

Draft decision

**Jemena Gas Networks (NSW) access
arrangement 2025 to 2030
(1 July 2025 to 30 June 2030)**

Attachment 5 – Capital expenditure

November 2024

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List of attachments

This attachment forms part of our draft decision on the access arrangement that will apply to Jemena Gas Networks (NSW) for the 2025–30 access arrangement period. It should be read with all other parts of this draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – Services covered by the access arrangement (no attachment – covered in the Overview)

Attachment 2 – Capital 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 carryover mechanism

Attachment 9 – Reference tariff setting

Attachment 10 – Reference tariff variation mechanism

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5 Capital expenditure

Capital expenditure (capex) refers to the capital costs and expenditure incurred in the provision of pipeline services.¹ This investment mostly relates to assets with long lives and these costs are recovered over several access arrangement periods.

In this attachment, we outline our assessment of JGN's capex proposal. Our draft decision consists of two parts:

- whether capex spent in the six years before the 2025-30 access arrangement period is conforming capex and should be added to the opening capital base² and
- whether JGN's forecast of capex for the 2025-30 access arrangement period meets the conforming capex criteria in the National Gas Rules (NGR).³

5.1 Draft decision

5.1.1 Conforming capex for the 2019-20 and the 2020-25 period

We approve JGN's actual capex for 2019-20 and the 2020-23 period as conforming capex.

We have included JGN's estimate of capex from 2023-25 in the capital base, as actual capex is not yet available. We will assess whether JGN's actual capex for 2023-24 is conforming capex in our final decision for the 2025-30 access arrangement and will assess whether JGN's actual capex for 2024-25 is conforming capex in the subsequent (2030-35) access arrangement review, and adjust for any differences between actual and estimated capex.⁴

5.1.2 Conforming capex for the 2025-30 period

We do not accept JGN's capex forecast of \$816.5 million (\$2024-25) net capex for the 2025-30 access arrangement period as conforming capex under the NGR.⁵ Our draft decision is an alternative estimate of \$654.1 million (\$2024-25) net capex.

Overall, we found that most aspects of JGN's proposal were likely to be conforming capex. We determined an alternative estimate of \$654.1 million (\$162.5 million less than JGN's proposal) because we did not accept JGN's proposed expenditure on renewable gas connections (\$80.8 million reduction), meter replacement (\$47.8 million reduction), and other capex (\$21.1 million reduction).⁶ We have also not accepted an amount for risk allocation (\$27.5 million reduction) which is included across JGN's capex forecast.

Table 5.1 compares our alternative estimate to JGN's forecast. The adjustment to remove JGN's risk allocation has resulted in reductions to mains replacement and mains

¹ NGR, r. 69.

² NGR, r. 77 sets out the process for determining the opening capital base.

³ These criteria are set out in NGR, r. 79.

⁴ This is consistent with our obligations under NGR, rr. 77(2), 79.

⁵ The criteria for conforming capital expenditure are set out in NGR, r. 79.

⁶ Numbers may not sum due to rounding.

augmentation of \$11 million. We otherwise considered those capex categories were prudent and efficient.

Table 5.1 Net capex proposal by category (\$million, 2024-25) alternative estimate

Category	Actual and estimated 2020–25 capex	Proposed 2025-30 capex	AER alternative estimate	Difference between proposed and alternative estimate	% Contribution of category to total percentage change
Connections	477.2	354.8	273.9	(81.0)	-9.7%
<i>Connections - Non-renewable</i>	474.5	274.1	273.9	(0.2)	0.0%
<i>Connections - Renewable</i>	2.7	80.8	-	(80.8)	-9.7%
Meter replacement	106.3	158.6	110.8	(47.8)	-5.7%
Other capex	168.5	171.7	150.6	(21.1)	-2.5%
Mains replacement	35.4	62.5	52.9	(9.6)	-1.2%
Mains augmentation	11.6	15.1	13.5	(1.7)	-0.2%
Overheads	34.9	23.7	22.5	(1.3)	-0.1%
ICT	87.8	45.0	45.0	-	0.0%
Telemetry	1.9	0.9	0.9	-	0.0%
Gross Total	923.6	832.5	670.1	(162.3)	-19.5%
Contributions	48.9	15.9	16.1	0.1	0.0%
Net Total	874.7	816.5	654.1	(162.5)	-19.9%

Source: JGN, *Att 5.2M - Capital expenditure forecast model - 20240628 – Public June 2024*, June 2024; AER Analysis. Numbers may not sum due to rounding.

Note: An adjustment has been made across categories to account for our proposed removal of the risk allocation.

5.2 JGN’s proposal

5.2.1 Capex in 2019-20 and the 2020-25 period

JGN reports that its actual net capex in 2019-20 was \$186.0 million, and that its actual and estimated capex in the 2020-25 period is \$874.5 million.⁷ JGN’s allowance for 2019-20 was \$209.4 million, and for 2020-25 it was \$1,043.5 million.

5.2.2 Forecast capex for the 2025-30 period

JGN has proposed \$816.5 million (\$2024-25) net capex for the 2025-2030 access arrangement period.⁸ While this is a reduction of 6.7% from the current period, forecast standard new connections (i.e. non-renewable gas connections) have reduced by 42.2%. This means that although new connections are forecast to almost halve, the meter replacement, mains replacement, mains augmentation and other capex categories have increased above the current period expenditure. Table 5.2 compares JGN’s capex forecast for the 2025-30 period with its actual and estimated capex in the 2020-25 period. Connections, contributions, ICT, telemetry, and capitalised overheads are all lower, while meter and mains replacement, augmentation and other capex are higher than the current period.

Table 5.2 JGN’s proposed capex by category over the 2025-30 access arrangement period (\$million, 2024-25)

Categories	Actual and estimated 2020–25 capex	Proposed 2025-30 capex	Change (%)	Proportion of net capex (%)
Connections	477.2	354.8	-25.6%	43.5%
<i>Connections - Non-renewable</i>	474.5	274.1	-42.2%	33.6%
<i>Connections - Renewable</i>	2.7	80.8		9.9%
Meter replacement	106.3	158.6	49.2%	19.4%
Other capex	168.5	171.7	1.9%	21.0%
Mains replacement	35.4	62.5	76.6%	7.7%
Mains augmentation	11.6	15.1	30.2%	1.9%
Overheads	34.9	23.7	-32.1%	2.9%
ICT	87.8	45.0	-48.7%	5.5%
Telemetry	1.9	0.9	-51.9%	0.1%

⁷ JGN, *Att 5.2M - Capital expenditure forecast model - 20240628 – Public June 2024*, June 2024.

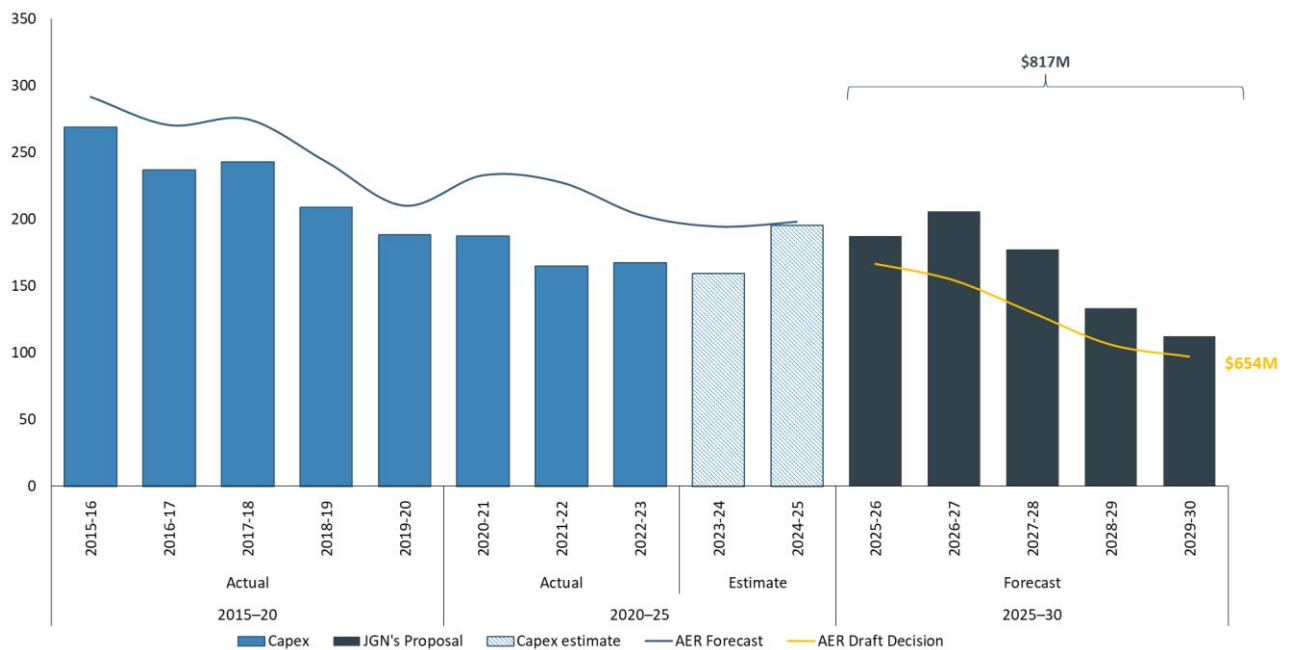
⁸ Net capex is net of capital contributions.

Categories	Actual and estimated 2020–25 capex	Proposed 2025–30 capex	Change (%)	Proportion of net capex (%)
Gross Total	923.6	832.5	-9.9%	102.0%
Contributions	48.9	15.9	-67.4%	2.0%
Net Total	874.7	816.5	-6.7%	100.0%

Source: JGN, *Att 5.2M - Capital expenditure forecast model - 20240628 – Public June 2024*, June 2024; AER Analysis. Numbers may not sum due to rounding.

Figure 5.1 shows JGN’s actual and estimated expenditure over the last two access arrangement periods alongside our forecast, as well as its proposed capex for the 2025-30 period alongside our draft decision alternative estimate.

Figure 5.1 AER’s draft decision compared to JGN’s past and proposed capex (\$million, 2024-25, net of capital contributions)



Source: AER analysis.

5.3 Assessment approach

We must make two decisions on JGN’s capex. First, we assess past capex to determine whether it is conforming capex that can be added to the opening capital base.⁹ Second, we assess JGN’s forecast of required capex for the 2025-30 period to determine whether it meets the new capex criteria set out in the NGR.¹⁰

⁹ Under NGR, r. 77(2)(b), we add capital expenditure to the capital base only if it is conforming capital expenditure.

¹⁰ NGR, r. 79.

The following sections set out our approach and the tools and techniques we employ in forming these decisions.

5.3.1 Capex in 2019-20 and the 2020-2025 period

We reviewed JGN's submission and supporting material to assess its actual and estimated capex for the 2020–25 access arrangement period. Where capex was higher than forecast in our final decision, we scrutinised JGN's reasons for the overspend. We also had regard to the presence of the capital expenditure sharing scheme (CESS), and the incentive this provides to deliver efficient capex.¹¹ We used this information to identify whether capex over the 2020–25 period was conforming capex. Our analysis is discussed in Appendix C.

5.3.2 Capex in the 2025-30 period

Our draft decision is made on total forecast capex in accordance with the new capex criteria in the NGR.¹²

To make a decision, we construct an alternative estimate of conforming capex and compare it to JGN's proposal. If our alternative estimate is not materially different to JGN's proposal, we will accept JGN's proposal. On the other hand, if there is a material difference at the total capex level, we will not accept JGN's forecast, and substitute it with our alternative estimate.

We have assessed the key drivers of forecast capex to consider whether JGN's proposed capex complies with the new capex criteria. In doing so, we relied on the following information:

- JGN's access arrangement submission and access arrangement information, which outlines its capex program and the main drivers of those programs
- business cases that detail the expenditure requirements for specific projects
- JGN's Regulatory Information Notice (RIN) responses
- JGN's capex forecast model
- responses to information requests
- submissions from interested parties.

Our assessment was particularly focussed on the materiality of the capex categories, whether the expenditure was significantly higher than historical expenditure, whether the capex related to a new type of asset, and whether there was significant precedent value in our decision or where stakeholders have raised significant issues. We also took into consideration the interrelationships between the capex forecast and other constituent components of our draft decision, to assist in determining if it contributes to the achievement of the National Gas Objective (NGO).¹³

¹¹ The capital expenditure sharing scheme (CESS) provides an incentive for a service provider to realise savings on its capex program by rewarding those service providers that spend less capex than forecast and penalising those that spend more than forecast. Further information can be found in the CESS section at attachment 13.

¹² NGR, r. 79(1).

¹³ We are required to do this under NGL, s. 28(1).

5.3.3 Interrelationships

In assessing JGN's total forecast capex, we also considered other components of its access arrangement proposal, including:

- possible trade-offs between capex and operating expenditure (opex)
- any differences between capitalisation policies applied in the 2020-25 and 2025-30 periods
- the growth in the price of labour for opex and capex
- demand forecasts, particularly relating to forecast new gas connections.

5.4 Submissions on the proposal

Several stakeholders made submissions on JGN's capex proposal.

Multiple submissions raised concerns about the size of JGN's capex proposal and the uncertain future of gas. Rewiring Australia was concerned about JGN's large mains replacement program, its regular connections program and the exclusion of regular connections from the capital expenditure sharing scheme.¹⁴ Alinta Energy also raised concerns with JGN's uplifts in mains replacement, mains augmentation and meter replacement. It noted that there is an inconsistency between JGN's push for accelerated depreciation and its capital expenditure program.¹⁵

There were other submissions relating to specific drivers. We discuss those submissions in Appendix A in our analysis of individual capex drivers.

5.5 Reasons for draft decision

5.5.1 Conforming capex for 2019-20 and the 2020-25 period

JGN's actual and estimated capex net of capital contributions (capcons) for the 2020-25 access arrangement is \$874.7 million, compared with the AER's final decision of \$1,043.5 million.¹⁶ JGN's actual and estimated expenditure was lower than the final decision across most expenditure categories, except for other capex and connections expenditure.

Our decision on conforming capex also relates to capex for 2019-20. Owing to the timing of our 2020-25 access arrangement decision, we only had estimates of the expenditure for 2019-20. JGN has underspent its capex allowance for that year of \$209.4 by \$23.4 million, with actual expenditure of \$186.0 million.¹⁷

¹⁴ Rewiring Australia, *Rewiring Australia - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024.

¹⁵ Alinta Energy, *Alinta Energy - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024

¹⁶ AER, [AER - JGN access arrangement 2020–25 - PTRM - 2024–25 RoD update - March 2024](#), March 2024; AER, [JGN - Att 7.7M - Roll Forward Model - June 2024](#), June 2024.

¹⁷ AER, [AER - Final decision JGN - PTRM - February 2019](#), February 2019; AER, [AER - JGN access arrangement 2020–25 - PTRM - 2024–25 RoD update - March 2024](#), March 2024

We reviewed JGN's submission and supporting material to assess its actual and estimated capex for the 2020-25 access arrangement period and were satisfied that it reasonably reflects the capex criteria. We are also satisfied that JGN's capex for 2019-20 is conforming.

See Appendix C for further detail on our review of conforming capex for the 2020-25 access arrangement period.

5.5.2 Conforming capex for 2025-30

5.5.2.1 AER alternative estimate on capex

As noted in section 5.3, we have assessed JGN's proposed total capex by constructing an alternative estimate of conforming capex. Based on our assessment, we were not satisfied that JGN's forecast capex reflected prudent and efficient expenditure. We focussed our review on material capex categories that either represented a significant uplift in expenditure, had stakeholder interest or were new and evolving areas of expenditure. We also had regard to how JGN performed against the Better Resets Handbook expectations for capex.¹⁸ Table 5.3 outlines our alternative estimate by capex driver for the 2025-30 period.

Table 5.3 AER alternative estimate on capex (\$million, 2025)

Category	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Connections	66.1	61.8	56.6	48.6	40.8	273.9
<i>Connections - Non-renewable</i>	66.1	61.8	56.6	48.6	40.8	273.9
<i>Connections - Renewable</i>	0.0	0.0	0.0	0.0	0.0	0.0
Meter replacement	20.5	24.8	19.6	22.7	23.2	110.8
Other capex	51.5	33.8	30.3	17.8	17.2	150.6
Mains replacement	10.6	16.0	12.2	7.5	6.5	52.9
Mains augmentation	4.2	3.3	1.7	2.0	2.2	13.5
Overheads	5.8	5.3	4.4	3.6	3.3	22.5
ICT	11.6	12.8	8.4	6.4	5.9	45.0
Telemetry	0.2	0.2	0.2	0.2	0.2	0.9
Gross Total	170.5	158.0	133.4	108.9	99.4	686.2

¹⁸ AER, *Better Resets Handbook - December 2021*, 9 December 2021, pp. 19-23.

Category	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Contributions	3.8	3.6	3.3	2.9	2.4	16.1
Net Total	166.7	154.4	130.0	106.0	97.0	670.1

Source: JGN, [Att 5.2M - Capital expenditure forecast model - 20240628 – Public June 2024](#), June 2024; AER Analysis. Numbers may not sum due to rounding.

5.5.2.2 Better Resets Handbook expectations

In considering the scope of our review, we had regard to how JGN has performed against the Better Resets Handbook expectations for capex.¹⁹

We have applied the Better Resets Handbook expectations to guide our assessment and identify which areas required a more in-depth assessment. We note that JGN is a participant in the early signal pathway.²⁰ We summarise our assessment of JGN’s proposal against the Better Resets Handbook in Table 5.4.

Table 5.4 Better Resets Handbook Expectations

Capex expectations	Comment
Top-down testing of the total capital expenditure forecast and at the category level	<p>We consider that while JGN’s total capex is lower than in the 2020-25 period, this is driven by a large reduction in its new connections forecast. Several other categories of capex have increased from the current period, other than telemetry and ICT.</p> <p>We did not consider the scope of our review could be greatly reduced based on a top-down assessment.</p>
Evidence of prudent and efficient decision-making on key projects and programs	<p>JGN provided information in support of this expectation, including revised business cases, updated modelling, and workshops. However, its proposal contained many complex issues, such as expenditure on renewable gas connections and an uplift in meter replacement that would require detailed assessment. We identified the need for additional information and analysis from the material provided as part of the early signal pathway.</p> <p>Ultimately, the complexity of the issues involved, including new types of expenditure and significant uplifts in business-as-usual capex meant that we could not determine that JGN’s expenditure was prudent and efficient without a detailed review of JGN’s capex programs.</p>

¹⁹ AER, *Better Resets Handbook - December 2021*, 9 December 2021, pp. 19-23.

²⁰ The early signal pathway is defined in the Better Resets Handbook (AER, *Better Resets Handbook - December 2021*, 9 December 2021, pp. 5-9.): The early signal pathway offers an alternative process for networks to engage with the AER, allowing them to get earlier formal feedback on aspects of their regulatory proposal – such as at the issues paper stage, in exchange for certain commitments. While this process is currently optional, our aim is that the early signal pathway approach eventually becomes part of the business-as-usual approach to regulation.

Capex expectations	Comment
Evidence of alignment with asset and risk management standards	JGN provided its risk assessment and standards information which informed our assessment. However, we identified further information required, such as leak data, pressure trends, quantification of cost and likelihood of reliability loss in options. We sought and received further information on these items.
Genuine consumer engagement on capital expenditure proposals	JGN's consultation appeared to have had positive feedback from stakeholders. However, we noted the importance of making sure stakeholders have received sufficient information to inform their views.

Source: AER analysis.

5.5.3 Reasons for the draft decision

We do not accept JGN's forecast of \$816.5 million net capex. We have instead adopted our alternative estimate of \$654.1 million, as likely to reflect conforming capex. We formed our alternative estimate by undertaking a top-down assessment of JGN's capex, followed by a more detailed review of JGN's forecast capex categories. Our assessment focused on material capex categories that either represented a significant uplift in expenditure, had stakeholder interest or were new and evolving areas of expenditure. We did not undertake a detailed analysis of capex that was relatively small, forecast using established modelling approaches and that had inputs in line with our expectations. The reasons for our draft decision are set out in Table 5.5 while a more detailed assessment of the key drivers is provided in Appendices A and B.

5.5.4 Top-down assessment

We have undertaken a top-down assessment of JGN's total capex and a similar assessment of each capex category.

JGN's total forecast net capex is \$816.5 million, which is \$58.2 million (or 6.6%) lower than its 2020-25 period actual (and estimated) net capex of \$874.7 million. We note that the reduction is largely driven by a lower forecast of connections capex. Several capex categories have increased materially, including renewable gas connections, meter replacement, other capex, mains replacement and augmentation.

We were not satisfied, from a top-down perspective, that JGN's total capex is conforming capex. We considered a more detailed review of the drivers of JGN's forecast was necessary to form an alternative estimate of conforming capex. Our review focussed on capex for renewable gas connections, meter replacement, mains replacement and augmentation, and other capex.

5.5.5 Capex category assessment

Table 5.4 summarises our review of JGN’s capex categories.²¹ We considered capex relating to renewable gas connections, meter replacement and other capex, along with JGN’s approach to risk allocation, were higher than necessary to meet the capex criteria. We formed the view that an alternative estimate of \$654.1 million (net capex) was reasonably likely to reflect prudent and efficient costs, which is \$162.5 million lower than JGN’s forecast of \$816.5 million. We also formed the view that all capex included in our alternative estimate is justifiable capex under one or more of clauses 79(2)(c)(i)-(iv) of the NGR. Our analysis of key capex drivers is further explained in Appendices A and B.

Table 5.5 Summary of our findings and reasons, by capex driver

Driver	Findings and reasons
Risk allocation	<p>JGN has allocated an allowance for risk for multiple projects across all categories apart from telemetry, ICT, and capitalised overheads, over and above its estimate of the cost of completing these projects. JGN’s total proposed risk allocation amounts to \$41.3 million.</p> <p>In response to an information request, JGN advised that it applies risk allocations to projects to mitigate uncertainty associated with projects in the early stages of a project, and that are not factored in when a project progresses and there is more certainty.²²</p> <p>We do not consider it appropriate to provide funding for risk in individual projects within a portfolio of projects when the stated risk primarily owes to forecasting error. We believe that JGN’s forecasts (excluding any allocation for risk) represent the most likely costs to be incurred for each project or program. While some individual projects may incur costs above forecast, other projects will cost less than forecast. On this basis, variations on individual projects will tend to balance out over the portfolio.</p> <p>JGN’s total proposal included risk allocation to capital expenditure items in the amount of \$41.3 million. Our alternative estimate removes all instances of a risk allocation. We have removed expenditure we did not accept, along with associated risk allocation. There remains \$27.5 million risk allocation we do not accept associated with projects we otherwise view as prudent and efficient.</p>
Meter replacement	<p>JGN proposes to spend \$158.6 million on meter replacement in the 2025-30 access arrangement period. Based on our review, we consider the majority, but not all, of this capex is prudent and efficient, and have included an alternative estimate of \$110.8 million in the draft decision. We consider a lower forecast of capex is appropriate for:</p>

²¹ Our findings on each capex driver are part of our broader analysis. They should not be considered in isolation. We do not approve a forecast of expenditure for each individual capex driver or project/program. Instead, we use our findings on the different capex drivers to assess the proposal as a whole and arrive at an alternative estimate for total capex where necessary. Our decision on total capex does not limit service provider’s actual spending.

²² JGN, *Response to IR#012*, 1 October 2024

Driver	Findings and reasons
	<ul style="list-style-type: none"> • proactive replacements of aging meters that were based on incomplete or unavailable data • replacement of classes of meters that are aging where JGN has assumed an increasing failure rate over time, without providing evidence of an increase in failures • end of life replacement of hard to access meters with more expensive remote read meters – hard to access meters are those that are hard for JGN to access and not necessarily those that are hard for the customer to access, and JGN already has programs that allow customers to submit their own readings of their meters. <p>Our alternative estimate is more in line with JGN's actual and estimated capex for meter replacements in the 2020-25 access arrangement period of \$106.3 million.</p>
Connections	<p>JGN's customer connections forecast capex is reasonable from a top-down perspective and trends downward through the 2025-30 access arrangement period. The forecast is 69,000 connections (down from 125,000 in the current period) and the unit rates are consistent. We are satisfied that the customer connections forecast is prudent and efficient.</p> <p>JGN proposes renewable gas projects to connect 8 biomethane production facilities to its NSW network, with total forecast expenditure of \$80.8 million. The cost of pipeline assets associated with connecting these facilities would go into the capital base of JGN and be borne by its customers. If all 8 of these facilities became operational, JGN estimates they would produce 6.7PJ's of local renewable gas to its network, or around 8.3% of the energy transported on the JGN network.²³</p> <p>Avoided greenhouse gas emissions form a large component of the net benefits JGN sets out for the proposed projects. We consider JGN has not provided sufficient information and analysis to support acceptance of these projects, particularly surrounding potential alternatives that might also lead to emissions reduction. Given this, we have included a placeholder of \$0 for the projects in our alternative estimate and will consider, based on any further information we receive, whether a different amount should be included in the final decision. We also consider there is sufficient uncertainty that the proponents of the projects will proceed, such that JGN may consider applying for a speculative capex account for these projects.</p> <p>Our detailed assessment is provided in Appendix B.</p>
Other Capex – Obsolescence projects	<p>JGN proposes 11 projects to replace obsolescent equipment totalling \$30.5 million. We accepted all but one of these projects. Our alternative estimate is \$21.1 million, which also includes an adjustment to account for our decision on risk allocation.</p> <p>The projects proposed by JGN would upgrade Pressure Reducing Stations and Trunk Receiving Stations. The valves in these stations have a limited number of</p>

²³ JGN, JGN 2025 Plan - June 2024, p69.

Driver	Findings and reasons
	<p>re-machining lives and the natural gas control system has limited spare parts, which are no longer available from suppliers. JGN proposes to replace the instrument gas control systems with electronic control systems, and compressors and valve actuators with electronic systems. Our assessment of the cost benefit analysis for one of these projects indicated that not replacing the asset had the highest net benefit, and the replacement was not required to meet JGN’s regulatory obligations.</p>
Other Capex - Picarro	<p>JGN has proposed capex and opex for an emissions detection technology called Picarro, which is an advanced vehicle mounted leak detection system. While the majority of costs associated with Picarro are opex, JGN proposes to expand its fleet from 3 vehicles to 8 to accommodate the technology, totalling \$0.6 million of capex.</p> <p>We have not accepted an opex step change for Picarro. The reasons for this are set out in Attachment 6 of this draft decision. Consistent with the opex draft decision, we have not included capex related to Picarro in our alternative estimate.</p>
Mains Replacement	<p>JGN’s proposed mains replacement program is \$62.5 million, compared to the actual and estimated capex in the current regulatory period of \$35.4 million.</p> <p>We assessed JGN’s program of mains replacement to determine whether the increase in expenditure was justified, and likely to be prudent and efficient. The largest mains replacement program is the 3-stage Newcastle MP1 30kPa rehabilitation program. JGN proposed \$23.6 million for this project. The project replaces cast iron and old plastic pipe, like the mains replacement programs in Victoria. JGN provided detail on the condition of the currently in-place cast iron pipes, as well as the process of replacing them. JGN states it will, where possible, insert new plastic pipe using the old pipe as conduit.</p> <p>We accept JGN’s mains replacement expenditure. We consider the projects are prudent in that they address safety on an aging network and for the mitigation of unaccounted for gas. We are also satisfied that the costs are consistent with other similar projects such as Multinet’s mains replacement in Victoria.²⁴ We consider the remainder of JGN’s mains replacement capex is modest, and largely in line with its historical expenditure (when the Newcastle project is excluded). However, we have adjusted the amount included in our alternative estimate consistent with our decision on risk allocation.</p>
Mains augmentation	<p>Network augmentation capex is directed at increasing the capacity of the existing network to meet the demands of existing and future customers. Augmentation capex is required to maintain gas pressure and minimise the risk of gas outages.</p> <p>JGN’s proposed mains augmentation program is \$15.1 million compared to actual and estimated mains augmentation capex in the current regulatory period</p>

²⁴ AER, *AER - Final decision - MGN 2023–28 - Attachment 5 Capital expenditure - June 2023*, June 2023, pp. 7-11.

Driver	Findings and reasons
	<p>of \$11.6 million. JGN explains its augmentation program is driven primarily by new estates, construction of high-rise buildings (generally in existing areas) and peak demand growth.</p> <p>We have reviewed JGN's business cases and consider the proposed capital expenditure reflects the approach of a prudent and efficient operator. We have included JGN's forecast of augmentation in our alternative estimate, with an adjustment to account for our decision on risk allocation.</p>
ICT	<p>JGN's proposed ICT capex program is \$45 million. This is a reduction from \$87.8 million in the current access arrangement period. The change is due to transfers of ICT from capex to opex, owing to changes in accounting standards and the type of ICT services being acquired.</p> <p>Our analysis indicates that the capex to opex transfer is reasonable, the transfer has not resulted in an overallocation between the categories and is appropriate under accounting standards. Our assessment is that the remaining forecast ICT capex after the transfer is consistent with historical expenditure and is prudent and efficient. We have included JGN's forecast in our alternative estimate.</p>
Telemetry	<p>We have included JGN's telemetry forecast of \$0.9 million in our alternative estimate, as it represents a small proportion of total capex and is a step down from its current period expenditure of \$1.9 million.</p>
Capitalised overheads	<p>We have included \$22.5 million in our alternative estimate, \$1.2 million less than JGN's forecast of \$23.7 million.</p> <p>We accept JGN's methodology for calculating and allocating capitalised overheads. However, we have reduced capitalised overheads commensurate with the reductions to other capex categories in our alternative estimate.</p>

5.6 Revisions

We require the following revisions to make the access arrangement proposal acceptable as set out in Table 5.6.

Table 5.6 Capex revisions

Revision	Amendment
Revision 5.1	Make all necessary amendments to reflect our draft decision on the proposed capex forecast for the 2025–30 access arrangement period, as set out in section 5.1.

A Assessment of key capex categories

In this appendix, we provide our detailed assessment of the prudence and efficiency of JGN's capex categories, except for JGN's proposed renewable gas connections. We discuss renewable connections in Appendix B.

A.1 Risk allocation

A.1.1 JGN's proposal

JGN has proposed increasing its capex to above its forecast cost to account for the risk that actual projects costs will exceed the allocated forecast. This applies to multiple projects across all categories apart from telemetry, ICT, and capitalised overheads. JGN's total proposed risk allocation amounts to \$41.3 million.²⁵

We sought further information from JGN on its proposed risk allocation expenditure. In response to an information request, JGN advised that:²⁶

'The risk allocations are included in JGN's forecast project costs as they appear in JGN's capex model.

These risk allocations are primarily intended to mitigate the uncertainty associated with projects, as not all scope items or risks can be known or estimated especially in the early stages of a project. Cost uncertainty (sometimes called Scope Factor Allowance (SFA)) can be allocated within the Risk Budget of a project. For the project estimating models developed for the Access Arrangement, 10% of SFA is allocated to labour costs and 30% to material and subcontractor costs.

Typically, SFA is only factored in project estimates during the early stages. These uncertainty factors will be minimised as the scope, site condition, and constraints are more clearly established as the project progresses. Instead, risk will be allocated based on a quantitative and qualitative risk assessment of plausible risks that could affect the project.'

Table 5.7 shows the amount of risk allocation in each category of capex.

Table 5.7 Risk allocation (\$2024-25, millions)

Category	Risk allocation for projects we otherwise accept	Total proposed risk allocation
Other capex	14.7	15.5
Mains replacement	9.5	9.5

²⁵ This is risk allocation for JGN's total proposed capex program, even for projects we have not included in our alternative estimate. JGN's proposed risk allocation for projects we otherwise accept is \$27.5 million.

²⁶ JGN, *Response to IR#012*, 1 October 2024

Category	Risk allocation for projects we otherwise accept	Total proposed risk allocation
Mains augmentation	1.7	1.7
Meter replacement	1.5	1.5
Connections	0.2	13.1
ICT	0.0	0.0
Telemetry	0.0	0.0
Total	27.5	41.3

Source: JGN, *Response to IR#012*, 1 October 2024. AER analysis.

A.1.2 Draft Decision

We have not included JGN's proposed risk allocation in our alternative estimate of conforming capex. This has reduced capex across several of JGN's capex categories, even those that we otherwise considered prudent and efficient. Table 5.7 shows the adjustment made for each capex category. When we exclude risk allocations for projects we have otherwise included in our alternative estimate, this results in a reduction of \$27.5 million.

A.1.3 Our assessment

We do not consider it efficient to apply additional capex to a portfolio of projects to account for forecasting error. We are not satisfied that the risk allocation is efficient under NGR, r. 79(1)(a). We consider that while some individual projects may incur costs above forecast, other projects will cost less than forecast. On this basis, variations on individual projects will tend to balance out over the portfolio.

We may allow a contingency for a given program where JGN identifies a specific risk factor, with a high probability that would increase the cost of a project, but which is nevertheless difficult to forecast. In its initial proposal, JGN has not identified such factors for specific projects. We invite JGN to provide further justification for its risk allowance.

A.2 Meter replacement

Gas meters are primarily used to measure gas consumption at a particular location, such as at a residential home or business. Meter replacement is an ongoing capex activity. Over time, meters lose their ability to accurately measure consumption and may also develop other faults. Meters may be replaced as part of a planned program, or when meters are

found to be defective. JGN has regulatory obligations to manage the integrity of meters and ensure they operate within the prescribed tolerance band for metering accuracy.²⁷

A.2.1 JGN’s proposal

JGN proposes to spend \$158.6 million on meter replacement in the 2025-30 access arrangement period.

A.2.2 Draft Decision

Based on our review, we consider the majority, but not all, of meter replacement capex is prudent and efficient. We have included \$110.8 million in our alternative estimate of conforming capex. This is in line with JGN’s actual and estimated capex for meter replacements in the 2020-25 access arrangement period of \$106.3 million.

Our proposed reduction in capex relates to meter replacement classes where JGN proposed:

- proactive replacements of aging meters based on incomplete or unavailable data
- classes of meters that are aging where JGN has assumed an increasing failure rate over time, without providing evidence of an increase in failures
- end of life replacement of hard to access meters with more expensive remote read meters, which might be redundant given pre-existing, cheaper JGN programs such as JGN’s Gas Meter Mate, which lets customers submit readings on their own meters.

A.2.3 Submissions

We have received four submissions on JGN’s meter replacement program, from Red Energy & Lumo Energy (RELE), the Justice and Equity Centre (JEC), Energy Consumers Australia (ECA), and Better Renting.

RELE and JEC expressed concerns with JGN’s program to replace hard-to-access, end-of-life meters with digital meters rather than standard mechanical meters. RELE was sceptical of the consumer benefit of digital metering. While difficult-to-access meters are a genuine problem, RELE pointed out that JGN already has cheaper ways of receiving readings on difficult-to-access meters. For instance, JGN’s Gas Meter Mate app lets consumers submit photographs of their meters if they disagree with a bill.²⁸

JEC questioned the long-term utility of JGN’s pilot program for digital meters, as JEC considered it probable that the majority of JGN’s network will disconnect in the next 20 years. JEC was not against digital metering in principle, provided it is fully funded by the customer and offered in the context of cost comparison with other options like abolition and electrification.

²⁷ JGN undertakes meter replacement based upon the following regulation and standards: National Measurement Act 1960 (sections 18GD and 18GE), NSW Gas Supply (Consumer Safety) Regulation 2012, NSW Department of Fair Trading Guidelines, AS/NZS 4944:2006 Gas meters – In-service compliance testing, AS 1199:2003 Sampling procedures for inspection by attributes, AS 3565.4:2007 Meters for cold and heated drinking water and non-drinking water supplies

²⁸ RELE, *Red and Lumo - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024.

JEC had concerns about JGN’s broader meter replacement program. While JEC believed JGN’s standard meter replacement program could be justified in principle, the confidential nature of JGN’s meter replacement input data means public stakeholders cannot be confident of the program’s prudence and efficiency. JEC recommended that JGN be made to publish data on the condition, failure modes, and risks relating to its metering stock. JEC noted that electricity distributors are already required to disclose this information.²⁹

ECA viewed JGN’s proposed level of proactive meter replacement as imprudent in the context of declining customers. ECA were concerned JGN will replace meters for customers who will leave the network in a few years, and as such these meters could remain functional until the customer leaves the network. ECA stated that JGN should limit its meter replacement program to only replacing failed meters, as this would mitigate unnecessary spending and stranding risk.³⁰

Better Renting stated that in the context of a declining gas network consumers should not bear the burden of unnecessary expenditure by JGN. Better Renting did not believe JGN’s meter replacement program is justified.³¹

A.2.4 Our assessment

Our assessment of individual meter programs is outlined below. In addition to the programs below, we have also adjusted the amount in our alternative estimate to account for our decision on risk allocation.

A.2.4.1 Proactive and end of life replacement programs

JGN proposes a proactive end-of-life replacement programs for aged meters, both residential and C&I.

We do not accept JGN’s proposed \$67.1 million program for the proactive replacement of aged meters for both residential and commercial and industrial customers. We are not satisfied that proactive replacement of meters prudent under NGR, r. 79(1)(a). We are not satisfied proactive replacement of meters is efficient under NGR, r. 79(1)(a), and there is insufficient evidence that the expenditure is required to maintain and improve the safety of services NGR, r. 79(2)(c)(i) or comply with regulatory obligations or requirements NGR, r. 79(2)(c)(i). We have included an amount of \$29.4 million, which is more in line with historical spending. JGN has assumed that when certain families of meters pass 35 years of age, the failure rate will increase exponentially. This assumption has driven JGN’s strategy to proactively replace meters over 35 years old. We do not consider JGN has provided evidence supporting such an increase in failure rates. JGN has not been able to provide sufficient data to support the assumption, particularly because sample sizes of meters older than 35 years is small.

As we do not accept the proactive replacement of all meters older than 35 years, we have allowed for increased sample testing and sample replacement in the alternative forecast to

²⁹ JEC, *JEC - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024.

³⁰ ECA, *Submission on Jemena Gas Networks 2025-30 Access Arrangement Plan*, 12 September 2024.

³¹ Better Renting, *Better Renting - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, 20 September 2024.

facilitate increased reactive replacement of older meters. JGN’s proposal repeats a similar end of life scenario for meters from the 2020-2025 access arrangement proposal. At that time, JGN forecast end of life failures increasing to an unacceptable level at 30 years which we did not accept in the access arrangement review for the same reasons.

A.2.4.2 Replacement of Defective Residential Gas Meters

JGN proposes a \$10.9 million program for the replacement of defective residential gas meters. We are not satisfied proactive replacement of these meters is prudent under NGR, r. 79(1)(a), and there is insufficient evidence that the expenditure is required to maintain and improve the safety of services NGR, r. 79(2)(c)(i) or comply with regulatory obligations or requirements NGR, r. 79(2)(c)(i). Our alternative estimate is \$9.2 million. The analysis in section A.2.4.2 on end-of-life replacement is also relevant here. There is no statistical evidence of an increase in failure rates for meters 30 years old or older. On this basis, the escalation of 18% in the forecast of Replacement of Defective Residential Gas Meters, due to the increasing number of meters more than 30 years old, is not justified. Our alternative estimate uses historical capex and removes the 18% escalation added for meters greater than 30 years old.

A.2.4.3 Smart meter pilot program

We do not accept JGN’s proposed smart meter pilot program (\$3.6 million) and have not included this capex in our alternative estimate. We are not satisfied that the capex is prudent under NGR, r. 79(1)(a). JGN claims the replacement of difficult-to-access end-of-life meters with digital meters will reduce the amount of estimated meter reads, and hence increase the accuracy of bills. We note that it is difficult for JGN to access the meters targeted by this program, for example, they may be behind a locked gate which prevents a manual meter read. In these cases, JGN’s customers can still access their meters. Red Energy & Lumo Energy’s submission suggests the “difficult to access” meter problem can be overcome using JGN’s own “Gas Meter Mate” app where customers can submit readings of their own meters.³² This would mitigate the potential value of a remote read meter.

However, if these meters are difficult to access even for the customers, digital meters for this cohort of customers might be prudent. JGN has not quantified this specific cohort. In response to an information request, JGN argued it would not be economically viable to do a digital meter pilot program of less than the proposed 8,000 meters, because only a minimum of 8,000 meters has the necessary per-customer economies of scale given the program’s large fixed costs.³³ We note that if the cohort of customers who have difficulty accessing their own meters is much below 8,000, then the digital meter pilot program would be unlikely to be prudent. If JGN wishes to propose this project in its revised proposal, we encourage it to target this project at meters that even customers have difficulty accessing.

We note that JGN will still need to replace some of these meters with standard meters at end of life. We ask that JGN provide information on the volume and cost of these in the revised proposal. We further request JGN to remove any ICT related to digital meters from its revised proposal.

³² Red and Lumo - *Submission on JGN 2025-30 Access Arrangement Proposal* - September 2024. p 2.

³³ JGN, *Response to IR006*, 6 September 2024.

A.2.4.4 Other meters programs

We have included JGN's capex forecast for the remaining meter programs, including replacement of defective meters and water meters, as the proposed expenditure is consistent with historical expenditure and is consistent with industry practice, technical standards and safety requirements. We are satisfied that this expenditure is efficient under NGR, r. 79(1)(a). We are also satisfied the other meters programs are prudent and efficient under NGR, r. 79(1)(a), and there is sufficient evidence that the expenditure is required to maintain and improve the safety of services NGR, r. 79(2)(c)(i) or comply with regulatory obligations or requirements NGR, r. 79(2)(c)(i).

A.3 Other Capex

A.3.1 Other Capex

Other capex refers to assets that do not fall under the main capex categories defined by the AER. They include replacement of obsolete assets, water ingress assets, integrity, plant, vehicles, pipeline inspection (pigging) and general works.

A.3.2 JGN's proposal

After conducting a review of JGN's other capex, we primarily focussed on JGN's proposal for 11 obsolescence projects totalling \$30.5 million and \$0.6 million for fleet for its proposed Picarro emissions detection technology.³⁴

Obsolescence projects are projects to upgrade Pressure Reducing Stations (PRS) and Trunk Receiving Stations (TRS). The stations use natural gas as an instrument to control supply and drive control valves. The valves have a limited number of re-machining lives, and the natural gas control system has limited spare parts, which are no longer available from suppliers, and leak gas to the atmosphere. JGN proposed to replace the instrument gas control systems with electronic control systems, and compressors and valve actuators with electronic systems.³⁵

JGN also proposed an emissions detection technology called Picarro, an advanced vehicle mounted leak detection system.³⁶ While most costs associated with Picarro are opex, JGN proposes to expand its Picarro-carrying fleet from 3 vehicles to 8, at a cost of \$0.6 million.³⁷

A.3.3 Draft Decision

We do not consider the Tempe obsolescence project and expanded Picarro fleet are conforming capex, as the costs associated with these projects would not be incurred by a prudent service provider acting efficiently.³⁸ We consider JGN's other 10 obsolescence projects are conforming.

³⁴ JGN, *Emissions measurement – Picarro – BC – 20240628 – PUBLIC – 22 November 2023*. p 15.

³⁵ JGN, *2025-30 Access Arrangement Proposal – Attachment 5.1 – Capital Expenditure – PUBLIC – 28 June 2024*. pp 42-44.

³⁶ JGN, *Emissions measurement – Picarro – BC – 20240628 – PUBLIC – 22 November 2023*.

³⁷ JGN, *Emissions measurement – Picarro – BC – 20240628 – PUBLIC – 22 November 2023*. p 15; JGN, *JGN - RIN - 4.4 - ___Emissions Monitoring - Picarro_ - CBAM - 20240628 – Public*, 28 June 2024; AER analysis.

³⁸ NGR, r. 79(1)(a)

Our alternative estimate is \$21.1 million, which also removes the risk allowance attached to remaining other capex projects.

A.3.4 Our assessment

A.3.4.1 Obsolescence

JGN's proposed \$5.7 million for its Tempe PRS Facilities Obsolescence project. In assessing this, we had regard to the business case put forward by JGN.³⁹ We note that JGN, when choosing from the options in the business case, did not select the option with the highest net present value. The option with the highest net present value was not replacing certain mechanical equipment. JGN did not otherwise establish that another option (that is, an option other than that with the highest net present value) was prudent and efficient. Consequently, we do not consider JGN selected the most efficient project. We have not included this capex in our alternative estimate. We are not satisfied the Tempe PRS Facilities Obsolescence project is prudent and efficient under NGR, r. 79(1)(a), and there is insufficient evidence that the expenditure is required to maintain and improve the safety of services NGR, r. 79(2)(c)(i) or comply with regulatory obligations or requirements NGR, r. 79(2)(c)(i).

In response to an information request, JGN noted that while its cost benefit analysis model suggests that maintaining the status quo has the highest economic value, JGN's proposed project will bolster safety, integrity, capacity and other matters not considered by its economic analysis.⁴⁰ We consider that, if JGN considers a project will improve matters such as safety and integrity, it should identify an economic value for the increased safety and integrity and include it in its cost benefit analysis model. This would allow it to demonstrate whether the project was efficient and in the interests of its customers.

A.3.4.2 Picarro

We have not included capex related to JGN's emissions reduction Picarro project in our alternative estimate. We note that we have not accepted opex related to Picarro for the following reasons:

- The existing reporting framework allows for detailed engineering calculations and modelling and does not require direct measurement on an annual cycle
- JGN has confirmed that it can meet the requirements of its Safety and Operating Plan with its existing vehicle fleet.

Further detail can be found in the opex attachment of this draft decision.⁴¹

As we have not accepted opex for Picarro, we do not consider it prudent and efficient for JGN to invest capex in the project. Accordingly, our alternative estimate does not include capex associated with Picarro for purchase of 5 vehicles, totalling \$0.6 million.

³⁹ JGN - RIN - 4.3 - 10020149 - Tempe PRS - Facilities Obsolescence - CBAM - 20240628 - Public.xlsb

⁴⁰ JGN, *Response to IR010*, 27 September 2024,

⁴¹ AER - *Draft decision - JGN access arrangement 2025–30 - Attachment 6 – Operating expenditure* - November 2024.

A.4 Customer connections (non-renewable)

JGN's customer connections forecast capex is reasonable from a top-down perspective and trends downward through the next access arrangement period. The forecast is 69,000 connections (down from 125,000 in the current period) and the unit rates are consistent. We are satisfied that the business-as-usual customer connections forecast is prudent and efficient.

A.5 Mains replacement

Mains replacement capex is carried out to remove gas mains that no longer meet service standards and replace them with a modern equivalent. It is predominantly used to replace aging pipes which present extensive leaks and associated safety issues.

A.5.1 JGN's proposal

JGN's proposed mains replacement program is \$62.5 million, compared to the actual and estimated capex in the current regulatory period of \$35.4 million.

The largest and most notable component of the mains replacement program is the 3-stage Newcastle MP1 30kPa rehabilitation program. JGN proposed \$23.6 million for this project. The project replaces cast iron and old plastic pipe, like the mains replacement programs in Victoria.⁴² JGN provided detail on the condition of the currently in-place cast iron pipes, as well as the process of replacing them.⁴³ JGN states it will, where possible, insert new plastic pipe using the old pipe as conduit.

A.5.2 Draft Decision

We have included JGN's mains replacement expenditure in our alternative estimate of conforming capex. However, we have removed the risk allocation associated with these projects.

We consider JGN provided information supporting the need and cost of the Newcastle MP1 30kPa rehabilitation project. We consider the remainder of JGN's mains replacement program is modest and largely in line with historical expenditure.

A.5.3 Submissions

We received two submissions on mains replacement capex.

CCP31 noted the seeming discrepancy between JGN adopting a more targeted approach to asset management and its significant uplifts in mains replacement and augmentation. While CCP31 acknowledged that the Customer Forum were supportive of JGN's more targeted approach, it is uncertain whether consumers were aware that this still led to such uplifts.⁴⁴

⁴⁴ CCP31, *CCP31 - Advice to the AER - JGN 2025-30 Access Arrangement Proposal and Issues paper - September 2024*, September 2024.

ECA recommended that JGN adjust its asset management to have a more long-term focus, identifying each asset’s condition and end-of-life dates, actual and forecast demand for each asset up to 2050, and potential non-replacement solutions for the assets. ECA said that with this information JGN can forecast the major replacement and augmentation projects it will likely need to do post 2030 and identify assets most at risk of stranding and thereby develop strategies to mitigate and address the risk.⁴⁵

A.5.4 Our assessment

The largest component of the mains replacement program is the 3-stage Newcastle MP1 30kPa rehabilitation program. JGN proposed \$23.6 million for this project. The project replaces cast iron and old plastic pipe, like the MGN mains replacement program in Victoria. JGN provided detail on the condition of the currently in-place cast iron pipes, as well as the process of replacing them. JGN states it will, where possible, insert new plastic pipe using the old pipe as conduit.

In an information request, we asked JGN whether deferring 1 or 2 stages of the 3-stage project could be an option with a higher NPV than conducting all three stages in this access arrangement period. JGN explained that staging was simply for project management and not an indication of comparable condition and that the projects could not be interrupted for operational reasons.⁴⁶ We are satisfied that JGN’s response establishes that replacement on the proposed timeframe has the highest NPV. We consider the projects are prudent in that they address safety on an aging network and for the mitigation of unaccounted for gas. We are also satisfied that the costs are consistent with other similar projects such as Multinet’s mains replacement in Victoria.⁴⁷ We consider the remainder of JGN’s mains replacement capex is modest, and largely in line with its historical expenditure (when the Newcastle project is excluded).

We are satisfied that the mains replacement expenditure is efficient under NGR, r. 79(1)(a). We are also satisfied the mains replacement expenditure is efficient under NGR, r. 79(1)(a), and there is sufficient evidence that the expenditure is required to maintain and improve the safety of services, and the integrity of services NGR, r. 79(2)(c)(i), NGR, r. 79(2)(c)(ii), and/or comply with regulatory obligations or requirements NGR, r. 79(2)(c)(i).

A.6 Mains augmentation

Mains augmentation capex is directed at increasing the capacity of the existing network to meet the demands of existing and future customers. Augmentation capex is required to maintain gas pressure and minimise the risk of gas outages.

A.6.1 JGN’s proposal

The proposed mains augmentation program is \$15.1 million compared to actual and estimated main augmentation capex in the current regulatory period of \$11.6 million. JGN

⁴⁵ ECA, *Submission on Jemena Gas Networks 2025-30 Access Arrangement Plan*, 12 September 2024.

⁴⁶ JGN – *Response to information request IR -006 Capex program – PUBLIC* – 23 August 2024. p.22.

⁴⁷ AER - *AER - Final decision - MGN 2023–28 - Attachment 5 Capital expenditure* - June 2023 pp. 7-11

explains its augmentation program is driven primarily by new estates, construction of high-rise buildings (generally in existing areas) and peak demand growth.

A.6.2 Submissions

We received two submissions on mains augmentation capex.

CCP31 noted the seeming discrepancy between JGN adopting a more targeted approach to asset management and its significant uplifts in mains replacement and augmentation. While CCP31 acknowledged that the Customer Forum were supportive of JGN's more targeted approach, it is uncertain whether consumers were aware that this still led to such uplifts.⁴⁸

ECA recommended that JGN adjust its asset management to have a more long-term focus, identifying each asset's condition and end-of-life dates, actual and forecast demand for each asset up to 2050, and potential non-replacement solutions for the assets. ECA said that with this information JGN can forecast the major replacement and augmentation projects it will likely need to do post-2030 and identify assets most at risk of stranding and thereby develop strategies to mitigate and address the risk.⁴⁹ We consider ECA's comments are beyond the scope of this decision, and it should be left to JGN to take into consideration.

A.6.3 Draft Decision

We have reviewed JGN's business cases and consider the proposed capital expenditure reflects the approach of a prudent and efficient operator. JGN has explained that although there has been a large drop-off in load driven augmentation there has been a change in the consumption patterns with customers working from home. Further, the drop off in connections reduces the additional mains that would have been laid as the network extended and new apartment connections in weak network areas requires supporting reticulation.⁵⁰ We are satisfied it is conforming capex. We are satisfied that the mains augmentation expenditure is efficient under NGR, r. 79(1)(a). However, we have adjusted the amount in our alternative estimate to account for our decision on risk allocation.

A.7 ICT

A.7.1 JGN's proposal

JGN's proposed ICT capex program is \$45 million, a reduction from \$87.8 million in the current access arrangement period. The change is due to transfers of ICT from capex to opex, owing to changes in accounting standards and the type of ICT services being acquired.

A.7.2 Draft Decision

Our analysis indicates that the capex to opex transfer is reasonable, the transfer has not resulted in an overallocation between the categories and is appropriate under accounting

⁴⁸ CCP31, *CCP31 - Advice to the AER - JGN 2025-30 Access Arrangement Proposal and Issues paper - September 2024*, September 2024.

⁴⁹ ECA, *Submission on Jemena Gas Networks 2025-30 Access Arrangement Plan*, 12 September 2024.

⁵⁰ Jemena Gas Networks (NSW) Ltd *2025-30 Access Arrangement Proposal Attachment 5.1 Capital expenditure*, June 2024, pp 46-48.

standards. Our assessment is that the remaining forecast ICT capex after the transfer is consistent with historical expenditure and is prudent and efficient.

A.7.3 Submissions

We have received one submission on JGN's ICT expenditure. CCP31 noted that the significant decrease in JGN's ICT expenditure is mainly a result of the reclassification of much ICT as opex. CCP31 did not believe JGN has genuinely engaged with consumers regarding ICT.⁵¹

As stated above, we find the transfer to opex reasonable. We are sympathetic to CCP31's claim that JGN has not genuinely engaged with consumers on ICT, however, we remain of the view that JGN's ICT capex is reasonable.

A.7.4 Our assessment

We consider the ICT capex reflects historical expenditure of this type and is reasonable. We are satisfied the ICT capex is efficient under NGR, r. 79(1)(a), and that the capital expenditure is required to maintain the integrity of services NGR, r. 79(2)(c)(ii)

A.8 Telemetry

Telemetry systems are used by distribution businesses to monitor network conditions in real time and, in some cases, for the remote control of gas flows and pressures to optimise system performance and maximise safety. Improvements in these systems will reduce the risk of major supply interruption⁵² and provide more accurate, reliable, and timely pressure data to better inform network capacity models.⁵³

JGN is proposing \$0.9 million for telemetry capex. This is roughly half its current period expenditure of \$1.9 million.⁵⁴ The entirety of JGN's telemetry proposal is recurrent expenditure. We are satisfied the Telemetry capex is efficient under NGR, r. 79(1)(a), and that the capital expenditure is required to maintain the integrity of services NGR, r. 79(2)(c)(ii).

A.8.1 Draft decision

We accept JGN's telemetry proposal of \$0.9 million, as it is both small and a step down compared to its current period actual and estimated expenditure. We have included this amount in our alternative estimate of conforming capex.

A.9 Capitalised Overheads

Overheads are costs that are not directly attributable to the output of distribution businesses but are necessary to support its operations. Examples of overhead costs include network

⁵¹ CCP31, *CCP31 - Advice to the AER - JGN 2025-30 Access Arrangement Proposal and Issues paper - September 2024*, September 2024.

⁵² NGR, r. 79(2)(c)(i)

⁵³ NGR, r. 79(2)(c)(ii)

⁵⁴ JGN, *2025-30 Access Arrangement Proposal – Attachment 5.1 – Capital Expenditure – PUBLIC – 28 June 2024*.

planning, procurement, and human resources. In the 2025-30 period, JGN will only capitalise network overheads.

JGN proposes \$23.7 million in capitalised overheads for the 2025-30 period. In the 2020–25 period, JGN's actual and estimated expenditure is \$34.9 million (\$2020–25, direct cost), comprised of \$25.2 million of capitalised network overheads and \$9.7 million capitalised corporate overheads.

A.9.1 Draft Decision

We accept JGN's methodology for calculating and allocating capitalised overheads.

However, as our alternative estimate has changed the value of JGN's capex program, it has also changed the value of capitalised overheads JGN's methodology yields. We substitute JGN's forecast with \$22.5 million in our alternative estimate.

B Renewable gas connections

B.1 JGN’s proposal

JGN proposes to connect 8 biomethane production facilities to its NSW network (renewable gas connections capex). Its capex forecast to connect these projects is \$80.8 million. JGN considers this capex is prudent and efficient, and justifiable under clauses 79(2)(a) and 79(2)(c)(v) of the NGR. The cost of pipeline assets associated with connecting these facilities would go into the capital base of JGN and be borne by its customers. If all 8 of these facilities became operational, JGN estimates they would produce 6.7PJ’s of local renewable gas to its network, or around 8.3% of the energy transported on the JGN network.⁵⁵ Table 5.8 outlines the proposed expenditure for JGN’s 8 renewable gas connections projects in the 2025-30 access arrangement.

Table 5.8 Renewable gas connection project forecast expenditure (\$ millions, 2024-25)

Renewable gas connection project	Proposed expenditure 2025-30
Lilli Pilli	31.0
Blue Gum	26.8
Coolabah	5.1
Iron Bark	4.6
Red Gum	3.7
Huon Pine	3.3
Wollemi	3.2
Kauri	3.0
Total	80.8

Source: JGN, *JGN - Att 5.2M - Capital expenditure forecast model - June 2024*, June 2024. AER analysis.

Note: Project names are code names.

B.2 Draft Decision

We have included a placeholder amount of \$0 in our alternative estimate. We are not satisfied that the renewable gas connections capex is justifiable under clause 79(2)(a) or clause 79(2)(c)(v) of the NGR, or that it is prudent and efficient. We have not previously considered the application of revisions to the NGR that refer to accounting for the economic value of changes to Australia’s greenhouse gas emissions⁵⁶ when determining whether the overall economic value of the expenditure is positive and therefore justifiable under clause 79(2)(a) of the NGR. We consider JGN needs to be provide further information and analysis on the costs and likely alternative uses of the feedstock before we can form a decision on this capex.

⁵⁵ JGN, *JGN 2025 Plan - June 2024*, June 2024, p. 69.

⁵⁶ NGR r. 79(3).

B.2.1 Submissions

CCP31 and Rewiring Australia were concerned that these large renewables projects are inconsistent with JGN’s proposal for accelerated depreciation.⁵⁷ The projects assume long-term demand while the latter assumes a declining customer base. ECA stated large investments like this will contribute to the vicious cycle of customers exiting the network. Large investments cause prices to rise, which causes customers to exit, which causes each remaining customer to shoulder an increased portion of the networks’ costs, which causes more customers to exit, and so on.

The Institute for Energy Economics and Financial Analysis, JEC, and ECA submitted that the resources needed to produce biogas are limited, and there are other renewable energy alternatives. As such, biomethane gas is not suitable to serve JGN’s gas demand and will have limited effect on emissions reductions targets. These stakeholders recommended that JGN target its business cases for biomethane connections specifically at hard-to-electrify customers, as these are the customers whose energy and emissions-reduction will be best served by renewable gas.⁵⁸

ECA and Rewiring Australia said while JGN’s proposal might be most beneficial to industrial customers, residential and small commercial customers are generally easier to electrify. Nevertheless, ECA and Rewiring Australia stated that JGN has not demonstrated much demand for biomethane gas from industrial customers.⁵⁹

In a presentation JGN gave to the AER, JGN addressed the potential inconsistency between large investments and accelerated depreciation.⁶⁰ JGN said that the renewables projects strategy supports the establishment of a renewable gas market, which will lower the risk of asset stranding by supporting the retention of a larger customer base, in turn placing a downward pressure on prices for those remaining connected to its network.

B.3 Our assessment

We consider that there is insufficient information to determine that the proposed renewable gas connections capex is justifiable under 79(1)(a). One of the criteria for capex to be conforming capex is that it is justifiable on a ground stated in rule 79(2) of the NGR.⁶¹

Clause 79(2)(c)(v) was inserted into the NGR in February 2024 and the AER has also not previously considered its application:

⁵⁷ CCP31, *CCP31 - Advice to the AER - JGN 2025-30 Access Arrangement Proposal and Issues paper - September 2024*, September 2024; Rewiring Australia, *Rewiring Australia - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024.

⁵⁸ Institute for Energy Economics and Financial Analysis, *IEEFA - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024; JEC, *JEC - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024; ECA, *Submission on Jemena Gas Networks 2025-30 Access Arrangement Plan*, 12 September 2024.

⁵⁹ ECA, *Submission on Jemena Gas Networks 2025-30 Access Arrangement Plan*, 12 September 2024; Rewiring Australia, *Rewiring Australia - Submission on JGN 2025-30 Access Arrangement Proposal - September 2024*, September 2024.

⁶⁰ JGN, *AER Board Presentation – JGN 2025-30 AA overview – 22 August 2024*, 22 August 2024. Slide 8

⁶¹ NGR, r. 79(1)(b).

‘Capital expenditure is justifiable if:

...

(c) the capital expenditure is necessary:

...

(v) to contribute to meeting emissions reduction targets through the supply of services; or

...’

We consider that although JGN states that clause 79(2)(c)(v) is satisfied, its business cases do not appear to step through the reasoning relevant to satisfying clause 79(2)(c)(v).

We have considered whether JGN’s proposed renewable gas connections capex is justifiable under clause 79(2)(a). Clause 79(2)(a) provides that capex is justifiable if the overall economic value of the expenditure is positive, subject to rule 79(3).

Rule 79(3) of the NGR was amended in February 2024 to refer to accounting for the economic value of changes to Australia’s greenhouse gas emissions when deciding whether the overall economic value of the expenditure is positive. Rule 79(3) of the NGR now provides that:

‘In deciding whether the overall economic value of capital expenditure is positive, consider the sum of:

(a) the economic value, other than of changes to Australia's greenhouse gas emissions, directly accruing to the service provider, producers, users and end users; and

(b) the economic value of changes to Australia's greenhouse gas emissions, whether or not that value accrues (directly or indirectly) to the service provider, producers, users or end users.’

We note that we have not previously considered the application of the amended rule 79(3).

Having reviewed the business cases, we have concerns about the inputs and assumptions used. At this stage, we do not consider JGN has provided us with enough information and analysis for us to be satisfied with the output of its modelling. Consequently, we are not satisfied at this point that the projects represent a net benefit. Without further information and analysis, we do not consider the projects are justifiable under clause 79(2)(a) of the NGR or likely to be efficient. Therefore, we are not currently satisfied that they are conforming capex. We outline our considerations below:

- The business cases do not consider a counterfactual scenario where the feedstock (i.e. the biogas from decomposing organic material, that can be processed and converted to natural gas) can be used as an input for alternative emissions reductions methods. In particular, the feedstock can, and is, used for electricity generation, which would also contribute to emissions reduction. We consider JGN should provide cost benefit analysis of this counterfactual scenario to determine whether the biomethane production is the most efficient use of the feedstock.

- A large proportion of the benefit of the projects is attributed to avoided transportation costs and re-saleable byproducts – we consider there are issues surrounding JGN's valuation of these benefits that are discussed in Confidential Appendix D.
- We are concerned that JGN has not substantiated the long-term availability of feedstock.
- We do not consider JGN has sufficiently justified its assumptions about the market price of resalable biogas byproducts.
- We consider that there is a risk that these projects, which require significant capital and operating expenditure from the renewable gas producer, do not proceed, leaving JGN's customers to fund projects (at least in the short-term) that do not provide gas distribution services.

Much of the information relating to these projects is subject to confidentiality claims by JGN. Consequently, we have included a Confidential Appendix D which includes analysis that relies on confidential material.

Separately, we consider JGN needs to address which cohort(s) of customers are best served by renewable connections. As noted in section B.2.1, submissions stated that the most suitable market for biomethane gas would be hard-to-electrify consumers. The size of this cohort is uncertain, and JGN would need to quantify it in its revised proposal.

B.4 Possible application of the Speculative capital expenditure account⁶²

We consider there is sufficient uncertainty regarding the commencement and completion of renewable gas projects within the access arrangement period. While confidential, we note that the capital and operating costs needed from the renewable gas proponent are significant, and there is no certainty they will proceed, even if the AER was to approve the capex. Given this, we consider that, even if JGN was to address our other concerns regarding the cost-benefit of the projects, we may still form the view that, due to the level of uncertainty, a prudent service provider would not make investments of this type without a strong investment decision from the biomethane proponent, and that, therefore, the renewable connections capex would still not be conforming capex.⁶³

Consequently, if JGN proposes to include renewable connections capex in its revised proposal, we are of the view that JGN should consider whether it proposes these projects be added to a speculative capex account.

Rule 84 of the NGR refers to a speculative capex account and provides as follows:

'84 Speculative capital expenditure account

(1) An access arrangement may provide that the amount of non-conforming capital expenditure, to the extent that it is not to be recovered through a surcharge on users or a capital contribution, is to be added to a notional fund (the **speculative capital expenditure account**).

⁶² NGR r. 84.

⁶³ NGR r. 79(1).

(2) The balance of the speculative capital expenditure account must be adjusted annually by applying to the balance a rate that is the same as the *allowed rate of return* for the regulatory year in which the adjustment is made.

(3) If at any time the type or volume of services changes so that capital expenditure that did not, when made, comply with the new capital expenditure criteria becomes compliant, the relevant portion of the speculative capital expenditure account (including the return referable to that portion of the account) is to be withdrawn from the account and rolled into the capital base as at the commencement of the next *access arrangement period*.⁷

This section should not be understood as the AER deciding that it would accept the renewable connections capex if it were proposed to be added to a speculative capex account. In this attachment, we have outlined our other concerns regarding renewable connections capex. We would need to assess all relevant factors before making such a decision.

C Conforming capex for 2019-20 and the 2020-25 access arrangement period

JGN's actual and estimated capex net of capital contributions for the current access arrangement period is \$874.7 million, compared with the AER's final decision estimate of \$1,043.5 million.⁶⁴ During the 2020–25 period, JGN underspent its AER forecast across most expenditure categories, except for “other capex” and connections expenditure. JGN incurred connections \$13.2 million higher than forecast customer connections, but this was more than offset by higher customer contributions (actual/estimated of \$48.9 million against AER forecast of \$15.7 million). JGN underspent considerably in mains augmentation (\$30.1 million lower than forecast), meter replacement (\$28.0 million lower than forecast), and overheads (\$67.5 million lower than forecast).⁶⁵

We note that in the 2020-25 period, JGN estimates it will spend \$2.7 million on renewable connections, \$0.06 million in 2023-24 and \$2.6 million in 2024-25. This spending is entirely an extension of renewable connections projects proposed for the 2025-30 period. We do not currently consider JGN has demonstrated its renewable connections projects are prudent and efficient. We will revisit this in our revised decision.

Our decision on conforming capex also relates to capex for 2019-20. Owing to the timing of our 2020-25 access arrangement decision, we only had estimates of the expenditure for 2019-20. JGN has underspent its capex allowance for that year of \$209.4 by \$23.4 million, with actual expenditure of \$186.0 million.⁶⁶ We are satisfied that JGN's spending in 2019-20 is conforming and should be rolled into its capital base.

Table 5.9 shows JGN's actual net capex against the forecast allowance for 2019-20 and the 2020-25 period. This shows that JGN has spent less than its capex allowance. We are satisfied that JGN's actual capex is conforming and should be rolled into its capital base.

Expenditure for 2023-24 and 2024-25 is currently estimated. We will revisit our consideration of 2023-24 in the revised proposal when actual expenditure is available. Actual expenditure for 2024-25 will not be available during this reset process, so we will revisit whether this spending is conforming in the 2030-35 reset process.

⁶⁴ AER, [AER - JGN access arrangement 2020–25 - PTRM - 2024–25 RoD update - March 2024](#), March 2024; AER, [JGN - Att 7.7M - Roll Forward Model - June 2024](#), June 2024; AER analysis.

⁶⁵ AER analysis. AER, [AER - Final decision - JGN access arrangement 2020-25 - Attachment 5 - Capital expenditure - June 2020](#), June 2020; JGN, [JGN - Att 5.2M - Capital expenditure forecast model - 20240628 – Public](#), June 2024.

⁶⁶ AER, [AER - Final decision JGN - PTRM - February 2019](#), February 2019; AER, [AER - JGN access arrangement 2020–25 - PTRM - 2024–25 RoD update - March 2024](#), March 2024.

Table 5.9 JGN’s actual capex net of capital contribution versus capex allowance – 2019-20 and 2020-25 access arrangement period (\$million, 2024-25)

Category	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Total net capex allowance	209.4	230.1	224.7	200.8	192.1	195.7	1,252.9
Total net actual and estimated capex	186.0	187.3	165.0	167.7	159.3	195.4	1060.7
Capex overspend / (underspend)	(23.4)	(42.8)	(59.7)	(33.1)	(32.8)	(0.3)	(192.2)

Source: AER analysis. AER, [AER - Final decision JGN - PTRM - February 2019](#), February 2019; AER, [AER - JGN access arrangement 2020–25 - PTRM - 2024–25 RoD update - March 2024](#), March 2024; JGN, [JGN - Att 5.2M - Capital expenditure forecast model - 20240628 – Public](#), June 2024.

D Confidential appendix (renewable connections)

Glossary

Term	Definition
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Ancillary RS	Ancillary Reference Service
augex	augmentation capital expenditure
CAB	Consumer Advisory Board
capcon	capital contribution
capex	capital expenditure
CESS	capital expenditure sharing scheme
CCP31	Consumer Challenge Panel, sub-panel 31
ECM	efficiency carryover mechanism
GSOO	Gas Statement of Opportunities
Handbook	The Better Resets Handbook
ICT	Information and communication technologies
JGN	Jemena Gas Networks
NGL	National Gas Law
NEM	National Electricity Market
NSW	New South Wales
NGO	National Gas Objective
NGR	National Gas Rules
opex	operating expenditure
RAB	regulated asset base
repex	replacement expenditure
UAFG	unaccounted for gas
WACC	weighted average cost of capital