture-victorias-strong-future.

106 Infrastructure Victoria, *Victoria's draft 30-year infrastructure strategy,* December 2020; See: https://www.infrastructurevictoria.com.au/wp-content/uploads/2020/12/Victorias-Draft-30-Year-Infrastructure-Strategy-Volume-1-1.pdf.

107 This project represents 0.5 per cent of Powercor's revised total net capex forecast.

capex. Powercor allocated 100 per cent of its 3G shutdown network communications program to SCS capex. However, as outlined in our ACS metering draft decision (attachment 16), some 3G shutdown capex should be allocated to ACS metering.

The 3G systems that are being replaced are used to backhaul bulk data from advanced metering infrastructure (AMI) meters. This data is used for both metering and standard control network services. Therefore, this cost should be shared between SCS and ACS. Based on our analysis, we have allocated 80 per cent of this program to SCS capex and the remaining 20 per cent to ACS capex.

Similarly, Powercor allocated 88 per cent of its annual communication devices program to SCS capex. Our ACS metering analysis has determined that this allocation should be 25 per cent SCS capex and 75 per cent ACS capex. Our substitute estimate of total capex is consistent with these reallocations. Further analysis of these reallocations can be found in attachment 16 of this final decision.

## A.4 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.4.1 Final decision

We do not accept that Powercor's connections and capital contributions forecasts would form part of a total capex forecast the reasonably reflects the capex criteria. Its method for forecasting changes in capital contributions due to the changing WACC is inconsistent with the way it actually charges customers. Updates for the final decision WACC and price path, and changes to the connections policy have also changed forecast capital contributions.

The forecast we have included in our substitute estimate of total capex increases capital contributions by 3 per cent to $342.4 million and gross connections by $0.3 million to $651.4 million. This is based on our calculations of the effect of the changes to capital contributions Powercor identified and changes to its connections policy.

### A.4.2 Powercor's revised proposal

Powercor’s revised proposal included a gross connections forecast of $651.1 million and a capital contributions forecast of $322.2 million. This was an increase in net connections of $75.4 million from our draft decision. Powercor introduced an adjustment to its forecast contributions for the effect of its falling WACC and prices. It proposed reversing our COVID-19 adjustment for non-residential connections, returned to its originally proposed contributions ratios, and removed gifted assets excluding rebates to reflect a recent Federal Court decision on taxation treatment.

### A.4.3 Reasons for final decision

#### Effect of WACC and prices

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). Powercor argued that changes to distribution tariffs and the weighted average cost of capital (WACC) over the next regulatory control period will lead to lower capital contributions by increasing incremental revenue.

Powercor calculated that this will lead to $46 million less in capital contributions in its revised proposal. However, we found the following problems with this calculation:

- Powercor's forecasts did not account for the way it removes opex from incremental revenue. When asked how opex had been accounted for, Powercor provided a modified forecast that removed opex in a way that it has since acknowledged differs from its actual practice in calculating customer contributions.[108]
- Powercor did not base its forecast on a sample of actual connections contributions. Instead, it used an approach equivalent to assuming that some customers will pay negative capital contributions. Powercor also acknowledged the need to correct this issue.[109]

Powercor's approach also raises procedural issues. Powercor forecast declining prices and proposed a declining WACC in its initial proposal. However, it did not forecast that this had any effect on capital contributions at the initial proposal stage. To allow issues to be considered comprehensively and fairly by us and all stakeholders, it is good practice to incorporate any effects on future capex at the initial proposal stage, if they are known about at that time.

In general, a lower WACC can lead to either higher or lower capital contributions. This is because there are two effects on incremental revenue. As the WACC is used as the discount rate, a lower WACC means higher incremental revenue if prices are unchanged. However, a lower WACC also reduces prices and hence incremental revenue excluding opex. Our substitute estimate addresses these issues by:

- calculating opex as a ratio of DUoS charges and accounting for the effect of the forecast increase in this ratio on incremental revenue
- accounting for forecast price reductions over the forecast regulatory control period and not only in the first year
- estimating the portion of the overall incremental revenue increase that does not subtract from incremental cost, in cases where capital contributions fall to zero

---

[108] Powercor, *Information request 071 Q1 (c)*, December 2020, p. 2; Powercor, *Information request 81 Q3*, January 2021, p. 3.

[109] Powercor, *Information request 092 Q1*, February 2021, p. 2.

- calculating the overall change in incremental revenue due to the changed WACC and prices by averaging effects at the beginning, middle and end of each regulatory control period.

Powercor stated that it did not have issues regarding this method.[110] Overall, we forecast a 13 per cent reduction in capital contributions due to this cause, compared with Powercor's forecast 19 per cent reduction. This is after updating the WACC and price path for the outcome of our final decision. If we had used Powercor's method with our final decision WACC and price path, the capital contributions forecast would have been an 18 per cent reduction compared with historical contributions.

### Effect of changed augmentation threshold

Our final decision raises the threshold at which customers make a contribution to augmenting the shared network on three phase connections. In Powercor's revised proposal, it argued our capital contributions forecast should decrease if our final decision retained this change. We have reduced our capital contributions alternative forecast by $9 million to incorporate this change, based on historical data Powercor provided demonstrating this effect.[111]

### Effect of COVID-19

Our draft decision adjusted connections in the first year of the forecast regulatory control period, based on dwellings forecasts from the Housing Industry Association (HIA). Powercor's revised proposal reversed this adjustment for non-residential connections, based on its function codes. We have accepted this change, based on recent stimulus announcements by the Victorian Government.

However, we have retained our COVID adjustment for high-density commercial and residential connections, as this category is likely to be strongly affected. In addition, we have increased our forecast based on updated HIA forecast data (from a 42 per cent reduction in the first year to a 37 per cent reduction for the affected function codes).

### Gifted assets

We accept Powercor's treatment of gifted assets in its revised proposal. This removes gifted assets excluding rebates from the gross capex and capital contributions forecasts. As these capital contributions are no longer considered taxable income, this treatment ensures no tax is recovered from consumers to cover this amount.

### Large embedded generators

We have not accepted Powercor's proposal in its revised connections policy to charge large embedded generators the economic tax cost of connecting to the network (see attachment 18). However, as Powercor's connections forecast did not account for this

---

110 Powercor, *Information request 092 Q1*, February 2021, p. 1.

111 Powercor, *Information request 081 Q2*, January 2021, pp. 1–2.

proposed change in policy, we have accepted Powercor's forecast for large embedded generators. This will mean the tax cost of connecting these customers will continue to be accounted for through the tax building block.

## A.5 ICT capex

ICT refers to all devices, applications and systems that support business operation. ICT expenditure is categorised broadly as either replacement of existing infrastructure for reasons due to end of life, technical obsolescence or added capability of the new system or the acquisition of new assets for a business need.

### A.5.1 Final decision

We accept that Powercor's revised ICT capex forecast would form part of a total capex forecast that reasonably reflects the capex criteria. We have included this amount in our substitute estimate of total capex.

### A.5.2 Powercor's revised proposal

Powercor's revised proposal includes an ICT capex forecast of $144.3 million, which is split into $104.3 million in recurrent ICT and $39.9 million in non-recurrent ICT. Table A.3 summarises Powercor's revised proposal and our final decision.

**Table A.3 Powercor's ICT capex forecast ($ million, 2020–21)**

| Category | Initial proposal | Draft decision | Revised proposal | Final decision |
|---|---|---|---|---|
| Recurrent ICT | 115.7 | 103.4 | 104.3 | 104.4 |
| Non-recurrent ICT | 36.0 | 30.0 | 39.9 | 40.0 |
| **Total ICT capex** | **151.7** | **133.4** | **144.3** | **144.4** |

Source: AER analysis.

Note: Numbers may not sum due to rounding. Final decision is slightly higher due to modelling adjustments.

### A.5.3 Reasons for final decision

Powercor accepted the majority of our draft decision for ICT capex, including our top-down trend-based assessment of recurrent ICT capex and our minor adjustments to its intelligent engineering program. The key differences between Powercor's revised ICT capex forecast and its initial forecast are:

- a reproposed smaller customer enablement program
- a new field service management solution program.

Therefore, our final decision assessment has primarily focused on these two programs.

### Customer enablement

Powercor's customer enablement program seeks to invest in unified online platforms and tools, as well as contact centre improvements to streamline its customer communications relating to network services such as connection and supply requests.[112] The program intends to facilitate customer usage of online and contact centre services. Powercor has stated it will now jointly undertake this program with CitiPower and United Energy.[113]

Our draft decision highlighted that Powercor had not justified the prudency and efficiency of this program because:

- Powercor did not fully justify the benefit of accessing information in relation to network connections through the proposed app, with convenience being the only additional value that was likely to be provided
- Powercor did not fully justify the benefit of providing improved availability and customer access to information through the myEnergy portal and real-time energy usage data, as this initiative would duplicate services that are already provided through energy retailers, and that real-time data was not necessarily required to extract the claimed benefits
- Powercor did not fully justify the benefit of a reduction in call centre time through the proposed app, as consumers already have access to the same services through the webpage, and the choice of an app would not make a material difference to calls
- Powercor's approach to valuing savings in customer time utilising the average consumer wage rate as a proxy for the enquiry time overvalued the time customers spend following up a connection or outage enquiry.[114]

We support Powercor's revised scaled-down customer enablement forecast. However, we highlight concerns about several areas of the revised program:

- the use of the average consumer wage rate in the calculation of the value of time saved despite our concerns raised in the draft decision
- the sensitivity analysis conducted using number of users accessing various portals, achieving only a positive NPV of economic benefit for the whole program with two thirds of all customers accessing portals by 2026
- the contact centre AI initiative that seeks to improve call centre outcomes, as consumers already having access to the same services through the webpage (as highlighted in our draft decision).

---

112 Powercor, *Customer enablement business case*, December 2020, p. 8.

113 Powercor, *Customer enablement business case,* December 2020, p. 8.

114 AER, *Draft decision, Powercor distribution determination 2021 to 2026, Attachment 5, Capital expenditure,* September 2020, pp. 72–73.

The CCP17 acknowledged Powercor's work presenting its revised customer enablement proposal to its Consumer Advisory Panel and it supports the revised investment.[115] Based on the evidence before us, we have included Powercor's revised customer enablement forecast in our substitute estimate of total capex.

### Field service management solution

Powercor's revised proposal includes a new program to replace its field management services software that upholds the functionality of the Automated Integrated Works Management (AIWM) field operations program.[116] Powercor's current Click application will become unsupported in December 2023, as the vendor ClickSoftware has been acquired by Salesforce.[117]

It stated that AIWM has facilitated improved planning and forecasting, collaboration between work streams, contract and supplier management, and optimised work dispatching and scheduling. This investment is proposed in place of the original recurrent ICT enterprise management systems program.[118] We are satisfied that Powercor has netted off the recurrent ICT capex component of this program in its capex and cost-benefit analysis models.

The CCP17 submitted that it supports this program as it maintains an existing service, well-established in Powercor's operational processes to deliver efficient field services, including direct services to customers.[119] Overall, Powercor has justified the prudency and efficiency of this program, and therefore we have included this program in our substitute estimate of total capex.

## A.6 Other non-network capex

Other non-network capex includes property, fleet, plant, tools and equipment. Property expenditure relates to the maintenance, refurbishment and optimisation of offices, operational depots, warehouses, training facilities and other specialist facilities. The indirect costs associated with property assets have been assessed as part of overheads and the costs below refer to 'direct' capital costs only.

Fleet includes expenditure for purchasing new vehicles and related items, including mounted plant. This can be divided between light fleet (passenger and light commercial vehicles) and heavy fleet (elevated work platforms, crane borers and other heavy commercial vehicles).

---

115 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, 2021, p. 116.
116 Powercor, *Field service management solution business case,* December 2020, p. 4.
117 Powercor, *Field service management solution business case,* December 2020, p. 4.
118 Powercor, *Field service management solution business case,* December 2020, p. 5.
119 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 116.

### A.6.1 Final decision

We accept that Powercor's revised other non-network capex forecast would form part of a total capex forecast that reasonably reflects the capex criteria. We have included this amount in our substitute estimate of total capex.

### A.6.2 Powercor's revised proposal

Powercor's revised proposal included an 'other non-network capex' forecast of $224.9 million.

### A.6.3 Reasons for final decision

Powercor accepted our draft decision for other non-network capex. However, Powercor did not accept our draft decision on asset disposals.[120] In our draft decision, we estimated asset disposals using other network data. Powercor has provided us with 2016–19 historical data. We are satisfied with this updated information.

## A.7 Capitalised overheads

Overhead costs include business support costs not directly incurred in producing output, and shared costs that the business cannot directly allocate to a particular business activity or cost centre. The Australian Accounting Standards and the distributor's cost allocation methodology determine the allocation of overheads.

### A.7.1 Final decision

We are not satisfied that Powercor's revised capitalised overheads forecast reasonably reflects the capex criteria. We have included $228.6 million for capitalised overheads in our substitute estimate of total capex. This is $57.3 million (20 per cent) lower than Powercor's revised proposal. We are satisfied our substitute estimate forms part of a total capex forecast that meets the capex criteria.

### A.7.2 Powercor's revised proposal

Powercor did not accept our draft decision of $218.5 million for capitalised overheads. Its revised proposal included a capitalised overheads forecast of $285.9 million. Powercor did not accept our use of a 2016–19 average to forecast base overheads and did not accept our 75/25 ratio for fixed and variable overheads. Powercor proposed to apply the opex rate of change and 2019 capitalised overheads as the base.[121]

---

120 Powercor, *2021–26 revised regulatory proposal,* December 2020, p. 121.

121 Powercor, *Revised regulatory proposal 2021–26,* December 2020, p. 123.

### A.7.3 Reasons for final decision

We do not consider capitalised overheads should be forecast on the same basis as expensed overheads. The base, step and trend approach is used to forecast total opex. Expensed overheads form part of the total opex forecast. Similarly, capitalised overheads form part of total capex. It is not a requirement for opex and capex to be forecast on the same basis.

To assess capex, we typically compare capex over the current regulatory control period to the forecast regulatory control period. We do not select a single base year due to the more lumpy nature of capex. Although capitalised overheads may not necessarily vary year to year as much as direct capex, we do not consider a single year of capitalised overheads is sufficient to be representative of forecast capitalised overheads.

In addition, the basis for selecting a single base year in opex is the interaction between opex and the efficiency benefit sharing scheme (EBSS). Under the EBSS, a distributor does not benefit from shifting costs to, or increasing costs in, the regulatory year in which future opex forecasts will be based.[122] Another method for setting forecasts is to use an averaging method that provides the same incentive to reduce opex without an EBSS.

Powercor's methodology of applying the 2019 base year results in a 19.6 per cent increase in capitalised overheads relative to the current regulatory control period. This is before accounting for the difference between the current and the forecast regulatory control period capex. We do not consider such an increase in capitalised overheads between the current and the forecast regulatory control period is justified.

Powercor has also not accounted for the relationship between direct capex and capitalised overheads. Its revised proposal considered the 75/25 fixed and variable ratio of capitalised overheads to capex is incorrect because its forecast capex is higher than 2019 capex and our draft decision reduced capitalised overheads.

We do not consider Powercor's reasoning of using the rate of change and delinking of capitalised overheads with direct capex is reasonable.[123] However, we recognise that an increase or decrease in direct capex should result in an increase or decrease in capitalised overheads. For this reason, we have adjusted forecast capitalised overheads, using our standard 75/25 fixed variable proportion, for the 10 per cent decrease in direct capex that attracts overheads relative to historical direct capex. This results in a 2 per cent decrease in Powercor's capitalised overheads.

---

[122] AER, *Final decision, Electricity distribution network service providers, Efficiency benefit sharing scheme,* June 2008, p. 8.

[123] Direct capex includes the main categories of capex that attracts capitalised overheads. This includes repex, connections and augex.

We do not typically apply the rate of change to our capitalised overheads, as this is due to the potential for double counting opex output growth and changes in direct capex. However, we have retained Powercor's use of the rate of change and updated it to reflect our final decision opex rate of change. We consider using the rate of change in this instance does not materially affect forecast capitalised overheads.

The 2021–22 opex rate of change uses a 9-month calculation. This is to take into account the transition from calendar to financial year between regulatory control periods. We have applied this rate of change twice to allow for the 18-month time frame in Powercor's capex model.

# B Conductor replacement contingent project

Contingent projects are significant augex projects of uncertain timing. Capex associated with contingent projects does not form a part of our assessment of the total forecast capex that we approve in this determination. However, they are linked to unique investment drivers (rather than general investment drivers such as expectations of load growth in a region) and are triggered by a defined 'trigger' event. The occurrence of the trigger event must be probable during the relevant regulatory control period.[124]

If Powercor considers that a trigger event has occurred during the regulatory control period, then it may apply for additional allowable revenue. At that time, we will assess whether the trigger event has occurred and whether the project meets a threshold of $30.0 million or 5 per cent of the annual revenue requirement in the first year of the 2021–26 regulatory control period. If both conditions are satisfied, we will determine the efficient incremental revenue that is likely to be required in each remaining year(s) of the regulatory control period as a result of the contingent project and amend the revenue determination accordingly.[125]

## B.1 Assessment approach

In reviewing Powercor's proposed contingent project against the NER requirements[126], we considered whether:

- The proposed contingent project is reasonably required to achieve any of the capex objectives.[127]
- The proposed contingent project capex is not provided for elsewhere in the capex proposal.[128] Most relevantly, a distributor must include forecast capex in its proposal that it considers is required to meet or manage expected demand for standard control services over the regulatory control period.[129]
- The proposed contingent project reasonably reflects the capex criteria, taking into account the capex factors.[130] Importantly, this requires the expenditure to be efficient.
- The proposed contingent project capex exceeds the defined threshold.[131]

---

124 NER, cl. 6.6A.1(c)(5).

125 This is as per the process for assessing an application to undertake an approved contingent project, set out in NER, cl. 6.6A.2.

126 NER, cl. 6.6A.1.

127 NER, cl. 6.6A.1(b)(1).

128 NER, cl. 6.6A.1(b)(2)(i).

129 NER, cl. 6.5.7(a)(1).

130 NER, cl. 6.6A.1(b)(2)(ii).

131 NER, cl. 6.6A.1(b)(2)(iii).

- The trigger events are appropriate. This includes having regard to the requirements for trigger events as set out in the NER. The NER require the trigger event:
    i. to be reasonably specific and capable of objective verification[132]
    ii. to be a condition or event which, if it occurs, makes the project[133] reasonably necessary to achieve any of the capex objectives
    iii. 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 distribution network as a whole[134]
    iv. is described in such terms that the occurrence of that event or condition is all that is required for the revenue determination to be amended[135]
    v. is probable during the 2021–26 regulatory control period but the inclusion of the project 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 the costs associated with the event or condition are not sufficiently certain.[136]

We also considered the interaction between the total forecast capex included in our revenue determination and projects proposed as contingent projects. Where a project is included in total forecast capex, it cannot also be included as a contingent project.[137] In addition, the case for a contingent project needs to take into account the extent to which the forecast capex included in our revenue determination already caters for changes in the drivers that have an interrelationship with the contingent project.

## B.2 Final decision

We have included Powercor's proposed Ballarat West contingent project in our substitute estimate of total capex. As noted above, where a project is included in total forecast capex, it cannot also be included as a contingent project. We discuss this in further detail in attachment A.

We are not satisfied that Powercor's proposed conductor replacement contingent project is reasonably required to achieve the capex objectives. In particular, we are not satisfied that the expenditure will be required to comply with new or changed regulatory obligations or requirements, which are yet to be implemented. The existing regulatory framework allows distributors to pass through the costs of complying with a change in a regulatory obligation or requirement, through the regulatory change event category of pass through event.[138]

---

132 NER, cl. 6.6A.1(c)(1).
133 NER, cl. 6.6A.1(c)(2).
134 NER, cl. 6.6A.1(c)(3).
135 NER, cl. 6.6A.1(c)(4).
136 NER, cl. 6.6A.1(c)(5).
137 NER, cl. 6.6A.1(b)(2)(i).
138 NER, cl. 6.6.1.

Additionally, we are not satisfied that the proposed trigger events are appropriate, having regard to the need for the trigger events to be an event or condition, the occurrence of which is probable during the regulatory control period (but which may be sufficiently uncertain as to timing or cost, that that the inclusion of capex is not appropriate). We do not consider that it is necessarily probable that new or changed regulatory obligations or requirements will be imposed during the regulatory control period.

## B.3 Powercor's revised proposal

Powercor proposed its conductor replacement contingent project as part of its revised proposal. The contingent project was not included in its initial proposal. Powercor indicates the contingent project is in response to the potential introduction of new regulatory obligations or requirements by the Department of Environment, Land, Water and Planning (DELWP).[139]

Powercor noted that as the details of any potential changes in its obligations have not yet been announced, it is not possible to predict with any certainty the scope of works that would be required to comply with any new requirement. In addition, Powercor noted that the means by which it will be required to increase its capex on proactively undergrounding and insulating bare-wire power lines is currently unclear. Therefore, Powercor considered it appropriate to recover the proposed expenditure through the contingent project mechanism.

### Contingent project trigger

Powercor proposed that, in circumstances where one or more new or changed regulatory obligations or requirements in respect to high-voltage (HV) bare-wire power lines in electric line construction areas (ELCA) is imposed on Powercor during the forecast regulatory control period, the trigger event would occur when:

1. Powercor applies or reapplies a RIT-D to a project with the object of achieving compliance with the relevant regulatory obligations or requirements
2. Either:
    (a) no notice of dispute in relation to Powercor's conclusions in the final project assessment report is given to the AER within the timeframe provided for in the NER
    (b) the AER rejects all notices of dispute in relation to Powercor's conclusions in the final project assessment report or makes a determination, based on the grounds of dispute, that Powercor will not be required to amend the final project assessment report

[139] This follows DELWP's acceptance of a recommendation from the Victorian Auditor General's Office (VAGO) review into reducing bushfire risks that it investigate incentives to accelerate burying and insulating HV bare-wire power lines in ELCA.

(c) Powercor complies with a determination by the AER directing Powercor to amend the final project assessment report.

3. Powercor has committed internally to proceed with the project subject to the AER amending the distribution determination for the 2021–26 regulatory control period in accordance with the NER.[140]

### Contingent project capex

Powercor proposed the replacement of 2,788 kilometres (km) (1,359 route km) of conductors within its ELCA for a total cost of $212 million.[141] This consists of 416 km of SWER conductor and 2 372 km (943 route km) of multiphase conductor, which are multiplied by historical unit rates.

## B.4 Reasons for final decision

We do not accept the proposed contingent project on the basis that Powercor has not established that the contingent project is reasonably required to achieve any of the capex objectives, or that the proposed trigger events are appropriate as it does not appear probable that the proposed trigger events will occur during the 2021–26 regulatory control period.

The relevant Victorian Auditor-General's Office recommendation is for DELWP to 'investigate incentives and advise government on options to accelerate burying and insulating the remaining HV bare-wire powerlines in the 33 highest risk areas'.[142] This recommendation is not necessarily indicative of a new regulatory obligation being created. What appears to be contemplated is that incentives may be extended to Powercor to accelerate the achievement of existing regulatory obligations.

The CCP17's submission does not support the contingent project:

> 'Our view is that it will take some time for the Victorian Government to consider, appropriately engage and develop any recommendation to the point where a directive is likely. Also, the nature of any directive is unknown but would hopefully consider existing practices and the cost impact on consumers'.[143]

We agree with the CCP17 that any additional capex for conductor replacement within the ELCA needs to be considered along with Powercor's existing conductor replacement or augmentation programs, so that synergies and efficiencies are taken into account.

In the event that DELWP's review results in a change in regulation, it is not necessarily probable that Powercor will be required to fund the undergrounding or replacement project. In the current regulatory control period, the Victorian Government funded the

---

140 Powercor, *Revised regulatory proposal 2021–26, APP04 Uncertainty appendix,* December 2020, p. 31.

141 Powercor, *Revised regulatory proposal 2021–26, APP04 Uncertainty appendix*, December 2020, p. 31.

142 Victorian Auditor-General's Office, *Reducing bushfire risks*, October 2020, p. 13.

143 CCP17, *Submission on the Victorian EDPR Revised Proposal and draft decision 2021–26*, January 2021, p. 118.

Powerline Replacement Fund of $200 million, which required distributors to insulate 540.8 km of the existing 3,542 km of HV bare-wire powerlines in the highest bushfire consequence areas.[144] We do not consider that it is necessarily probable that Powercor would be required to fund the replacement.

Based on the information available, we are not satisfied that the proposed contingent project is reasonably required to achieve any of the capex objectives. In addition, if Powercor is required to fund the replacement project, it can recover its costs through the pass through mechanism if its costs materially increase.

[144] DELWP, *Powerline bushfire safety program progress report 2012–19,* p. 11.

# Shortened forms

| Shortened form | Extended form |
|---|---|
| 3G | Third Generation |
| ACS | alternative control services |
| AEMO | Australian Energy Market Operator |
| AER | Australian Energy Regulator |
| AIWM | Automated Integrated Works Management |
| AMI | advanced metering infrastructure |
| augex | augmentation expenditure |
| BMP | Bushfire Mitigation Plan |
| capex | capital expenditure |
| CCP17 | Consumer Challenge Panel, sub-panel 17 |
| CESS | capital expenditure sharing scheme |
| CRO | caution refer operations |
| CPI | consumer price index |
| DELWP | Department of Environment, Land, Water and Planning |
| DER | distributed energy resources |
| DUoS | distribution use of system |
| EBSS | efficiency benefit sharing scheme |
| ECA | Energy Consumers Australia |
| ELCA | electric line construction area |
| EMCa | Energy Market Consulting associates |
| EPC | enhanced pole calculator |
| ESV | Energy Safe Victoria |
| EVs | Electric vehicles |
| GFN | ground fault neutralisers |
| HIA | Housing Industry Association |
| HV | high-voltage |
| ICT | information and communications technology |
| km | kilometres |

| Shortened form | Extended form |
|---|---|
| kV | kilovolt |
| NEL | National Electricity Law |
| NEO | National Electricity Objective |
| NER | National Electricity Rules |
| NPV | net present value |
| opex | operating expenditure |
| PTRM | post-tax revenue model |
| POE | probability of exceedance |
| PV | photovoltaic |
| RAB | regulatory asset base |
| REFCL | rapid earth fault current limiter |
| repex | replacement capital expenditure |
| RIT-D | distribution regulatory investment test |
| SCS | standard control services |
| SI | Serviceability Index |
| STPIS | service target performance incentive scheme |
| SWT | sound wood thickness |
| SWER | single-wire earth return |
| VaDER | Value of DER |
| VBRC | 2009 Victorian Bushfires Royal Commission |
| VCO | Victorian Community Organisations |
| WACC | weighted average cost of capital |