FINAL DECISION
Jemena Gas Networks (NSW) Ltd
Access Arrangement

2020 to 2025

Attachment 5
Capital expenditure

June 2020

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's final decision on the access arrangement that will apply to Jemena Gas Networks (NSW) Ltd ('JGN') for the 2020–25 access arrangement period. It should be read with all other parts of our final decision.

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

Our final decision includes the following attachments:

Overview

Attachment 1 – Services covered by the access arrangement

Attachment 2 – Capital base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 7 – Corporate income tax

Attachment 11 – Non-tariff components

Attachment 12 – Demand

Attachment 13 – Capital expenditure sharing scheme

Contents

Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
ARENA	Australian Renewable Energy Agency
BISOE	BIS Oxford Economics
CAM	Cost allocation method
Capex	Capital expenditure
CCP/CCP19	Consumer Challenge Panel, sub-panel 19
CEPA	Centre for Efficiency and Productivity Analysis
CORE	Core Energy & Resources
DAE	Deloitte Access Economics
GIS	Geographic Information Systems
I&C	Industrial and commercial
IT	Information technology
JEN	Jemena Electricity Networks
JGN	Jemena Gas Networks (NSW) Ltd
m3/h	Cubic metre per hour
MDL	Meter Data Logger
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
NPV	Net present value
Opex	Operating expenditure
POTS	Packaged off-take stations
PRS	Primary regulating stations
RFM	Roll forward model
RIN	Regulatory Information Notice
SRS	Secondary regulator stations
TJ	Terajoules

Shortened form	Extended form
TRS	Trunk receiving stations
UAG	Unaccounted for gas
Zincara	Zincara Pty Ltd

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 the costs are typically recovered over several access arrangement periods.

This Attachment sets out our final decision on JGN's forecast capex for the 2020–25 access arrangement period. It includes our final decision on conforming capex for the 2015–20 period, which forms part of JGN's opening capital base.[2] All dollar amounts are stated in real $2019–20, unless otherwise specified.

5.1 Final decision

We approve JGN's revised proposal of $1,023.2 million of total net capex for the 2014–15 to 2018–19 regulatory years.[3]

We approve $865.0 million of total net capex for the 2020–25 period as conforming capex under the National Gas Rules (NGR).[4] Our decision is 3.1 per cent lower than JGN's revised proposal forecast of $893.1 million. A summary of the reasons for our decision is at section 5.4, while a detailed assessment of capex drivers is at section 5.5.

5.2 JGN's revised proposal

5.2.1 Capex for 2014–15 and the 2015–20 period

JGN has proposed net capex of $988.9 million for the 2015–20 period, and $235.7 million for 2014–15.[5] JGN underspent its net capex allowance in the 2015–20 period by 7.7 per cent ($82.6 million). In our draft decision, we sought clarification on JGN's historical capex categories of overheads and property. JGN provided this information in its revised proposal.

5.2.2 Capex for the 2020–25 period

JGN's revised proposal included a net capex forecast of $893.1 million for the 2020–25 period, which is $102 million higher than our draft decision and $6.4 million lower than its initial proposal. JGN's forecast net capex is $95.8 million (9.7 per cent) lower than

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1 NGR, r. 69.
2 NGR, r. 77.
3 NGR, r. 79.
4 NGR, r. 71 or r. 79.
5 Capex for the regulatory year 2014–15 was included as an estimate at the time of the 2015–20 access arrangement review, as actual capex was not known. As actuals are now available, we have assessed whether this amount is conforming capex as part of this review. Similarly, the regulatory year 2019–20 is currently estimated, and it will be reviewed as part of the next access arrangement proposal.

its actual net capex for the 2015–20 period.[6] JGN proposed $899.5 million ($2019–20) in its initial proposal. We approved $791.1 million ($2019–20) in our draft decision.[7, 8]

Table 5.1 shows the drivers of JGN's revised forecast capex proposal. The major components of forecast gross total capex over the 2020–25 period are connections (43.3 per cent), meter replacement (13.0 per cent), information technology (IT) (11.2 per cent) and overheads (9.5 per cent).

Table 5.1 JGN's revised proposed capex by category over the 2020–25 access arrangement period ($2019–20, million)

Category	2020–21	2021–22	2022–23	2023–24	2024–25	Total
Connections	80.2	77.4	77.3	77.5	79.8	392.2
Meter Replacement	17.2	19.3	23.1	27.9	30.0	117.6
Facilities and Pipes	24.5	21.1	7.0	6.9	12.0	71.5
IT	15.6	22.4	26.4	18.8	18.0	101.2
Augmentation	15.6	23.3	13.0	9.5	0.6	62.0
Mains Replacement	11.7	6.1	6.8	9.6	10.4	44.6
Other	8.8	7.5	6.2	4.5	4.3	31.2
Overheads	24.1	15.8	15.2	15.4	15.4	85.9
GROSS TOTAL	**197.8**	**192.9**	**174.9**	**170.1**	**170.5**	**906.2**
Contribution	4.5	1.9	2.0	2.9	1.9	13.1
NET TOTAL	**193.3**	**191.1**	**172.9**	**167.2**	**168.6**	**893.1**

Source: JGN, *2020-25 Access Arrangement Proposal Attachment 4.1 – Capex Model*, January 2020.
AER analysis. Totals may not sum due to rounding.

5.3 Assessment approach

We must make two decisions regarding JGN's capex. First, we are required to assess past capex, and determine whether it is conforming capex that should be added to the opening capital base.[9] Second, we must assess JGN's forecast of required capex for the 2020–25 period to determine whether, if incurred in accordance with the proposal,

6 JGN's capex for 2019–20 is an estimate.
7 AER, *JGN 2020–25 – Draft Decision – Attachment 5 – Capital Expenditure*, November 2019.
8 JGN changed its allocation policies for corporate overheads and pigging in the 2020–25 period, moving all of these activities into opex. Because of this, capex from the 2015–20 and 2020–25 periods are not comparable without some adjustments. If costs are allocated on a like-for-like basis, the 2020–25 period is $12.8 million (1.3 per cent) lower than JGN's actual net capex for the 2015–20 period.
9 NGR, r. 77(2)(b).

it is conforming capex. Capex will be 'conforming' if it meets the NGR's new capex criteria.[10]

The following sections set out the approach we employed in reaching a decision on these two matters.

5.3.1 Capex in the 2015–20 period

We consider the following when determining the opening capital base for 2020–25:

- 2014–19 capex – since we have actual capex for these years, we have assessed whether this is conforming capex. We have included conforming capex in the opening capital base for 2020–25
- 2019–20 capex – we do not yet have actual capex for 2019–20 and have included JGN's estimate in the opening capital base. We have not assessed JGN's estimate. We will assess whether JGN's actual capex for 2019–20 is conforming capex in the next access arrangement review.

5.3.2 Capex in the 2020–25 period

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

- the access arrangement submission and access arrangement information, which outline JGN's capex program and the main capex drivers
- JGN's revised proposal, and associated information
- JGN's Regulatory Information Notice (RIN) response
- JGN's capex forecast model
- responses to information requests
- engineering advice we commissioned from Zincara Pty Ltd (Zincara) to help us assess the prudency and efficiency of selected projects
- submissions from interested parties.

For each category of capex, we considered the scope, timing and cost of the proposed capex in order to form a view on whether it complies with the new capex criteria. We also considered whether cost forecasts were arrived at on a reasonable basis and represent the best forecast possible in the circumstances.

Our assessment results in an alternative estimate of the business's total capex requirements in the forecast period. If we are satisfied the business's total forecast meets the NGR requirements, we accept the forecast. If we are not satisfied, we

[10] NGR, r. 79.

substitute the business's forecast with our alternative estimate.[11] In making this decision, we take into account the reasons for the difference between our alternative estimate and the business's forecast, and the materiality of that difference.

5.4 Reasons for final decision

5.4.1 Capex in the 2015–20 period

We accept JGN's revised proposal of net capex of $235.7 million for the year 2014–15 and $787.5 million for the years 2015–19. We have included JGN's estimate of $201.4 million for 2019–20 in its opening capital base, and will review JGN's actual expenditure at the next access arrangement review.

The outstanding issues from our draft decision related to property and capitalised overheads. JGN provided further information on these that addressed our questions. Our reasons are set out in detail at section 5.5.9 for capitalised overheads and section 5.5.8 for property. Table 5.2 shows our decision on an annual basis.

Table 5.2 AER's approved capex for 2014–2020 ($2019-20, million)

Category	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20[(a)]
GROSS TOTAL	**240.8**	**224.1**	**196.1**	**200.7**	**182.1**	**203.8**
Contributions	5.0	2.9	1.2	1.0	10.4	2.4
NET TOTAL	**235.7**	**221.2**	**194.9**	**199.7**	**171.7**	**201.4**

Source: JGN, *Response to information request IR057*, February 2020. Totals may not sum due to rounding.

Note: (a) We have not assessed the 2019–20 amounts as approved capex under this decision. This is because these values are estimates. We will undertake an assessment of whether the 2019–20 amounts are conforming capex in our next access arrangement decision.

5.4.2 Capex in the 2020–25 period

As noted earlier, we have accepted net capex of $865.0 million as conforming for the 2020–25 period, $21.8 million (3.1 per cent) lower than JGN's revised proposal.

The difference between our final decision and the revised proposal is not significant. JGN's revised proposal, along with responses to information requests and our further analysis, addresses many of the questions expressed in our draft decision. Table 5.3 compares JGN's revised proposal for each capex driver with our final decision.

[11] NGR, r. 64.

Table 5.3 AER's final decision and JGN's revised proposal for capex over the 2020–25 access arrangement period ($2019–20, million)

Category	JGN's revised proposal	AER's final decision	Difference ($)	Difference (%)
Connections	392.2	384.6	7.6	1.9
Meter Replacement	117.6	111.3	6.3	5.4
Facilities and Pipes	71.5	91.5	-24.1	-33.7
IT	101.2	100.9	0.3	0.3
Augmentation	62.0	34.6	27.5	44.3
Mains Replacement	44.6	36.1	8.5	19.1
Other	31.2	30.1	1.1	3.5
Overheads	85.9	84.9	1.0	1.1
GROSS TOTAL	**906.2**	**877.9**	**28.2**	**3.1**
Contribution	13.1	13.0	0.1	0.8
NET TOTAL	**893.1**	**865.0**	**28.1**	**3.1**

Source: AER analysis.
Inclusive of cost escalation adjustments (section 5.5.10). Totals may not sum due to rounding.

We assessed JGN's forecast capex, taking into account the available information, submissions from stakeholders and advice from our independent expert advisor, Zincara. As can be seen from Table 5.3, the main differences between our final decision and JGN's revised proposal are connections, meter replacements and mains replacement.[12] Consequently, our alternative estimate of JGN's efficient capex is less than JGN's revised proposal. A summary of our decision is provided in Table 5.4, while a detailed assessment of each driver is included in section 5.5 of this Attachment.

[12] We re-classified an *Augmentation* project into the *Facilities and pipes* capex category, which has largely driven the changes in those sections. Consequently, while the changes look large in Table 5.4, for the most part, they merely represent a transfer.

Table 5.4 Summary of AER reasons and findings

Issue	Reasons and findings
Connections	Our final decision includes $384.6 million of connections capex, which is $7.6 million (1.9 per cent) less than proposed. JGN did not adequately demonstrate that its average mains length per dwelling for new estates is efficient. Our alternative forecast was arrived at by substituting a more reasonable estimate of average mains length. This was supported by our independent expert advisor.
Meter replacement	Our final decision includes $111.3 million for meter replacement capex, which is $6.3 million (5.4 per cent) less than proposed. While meter test results supported the replacement of a large number of meters, they also showed that certain meter types were aging slowly, and the number of replacement meters would not be as high in the 2020–25 period. Our alternative estimate of efficient capex included a lower number based on this assessment, which is consistent with advice from our independent expert advisor.
Information technology	Our final decision includes $100.9 million for IT capex. We consider the majority of JGN's IT capex proposal is prudent and efficient. Some aspects of the proposal were not as well supported as others, and may not, in isolation, be considered efficient. However, given the overall quality of JGN's proposal, we have accepted the IT capex program as conforming capex.
Facilities and pipes	Our final decision includes $95.5 million for facilities and pipes capex, which is $24.1 million (33.7 per cent) higher than proposed. The increase is the result of a re-classification of some capex from augmentation to facilities and pipes to better align with our current definition of augmentation and renewal.
Augmentation	Our final decision includes $34.6 million for augmentation capex, which is $27.5 million (44.3 per cent) less than proposed. As noted above, this is largely due to $24.1 million being reallocated to facilities and pipes capex. JGN's proposed augmentation capex is much closer to our final decision compared to our draft decision, largely because JGN revised the scope of its Aerotropolis project which we now consider to be conforming capex.
Mains replacement	Our final decision includes $36.1 million for mains replacement capex, which is $8.5 million (19.1 per cent) less than proposed. JGN proposed a replacement project in the last year of the 2020–25 period, but did not adequately demonstrate that this project is efficient at a portfolio level.
Speculative capex	Our final decision accepts the opening of a speculative capex account for the Western Sydney Green Gas Trial. This account does not impact 2020–25 period revenues. JGN may collect this capex in future access arrangement periods if the capex becomes conforming. In opening this account, JGN accepts the risk that this capex may not become conforming in the future.

Source: AER analysis.

5.5 Detailed assessment of capex drivers

In assessing JGN's access arrangement proposal, we must decide whether capex from previous periods is conforming[13], and whether JGN's capex forecast is conforming, or if not, whether it should be substituted with an alternative estimate of capex that is conforming.

[13] We assess capex for the regulatory years from 2014–15 to 2019–2020. As capex in 2019–20 is currently an estimate, we will assess whether actual capex is conforming for this year in the next access arrangement review.

5.5.1 Conforming capex for the 2015–20 period

JGN has proposed net capex of $988.9 million for the 2015–20 access arrangement period ($2019–20), where capex in 2019–20 is an estimate.

We accept $787.5 million ($2019–20) as conforming capex for the 2015–16 to 2018–19 years, and will assess whether capex incurred in 2019–20 is conforming at the next (2025–30) access arrangement review.

In reaching this view, we have considered the following factors:

- JGN's capex is expected to be $82.6 million (7.7 per cent) less than the $1,071.5 million ($2019–20) we approved for the 2015–20 period
- the largest underspend in the 2015–20 period occurred in the meter replacement category, where JGN is expected to spend $81.6 million less than forecast ($2019–20, direct costs). JGN submitted that this occurred because of better than expected asset performance allowing deferral of replacement, prolonged life of some meters and improved operational performance[14]
- the largest overspend in the 2015–20 period occurred in the connections category, where JGN spent $142.3 million more than forecast ($2019–20, direct costs). JGN submitted that this was because of greater than forecast new dwelling construction and decreasing average connection costs per new dwelling. The decrease in average connections costs per new dwelling is partly due to relatively less expensive high rise connections making up a larger proportion of connections[15]
- the next largest overspend was capitalised overheads by $26.5 million ($2019–20). JGN provided sufficient information for us to make an assessment (see section 5.5.9)
- the overspend in property within the other capex category was $15.5 million ($2019–20). JGN provided sufficient information for us to make an assessment (see section 5.5.8).

[14] JGN, *2020–25 Access Arrangement Proposal Attachment 5.1 Capital expenditure*, June 2019, p. 18.

[15] Ibid, pp. 16–20.

Table 5.5 JGN capex performance against the allowance by category over the 2010–15 and 2015–20 access arrangement periods ($2019–20, million)

	2010–15		2015–20	
	Allowance	Actual	Allowance	Actual/Estimate
Connections	429.3	361.8	336.6	478.9
Metering	140.1	81.3	165.3	83.7
Facilities and pipes	87.3	58.9	107.1	60.2
Information technology	106.4	141.7	147.6	114.6
Augmentation	81.4	98.8	94.1	37.5
Mains replacement	22.6	16.4	64.5	25.9
Other	47.0	95.1	44.4	45.2
Overheads	36.5	130.0	134.4	160.9
TOTAL GROSS CAPEX	**950.6**	**984.0**	**1093.8**	**1006.8**
Customer Contributions	25.1	41.0	22.4	17.9
TOTAL NET CAPEX	**925.5**	**943.0**	**1071.5**	**988.9**

Source: JGN, *Response to information request IR 016 and IR 057*. Totals may not sum due to rounding.

5.5.2 Connections

We consider $384.6 million of capex for connections is conforming, and have included this in our alternative estimate of efficient capex. JGN revised proposal includes $392.2 million of capex for new connections.

JGN's revised proposal

JGN's revised proposal for connections is marginally higher than its initial proposal. The forecast increase is primarily the result of updates to JGN's demand forecast for Tariff V[16], as well as JGN's acceptance of our draft decision to change their boundary meter strategy.[17] JGN updated its forecast to include Core Energy & Resources (CORE) revised connection forecast and 2018-19 cost data.[18]

[16] Our decision on demand is detailed at Attachment 12 of this final decision.

[17] JGN initially proposed a boundary meter strategy that would have withdrawn individual hot water meter services from high rise buildings with centralised hot water systems. In its revised proposal, JGN stated that it will now continue to offer individual hot water metering services for high rise buildings with centralise hot water systems.

JGN stated that our draft decision used differing historical periods for each element, and removed historical outliers, resulting in the lowest forecast.[19] JGN noted that its approach used a consistent averaging period to calculate connection unit rates (using historical costs and volumes), while we applied the lower of either a four or five year average. The only exception to this was where an even lower unit rate was calculated by excluding years with high costs or volumes.[20]

JGN did not accept the trend of decreasing lot sizes would result in a reduction in the length of main per connection. JGN noted that while lot sizes have reduced by 25 per cent over the last 13 years, there has been no reduction in mains length required per connection based on recent Geographic Information System (GIS) data. [21]

Our assessment

Distribution businesses have a regulatory obligation to make a connection offer to residential and commercial/industrial customers, where an application is made.[22] The number of new connections in a regulatory period will vary based on the number of connection applications being made, and is closely related to the amount of new residential and commercial/industrial developments.

Connections capex is usually forecast by categorising connections into Tariff V (residential customers, and small commercial and industrial (I&C) customers) and Tariff D (large I&C customers). Connections capex covers mains along streets, services to homes and businesses, and meters to measure gas consumption for new:

- low density dwellings (new homes)
- medium density and high-rise housing
- electricity to gas conversions
- commercial sites
- industrial and large commercial sites

Based on our assessment, further information provided by JGN and advice from our independent expert, Zincara, we accept capex relating to all categories other than new homes.

New homes

There are two aspects to a connection forecast, the forecast number of new connections (volume), and average cost per connection (unit cost). We agree with

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Our decision is set out in Attachment 1 of this final decision. JGN's revised proposal has been updated to include costs of their individual hot water metering product consistent with their decision to continue to offer this product.

18 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 17.

19 Ibid. p. v.

20 Ibid. p. vi.

21 Ibid. p. 1.

22 NGR, r.119S, for basic and standard connections and NGR, r.119V, for negotiated connections.

JGN's forecast of volume. However, we consider the proposed unit cost is higher than an efficient distribution business would face. This is because we consider JGN's forecast mains length per connection for new homes is longer than we consider efficient, resulting in a higher cost per connection. In forming this view, we considered the advice from independent expert, Zincara.

Zincara did not consider JGN's forecast of mains length per new connection was efficient, and proposed a lower forecast. Zincara noted the four-year averaging period used by JGN to derive mains length included a construction boom, which increased main laying activities and elevated mains length per connection. Zincara did not anticipate this would reoccur during the forecast period. Accordingly, Zincara considered JGN's four-year average was likely to overestimate mains length per connection. Zincara considered the recent years (2017–18 and 2018–19) were more reasonable estimates of mains length in the forecast period. Zincara also noted that this sample reflects length per connection over the longer term. [23]

We accept Zincara's findings in relation to connections capex. When applied to JGN's revised proposal, the reduced length of mains per new connection for new houses results in a forecast of efficient capex that is $7.6 million lower than JGN's revised proposal.

Contributions

We accept $9.4 million for contributions as conforming capex for the 2020–25 period which is $0.1 million lower (1 per cent) lower than JGN's revised proposal. The small discrepancy between the revised proposal and our final decision reflects our decision on connections capex above, as contributions are proportional to the cost of connections. We noted that total capital contributions also comprised of contributions based on forecast augmentation capex (see section 5.5.6).

5.5.3 Meter replacement

We consider $111.3 million of capex for meter replacements is conforming, and have included this in our alternative estimate of efficient capex.

Meter replacement is an ongoing capex activity that covers all metering types. Meters may be replaced either as part of a planned program or when 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.[24]

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[23] Zincara, *AER Access Arrangement 2020 – JGN Capital Expenditure Review – Stage 2 Report,* March 2020, pp. 33–34.

[24] JGN, *2020–25 Access Arrangement Proposal Attachment 5.1 Capital expenditure*, June 2019, p. 18.

In our draft decision, we were not satisfied JGN's forecast of $118 million for meter replacement was conforming capex, and included $105.7 million in our alternative capex forecast.[25] We formed this view after concluding:

- the unit cost of replacement was lower than JGN's forecast
- the number of replacements should be reduced, as a proportion of meter families were likely to pass their 25 year service test without needing replacement
- JGN's averaging period for the replacement of defective residential hot water meter replacements and meter data logger, included an outlier, which should be removed.

We considered other aspects of JGNs proposal were justified, as they were necessary to maintain the integrity of services. We accepted forecast expenditure on Metreteks and dew point analysers. We also accepted that JGN could ramp up and down contractors and suppliers to meet its meter replacement projections.

AGL noted in its submission that JGN only spent half the allowance in the current access arrangement period, and expect that JGN will ensure that meter replacement programme is fully undertaken next period.[26]

JGN's revised proposal

JGN's revised proposal includes $117.6 million for meter replacement capex. JGN's forecast has been updated to:[27]

- include 2019 meter testing results
- include a 2015–19 four-year averaging period for unit rates and average annual costs rather than using 2014–18 figures
- correct a referencing error in metering volumes for industrial and commercial.

JGN raised concerns with our assessment of the lives of meter families, particularly the likelihood of a proportion of these passing their 25 year tests (and remaining in service beyond this point).

JGN updated its averaging period for the replacement of defective residential hot water meter replacements and meter data loggers. In our draft decision, we considered data from 2014–15 was an outlier that should be removed from the forecast. JGN's updated forecast removes the 2014–15 year, resolving our concern.[28]

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25 NGR, r. 79.

26 AGL, *Submission JGN 2020 Revised Proposal,* 17 February 2020, p. 3.

27 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 22.

28 Ibid. p. 23.

Our assessment

Meter families

As noted above, we were concerned in our draft decision that JGN's forecast residential gas meter replacement volume was too high. In particular, JGN considered all meters required replacement after 25 years of service, while we considered a proportion of meters would pass their 25 year test and remain in service, reducing the replacement volume.

JGN did not accept our draft decision, noting that our assumption is not valid at a portfolio level. JGN submitted that, while some meters will pass their 25 year test, a similar number of meters are likely to fail either their 15 or 20 years tests. If our forecasting methodology had taken into account failures at 15 and 20 years, there would be no material difference between JGN's and our forecasts.[29]

In assessing JGN's position, we considered the results of the latest meter test results. The 2018–19 test results show that 20,665 meters failed their 20 year test, while 23,247 meters passed their 25 year test.[30]

We consider JGN's assumption that no meters will fail at the 15 and 20 year test, while all will fail the 25 year test, is inaccurate and not necessary the best assumption to use for forecasting purposes.[31] Given the high volume of meter replacements proposed by JGN, the different volume profile associated with each mater family, and JGN's history of underspends in this category, we are not satisfied that JGN's approach will develop the best forecast of replacement volumes. JGN's revised proposal includes a three-year life extension for replacing meters, after which it also assumes all meters will be replaced. We consider this approach, where all meters are now assumed to need replacement at 28 years, is not ideal for use in forecasting for similar reasons, as it does not take into account meters that will last beyond 28 years.

To assist us, we have considered advice from independent expert, Zincara.

Zincara recommended replacement volume of 257,410 meters, after considering the results of 2018–19 tests and further information from JGN. This forecast includes a specific provision for meters that fail at 15 and 20 years. Zincara used information on specific meter types to develop an estimate of 25 year meters pass and fail outcomes.

We consider this is a more prudent approach to forecasting, given the large volume of meters forecast to be replaced. While the estimate does not give a precise outcome for each meter family, it provides the best estimate of meter replacement for the forecast period at the portfolio level.[32]

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29 Ibid. p. 22.

30 Ibid. p. 20.

31 Ibid. p. 18.

32 Zincara, *AER Access Arrangement 2020 – JGN Capital Expenditure Review – Stage 2 Report,* March 2020, p. 43.

Zincara also consider it prudent for meter families to be statistically sample tested to ensure that maximum field life can be achieved.[33] The inclusion of 2018–19 actual data results in some revision of the other residential meter categories, which Zincara considers to be reasonable.

Industrial and commercial meters

In general, Zincara considers JGN's revised capex forecast for industrial and commercial (I&C) to be reasonable, except for "meter kit changeout". It considered that, because the historic expenditure and volumes showed significant variance across the years, a five-year average rather than JGN's use of a four-year average, provides a more reasonable unit rate for the forecast period. It is also similar to JGN's initial 2020 Plan. This change results in a very modest adjustment to meter replacement capex.[34]

5.5.4 Facilities and pipes

We consider $95.5 million of capex for facilities and pipes is conforming, and have included this in our alternative estimate of efficient capex.[35] This includes the re-categorisation of JGN's Lane Cove to Willoughby project of $24.4 million from augmentation capex to facilities and pipes.

Facilities and pipes relates to capex for high pressure pipelines and facilities. Expenditure in this category is primarily focussed on maintaining the safety of JGN's aging assets.

In our draft decision, we assessed JGN's facilities and pipes projects by considering:

- the need for the proposed works
- their scope and timing, and
- whether the input cost of each project represents the efficient, lowest sustainable cost.

After considering the advice of Zincara, we accepted that 72 of 80 projects were likely to be prudent and efficient.[36] These 72 projects represented $63.2 million of capex. We did not consider JGN had provided sufficient justification for the remaining eight projects.[37]

Table 5.6 lists the projects identified in our draft decision as requiring additional information be provided in JGN's revised proposal for us to be able to reconsider the expenditure.

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33 Ibid. p. 44.

34 Ibid. p. 44.

35 NGR, r. 79(2)(c)(ii).

36 Zincara, *Access Arrangement 2019 JGN Capital Expenditure Review*, 7 November 2019, p. 86.

37 NGR, r. 79(1).

Table 5.6 Facilities and pipes capex not included in the AER's draft decision alternative capex estimate ($2019–20, million)

Facilities and pipes sub category	Project and Program name	Total
Facilities and safety upgrade	Minor capital trunk receiving stations (TRS)	1.1
	Minor capital secondary regulator stations (SRS)	2.1
	Appin packaged off-take station (POTS) upgrade Stage 2	0.5
	Installation of secondary isolation valve	1.1
Secondary district regulator replacement	Minor capital primary regulating station (PRS)	0.6
Other minor works	Minor capital pipe works	1.3
	Minor capital washaway works	1.6
	Path valves – low medium and secondary pressure	0.4
Escalation differences	Labour and inflation	0.3
	Total	**9.0**

Source: Zincara and AER analysis. Totals may not sum due to rounding.

In our draft decision, we also questioned whether the Lane Cove to Willoughby section of the Sydney primary mains integrity management program should be re-categorised from augmentation to facilities and pipes to better reflect the fact this project is part of a series of other projects within facilities and pipes to mitigate asset condition risks rather than demand growth. [38]

JGN's revised proposal

JGN's revised proposal noted our acceptance of $63.2 million ($2019–20, direct cost) proposed expenditure on facilities and pipes as prudent and efficient. As such, no further information was provided for these projects.[39] JGN provided additional data for the eight programs we did not accept in our draft decision, which is summarised in Table 5.7.

[38] AER, *JGN 2020–25 – Draft Decision – Attachment 5 – Capital Expenditure*, November 2019, p. 53.

[39] JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 25.

Table 5.7 Summary of additional information in JGN's revised proposal

Project and Program name	Additional information
Minor capital TRS	The annual spend of $0.21 million is intended to cover all minor capital works across 55 facilities. This amounts to less than $4,000 per facility per year.[40] The exact works to be undertaken will depend on outcome of reviews not yet conducted and issues not yet identified. Facilities will continue to age and degrade all while supplying more customers as the surrounding area is developed. While costs do move year to year the long-run trend has been for costs to increase.[41]
Minor capital SRS	JGN have chosen to adopt a reactive approach, but this does not mean the approach is not managed. Asset condition is monitored through an annual review process and JGN responds to issues as they arise, for instance based on reports from field crews. The annual review allows JGN to first identify and then prioritise works based on asset performance, location and risk. There are 634 SRS in the JGN network and almost 20 per cent will reach the end of nominal life within the next 10 years.[42]
Appin POTS upgrade Stage 2	Since lodging the 2020 Plan, JGN have changed their strategy for Appin POTS. Instead of undertaking an upgrade JGN will install a flow meter.[43]
Installation of secondary isolation valve	JGN considered whether to install 15 valves to mitigate safety risks and loss of supply risks in only high density community use areas or whether to install 51 new secondary isolation across the secondary network. Given there is a lower risk outside high density community use areas JGN have opted for the first lower cost option.[44]
Minor capital PRS	JGN's capex forecast reflects plans to replace electrical and instrumentation at several of the PRSs, which should result in a reduction to the amount of minor capital works that will be required at these PRSs. The proposed capex of $0.13 million per annum will cover the various other components of the PRS which may need replacement, given 10 of the 17 PRS are over 30 years old.[45]
Minor capital pipe works	This category covers a range of reactive work JGN need to undertake on both underground and aboveground pipework. Minor capital works covers the cost of replacing network components and does not include repair costs, these costs have been capitalised in accordance with Australian accounting standards.[46]
Minor capital washaway works	The identified washaway sites are generally areas which are subject to flash flooding. Once the depth of cover is reduced or removed the pipeline is exposed and unsupported leading to overstress on the pipeline. Risk assessments at washaway sites have confirmed "do nothing" is not an option. Controls are required to support the pipeline and minimise future damage and meet all regulatory and compliance requirements. Patrols have identified 29 sites on the Southern and Northern trunks which may

40 Ibid. p. 26.
41 Ibid. p. 27.
42 Ibid. p. 28.
43 Ibid. p. 32.
44 Ibid. p. 33.
45 Ibid. p. 29.
46 Ibid. p. 30.

Project and Program name	Additional information
	require remediation works. JGN will not be sure how many of these sites will require remediation until investigations are completed.[47]
Path valves – low medium and secondary pressure	JGN submitted two opportunity briefs and noted that the isolation of secondary path valves of industrial and commercial customers are at equal risk of not being isolated safely in the case of emergency.[48]

Source: AER analysis.

In terms of the categorisation of the Lane Cove to Willoughby section of mains, JGN noted that this project is driven by safety risks which align with their interpretation of the AER's RIN definition of augmentation which states: [49]

> *Augmentation of a transmission of distribution system means work to enlarge the system or increase it capacity to transmit or distribute natural gas. Augmentation also includes work relating to improving the quality of the network.* [50]

Our assessment

Based on the additional information provided in JGN's revised proposal, most of the programs in Table 5.7 can be classified as part of a minor capital maintenance program, which consists of many small scale reactive projects. In addition, JGN demonstrated that these programs are in line with their historical averages and trends at the portfolio level giving us confidence that the proposed capex for these programs is conforming capex.

Zincara considers that there is sufficient information in JGN's response to recommend acceptance of the remaining projects not accepted in our draft decision.[51]

Lane Cove to Willoughby re-categorisation

We have re-categorised JGN's Lane Cove to Willoughby section of mains as facilities and pipes capex. The project was initially categorised as augmentation. We consider this re-categorisation better aligns with the purpose of the capex. The re-categorisation has resulted in an increase in facilities and pipes capex of $24.4 million and a corresponding decrease in capex for augmentation. This is a paper transfer, which does not change our final decision at the total capex level. We consider the project better aligns with the definition of facilities and pipes as:

- the project is not an enlargement of the system or an increase in capacity to transmit or distribute more natural gas

47 Ibid. p. 31.
48 Ibid. p. 34.
49 Ibid. p. 60.
50 AER, *JGN 2021–25 – Reset RIN*, 12 December 2018, Appendix F.
51 Zincara, *AER Access Arrangement 2020 – JGN Capital Expenditure Review – Stage 2 Report,* March 2020, p. 11.

- the project was accepted based on maintaining the overall safety and integrity of services, and does not qualify as work to improve the quality of the network.

We have updated the definitions in our RINs to ensure our capex categorisations are clear.

5.5.5 Information technology

We consider $100.9 million of capex for IT is conforming, and have included this in our alternative estimate of efficient capex.[52] This is moderately lower than JGN's revised proposal due to an adjustment made for cost escalation (see section 5.5.10).

In its initial proposal, JGN sought $107.2 million for IT for the 2020–25 access arrangement period.[53] We included $73.3 million in our draft decision,[54] which included placeholder amounts totalling $7.4 million.[55] We sought additional information in respect of items allowed as a placeholder to inform our final decision. Our draft decision was $33.9 million lower than JGN's forecast. We did not consider JGN had adequately demonstrated how these expenditures were justified.[56]

The discussion below is focussed on our analysis of the projects that were not accepted in the draft decision, and those where placeholder amounts were included. Our reasons for the other elements of IT capex are the same as those in the draft decision.

JGN's revised proposal

JGN's revised proposal includes $101.2 million for IT capex. JGN accepted $6 million of the capex reductions in our draft decision related to projects which are not required.[57] JGN's revised proposal is a 5.6 per cent reduction from its initial proposal.

JGN provided investment briefs in support of its IT program. These are shown in Table 5.8.

52 NGR, r. 79(2)(c)(ii).

53 JGN, *2020–25 Access Arrangement Proposal, Attachment 5.1*, June 2019, p. 14.

54 AER, *JGN 2020–25 – Draft Decision – Attachment 5 – Capital Expenditure*, November 2019.

55 Placeholder amounts were included where we were satisfied that investment in certain areas of IT was prudent and efficient, but required more information from JGN to determine the efficient cost of that investment. We included a placeholder amount in the draft decision, and intended to replace that with an actual amount we considered efficient once JGN provided further information.

56 NGR, r. 79(2).

57 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 35.

Table 5.8 Revised proposal investment briefs ($2019–20, million)

Investment Brief	Category	Draft Decision	Amount
SAP migration business case	Corporate Systems/SAP ERP	Not Allowed	7.3
Enterprise Systems – Reporting & Analysis	Corporate Systems/SAP ERP	Not Allowed	3.4
Enterprise Systems Lifecycle	Corporate Systems/SAP ERP	Not Allowed	1.4
Kofax Lifecycle	Corporate Systems/SAP ERP	Not Allowed	0.4
Reporting Server and Database Systems Lifecycle	Enabling Platforms	Not Allowed	0.7
Mass Market No Access	Metering	Placeholder	3.6
I&C Meter Reading Systems	Metering	Not Allowed	1.7
MDL Backend System	Metering	Not Allowed	2.0
Asset Management & GIS Enhancement	Asset Management & Geospatial Systems	Not Allowed	5.6
Asset Management & GIS Lifecycle	Asset Management & Geospatial Systems	Placeholder	3.8
Customer Experience Hub	Customer Experience	Not Allowed	5.5
GIS Dial Before You Dig (DBYD)	Customer Experience	Not Allowed	0.6

Source: AER analysis.

Our assessment

We consider the majority of JGN's IT capex proposal is prudent and efficient. Some aspects of the proposal were not as well supported as others, and may not, in isolation, be considered efficient. However, given the overall quality of JGN's proposal, we have accepted the IT capex program as conforming capex. Table 5.9 shows our consideration of the various IT projects.

Table 5.9 AER analysis of JGN's IT capex program

Project	Amount ($m)	Analysis
Lifecycle costs	$6.3	We were satisfied that the further information provided by JGN, including new investment briefs, addressed our concerns from the draft decision.
SAP migration business case	$7.3	JGN's new investment brief demonstrated the prudency and efficiency of the proposed SAP migration. JGN's options analysis demonstrates that it has taken the least cost option to maintain its systems and minimise cybersecurity and other risks.[58] JGN have demonstrated that using third party support would result in similar, and potentially higher, costs than using their preferred vendor supported approach.
Reporting and Analysis	$1.4	After reviewing JGN's investment brief,[59] we consider JGN has not established that the existing systems are no longer adequate to perform their function, nor quantified the benefits of these projects to customers.
Multi-vendor reading system	$4.1	JGN have accepted our draft decision to not allow $4.1 million for the multi-vendor reading system (MVRS). Accordingly they have withdrawn the MVRS related projects in their revised proposal.[60]
MDL Backend System	$2.8	JGN's revised investment brief demonstrated the limitations of the existing MDL systems and applications which are outdated and unsupported.[61] JGN submits that the use of current analogue systems is much higher than new digital ones.[62] JGN has demonstrated that the net present value (NPV) of maintaining the existing system and replacing in a future period is slightly inferior to that of implementing a new MDL backend system in the next period, which due to vendor support has lower cyber security risks.
I&C Meter Reading Systems	$1.7	In our draft decision, we sought further information from JGN on the assumptions used to derive the system benefits, and costs of replacement systems.[63] JGN's revised investment brief provides additional background material. However, JGN did not provide the information requested in our draft decision.
GIS Enhancements	$5.6	JGN have re-categorised capex on GIS enhancements as non-recurrent.[64, 65] We considered whether JGN's revised proposal demonstrated that the expenditure was necessary to maintain and improve the safety of services.[66] JGN advised that the capex 'will deliver functionality to the GIS system that will better enable JGN to maintain and improve the safety of services, maintain the integrity of services, and comply with regulatory obligations'.[67]
New Customer Experience Hub	$4.2	JGN has provided additional documentation in support of the new customer experience hub. The benefits of the proposed system are identified as 'improving the experience of stakeholders who have repeated interactions (developers,

58 JGN, *Investment Brief SAP Migration Business Case*, December 2019, p. 14.
59 JGN, *Investment Brief Enterprise Systems – Reporting & Analysis*, December 2019.
60 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 35.
61 JGN, *Investment Brief MDL Backend System*, December 2019, p. 4.
62 Ibid. p. 5.
63 AER, *Draft Decision – JGN Access Arrangement Attachment 5*, November 2019, pp. 5-47.
64 JGN, *Investment Brief Asset Management & GIS Enhancement*, December 2019, p. 4.
65 AER, *Non-network ICT capex assessment approach*, November 2019.
66 NGR, r. 79(2)(c).
67 JGN, *Response to IR054 ICT Capex*, February 2020, p. 4.

		builders, plumbers, etc.)' and that JGN expect the new system 'will contribute to … 0.74 per cent productivity growth factor' on opex.[68] In response to an information request, JGN stated 'JGN's systems and existing customer interfaces are sufficient to enable JGN to comply with its obligations under relevant legislation'.[69] This indicates that the expenditure is not necessary to comply with regulatory obligations, but represents an enhancement. JGN submits that new customer experience hub will increase efficiency through automated processes, and is required to meet customer expectations. JGN has not quantified these benefits.
Mass Market No Access	$3.6	In our draft decision, we required that JGN provide further information regarding the benefits contained in the NPV analysis, specifically the source of inputs to these calculations. JGN did not provide this information.

Source: AER analysis

5.5.6 Augmentation

We consider $34.6 million of capex for augmentation capex is conforming, and have included this in our alternative estimate of efficient capex.[70] This does not include JGN's Lane Cove to Willoughby project, which has been re-categorised from augmentation capex to facilities and pipes. JGN's forecast capex for this project is $24.4 million.

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.[71]

In the draft decision, we did not accept JGN's proposed augmentation forecast of $60.8 million. We considered there was a high level of uncertainty associated with the Aerotropolis development. We were also concerned with the limited historical samples JGN used to derive a 94 per cent penetration rate for new developments. We had concerns there might be a longer lag between capex and demand realisation than JGN had allowed in their benefit realisation modelling.

We requested that JGN's revised proposal include:

- clarification of the demand and project risks for each site within the Aerotropolis development
- for developments with a project completion year in 2020–21 and 2021–22, provide further details on project scope and cost estimates beyond Gate 1 requirements
- given the size of JGN's network and construction activity in NSW over the past five to ten years, provide explanation why JGN used only seven sites to represent the penetration rate for all new developments

68 JGN, *Investment Brief Customer Experience Hub*, December 2019, p. 9.

69 JGN, *Response to IR054 ICT Capex*, February 2020, p. 7.

70 NGR, r. 79(2)(c)(ii).

71 Additional demand via increased gas pressure beyond network design capacity may cause outages.

- based on recent developments and the associated billing data, provide the indicative timeframe between capex spending and demand realisation.

JGN's revised proposal

Aerotropolis

In its revised proposal, JGN advised that the plans for the Aerotropolis have solidified, reducing uncertainty. JGN has been working with other utilities to collaborate and help plan. JGN's options analysis incorporates updated plans, synergies that can be achieved and when the mains will need to be laid.[72]

Compliance with rule 79(2)(b) – incremental revenue versus capex

JGN has responded to the AER's concerns about penetration rates expressed in the draft decision.[73] JGN noted that they selected areas which have had time to develop over the past few years, taking into account the lag between when a gas main is laid, a home is built, and gas is connected. Areas which were developed 20 or 30 years ago or where gas mains were laid after houses were built were not included. As most of the new estate augmentation projects are in Sydney's west, 13,041 homes across seven new suburbs in western Sydney were checked. It was found that 12,142 had an active gas connection, giving a penetration rate of 94.3 per cent.[74]

The main difference between the NSW-wide penetration rate calculated by CORE (76 per cent) and the new suburb penetration rate, is that the JGN network does not cover the whole of NSW. HIA's housing commencements data, used by CORE in their modelling, covers the whole of NSW. JGN estimate that their network covers about 80 per cent of new dwellings in NSW. Taking 76 per cent of 80 per cent will result in a network specific penetration rate of about 95%, consistent with JGN's new suburb penetration rate.[75]

Malabar bio-methane augmentation project

This is a new project presented as part of the revised proposal.

Three customers (Interface carpets, City of Sydney and Dexus) have advised JGN they are seeking access to renewable gas. The next version of the Green Star energy rating tool will be released in 2020, and it incentivises the removal of natural gas appliances. There is a growing requirement to provide decarbonised gas options if the demand for gas is to be maintained.[76]

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72 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 40.

73 AER, *Draft Decision – JGN Access Arrangement Attachment 5*, November 2019, pp. 5-53.

74 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 52.

75 Ibid. p. 53.

76 Ibid. p. 61.

The Sydney Water Malabar Sewerage Treatment plant currently produces 1,500m^3/h of bio-gas that is burnt to produce electricity or flared. Sydney Water intends to upgrade the treatment plant to convert biogas to bio-methane. The upgraded facility would have the capacity to inject up to 268TJ per year of methane into the JGN network.[77]

JGN is seeking to augment its network to enable the injection of bio-methane by constructing a secondary main to the Malabar Sewerage Treatment plant. This investment would provide a pathway for additional renewable gas to be injected into the network by providing proof of concept, the development of certification of green gas, and creating a market for renewable gas.[78]

JGN evaluated this project under the incremental revenue test to avoid negative growth and maintain existing demand with the assumption that customers will leave the gas network if renewable gas is not available.

Our assessment

Aerotropolis

JGN's revised forecast reduced its original scope for the Aerotropolis by $2.7 million ($2018) or 18.8 per cent based on improved information. We are confident that this project is more certain, likely to be efficient, and at a level where it is capable of acceptance.

Overall, we accept JGN proposed capex for this development (augmentation and connections capex) in its revised proposal is now reasonable under the circumstances and accordingly now constitutes conforming capex.

New augmentation projects

As part of JGN's revised proposal, two new projects were submitted to connect Sydney Water's treatment plants. One of these plants is a new water factory near the Aerotropolis boundary, and the other is to modify an existing plant at Malabar to allow for the injection of renewable gas (bio-methane) into the JGN network.

These projects are late submissions, without the benefit of a full review process. We have assessed the merits of these projects to the extent practical, given the shortened timeframe and consultation process.

Based on our assessment, we accept the proposed capex for the new (Aerotropolis) water factory, on the basis that this is a new gas consumption facility and Sydney Water have provided a letter of confirmation on their connection requirements. This site would also provide an opportunity to inject renewable gas into the network as a trial to ensure that the quality of gas is acceptable, as gas quality is also an ongoing issue

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77 Ibid. p. 61.

78 Ibid. p. 61.

within JGN's Reference Service Agreement. Zincara have also confirmed that the proposed capex for this project is the best estimate available as the cost estimates are based on similar projects and JGN have indicated that they have factored the synergies from the latest Aerotropolis development plan. [79]

As noted by Zincara, Australia currently does not have renewable gas injected into its gas network and these projects will be the first of its kind in Australia to supply gas customers with renewable gas.

For the Malabar site, Zincara have a number concerns that JGN didn't address or provide details in its revised proposal: [80]

- the pipeline is to be constructed in 2021–22, and there is no indication that Sydney Water will be ready to convert bio-gas to renewable gas by then or that there will be commercial arrangements between the parties to take renewal gas at that time
- there is no assurance that this conversion of bio-gas to renewal gas will meet the AS4645-11 Specification for General Purpose Gas so that it can be injected into the network
- the renewable gas industry is still in its infancy and is still to develop a clear roadmap for its utilisation, which could change the viability and timing of the project
- whilst the three companies have provided letters of support for being able to access bio-gas and as such, renewable gas, there are no firm commitment that they will use the gas at any cost
- other gas users could take up the spare capacity of renewable gas, but this could change the results of the NPV.

As stated in JGN's revised proposal, the injection of renewable gas into its network is currently a proof of concept to lower technical risk for future projects.[81] Since we have accepted the new (Aerotropolis) water factory, which also provides an opportunity to inject renewable gas into the network, we consider a second trial redundant in the same regulatory period.

On this basis, we do not accept the provision of a capex allowance for the connection of an existing (Malabar) Sydney Water facility purely for the purpose of injecting renewable gas (bio-methane) into the JGN network.

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79 Zincara, *AER Access Arrangement 2020 – JGN Capital Expenditure Review – Stage 2 Report,* March 2020, p. 57.

80 Ibid. p. 61.

81 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 61.

Other augmentation projects

Projects completing in 2020–21 and 2021–22

In our draft decision, for developments with a project completion year in 2020–21 and 2021–22, we asked for further details on project scope and cost estimates beyond Gate 1 requirements.

JGN responded, noting that there are limitations in preparing detailed cost estimates two or more years in advance. JGN noted that it has updated costed projects to the best extent possible. After considering JGN's response, we accept the proposed capex for these projects as the best estimate in the circumstance. We note that, as a result of JGN's latest update, the Bankstown project is no longer required as the installation of new mains for customers in 2019–20 have also strengthened the capacity of the network.[82]

Penetration rate

In its revised proposal, JGN provided further information, seeking to validate its proposed penetration rate of 94.3 per cent for new estates. JGN's further analysis uses the NSW Government Building Sustainability Index data (BASIX).[83] While the BASIX dataset has its limitations for the purpose of evaluating the actual penetration rate for each suburb, we are satisfied that JGN's alternative analysis, using a larger sample size, support JGN's proposed penetration rate for new estates. We note that this is the level of validation and assurance we expect from key assumptions when given a limited sample size.

Given the validation and JGN revisions of its incremental revenue models, as required by our draft decision, we accept JGN's economic justifications for these projects.

30 year versus 50 year NPV capex assessment

JGN submits that our decision to not consider costs and benefits in NPV analysis beyond 30 years is inconsistent with our decision to not shorten its asset lives from 50 years to 30 years (or from 80 to 50 years).

JGN stated that we cannot claim that there isn't sufficient certainty to consider costs and benefits beyond 2050, while also claiming that there is sufficient certainty that JGN will be able to recover its costs over the period to 2105.[84]

In response to JGN's concerns, we note the following:

- we have assessed augmentation projects from other gas network businesses with NPVs of no more than 30 years, similarly to our practice in this review

[82] Ibid. p. 51.
[83] Ibid. p. 54.
[84] Ibid. p. 59.

- individual projects attract more uncertainty than a portfolio of projects
- cost recovery based on the shortening of asset lives is based on portfolio risk.

We note that consistency cannot always be achieved by simply comparing two numbers numerically. This is especially true when the two numbers represent different risks and concepts. In this case, JGN is comparing project level risks, associated with capex spending, and portfolio level risks associated with investment recovery. On the basis of the points raised earlier, it is reasonable for us to use a 30 year period to assess the cost-benefit of a capex project. The manner in which JGN recovers its costs over time is impacted by other economic factors, which cannot be directly compared against the individual asset capex assessment at the project level.

As can be seen, we have been consistent with our previous and current decisions in terms of our assessment of asset lives and NPV analysis.

Contributions

In the draft decision, we accepted the capital contributions for project specific forecast of $2.9 million. We noted that total capital contributions also comprised of contributions based on forecast connections capex (section 5.5.2). JGN's methodology in its revised proposal for forecasting capital contributions is unchanged from that accepted by us. However, JGN have updated the capital contributions forecast based on the latest information to be consistent with its revised capex forecast.[85]

For the purpose of this final decision, we accept project specific contributions of $3.6 million as conforming capex for the 2020–25 period.

5.5.7 Mains replacement

We consider $36.1 million of capex for mains replacement is conforming, and have included this in our alternative estimate of efficient capex.

This category of capex relates to the replacement of mains (and associated services) that have significantly deteriorated, with an increasing number of reported gas leaks. An efficient replacement program will manage old and deteriorating pipes so that the network is operated safely, reliably and affordably. JGN's proposed mains replacement plan consists of proactive and reactive replacement programs.

In our draft decision, we forecast mains replacement capex over the 2020–25 period of $36.2 million. In doing so, we accepted all of JGN's proposed mains replacement projects, except for a project in Newcastle, which we considered could be deferred by one year into the 2025–30 period.

JGN's proposed mains replacement program includes the rehabilitation 146 kilometres of the network. This is a 72 per cent increase on the 2015–20 mains replacement

[85] Ibid. p. ix.

forecast, which was 85 kilometres. Our draft decision was based on the rehabilitation of approximately 105 kilometres, of which Newcastle would be approximately 65 kilometres. Zincara noted that the draft decision provides a significant yet manageable increase in mains replacement, while ensuring that the impact on the overall program of cast iron and unprotected steel replacement is negligible.[86]

JGN's revised proposal

JGN's revised proposal focussed on our draft decision on the Newcastle mains replacement project. JGN stated that, 'the Newcastle mains replacement project aims to replace aging cast iron mains which are deteriorating and leading to an increasing number of leaks. These leaks pose a safety risk, cause customer frustration and concern. Given the extent of the leaks and the associated costs of ad hoc emergency repairs, systematically replacing the entire distribution system will cost less than making ongoing reactive repairs'.[87]

In its revised proposal, JGN provided additional information and identified five factors to be considered when deferring a rehabilitation project:[88]

- ability to repair new leaks occurring each year
- higher than necessary safety risks to the community and staff
- cost increases from additional leaks
- increased customer frustration and concern
- the financing cost savings from deferring the project.

We cover each of these in our assessment below.

Our assessment

JGN has identified potential cost savings for Newcastle mains replacement at the individual project level. However, we are of the view that undertaking this project in the 2020–25 period is not necessary to maintain the overall safety and integrity of JGN's network at a portfolio level.

86 Zincara, *DRAFT Report for final decision*, February 2020, p. 50.

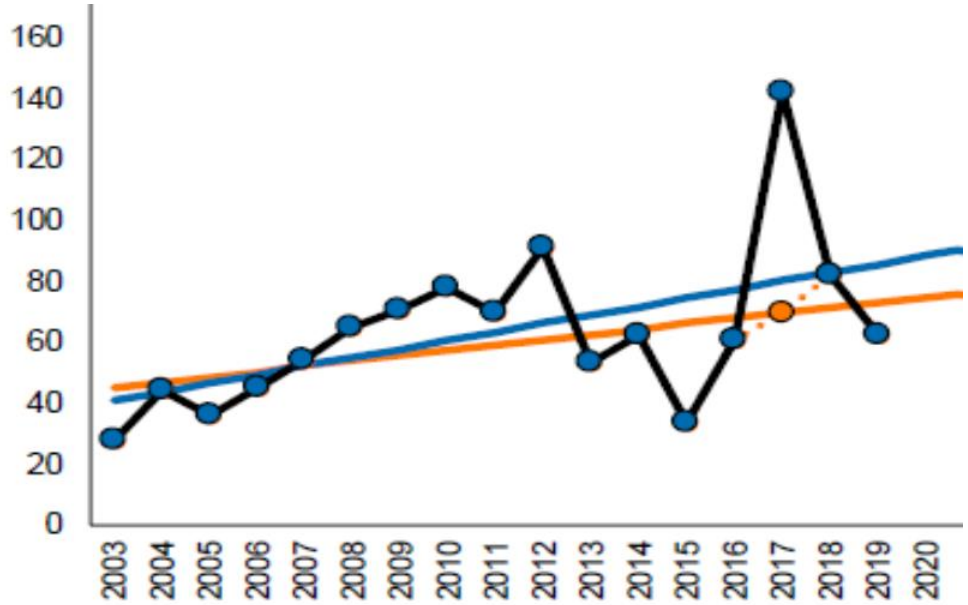
87 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 63.

88 Ibid. p. 63.

Ability to repair new leaks occurring each year

JGN's response to our draft decision includes the following chart, showing actual leaks from 2003 to 2019.

Figure 5.1 Leaks in the Newcastle Area



Source: JGN, Revised *2020-25 Access arrangement Proposal Attachment 4.2*, January 2019, Figure 6-1 p.66.

Zincara provided advice in relation to this information. Analysis by Zincara shows that there has not been any appreciable change in annual leaks since around 2009, apart from a surge in 2017. This would suggest that prioritisation for a mains replacement of the Newcastle network has not appreciably changed during that time.[89] JGN has not demonstrated that all of the proposed 104 kilometres of mains replacement in Newcastle is necessary to maintain and improve the safety of services.[90]

Zincara considers rehabilitating 105 kilometres of mains, including approximately 65 kilometres in Newcastle in 2020–25, will achieve noticeable improvements in the number of leaks to be managed and an improved level of amenity for customers.[91]

Higher than necessary safety risks to the community and staff

JGN submits that each leak poses a risk to public safety and repairs are a risk to JGN personnel and contractors. Further, there are some sections of mains with unacceptable levels of leakage with 'Band-Aid' repairs. JGN considers a systematic

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89 Zincara, *DRAFT Report for final decision*, February 2020, p. 49.

90 NGR, r. 79(2)(c)(i).

91 Zincara, *DRAFT Report for final decision*, February 2020, p. 50.

replacement program is required to permanently reduce the leaks and their associated safety risks.[92]

Figure 5.1 shows there has not been any appreciable change in annual leaks since around 2009, apart from a surge in 2017. We do not accept JGN's argument in relation to safety risk, as JGN has been effectively managing the Newcastle assets with a similar leak profile for the last ten years.

Table 5.10 shows that JGN has spent less than our forecast capex allowance on mains replacement for the last ten years. JGN also underspent its total net capex allowance in the 2015–20 period.

Table 5.10 Mains replacement capex ($2019–20, million)

	2010–15	2010–15	2015–20	2015–20	2020–25
	Allowance	Actual/ Estimate	Allowance	Actual/ Estimate	Proposal
Excluding overheads	22.6	16.4	64.5	27.3	45.0

Source: JGN, *Response to IR016 Overheads Reconciliation*, August 2019.
JGN, *2020 Plan*, June 2019, Table 5.1 p.48.

Despite JGN stating there are higher than necessary risks to the community and staff, the Newcastle project does not appear to be a priority, and based on our assessment does not expose the community or staff to unnecessary risks, based on:

- JGN's maintenance of leaks at a relatively constant level
- the ongoing underspend in mains replacement.

On that basis, we do not accept that the Newcastle main replacement is necessary to maintain and improve safety.[93]

Cost increases from additional leaks

JGN provided NPV analysis which showed starting the Newcastle project earlier would result in a lower cost outcome. JGN's NPV updated its leak forecasts for 2017–18 and 2018–19 and compared different versions of the project, with initial planning starting in either 2021–22 or 2022–23.

The cost of unaccounted for gas (UAG) has the most significant impact in the analysis, with an estimated cost of $1.8 million per year ($2018). An earlier start to the project will reduce UAG improving the overall NPV outcome.[94]

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92 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 65.

93 NGR, r. 79(2)(c)(1).

94 Zincara, *DRAFT Report for final decision*, February 2020, p. 50.

We do not consider JGN's NPV analysis justifies the proposed Newcastle replacement project.[95] The NPV analysis includes operating expenditure (opex) costs (repairs and UAG) of $2.1 million ($2018) per annum for each year the project is delayed. JGN has not stated that these savings are embedded in its opex forecast, and it is not evident that these forecast savings have been passed on to customers. Consequently, as JGN's opex forecast has $2.1 million ($2018) relating to leaks in the Newcastle mains, it would not be appropriate to allow capex to minimise repairs and leaks, while still funding them operationally.

Table 5.10 shows that JGN has spent significantly less than its mains replacement allowance over the last two access arrangement periods, reducing the size of its mains replacement programs rather than bringing forward large projects such as this.[96] In the 2015–20 period, the approved allowance was underspent by $37.2 million (58 per cent). As already established, there has been no appreciable change in annual leaks since 2009, and despite JGN stating there are customer impacts and NPV benefits, JGN has not sought to commence the Newcastle project.

We consider our alternative estimate of capex provides adequate funding for JGN to maintain the integrity of its network, and subject to prioritisation of projects, to reduce the leaks in the worst affected areas.[97]

Increased customer frustration and concern

JGN submits that the deteriorating condition of its mains has led to customer complaints. JGN notes that several customers in Newcastle area commented that they cannot open windows or front doors due to the leaking gas wafting into their homes. Others note that the gas has caused them headaches. JGN considers that its inability to make permanent repairs has exacerbated these concerns.[98]

As outlined above, the leakage profile of the Newcastle area has remained relatively constant for the past ten years. JGN's comments relating to difficulty of leak repair, smell of gas and customer dissatisfaction are therefore likely to have been evident for a number of years.[99]

As shown in Table 5.10, JGN has had access to capex to undertake the Newcastle mains replacement in earlier access arrangement periods, but has chosen not to, suggesting the project is not a priority.

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95 NGR, r. 79(2)(b).

96 Zincara, *DRAFT Report for final decision*, February 2020, p. 51.

97 NGR, r. 79(2)(c)(ii).

98 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 65.

99 Zincara, *DRAFT Report for final decision*, February 2020, p. 50.

5.5.8 Other capex

We consider $30.1 million of JGN's other capex is conforming, and have included this in our alternative estimate of efficient capex. This category includes capex that does not fall into the categories discussed above. It includes property, fleet (vehicles) and relocations. In addition, we have accepted JGN's capex for the 2015–20 period, after questions we raised in the draft decision were resolved.

In our draft decision, we asked JGN to provide additional information on their 2015–20 capex for property, which was higher than the approved capex forecast. We allowed $45.5 million as a placeholder for 2015–20 other capex, pending receipt and our consideration of the requested information. JGN provided this information.

With respect to the 2020–25 period, we accepted $30.1 million in our draft decision.[100] We accepted all of the other capex, with the exception of vehicles (fleet) and relocations. We substituted an alternate forecast for these items, resulting in a reduction of $3.2 million from JGN's initial proposal.

Our position on fleet capex was developed after reviewing JGN's proposal, which used deterministic criteria, and other documentation. Our draft decision of $15.5 million was based on maintaining the existing risk profile of the overall fleet portfolio. JGN stated that 'the overall condition of the fleet asset class is good'.[101]

JGN proposed capex of $3.7 million to fund relocations. Relocations arise when JGN does not have rights guaranteeing the location of its assets, and the land owners require it to move gas mains or facilities. We considered expenditure on this class of assets was mostly driven by a legacy asset installation policy, and that we would expect to see a decline in capex moving forward. We used the 2019–20 year estimate of relocation capex as a fixed base and provided an alternative forecast of $2.6 million in our draft decision. We also sought clarification of any past expenditures on this program as well as any potential overlap with other capex programs.

JGN's revised proposal

JGN provided further information on its historic property capex overspends, noting these were due to:[102]

- the North Sydney office fit-out, and Greystanes relocation and office fit-out (these projects account for the overspend in 2014–15 and contributed to the overspend in the 2015–20 period)
- the Melbourne head office relocation and fit-out (this was the key driver of the overspend in the 2015–20 period)

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100 AER, *Draft Decision – JGN Access Arrangement Attachment 5*, November 2019, pp. 5-60.

101 JGN, *Fleet Asset Class Strategy*, June 2019, pp. 6, 8.

102 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.3*, January 2020, p. 2.

- other NSW property moves, including a new depot in Cardiff and a new meter centre (this contributed to the overspend in 2014–15 and in the 2020–25 period).

JGN submitted that the allocation of costs across Jemena were in accordance with its Cost Allocation Methodology (CAM).[103] Jemena's head office in Melbourne houses many of its corporate and support functions that are critical to the operations of JGN. JGN and its customers directly benefit from the functions provided by these teams, as JGN could not operate without them. As the allocation to JGN is based on the effort that these teams dedicate to JGN, the benefits are directly in proportion to the costs.[104]

For capex in the 2020–25 period, JGN did not accept our position in the draft decision on relocation costs. It did not accept that these costs would decline over time, citing the forecast increase in major infrastructure projects across NSW.[105] JGN accepted our draft decision on fleet (vehicles). JGN submitted that, while it did not agree with our alternative fleet forecast, it has chosen to accept our forecast on the basis that it has insufficient time to respond to all matters raised in our draft decision.[106]

Our assessment

Property

We accept the information provided by JGN on property. The principle concern of our draft decision was whether capex spent on a Melbourne head office was of a benefit to NSW gas customers, and was appropriately allocated across Jemena entities. We are satisfied based on the additional information provided in JGN's revised proposal that the allocation of costs were appropriate and of benefit to JGN's NSW customers.

There is a material variance between the allowance and actual property expenditure for the 2015–20 period. However, this is primarily the result of projects occurring later than expected. Once timing is taken into account there is no material difference.[107]

Relocations

JGN advised that from time to time, government authorities or private landowners require it to move gas mains or facilities. This may be to enable works such as road re-alignment or widening. JGN stated that it is required to carry out the relocation at its own expense if the original pipe construction was carried out without a right guaranteeing the location of its assets or easement.[108]

In our draft decision, we used an annual cost of $0.5 million based on JGN's 2019–20 year as an estimate for the 2020–25 forecast period, resulting in a total cost of

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103 Ibid. p. 4.

104 Ibid. p. 6.

105 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 68.

106 Ibid. p. viii.

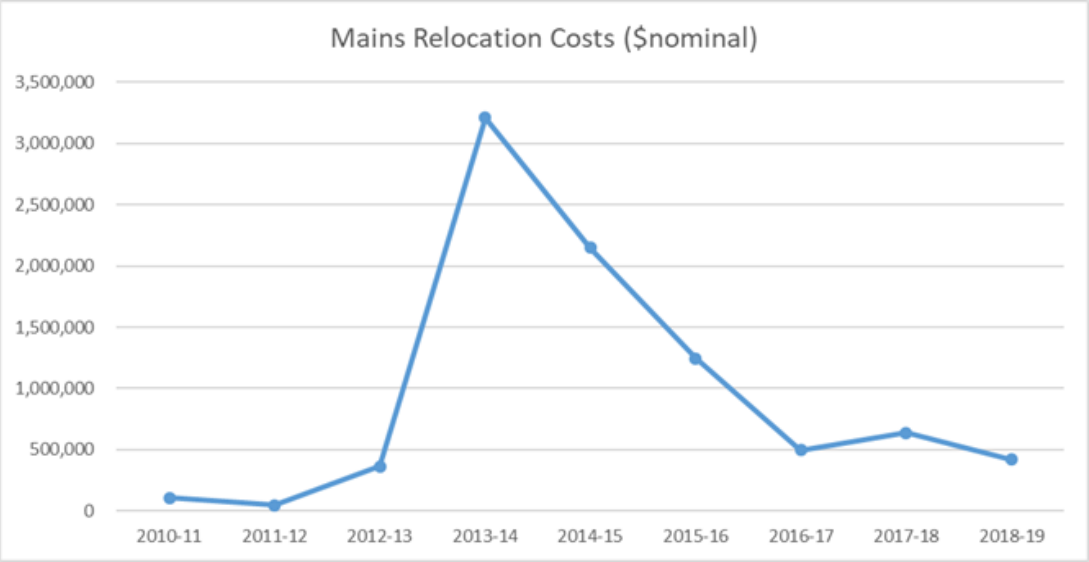
107 JGN, *Response to information request IR055*, February 2020, p. 3.

108 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.2*, January 2020, p. 68.

$2.6 million. We also sought historical financial information, as well as clarification that any past expenditure did not overlap with JGN's shallow mains requirements.

In its revised proposal, JGN said that its costs fluctuates year-to-year, and there is no declining trend in the costs, given the ongoing major infrastructure projects in NSW. Figure 5.2 shows JGN's actual capex for the past nine years, noting that its annual forecast expenditure is based on the average of its 2015–20 actual expenditure.

Figure 5.2 JGN historical relocation capex trend ($nominal)



Source: AER analysis of JGN, Reset RIN and 2018–19 Annual RIN, July 2019 and November 2019.

As can be seen in Figure 5.2, there was a significant spike in relocation capex for the three years from 2013–14 to 2015–16. Prior to that period, there had been some minimal relocation costs, and the three years from 2015–16 to 2018–19 shows a more consistent annual expenditure. While JGN has stated that it does not expect relocation costs to fall, it did not highlight any specific project that will cause a spike in the 2020–25 period. As the 2015–16 year is more than 50 per cent higher than the subsequent years, we consider this an outlier, which should not be included as part of the calculation to determine annual cost for the 2020–25 period.

Based on our findings, and Zincara's advice, we do not accept JGN's proposed capex of $3.7 million as the best estimate. We consider an alternative forecast of $2.7 million, based on a reasonable annual average of $0.5 million, is prudent and efficient.[109]

5.5.9 Capitalised overheads

We consider $84.9 million of JGN's capitalised overheads are conforming, and have included this in our alternative estimate of efficient capex. Overheads are costs that are

[109] Zincara, *AER Access Arrangement 2020 – JGN Capital Expenditure Review – Stage 2 Report,* March 2020, p. 69.

not directly attributable to the output of distribution businesses but are necessary to support its operations. Examples of overhead costs include network planning, procurement and human resources.

We asked JGN to provide the following information as part of its revised proposal:[110]

- an explanation for the overspend in the corporate overheads category and the overall capitalisation overspend in the 2015–20 period
- assurance that the movement of overheads between capex and opex does not contain any double counting of costs.

We found that JGN's proposed forecast methodology for capitalised overheads was consistent with previous decisions, and we accepted JGN's proposal which adopted a similar approach in its forecasts.

Our draft decision accepted JGN's proposed:[111]

- removal of corporate overheads from capex starting 1 January 2021
- 75 per cent fixed and 25 per cent variable split for forecast purposes.

We also adjusted capitalised overheads to account for productivity factors, consistent with the approach taken to the opex forecast.

JGN's revised proposal

JGN explain that during the 2010–14 period, capitalised IT overheads were classified as network overheads instead of corporate overheads. This meant that the allowances for 2016–20 capitalised corporate overheads did not include capitalised IT overheads. These allowances were provided under capitalised network overheads.

JGN's parent company, Jemena, started treating IT capitalised overheads as corporate overheads across JGN and Jemena Electricity Network (JEN) from 2014–15 onwards, to better align the regulatory treatment of its businesses. This change in classification was one of the key drivers of JGN overspending its corporate overheads allowance, as the allowance did not include these costs.[112]

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110 AER, *Draft Decision – JGN Access Arrangement Attachment 5*, November 2019, pp. 67-68.

111 Ibid. p. 5-68.

112 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.3*, January 2020, p. 9.

Table 5.11 2015–20 Capitalised overheads ($2019–20, millions)

	Allowance	Actual/Estimate No Adjustment	Variance No Adjustment	Actual/Estimate Adjusted[(a)]	Variance Adjusted[(a)]
Network	127.9	78.2	49.8	140.3	-12.4
Corporate	6.2	82.7	-76.5	20.5	-14.3
Total	134.2	160.9	-26.7	160.9	-26.7

Source: AER analysis.[113] Totals may not sum due to rounding.

Note: (a) IT capitalised overheads have been re-categorised from corporate back to network overheads.

JGN advised that only those IT costs that support capital works are capitalised. These include costs that arise from the provision and management of IT infrastructure and services. Costs include salaries, employee related expenses, procurement of software and hardware, maintenance and system support, telecommunication costs and procurement of external advice costs. Given the nature of these costs, capitalised IT overheads increase in line with the capital program and scale of business.[114]

JGN noted that it overspent its overall capitalised overheads allowance over the 2015–20 period, but it underspent the total capex allowance by $85 million.[115]

JGN noted that as it is bound by relevant accounting standards, its capitalisation policy and CAM (which have not changed since 2010–11), it is not able to shift costs between opex and capex at will.[116]

JGN did not agree with our draft decision to apply a productivity factor to capitalised overheads, specifically:[117]

- it is not appropriate to apply an opex productivity factor to capex – the model used to estimate an appropriate productivity factor for JGN excludes capitalised overheads, and there is no reasonable basis upon which this factor can be applied to capex. Any productivity factor that the AER applies should be based on appropriate benchmarking of relevant costs, derived from empirical data.
- such a significant departure in the AER's approach should be the subject of a formal consultation process – yet the AER has undertaken no such engagement.

The Centre for Efficiency and Productivity Analysis (CEPA), in its review of our approach to JGN cost escalators (as cited in JGN's revised proposal), said it did not consider the AER had evidence to support its draft decision that the historical opex productivity estimate should be applied to capitalised overheads.[118]

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113 Ibid. Tables 2-1 and 2-2, pp. 9-10.

114 Ibid. p. 10.

115 Ibid. p. 11.

116 Ibid. p. 12.

117 Ibid. p. 14.

118 Ibid. p. 14.

Our assessment

2014–15 to 2018–19 years

In its revised proposal, JGN provided sufficient information to allow us to make an assessment on conforming capex. In particular, JGN confirmed that different capex categories attract a very different proportion of overheads.[119] This has a significant impact on the reconciliation between allowance and actuals, as JGN shifted its capex expenditure profile to connections as a result of the housing boom. Connections attract a far higher rate of capitalised overheads than other categories, such as IT. On the basis of this, we accept JGN's capitalised overheads are conforming capex.

2020–25 period

Based on our findings above, we have also accepted JGN's 2020–25 proposed capex for capitalised overheads as efficient and the best estimate in the circumstance.

5.5.10 Cost Escalation

In our draft decision, we made the following adjustments to each capex category:

- adjusted labour real cost escalators in line with our opex assessment based on Deloitte Access Economics (DAE) forecast (see opex draft decision, Attachment 6)
- adjusted capex forecasts to align with the inflation used for the roll forward model (RFM). This discrepancy also extends to the $2019–20 calculation of capex from 2014–15 to 2019–20.

JGN's revised proposal

In its revised proposal, JGN did not accept our draft decision to rely on DAE to estimate real wages growth. JGN retained its approach of taking the average of BIS Oxford Economics (BISOE) and DAE estimates. [120]

For inflation, JGN explained that its discrepancy in inflation is associated with its assumption and application of an unlagged June to June quarter CPI, compared to a six month lagged December to December quarter CPI in the RFM. In its revised proposal, JGN have applied the December quarter CPI, consistent with the RFM.[121]

Our assessment

For labour real cost escalators, we have used the updated labour price growth forecast consistent with our alternative opex estimate, which are based on the average of

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119 Ibid. Table 2-3, p. 10.

120 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 5.3*, January 2020, p. v.

121 JGN, *Revised 2020–25 Access Arrangement Proposal Attachment 4.3*, January 2020, pp. 16.

BISOE and DAE forecasts (see opex final decision in the Overview). While there are differences, the impact is less than $0.2 million ($2019–20).

As JGN has accepted and applied consistent inflations across the RFM and the capex forecast in its revised proposal, we simply updated 2019–20 CPI to the latest information used in the RFM model. This results in an overall capex reduction of $3.5 million ($2019–20).

5.6 Speculative capital expenditure account

We have included $7.5 million in a speculative capex account for JGN's proposed hydrogen trial.

The NGR allows for the creation of a speculative capex account.[122] If approved by the AER, distribution businesses can allocate capex that is not currently conforming (that is, does not satisfy rule 79 of the NGR) to this account. As the capex is not conforming, the distribution business will not collect revenue to fund this capex in this account. However, if the NGR is amended in the future, such that the capex becomes conforming, the distribution business may then fund the capex as part of its revenue proposal.

JGN has proposed $7.5 million to fund the hydrogen trial within its network (this is half the cost, with the remainder funded by the Australian Renewable Energy Agency (ARENA)). JGN proposed that this amount be included in a speculative capex account. Our decision making process for speculative capex is in two parts: does the capex meet the criteria under rule 79; and, if not, do we accept the inclusion of the non-conforming capex in a speculative account.

We do not consider the hydrogen trial is conforming capex under the NGR, because:[123]

- hydrogen is not covered by the definition of natural gas
- an electrolyser is akin to a production facility which cannot be part of the distribution system.

In the draft decision, we did not accept the creation of a speculative capex account for the hydrogen trial. We did not consider capex of this type was likely to become conforming in the future.

[122] NGR, r. 84.

[123] NGR, r. 79(2).

JGN's Revised Proposal

JGN's revised proposal states that our draft decision to not approve the creation of the speculative account is inconsistent with the NGR and the achievement of the National Gas Objective (NGO), as:

- the AER does not have discretion to disallow creation of a speculative capex account
- the AER cannot reasonably conclude that the Green Gas Trial capex could never satisfy r. 79 criteria
- JGN considered this as an ancillary service for UAG.

Our assessment

Our final decision is to accept the opening of a speculative capex account for the hydrogen trial. This account does not impact 2020–25 period revenues. JGN may collect this capex in future access arrangement periods if the capex becomes conforming. In opening this account, JGN accepts the risk that this capex may not become conforming in the future.

While we have accepted this proposal, in relation to speculative capex accounts, we remain of the view that, where we deem it appropriate, we have the authority to:

- deny the creation of a speculative capex account under r. 84 of the NGR
- express a general opinion on what we consider would be an appropriate use for a speculative capex account.

5.7 Stakeholder Comments

The following are quotes or extracts taken from submissions received on our draft decision and JGN's revised proposal. We have considered these submissions in making this final determination.

Consumer Challenge Panel, sub-panel 19 (CCP19)

- Care is required to ensure that early engagement with customers is not seen to replace the role of customer advocates, or the role of the AER. Those parties may legitimately come to a conclusion based on a different perspective, or wider knowledge, or reflecting the views of different subsets of customers, given that customers are not one homogeneous set. Without wanting to play down the important role that direct consumer engagement can have, there must be recognition that the AER takes consumers' views into account alongside other stakeholders, and is required to act in accordance with the Rules without showing undue favour.[124]

[124] CCP19, *Submission to the AER on the AER's Draft Decision and JGN's Revised Regulatory Proposal*, 17 February 2020, p. 6.

- CCP19 recommends that the AER carefully consider JGN's position on assessment of connection cost to determine a prudent and efficient capex allowance.[125]
- CCP19 considers that there may be merit in the proposed capex for these mains extension projects [Sewerage Treatment Plant and water factory] if they connect long-term infrastructure to the gas network. On the other hand, if for example biogas does not have such a long-term future there are risks that the investment could result in sunk costs and effectively stranded assets that increase rather than decrease costs to consumers. CCP19 recommends that the AER review the projects accordingly.[126]
- We commend to JGN to consider the route of an application under rule 80 at the appropriate time when costs are more certain and if capex for the Aerotropolis may exceed that allowed by the AER's final decision.[127]
- CCP19 recommends that the AER give further consideration to JGN's updated forecasts and plans in regard to the Aerotropolis, with a view to accepting the proposed capex if it now can be considered to reflect efficient capex.[128]
- This [IT] is a category that JGN materially underspent its allowance in the current regulatory period – particularly in the category 'recurrent' expenses. The 2020–25 proposal saw the recurrent expenses materially higher than the current period.[129]
- As we stated in our previous submission, the IT expenses of network businesses are notoriously hard to assess as to their reasonableness and their benefit to the long term interests of consumers. However, they are significant, representing more than 10% of JGN's proposed capex in its regulatory proposal. While we can examine in some detail the appropriateness of expanding a pipeline or carrying out rehabilitation that may have much lower impact on the RAB, IT costs remain an enigma. This is an ongoing matter of concern for the CCP as a whole.[130]

Energy Consumers Association (ECA)

- Consumers are continuing to tell us – through quantitative experience research and qualitative expectations research that affordability is their prime concern.[131]
- In Australia's Chief Scientist's National Press Club Address: The orderly transition to the electric planet, Dr Alan Finkel supported the Prime Minister's reference to gas as a fuel of transition and referred to hydrogen as the 'hero'. Dr Finkel said that this transition would take decades and that 'It will also require respectful planning and re-training to ensure affected individuals and communities, who have fueled

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125 Ibid. p. 10.
126 Ibid. p. 12.
127 Ibid. p. 13.
128 Ibid. p. 13.
129 Ibid. p. 14.
130 Ibid. p. 14.
131 ECA, *Jemena Gas Networks Revised Access Arrangement Proposal 2020–25*, 17 February 2020, p. 2.

our energy progress for generations, are supported throughout the transition.' From our perspective, this respectful planning approach to transition must include consideration of the consumers who have, and continue to pay for, the investment in the physical infrastructure.[132]

- In Attachment 8.4 of JGN's revised proposal – Professor Cosmo UK – Regulatory decision making and consumer voices – January 2020, the discussion around uncertainty and accelerated depreciation appears to be conflated with what good engagement looks like. This report assesses consumer views on accelerated depreciation in isolation of the broader consumer engagement program. Given the good work that secured JGN a joint win (with Jemena Electricity Networks) of the ENA ECA Network Community Engagement Award 2019, we are disappointed by the approach taken in this report. We were not consulted as part of the report's development.[133]
- We do not believe that rule 80 would create disincentives for JGN to invest in the Aerotropolis project. This is because there is a mechanism under the NGR to allow a service provider to obtain the AER's pre-approval of future expenditure for a project before incurring that expenditure, in circumstances where the expenditure is not included in the forecast capital expenditure of an access arrangement and without having to submit a revised access arrangement mid-way through a 5 year plan. Once there is more certainty about the project, JGN could apply to the AER for an advance determination under rule 80.[134]

AGL

- The need to ensure that capital investments are prudent and efficient is particularly important as JGN considers that it is imperative to prepare for a low carbon future.[135]
- One area of capex which AGL generally supports is in meter replacement. We welcome the plan to replace 438,000 meters over 2020–25. The Revised Plan includes a cost of $118 million ($2020), which is an increase of $33 million over 2015–20. We note that over 2015–20 JGN spent only about half the allowance, and we expect that JGN will ensure the meter replacement programme is fully undertaken in 2020–25.[136]

Origin

- Origin note that JGN provided the AER with additional information on its proposed capital expenditure program with the aim of demonstrating the prudency and efficiency of the proposed expenditure. In responding to JGN's initial proposal (June 2019) we noted that JGN expected to significantly underspend capital

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132 Ibid. p. 3.
133 Ibid. p. 3.
134 ECA, TRAC Partners Report, 17 February 2020, p. 13.
135 AGL, *Jemena Gas Networks (NSW) Access Arrangement 2020–25*, 17 February 2020, p. 3.
136 Ibid. p. 3.

expenditure across all expenditure categories (with the exception of connections) in the 2015–20 access arrangement period relative to the AER allowance.[137]

- Origin remain concerned at the proposed increase in capital expenditure in the context of the significant underspend in non-connections capital expenditure the current regulatory period. Accordingly, we request that the AER rigorously examine JGN's revised capital expenditure program and supporting information to ensure the prudency and efficiency of proposed expenditure, the deliverability of expenditure and confirm tangible customer benefits.[138]

[137] Origin, *AER Draft Decision and Revised Regulatory Proposal for Jemena Gas Networks (NSW) Access Arrangement 2020–25*, 17 February 2020, p. 2.

[138] Ibid. p. 2.