DRAFT DECISION

Jemena
Distribution determination
2021 to 2026

Attachment 5
Capital expenditure

September 2020

AUSTRALIAN ENERGY REGULATOR

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Note

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

The draft 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 11 – Demand management incentive scheme and demand management innovation allowance mechanism

Attachment 12 – Not applicable for this distributor

Attachment 13 – Classification of services

Attachment 14 – Control mechanisms

Attachment 15 – Pass through events

Attachment 16 – Alternative control services

Attachment 17 – Negotiated services framework and criteria

Attachment 18 – Connection policy

Attachment 19 – Tariff structure statement

Attachment A – Victorian f-factor incentive scheme

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.[1] 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 and security of its network (the capex objectives).[2]

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).[3] 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)).[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 draft 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 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.

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1 These are services that form the basic charge for use of the distribution system.
2 NER, cl. 6.5.7(a).
3 NER, cl. 6.5.7(c).
4 NEL, ss. 7, 16(1)(a).
5 AER, *Capex assessment outline for electricity distribution determinations,* February 2020.

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

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

5.1 Draft decision

We do not accept Jemena's initial capex forecast of $627.1 million ($2020–21). While we are generally satisfied that Jemena's forecast reasonably reflects the capex criteria, we have had regard to updated information and economic conditions in arriving at an alternative estimate. Our alternative estimate of $602.3 million ($2020–21) is 4 per cent below Jemena's initial proposal. It is also 4 per cent higher than current period spend and therefore broadly in line with current period spend.

We are satisfied that our alternative estimate reasonably reflects the capex criteria. Table 5.1 outlines our draft decision.

Table 5.1 Draft decision on Jemena's total net capex forecast ($ million, 2020–21)

	2021–22	2022–23	2023–24	2024–25	2025–26	Total
Jemena's initial proposal	148.5	153.7	124.1	106.9	93.9	627.1
AER draft decision	136.1	146.1	122.5	105.2	92.3	602.3
Difference ($)	-12.4	-7.5	-1.6	-1.7	-1.6	-24.8
Difference (%)	-8	-5	-1	-2	-2	-4

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

Note: Numbers may not sum due to rounding.

The difference between Jemena's initial proposal and our draft decision capex is driven by the following:

- $9.4 million reduction for connections capex
- $9.1 million reduction for rapid earth fault current limiter (REFCL) augmentation capex (augex)
- $6.4 million reduction for updated real cost escalations to internal labour and contract labour. This amount accounts for an adjustment to the Consumer Price Index (CPI) that offsets the reductions for real cost escalation.

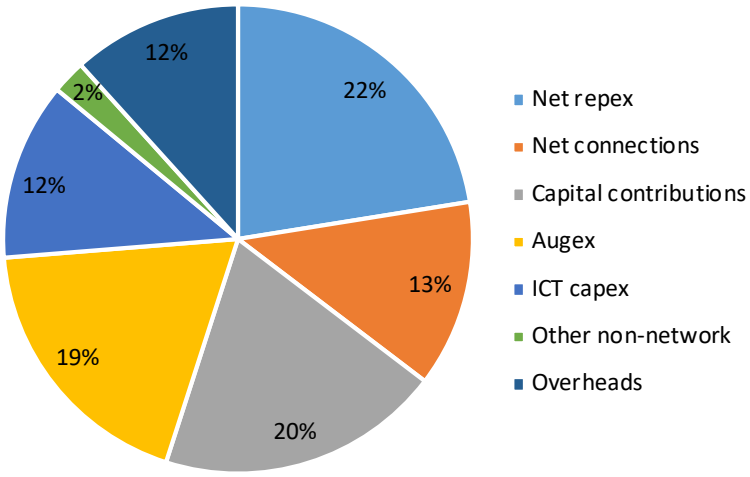
The differences listed above include our standard overheads adjustment to take into account changes to direct capex.

The adjustment to real cost escalation adopts Deloitte's forecasts released in late July 2020, which is consistent with our operating expenditure (opex) draft decision in Attachment 6. This is the only available Wage Price Index growth forecast that accounts for the effects of the COVID-19 pandemic. Our final decision will incorporate updated information and use our standard approach of averaging our consultant forecast and the forecast provided by Jemena, which in this case is BIS Oxford Economics.

5.2 Jemena's initial proposal

Jemena's initial capex forecast for the 2021–26 regulatory control period is $627.1 million. This is 9 per cent higher than its actual current period capex of $576.8 million over the 2016–20 regulatory control period.[6] Figure 5.1 outlines its initial capex forecast by capex driver. Figure 5.2 outlines Jemena's historical capex performance against its initial proposal and our draft decision.

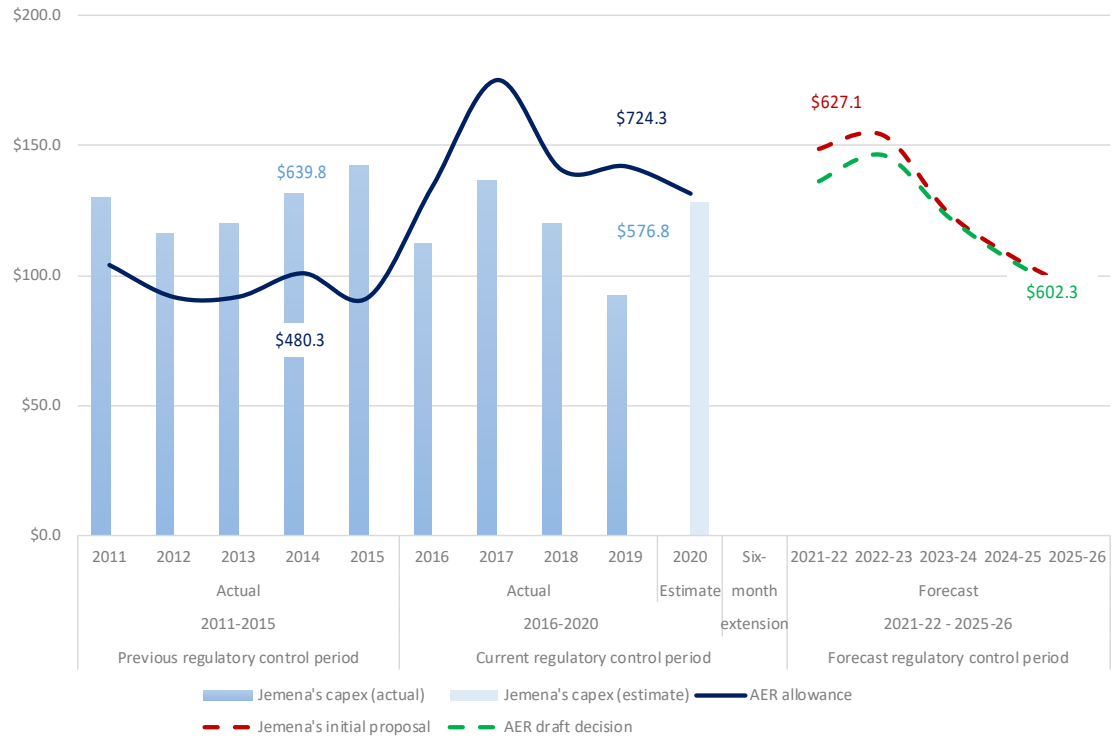
Figure 5.1 Jemena's initial total gross capex forecast



Source: Jemena's initial proposal and AER analysis.

[6] In this attachment, we compare forecast capex with actual capex in the current period; that is, calendar years 2016 to 2019 pro-rated to five years. The impact of the COVID-19 pandemic and the derivation of the calendar year 2020 estimate as the average of two financial year estimates creates uncertainty regarding the validity of the estimate.

Figure 5.2 Jemena's historical vs forecast capex snapshot ($ million, 2020–21)



Source: Jemena's initial proposal and AER analysis.

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

5.3 Reasons for draft decision

We are not satisfied that Jemena's total capex forecast reasonably reflects the capex criteria. We are therefore required to set out an alternative estimate.[7] Our alternative estimate is broadly in line with current regulatory control period spend considering the effect of Jemena's REFCL expenditure for bushfire mitigation obligations. We are satisfied that our alternative 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.

With the exception for changes to economic conditions and REFCL forecasts, we consider Jemena's forecast of total capex was reasonable.

We typically analyse a distributor's total capex forecast from a top-down[8] perspective. This top-down review forms the starting point of our capex assessment to determine

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

[8] A top down analysis focusses on overall trends and adjustments rather than a bottom-up analysis which focusses on aggregating category specific drivers.

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. From both reviews, we are generally satisfied that Jemena's forecast reasonably reflects the capex criteria after accounting for adjustments to connections, REFCL augex and real cost escalation.

From a top-down perspective, while some metrics indicate that Jemena's capex proposal was capable of acceptance, other metrics suggested otherwise:

- With the capital expenditure sharing scheme (CESS) applying in the current period, we place weight on Jemena's forecast capex being a moderate 9 per cent increase relative to its current period spend. Further, Jemena's forecast capex is 2 per cent higher than its longer term capex trend, going back to the start of the 2011–15 regulatory control period. The drivers of the increase are distributed energy resources (DER) integration capex and REFCL augex. Jemena's 2019 net capex is lower due to a one off gifting of assets which increased its capital contributions by $15 million for that year.[9]
- Jemena's expected underspend in the current period is 21 per cent. Of the Victorian distributors, Jemena provided the most comprehensive and transparent information in identifying the drivers of its capex underspend and deferrals.[10]
- Jemena's material underspend also highlights that it can manage and maintain its network at a more efficient level. During the current regulatory control period, Jemena improved its network reliability and reduced fire starts, reflecting it can effectively manage risk on its network. This provides us with confidence that Jemena's current regulatory control period spend is a reasonable forecast to address its network requirements. We are therefore satisfied that our alternative estimate which is in line with current regulatory control period spend will provide Jemena with sufficient revenue to meet its capex objectives under the NER.
- Jemena did not provide detail on a formal top-down challenge or adjustment to its forecast, but indicated it employed combinations of bottom-up and top-down methodologies in developing the forecast.[11]
- Victorian Community Organisations submitted that reducing network charges must be prioritised to ensure the affordability of an essential service for all Victorians. It stated that continued RAB growth should be avoided to reverse the ongoing trend of rising electricity prices.[12] Figure 5.3 shows Jemena's forecast RAB initially growing but stabilising mid-period, with our draft decision reducing the extent of the growth.

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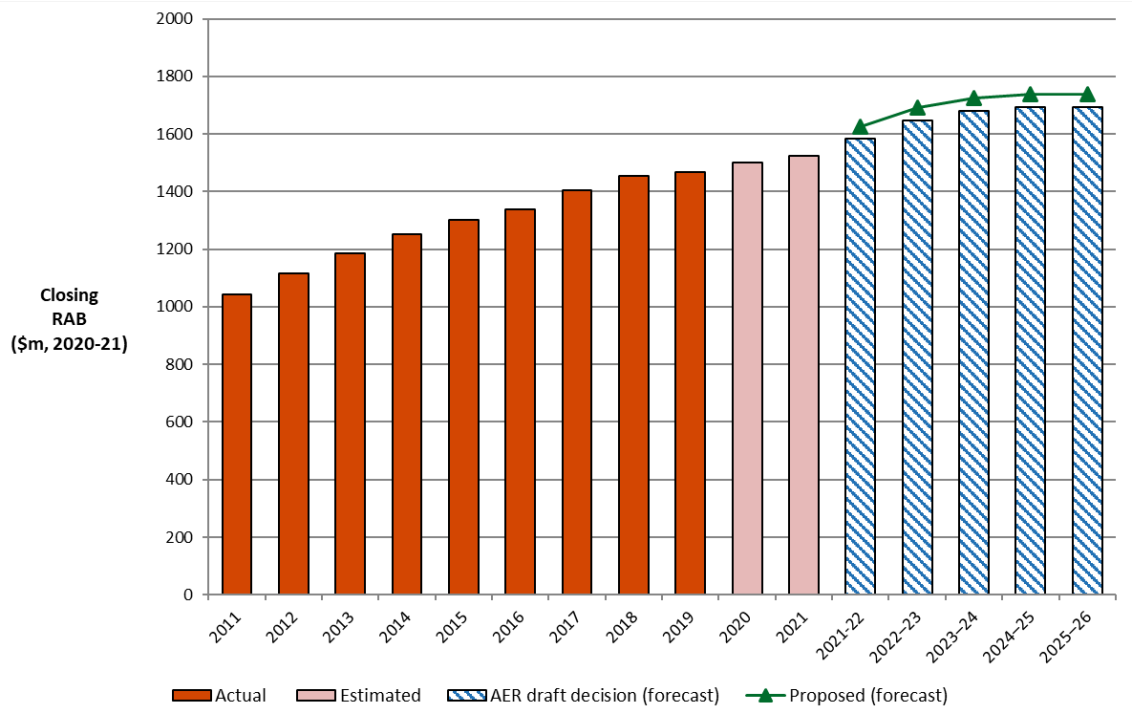
9 Jemena, *Information request 039*, June 2020, p. 2.

10 Jemena, *2021–26 Regulatory proposal – attachment 05-02 – historical capital expenditure,* January 2020; Jemena, *Information request 012*, May 2020.

11 Jemena, *2021–26 Regulatory proposal – attachment 05-01 – forecast capital expenditure*, January 2020, p. B-3.

12 Victorian Community Organisations, *2021–26 Victorian EDPR,* May 2020, p. 1.

Figure 5.3 Value of Jemena's RAB over time ($ million, 2020–21)



Source: AER analysis.

- Stakeholders were reasonably comfortable with Jemena's capital program design.
    - The AER's Consumer Challenge Panel (CCP17) stated that Jemena's approach to customer engagement[13] is 'at the forefront of both development and application of consumer engagement approaches' and that it is overall 'reasonably comfortable with Jemena's capital proposal'.[14] CCP17 commended Jemena for obtaining accreditation for asset management system and information technology security as a robust, transparent approach to asset management governance[15], and for the transparency in providing the explanatory document for the current period capex.[16]
    - Energy Consumers Australia also supported Jemena's current period capex explanatory document and agreed that compliance with ISO 55001 provides

[13] A significant component of Jemena's customer engagement approach involved the People's Panel, comprising 43 people from Jemena's customer base. The People's Panel produced five recommendations relating to capex, which are: maintaining the current number of outages and length of outages, improving channels of customer service, enabling DER and investing in smart technology. The last two informed Jemena's Future Grid program.

[14] CCP17, *Advice to the AER on the Victorian electricity distributors' regulatory proposals 2021–26,* June 2020, pp. 23 and 80.

[15] International standards ISO 55001 (Asset Management – Management Systems – Requirements) and ISO 27001 (Information technology – Security techniques – Information security management systems).

[16] CCP17, *Advice to the AER on the Victorian electricity distributors' regulatory proposals 2021–26,* June 2020, p. 79.

> a level of comfort to Jemena's augex and replacement capex (repex) program design.[17]

As we were not fully satisfied that Jemena's forecast capex was prudent and efficient, we undertook a thorough targeted bottom-up review. Our bottom-up review focusses on drivers of capex that have increased relative to current regulatory control period capex.

Table 5.3 summarises and appendix A outlines our bottom-up assessment, including how we have applied our assessment techniques and how we came to our position. Our assessment highlighted that, in light of updated information and economic conditions, Jemena's proposed connections capex, REFCL augex, and real cost escalation would not form a total capex forecast that reasonably reflects the capex criteria.

We found no other material issues to support further adjustments. We outline two examples of our concerns identified in the bottom-up review and our expectations for Jemena to account for in future proposals:

- For repex, we would typically expect further quantitative support in the form of risk-quantification and cost-benefit analysis of programs like Jemena's pole top fire mitigation program. After reviewing several factors, including the program materiality and quality of other supporting information, we considered any efficiency adjustment would be immaterial.
- We did not find any material issues with Jemena's optimised asset investment program in information and communications technology (ICT) but we acknowledge the expected benefits of the program are realised after 2027. Therefore, we expect Jemena will reflect the program benefits—reduced augex and repex—in future capex forecasts.

The remainder of this section sets out the specific break-down of our capex allowance.

Table 5.2 outlines the capex amounts by driver that we have included in our alternative estimate of $602.3 million. Table 5.3 summarises the reasons for our alternative estimate by capex driver. This reflects how we have assessed Jemena's 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 an alternative estimate for total capex where necessary.

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[17] Spencer and Co, *Report to ECA on Victorian 2021–26 regulatory proposals*, June 2020, pp. 9, 12 and 18.

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

Driver	Jemena's initial proposal	AER draft decision	Difference ($)	Difference (%)
Gross repex[18]	210.9	208.4	-2.5	-1
Augex[19]	146.5	136.7	-9.8	-7
Gross connections	218.0	198.0	-20.1	-9
ICT capex	95.7	95.0	-0.7	-1
Other non-network capex	18.2	18.2	0.0	0
Capitalised overheads	91.2	89.0	-2.1	-2
Gross capex	**780.5**	**745.4**	**-35.2**	-5
less capital contributions	153.0	142.6	-10.4	-7
less asset disposals	0.5	0.5	0.0	0
Net capex	**627.1**	**602.3**	**-24.8**	-4

Source: Jemena's initial PTRM, subsequent information request responses and AER analysis.

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

Table 5.3 Summary of our findings and reasons

Issue	Findings and reasons
Total capex	We do not accept Jemena's total net capex forecast of $627.1 million. We are generally satisfied with Jemena's forecast, except where we have made adjustments for connections, REFCL augex and real cost escalations to account for updated information and economic conditions since the proposal. Our draft decision is in line with current period total capex. Note that each capex category was adjusted due to amendments to the CPI and real cost escalations.
Repex	Jemena has demonstrated that its repex forecast forms part of a total forecast capex that reasonably reflects the capex criteria. We conducted a bottom up assessment and found no material issues. Jemena's modelled repex is below the repex model threshold. We outline some concerns with Jemena's pole top fire mitigation

[18] Jemena's proposed net repex is $175.3 million after accounting for $35.6 million in capital contributions associated with major customer-initiated asset relocations.

[19] Jemena proposed $28.8 million for its Future Grid program, which comprises its Enabling DER program ($10.8 million for augex and $12.7 million for ICT capex) and its optimised asset investment program ($2.0 million for augex and $2.9 million for ICT capex).

Issue	Findings and reasons
	program in Appendix A.1.3. These concerns were not material in the context of a capex forecast in line with current period spend.
DER capex	Jemena has adequately supported most aspects of its DER integration capex proposal. While we have some concerns with elements of the proposal, we do not consider an additional adjustment specific to this capex category is required in the context of our alternative estimate being in line with current period spend.
Augex	We are mostly satisfied with Jemena's proposed non-DER augex, aside from REFCL augex. Jemena is currently pursuing an exemption for its REFCL augex to progress its preferred solution. Based on information provided by Jemena, our draft decision is an indicative estimate of $34 million compared to the original $43 million until updated information is available. We will consider this for the final decision.
Connections capex	We do not accept Jemena's net connections forecast of $100.7 million due to updated economic conditions associated with COVID-19. We have adjusted Jemena's connections forecast for financial year 2021–22 based on updated dwelling forecasts by the Housing Industry Association, and retained Jemena's connections forecast for the remaining regulatory years. This reduces the connections forecast by $8.5 million, or 8 per cent, to $92.2 million.
ICT capex	We accept Jemena's ICT capex, which is below current period spend. We assessed Jemena's recurrent ICT capex separately using top-down and benchmarking analysis, which indicates an increase on current regulatory control period spend and that Jemena benchmarked well against its Victorian peers. However, this increase is outweighed by a larger decrease in non-recurrent expenditure, reflecting a shift from current regulatory control period non-recurrent expenditure to ongoing maintenance of systems captured in the forecast recurrent ICT expenditure. We found no material issues with Jemena's ICT forecast. However, Jemena has indicated it intends to propose additional capex for advanced metering infrastructure migration in its revised proposal. We will assess this in our final decision.
Other non-network capex	We accept Jemena's non-network capex. We found no material issues with the forecast and the forecast is below current regulatory control period spend, which is largely driven by a reduction in property capex.
Capitalised overheads	We accept Jemena's capitalised overheads methodology and we have adjusted capitalised overheads to reflect a lower total forecast direct capex. This is consistent with our standard overheads methodology.

Issue	Findings and reasons
Modelling adjustments	Modelling adjustments relate to Jemena's CPI and real price escalation assumptions. We have updated Jemena's labour price growth to be consistent with our opex decision, as set out in Attachment 6. In addition, consistent with our standard approach, we have assumed contract labour price growth in line with CPI only over the forecast regulatory control period. These modelling adjustments reduce the net capex by $6.4 million.

A Capex driver assessment

This appendix outlines our detailed analysis of Jemena'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 Jemena's 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.[20] In particular, we take into account whether our overall capex forecast will provide Jemena 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.[21]

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.[22]
- past expenditure was sufficient for the distributor to manage and operate its network in previous periods, in a manner that achieved the capex objectives.[23]
- 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).[24]
- 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.[25]

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

21 NEL, s. 7A.

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

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

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

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

A.1 Repex

Repex must be set at a level that allows a distributor 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 of the asset 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[26]
- 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.

A.1.1 Draft decision

We are satisfied that Jemena's repex forecast reasonably reflects the capex criteria in the context of the overall capex forecast. We outline some of our analysis and concerns in Section A.1.3.

A.1.2 Jemena's proposal

Jemena proposed $175.3 million for net repex for the 2021–2026 regulatory control period.[27] This is 25 per cent higher than its current regulatory control period spend. Repex accounts for 28 per cent of Jemena's total forecast net capex of $627.1 million.

A.1.3 Reasons for final decision

We have applied several techniques to assess Jemena's repex forecast against the capex criteria, including trend analysis, predictive repex modelling, a review of system average interruption frequency index (SAIFI) results and consideration of bottom-up and top-down methodologies. In the case of pole top structures, we have also had regard to the CCP17's concerns.

Total repex trend analysis

We must have regard to actual and expected capex during any preceding regulatory control period.[28] Trend analysis of a distributor's past expenditure allows us to draw general observations about how a business is performing and provides a sanity check

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[26] A condition assessment may relate to 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.

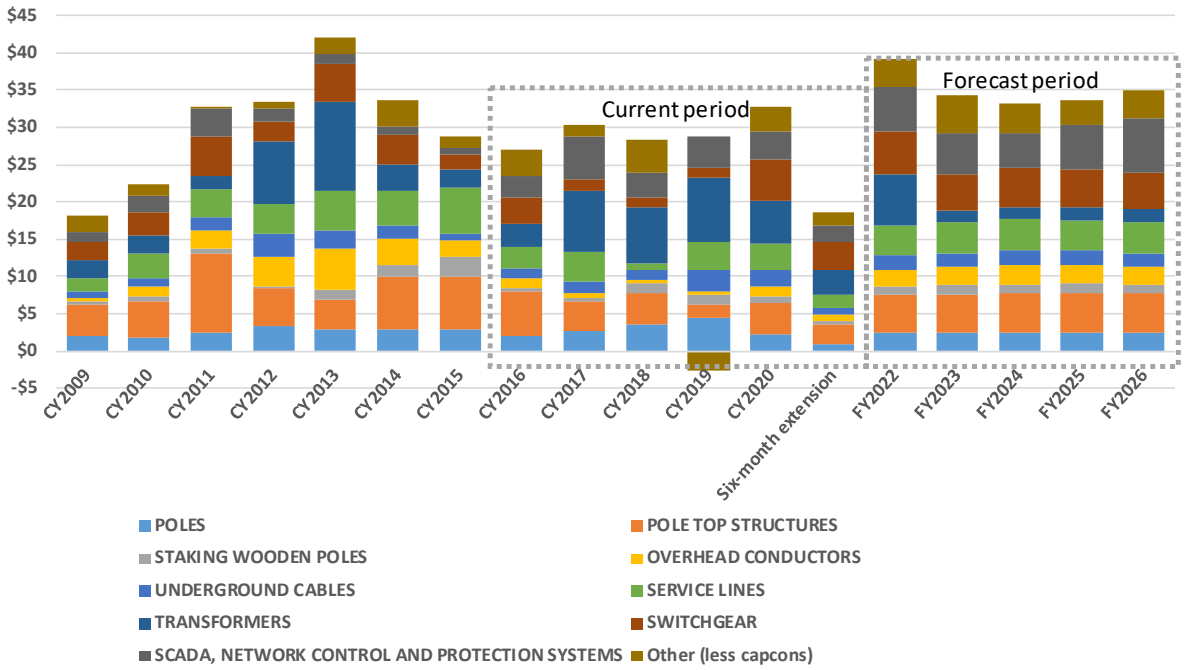
[27] The forecast gross repex is $210.9 million, which includes capital contributions for repex of $35.6 million associated with major customer initiated asset relocations.

[28] NER, cl. 6.5.7(e)(5).

against our predictive modelling results. For some repex categories, where past expenditure was sufficient to achieve the capex objectives, this can be a reasonable indicator of whether the forecast repex is reasonable.[29]

Figure A.1 shows Jemena's historical and forecast total net repex by asset group. The forecast net repex is 25 per cent higher than the current regulatory control period spend, driven by forecast increases in overhead conductors, service line replacements and zone substation replacement programs (including switchgear and associated protection and control equipment replacements). Reductions in repex for poles and zone substation transformers partially offset the increases in other asset groups.

Figure A.1 Jemena's historical and forecast net repex by asset group ($ million, 2020–21)



Source: AER analysis of Jemena regulatory information notice (RIN) data and response to information request 022.

Note: In 2019, the negative 'other' repex represents a timing difference between incurring the expenditure and receiving the customer capital contributions. Values for 2020 and the six-month extension are estimates.

Assessment of top-down and bottom-up methodologies

We have had regard to Jemena's forecast methodology, business cases, and asset class strategies. As part of our information requests, Jemena also provided quantitative cost-benefit analyses used to inform some of its business cases and repex forecast.

[29] AER, *Expenditure Forecast Assessment Guideline for Electricity Distribution*, November 2013, pp. 7–9.

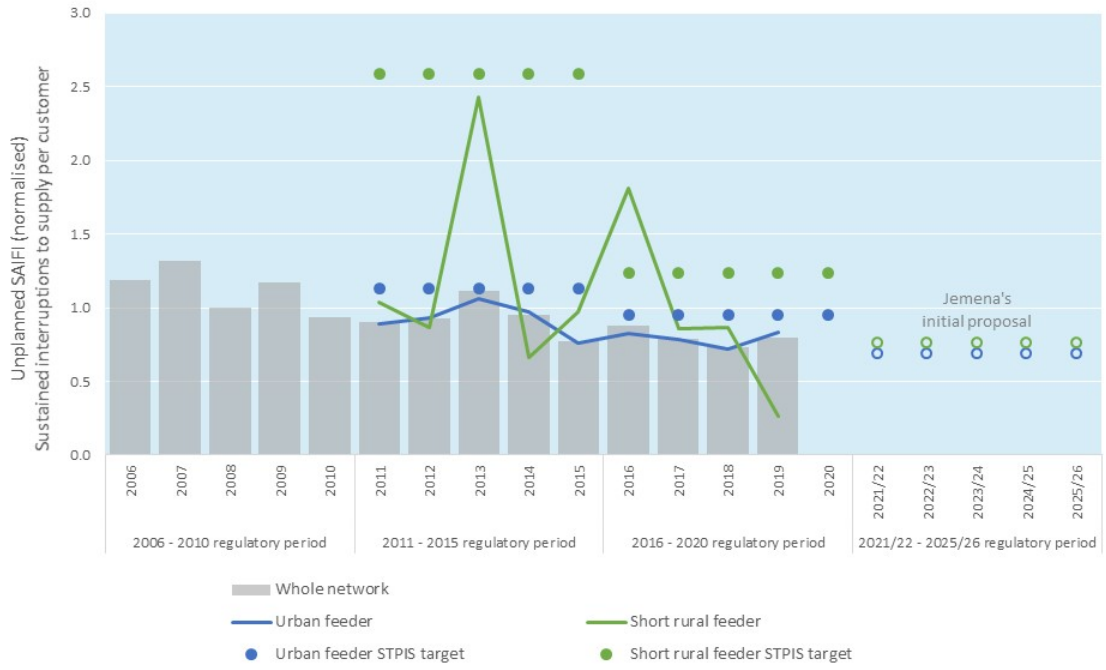
Jemena's repex forecast is developed on a project/program level (bottom-up) basis, with project costs developed using a combination of bottom-up and top-down estimations (such as costings from similar scoped projects). Jemena's prioritisation process involves identifying all projects, ranking them based on net customer benefit and removing any projects with relatively low or insensitive net customer benefits. Jemena used the repex model as a top-down validation of the bottom-up build of modelled repex projects as discussed below under modelled repex.

SAIFI results for Jemena

Figure A.2 shows Jemena outperforming reliability targets from 2011 with a declining trend in the number of customer supply interruptions from 2009, as measured by the SAIFI. This suggests that Jemena's current levels of capex, especially repex, has allowed it to at least maintain service level outcomes. These results also indicate that Jemena is expected to further improve against its SAIFI targets in the forecast period.

In terms of fire starts, Jemena highlighted in its proposal a decline in pole and crossarm fire starts to 2017.[30] More recently, Jemena's F-factor results from 2016–17 to 2018–19 indicate a stable number of fire starts in its network.

Figure A.2 Jemena's SAIFI performance over time



Source: AER analysis.

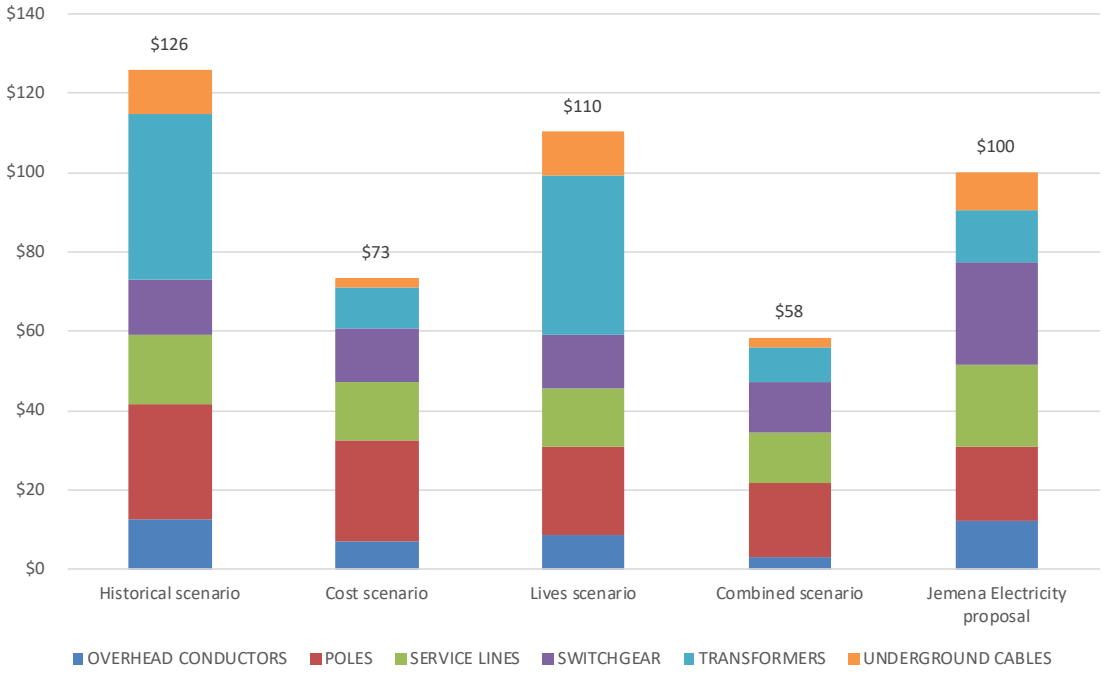
[30] Jemena, *2021–26 Regulatory proposal – attachment 05-01 – forecast capital expenditure*, January 2020, p. 38.

Modelled repex

Jemena proposed $100.1 million for modelled repex, which is 57 per cent of the total net repex.[31] We are satisfied that the forecast modelled repex forms part of a total capex forecast that reasonably reflects the capex criteria.

Figure A.3 presents the repex modelling scenario analysis and results for Jemena.[32] Jemena's forecast of $100.1 million is 9 per cent lower than the repex model threshold[33]—the lives scenario—of $110.2 million. This indicates that on average, Jemena's forecast has higher unit costs and longer expected replacement lives than other distributors. A forecast that is below the threshold scenario is capable of acceptance.

Figure A.3 Repex modelling results ($ million, 2020–21)



Source: AER analysis. See AER, *Draft Decision - Repex Model*, September 2020.

Notes: Historical Scenario uses historical unit costs and calibrated expected replacement lives. Cost Scenario uses comparative unit costs[34] and calibrated expected replacement lives.

[31] Modelled repex refers to six out of nine asset groups which are suitable for predictive modelling due to the asset homogeneity and typically high-volume, low-value characteristics. This includes: poles, overhead conductors, underground cables, transformers, service lines and switchgear.

[32] Input data, including the NEM median data, and the repex model results outputs are published alongside this decision. See, AER, *Draft Decision - Repex Model*, September 2020.

[33] The repex model threshold is the higher of the cost scenario and the lives scenario. We use the threshold to compare with the distributor's forecast.

[34] Minimum of a distributor's historical unit costs, its forecast unit costs and the median unit costs across the NEM.

Lives Scenario uses historical unit costs and comparative expected replacement lives.[35] Combined Scenario uses comparative unit costs and comparative expected replacement lives.

Comparing the lives scenario and Jemena's forecast highlights a change in zone substation replacement focus from transformers in the current regulatory control period to switchgear in the forecast period. Jemena has proposed several zone substation switchgear replacements, which explains the larger contribution in the right column of Figure A.3. Jemena's forecast is also higher for service lines and overhead conductors but lower for poles, transformers and underground cables.

We assessed the $18.2 million zone substation switchgear program including reviewing business cases and supporting information. Although the switchgear expenditure assessed in isolation may not be entirely justified, we consider the switchgear repex is capable of acceptance when assessing the modelled repex in aggregate given it is below the threshold. Therefore, we have accepted the zone substation switchgear replacement program as part of accepting the modelled repex.

General repex modelling approach for the Victorian electricity distribution determinations

We applied a consistent modelling approach across the Victorian distributors. Two of the assumptions discussed below are the transition from calendar year to financial year, and the calibration period.

The Victorian determinations are transitioning from a calendar year basis to a financial year basis. We have relied on reported calendar year data as our input data.[36] To estimate the forecast repex requirements in financial year basis, we have taken the average of the 2021 and 2026 calendar years, along with the full forecast for 2022, 2023, 2024 and 2025.[37] This approach ensures that we capture a distributor's most recent replacement practices via its most recent actual reported and audited information.

For the Victorian electricity distribution determinations, we have relied on the four most recent calendar years (2016–2019 inclusive) as our calibration period.[38] Due to the six-month transition from a calendar year basis to a financial year basis, we have four full years of current period data available for the draft decision.[39]

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35 Maximum of a distributor's calibrated replacement life and the median replacement life across the NEM.

36 Data reported as part of the annual Category Analysis regulatory information notices.

37 This is consistent with the approach undertaken in Jemena's modelling. Jemena, *2021–26 Regulatory proposal – attachment 05-05 – AER repex modelling*, January 2020, p. 10.

38 The calibration period refers to the historical time period selected to analyse a distributor's historical replacement practices that is most representative of a distributor's expected future repex requirements. In doing so, we have regard to changes in legislative obligations or other factors that may affect our analysis or a distributor's historical replacement practices. See AER, *Review of repex modelling assumption*s, December 2019, p. 7.

39 We usually have three full years of current period data.

Unmodelled repex

Jemena proposed $75.2 million for unmodelled[40] repex, which is 43 per cent of the total net repex. Overall, we accept the unmodelled repex as part of the total capex forecast.

In conjunction with the zone substation switchgear replacement program (part of modelled repex), Jemena proposed $23.2 million for protection relay replacement program as part of the forecast $29.2 million for supervisory control and data acquisition (SCADA), network control and protection systems. The delivery synergies with the switchgear replacement program are reasonable and we consider it is acceptable as part of Jemena's zone substation replacement program.

Pole top structures

Jemena proposed $25.9 million for pole top structures, which is a 33 per cent increase on current regulatory control period spend. This included $8.6 million for a pole top fire mitigation program. We requested additional information from Jemena regarding the forecasting approach, risks being addressed, and interrelationships with the remaining $17.3 million condition-based replacement program. Jemena provided thorough responses to a number of our concerns, including:

- Avoiding double counting of crossarm replacement volumes. Jemena utilised the Condition Based Risk Management (CBRM) model to determine the crossarm replacement volume likely required in the forecast regulatory control period. The volumes for the pole top fire mitigation program were deducted from the total volume forecast by the CBRM model, so Jemena has accounted for the interrelationship with the condition-based replacement program and avoided double counting these volumes.
- Providing more recent data for crossarm fires to support the continuation of the program. CCP17 submitted that 'We also observe a falling trend of pole and crossarm fires, questioning the justification of $8.6M risk-based pole top fire mitigation programme.'[41] As part of the information we requested, Jemena provided additional data specific to crossarm fires (not included in the regulatory proposal) indicating an uptick in the last three years as support for the continuation of the program to arrest the uptick.[42]

We would typically expect further quantitative information in support of its forecast. However, in this case, we have included $8.6 million for the pole top structure program

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40 Unmodelled repex refers to asset groups that are not suited to predictive modelling including SCADA, pole top structures and 'other' assets. This could be due to having asset populations that are small and/or relatively heterogeneous. Additionally, these assets may not have adequate age profile data because of a lack of data collected.

41 CCP17, *Advice to the AER on the Victorian Electricity Distributors' Regulatory Proposals for the Regulatory Determination 2021–26,* 10 June 2020, p. 83.

42 Jemena, *Information request 013 and 013A,* May 2020.

into the overall capex allowance, having regard to a number of considerations. These include the overall quality of information provided by Jemena to support its repex programs, positive engagement to address our concerns, and materiality of this program in the context of an overall capex forecast which is in line with current period spend.

A.2 DER integration capex

DER include 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 LV network and manage changes being driven by technological developments (batteries and EVs).

A.2.1 Draft decision

Jemena has justified its forecast $28.8 million for DER integration. We are satisfied that this forecast DER integration capex forms part of a total capex forecast that reasonably reflects the capex criteria. In coming to our position, we have identified some elements which we consider Jemena has not demonstrated against the capex criteria; however, this does not change our position on Jemena's forecast capex overall.

A.2.2 Jemena's initial proposal

Jemena's proposed Future Grid program, which we have considered as DER integration, is comprised of two main interdependent initiatives:

- Enabling DER ($10.8 million augex, $12.7 million ICT capex) – to support increased two-way flows and energy trading by customer. It involves expenditure to improve visibility on the LV network to improve hosting capacity for DER.
- Optimised asset investment ($2.0 million augex, $2.9 million ICT capex) – real-time condition monitoring of network assets and other activities to improve network utilisation and optimise future network investment decisions.[43]

A.2.3 Reasons for draft decision

Jemena has supported most aspects of its DER integration capex proposal. We provide the following observations from our assessment:

- Jemena has undertaken a net present value analysis period of 20 years, we consider this is consistent with our standard practice for repex and augex. We have

[43] Jemena, *2021–26 Regulatory proposal – attachment 05-01 – forecast capital expenditure*, January 2020, pp. 90–91.

also adopted this for DER consistent with our CitiPower, Powercor and United Energy draft decisions.

- Jemena assumes that constraints will occur at the LV feeder once DER penetration has reached 30 per cent. However, although we acknowledge that constraints begin to occur at 30 per cent, penetration rates above 30 per cent can still be achieved.
- For the optimised asset investment program, we found no material issues. However, the expected benefits of this program are not expected to materialise until 2027 with reductions in both augex and repex. We expect these reductions will be reflected in future capex forecasts.
- Jemena's People's Panel recommended enabling increased feed-in of solar into the grid, by improving the performance of the grid through new technologies.
- Our assessment is consistent with stakeholder feedback. For example, CCP17 noted that it was comfortable with Jemena's proposal to increase the capability to make more informed network investments. CCP17 also noted that Jemena responded to customer feedback to ensure that network equipment would not be upgraded too early.[44]
- Energy Australia noted that Jemena's use of the Essential Services Commission's single rate minimum feed-in tariff of 7 c/kWh is likely to be overstated in comparison to other distributors' proposals of 4.7 c/kWh.[45]

Similar concerns were raised in response to our consultation paper on *Assessing DER Integration Expenditure*,[46] in addition to a lack of consistency across distributors in valuing the benefits associated with investing in DER integration. In response, we and the Australian Renewable Energy Agency commissioned the value of DER (VaDER) study earlier this year.[47] The Commonwealth Scientific and Industrial Research Organisation and Cutler-Merz were engaged to conduct a study into potential methodologies for valuing DER and have extensively engaged with stakeholders, including Jemena, as part of the study.

The final report of the VaDER study is due to us in early October 2020, which will help to address some of the stakeholder concerns outlined above. We will publish the final report as soon as practicable. We will then consider the report's recommendations and formally implement them as we consider appropriate as part of our DER integration expenditure guideline, now due for completion in 2021. Given the extensive

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44 CCP17, *Advice to the AER on the Victorian Electricity Distributors' Regulatory Proposals for the Regulatory Determination 2021–26*, 10 June 2020, p. 102.

45 Energy Australia, *Submission to Victorian Electricity distribution determinations 2021–26 regulatory proposals*, June 2020, pp. 13–14.

46 See: https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/assessing-distributed-energy-resources-integration-expenditure/initiation.

47 See: https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/assessing-distributed-energy-resources-integration-expenditure/consultation.

stakeholder engagement in forming the VaDER study's recommendations, we anticipate that consumers will expect Victorian distributors to prepare their revised proposals in the spirit of these recommendations.

Overall, we consider Jemena's DER integration is a proportional step in responding to increasing DER penetration. We do not consider an additional adjustment for DER integration capex is required as we consider our overall capex alternative is prudent and efficient.

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 Draft decision

Jemena's non-DER augex proposal forms part of a capex forecast that reasonably satisfies the capex criteria.

A.3.2 Jemena's initial proposal

Jemena proposed $131 million in non-DER augex. Reflecting the different drivers and Jemena's classification, we have divided this between:

- $88 million for traditional augex, driven by demand forecasts and upgrading its voltage standards; and
- $43 million for REFCL augex.

Jemena proposed $55 million for augmentation projects where it identifies demand as the major driver, and $33 million for projects intended to address both demand and the need to upgrade and replace assets that use a legacy voltage standard.

The key projects include its $27 million Preston Conversion program, to complete a voltage upgrade, and $26 million for construction, upgrade or reconfiguration of high voltage feeders.

Jemena forecasts growing maximum demand on its network, based on modelling it commissioned.

A.3.3 Reasons for draft decision

Traditional augex

Jemena's traditional augex forecast broadly aligns with its historical expenditure. We assessed its Preston Conversion program bottom-up and found its forecast prudent and efficient.

We assessed Jemena's demand forecasts, in comparison to those produced by the Australian Energy Market Operator (AEMO) in 2019. Whereas Jemena forecast non-coincident summer network peak demand to increase by 5 per cent over 2020–26, AEMO forecast a 1 per cent decline. We consider AEMO's forecast more reasonable, given its better history of producing accurate forecasts and having considered specific assumptions made in Jemena's modelling.

However, where demand growth is most likely to be similar to demand growth in the current regulatory control period, historical expenditure is likely to be a reasonable basis for a prudent and efficient forecast. This is after excluding any effects from changed regulatory obligations. AEMO's 2019 forecasts for the next regulatory period

are broadly aligned with the flat maximum demand on Jemena's network over the current regulatory control period. Hence Jemena's flat forecast for traditional augex is reasonable.

As AEMO's latest forecasts for Jemena's network were produced in 2019, its 2020 terminal station demand forecasts are likely to be lower due to COVID-19 (as AEMO's 2020 state-wide forecasts are moderately lower). If so, we would assess whether these forecasts lead to a material reduction in Jemena's augex forecast below its proposal in the final decision.

REFCL

Jemena proposed $43 million for REFCL augex for bushfire mitigation obligations. Following the Victorian Bushfires Royal Commission in 2009, legislative amendments were introduced to reduce the likelihood of bushfire starts from electrical equipment faults.[48] These amendments place regulatory obligations to achieve certain technical requirements (referred to as 'required capacity') at 45 zone substations in Victoria — including Jemena's Coolaroo zone substation.[49] A REFCL is a technology installed at the zone substation that is used to achieve the required capacity to reduce the risk of faulted powerlines starting bushfires.

In May 2020, Jemena applied for an exemption for some of Coolaroo's underground lines and low-risk urban overhead segments of lines.[50] As part of Jemena's engagement with us, Jemena provided an indicative estimate of $34 million should the exemption be approved.[51] Jemena also indicated it would provide, as part of the revised proposal, supporting analysis for its preferred solution by comparing the longer term costs of different options. Considering this, a placeholder of $34 million is appropriate until the exemption is approved and Jemena finalises its REFCL forecast for the preferred solution.

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48 *Electricity Safety (Bushfire Mitigation) Regulations 2013* (Vic) and *Electricity Safety (Bushfire Mitigation Duties) Regulations 2017* (Vic).

49 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.

50 Jemena applied for an exemption under the *Electricity Safety Act 1998* (Vic) s. 120W and the *Electricity Safety (Bushfire Mitigation) Regulations 2013* (Vic) s. 13.

51 Jemena, *Email RE: Treatment of JEN's REFCL in the draft decision*, 25 June 2020.

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 Draft decision

We do not accept Jemena's connections and capital contributions forecasts as COVID-19 has since affected construction activity. Our alternative forecast adjusts net and gross connections downwards by 9 per cent, to $92.2 million and $198.0 million respectively, based on a dwelling forecast by the Housing Industry Association (HIA).

A.4.2 Jemena's initial proposal

Jemena proposed $218.0 million for gross connections, and $117.4 million for connections capital contributions.

A.4.3 Reasons for draft decision

Jemena forecast connections based on forecast construction activity prior to COVID-19, which has strongly affected the construction industry, and is likely to continue to reduce activity due to its effect on net migration and overall output.

Compared to current regulatory control period expenditure, prior to COVID-19 effects, Jemena's net connections capex is reasonable from a top-down perspective. On a yearly basis, compared to the three and a half years for which we have actuals under its current connections policy (since July 2016), Jemena forecast a 1 per cent decline (including after applying its real escalation).

We have therefore adopted this forecast but made a COVID-19 adjustment, based on HIA forecasts released in April. We have used these forecasts as they provide a Victoria-specific forecast and extend one year into the forthcoming regulatory control period.[52] To estimate the effects of COVID-19 over financial year 2021–22, we compared forecast dwelling starts with actual yearly dwelling starts prior to COVID-19 over the current regulatory period (calendar years 2016–19). This gives a ratio of 0.58. This is an approximate measure of the forecast effects of COVID-19, as this is the major factor the HIA sought to account for in producing these forecasts. We then applied this ratio to Jemena's forecast gross connections and capital contributions for 2021–22. This results in an 8 per cent reduction to both, reducing net connections by $8.5 million compared to Jemena's proposed $100.7 million (after connections capital contributions only).

Currently, the duration of the main consequences of COVID-19 is highly uncertain. The Reserve Bank of Australia's August Statement on Monetary Policy assumes

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[52] Housing Industry Association, *HIA Housing Forecasts - April 2020 COVID-19 Update*, April 2020.

international border restrictions will ease from the middle of 2021 in its baseline scenario.[53] Net migration and construction activity will likely then take time to recover. This indicates it is reasonable to assume the effects of COVID-19 on construction will have ended by July 2022. Therefore for years after financial year 2021–22, we have accepted Jemena's pre-COVID-19 forecasts.

For our final decision, we would incorporate any new information that would materially affect the forecast. This could include:

- updated construction forecasts for Victoria (including those that would allow us to distinguish effects by type of connection)
- any actual 2020 capex data from Jemena
- updated information about the likely length of the pandemic.

[53] Reserve Bank of Australia, *Statement of monetary policy – economic outlook*, August 2020, www.rba.gov.au/publications/smp/2020/aug/economic-outlook.html

A.5 Forecast non-network capex

The proposed non-network capex for Jemena includes expenditure on ICT, buildings and property, motor vehicles, tools and equipment.

A.5.1 Draft decision

We are satisfied that Jemena's non-network capex forecast reasonably reflects the capex criteria. Jemena has justified its proposed non-network capex of $113.9 million. This forecast forms part of a total capex forecast that reasonably reflect the capex criteria. In coming to our position we have identified some issues in elements of Jemena's DER related ICT which we discuss above in Section A.2. However, this does not change our positon on Jemena's forecast capex overall.

A.5.2 Jemena's proposal

Jemena has proposed $113.9 million for non-network capex for the 2021–26 regulatory control period as shown in Table A.1. This is $38.7 million, or 25 per cent, lower than total actual non-network capex of $152.6 million in the current regulatory control period.

Table A.1 Jemena's forecast non-network capex

Category	2021–22	2022–23	2023–24	2024–25	2025–26	Total
ICT	30.5	21.9	21.9	12.7	8.8	95.7
Motor vehicles	5.2	1.1	1.7	0.4	1.6	9.9
Buildings and property	0.2	0.3	0.2	0.4	0.2	1.3
Other	1.3	1.3	1.2	1.8	1.4	7.0
Total	37.3	24.5	24.9	15.2	12.0	113.9

Source: Jemena's RIN.

Note: Numbers may not sum due to rounding.

A.5.3 Reasons for our draft decision

We have had regard to all the information before us including stakeholder submissions. Stakeholders were generally comfortable with Jemena's non-network capex due to it being below current period capex and that it was at the lower range in comparison to other Victorian distributors.

Consistent with the approach outlined in our ICT expenditure assessment guideline, we have assessed recurrent ICT capex separately to non-recurrent ICT capex.[54]

54 AER, *ICT capex assessment review*, 8 May 2019.

We have also placed greater weight on trend analysis for the remaining non-network capex.

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.

Recurrent ICT

We have assessed this aspect of the forecast primarily through a top-down assessment. This is because historical costs are a likely indicator of future costs for this ICT capex category given the recurrent nature of these investments. We also had regard to benchmarking analysis of recurrent ICT total expenditure (totex) to assess Jemena's recurrent ICT capex forecast.

Top-down assessment

Jemena proposed $50.9 million for recurrent ICT, this is comprised of $42.3 million for base recurrent ICT and $8.6 million for step changes.

Given the recurrent nature of these investments, historical costs are a likely indicator of future costs for this category of ICT capex. Jemena's forecast recurrent ICT is 23 per cent higher than current period recurrent ICT of $41.2 million. This is largely driven by its step changes.

Jemena proposed three recurrent ICT step changes for the following:

- SCADA distribution management system and outage management system ($4.2 million).
- Data warehousing and business intelligence ($1.6 million)
- Mobility ($2.8 million)

Jemena noted that the base recurrent expenditure did not capture the ongoing lifecycle maintenance activities necessary for these critical systems.[55] We have examined each of the investment briefs for the step changes.[56] We are satisfied with the evidence provided by Jemena that the step changes relate to non-recurrent ICT expenditure that was undertaken in the current period and the ongoing maintenance of these systems. Jemena forecast a 41 per cent decrease in its non-recurrent ICT relative to the current regulatory control period, and we are satisfied there is a shift from the introduction of new ICT systems to ongoing maintenance of such systems.

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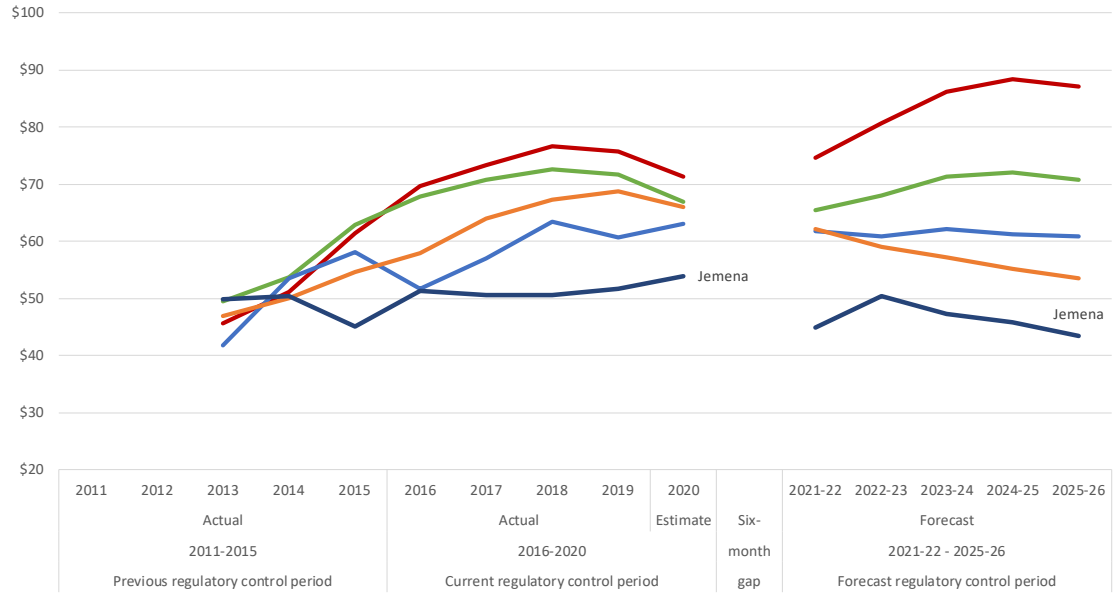
55 Jemena, *2021–26 Regulatory proposal – attachment 05-01 – forecast capital expenditure*, January 2020, p. 106.

56 Jemena, *2021–26 Regulatory proposal: IT investment brief – operational technology step change; IT investment brief – DW and BI step change;* and *IT investment brief – Mobility step change*, January 2020.

This is consistent with the ICT guideline where we note that step changes may be required after the implementation of non-recurrent projects.[57] Figure A.4 and Figure A.5 show Jemena's recurrent ICT totex benchmarking.

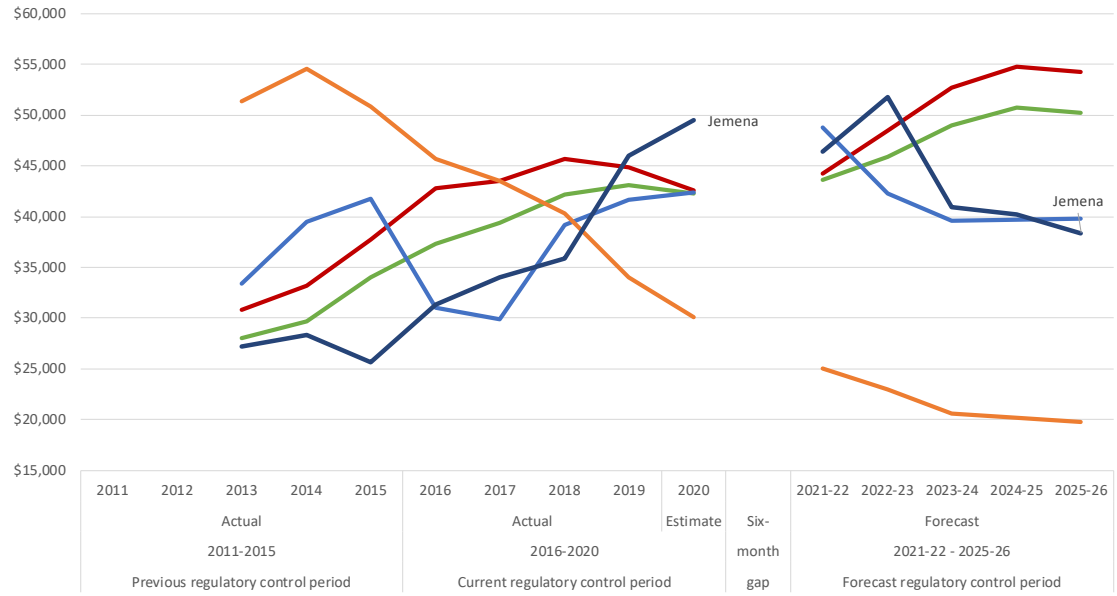
Figure A.4 Victorian ICT benchmarking – recurrent ICT totex per customer ($ million, 2020–21)



Source: AER analysis.

[57] AER, *ICT capex assessment review*, 8 May 2019, p. 10.

Figure A.5 Victorian ICT benchmarking – recurrent ICT totex per end user ($ million, 2020–21)



Source: AER analysis.

Figure A.4 illustrates Jemena's actual recurrent ICT totex per customer is the lowest of the Victorian distributors from 2015 onwards. Figure A.5 illustrates Jemena's recurrent ICT per end user is in the middle amongst the Victorian distributors. Overall we consider Jemena is well placed relative to other distributors and we have not identified any material concerns in Jemena's benchmarking performance.

Based on our top-down trend and benchmarking analysis we are satisfied that there are no material issues with Jemena's recurrent ICT.

Non-recurrent ICT

We have assessed Jemena's proposed $44.8 million on non-recurrent ICT capex and we have found no material issues. $15.7 million of its non-recurrent ICT is for its Future Grid program which we discuss as part of our DER integration assessment in Section A.2.

Jemena's other non-recurrent ICT programs—SAP migration, five-minute settlement and cyber security—are similar to the other Victoria distributors' capex proposals. We have seen other distributors outside Victoria require similar SAP upgrades and increasing cyber security ICT capex requirements, including SA Power Networks, Ausgrid and TasNetworks. We are also satisfied that the Australian Energy Market

Commission's decision to delay the commencement of the five-minute settlement rule by three months will not materially affect the proposed capex program.[58]

Furthermore, the majority of these projects are consistent with our assessment of Jemena Gas Network's non-recurrent ICT, which included projects shared across both its electricity and gas networks such as SAP and GIS enhancements.[59]

We are satisfied these projects are required to maintain its systems and compliance.

However, Jemena has identified an additional $8.1 million for advanced metering infrastructure migration as part of its SAP migration which it intends to submit as part of its revised proposal.[60] The driver of this capex is to meet Victorian metering obligations.[61] However, Jemena is the only Victorian distributor to propose SAP related capex to meet this obligation. We will assess this as part of our final decision.

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 in Section A.6 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 which typically comprises elevated work platforms, crane borers and other heavy commercial vehicles.

The remaining 'other' non-network capex includes tools and equipment, office furniture and equipment, and mobile plant that is not classified as fleet.

Jemena forecast $18.2 million for its remaining non-network excluding ICT, which is 53 per cent lower than its current period capex for non-network excluding ICT of $38.5 million.

A significant driver of this decrease is due to a major review of Jemena's property capex that took place during the current and the previous regulatory periods. Jemena has subsequently forecast $1.3 million in property capex, a return to normal levels for its property forecast,[62] which is 93 per cent below current period capex. After taking this into account, Jemena's proposed non-network capex excluding ICT still remains

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58 Australian Energy Market Commission, *Rule determination: National electricity amendment (delayed implementation of five minute and global settlement) rule 2020*, July 2020, p. i.

59 AER, *Attachment 5: Capital expenditure final decision Jemena Gas Networks (NSW) Ltd Access Arrangement 2020–25*, June 2020, p. 25.

60 Jemena, *2021–26 Regulatory proposal – IT Investment brief – SAP migration*, January 2020, p. 6.

61 Jemena, *2021–26 Regulatory proposal – IT Investment brief – SAP migration*, January 2020, p. 4.

62 Jemena, *2021–26 Regulatory proposal – attachment 05-01 – forecast capital expenditure*, January 2020, p. 116.

below historic trend. Based on this, we have found no material issues with Jemena's forecast non-network capex excluding ICT.

A.6 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 (CAM) determine the allocation of overheads.

A.6.1 Draft decision

We are not satisfied that Jemena's capitalised overheads forecast of $91.2 million would form part of a total capex forecast that reasonably reflects the capex criteria. We have included an amount of $89.0 million in our alternative estimate of total capex. We are satisfied that our alternative estimate would form part of a total capex forecast that reasonably reflects the capex criteria.

A.6.2 Jemena's initial proposal

Jemena forecasts $91.2 million in capitalised overheads for the 2021–26 regulatory control period. This is $6.8 million, or 8.0 per cent, higher than its expected expenditure of $84.4 million in the 2016–20 regulatory control period on a like for like basis. Jemena previously included corporate overheads as part of capitalised overheads. However, consistent with its CAM, it has allocated corporate overheads to opex.[63]

Jemena applied its standard methodology to arrive at its forecast, which involved:

- determining the proportions of fixed and variable capitalised network overheads, based on the average of the actual data received for the 2016 to 2018 calendar years
- applying a real price escalation to the fixed proportion
- determining the average ratio of capitalised network overheads to direct capex which attracts overheads, then applying this ratio to the variable portion of capitalised network overheads for the next regulatory control period. [64]

A.6.3 Reasons for draft decision

To arrive at our alternative, we have adjusted the overheads to reflect our lower alternative estimate of direct capex.

We consider that reductions in Jemena's forecast expenditure should result in the reduction in the size of its total overheads. Our assessment of Jemena's proposed direct capex demonstrates that a prudent and efficient distributor would not undertake the full range of direct expenditure contained in Jemena's regulatory proposal. It follows that we would expect some reduction in the size of Jemena's capitalised

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63 Jemena, *2021–26 Regulatory proposal – attachment 05-01 – forecast capital expenditure*, January 2020, p. 18.

64 Jemena, *2021–26 Regulatory proposal – attachment 05-01 – forecast capital expenditure*, January 2020, p. 18.

overheads. We do accept that some of these costs are relatively fixed in the short term and so are not correlated to the size of the expenditure program. However, we maintain that a portion of the overheads should vary in relation to the size of the expenditure.

We note Jemena's capex model automatically takes this adjustment into account using our 75 per cent fixed and 25 per cent variable ratio.

We have also adjusted the real cost escalations to reflect our updated forecasts.

B Ex-post prudency and efficiency review

We are required to provide a statement on whether the roll forward of the RAB from the previous period contributes to the achievement of the capital expenditure incentive objective.[65] The capital expenditure incentive objective is to ensure that, where the RAB is subject to adjustment in accordance with the NER, only expenditure that reasonably reflects the capex criteria is included in any increase in the value of the RAB.[66]

As the Victorian distribution network service providers are moving from calendar regulatory control years to financial regulatory control years, this ex-post assessment will apply to the 2014, 2015, 2016, 2017, 2018 and 2019 calendar regulatory control years. The NER require that the last two years of the current regulatory control period are excluded from past capex ex-post assessment. The ex-post prudency and efficiency will exclude calendar regulatory control year 2020 and the first half of calendar year 2021.[67]

The NER states that we may only make a determination to reduce inefficient past capex if any one of the following requirements is satisfied:

- The distributor has spent more than its capex allowance (the 'overspending' requirement).
- The distributor has incurred capex that represents a margin paid by the distributor, where the margin referable to arrangements that, in our opinion, do not reflect arm's length terms (the 'margin' requirement).
- Where the distributor's capex includes expenditure that should have been treated as opex (the 'capitalisation' requirement).[68]

B.1 Draft decision

We are satisfied that Jemena's capital expenditure over the regulatory control years 2014 to 2019 should be rolled into the RAB.

B.2 Reasons for draft decision

We have reviewed Jemena’s capex performance for the 2014 to 2019 regulatory control years. This assessment has considered Jemena’s actual capex relative to the regulatory allowance provided and the incentive properties of the regulatory regime for a distributor to minimise costs. Jemena’s incurred total capex is below its forecast regulatory allowance for each of those years.

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65 NER, cl. 6.12.2(b).

66 NER, cl. 6.4A(a).

67 The first half of the calendar year will be considered a regulatory year for the purpose of this review.

68 NER, cl. S6.2.2A(b) to (i).

We have also had regard to some measures of input cost efficiency as published in our latest annual benchmarking report.[69] We recognise that there is no perfect benchmarking model, but our benchmarking models are robust measures of economic efficiency and we can use this measure to assess and compare a distributor's efficiency.

The results from our most recent benchmarking report highlights that Jemena remained the seventh most efficient distributor out of the 13 NEM distributors with a multilateral total factor productivity (MTFP) score of 1.095 for 2018.[70] This represents a 0.5 per cent decrease from its 2017 MTFP value, and continuation of its downward trend since 2007. While this provides relevant context, we have not used our benchmarking results in a determinative way for this capex draft decision, including in relation to this ex-post prudency and efficiency review.

Overall, our analysis has revealed that the 'overspending', 'margin' and 'capitalisation' requirements are not satisfied for Jemena.[71] Therefore, we are satisfied that the entirety of Jemena's capital expenditure in the 2014 to 2019 regulatory control years should be rolled into the RAB.

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69 AER, *Annual benchmarking report: Electricity distribution network service providers*, November 2019.

70 Economic Insights, *Economic Benchmarking Results for the Australian Energy Regulator's 2019 DNSP Annual Benchmarking Report*, October 2019, p.17.

71 NER, cl. S6.2.2A(c).

Shortened forms

Shortened form	Extended form
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
augex	augmentation expenditure
c/kWh	cents per kilowatt hour
CAM	cost allocation methodology
capex	capital expenditure
CCP17	Consumer Challenge Panel (sub-panel 17)
CESS	capital expenditure sharing scheme
CPI	consumer price index
DER	distributed energy resources
EVs	electric vehicles
HIA	Housing Industry Association
ICT	information and communications technology
LV	low voltage
MTFP	multilateral total factor productivity
NEL	National Electricity Law
NEO	National Electricity Objective
NER	National Electricity Rules
opex	operating expenditure
PTRM	post-tax revenue model
PV	solar photovoltaic
RAB	regulatory asset base
REFCL	rapid earth fault current limiter
repex	replacement expenditure
RIN	regulatory information notice
SAIFI	system average interruption frequency index
SCADA	supervisory control and data acquisition
STPIS	service target performance incentive scheme

Shortened form	Extended form
totex	Total expenditure
VaDER	value of DER