FINAL DECISION

Jemena Gas Networks (NSW) Ltd
Access Arrangement

2020 to 2025

Attachment 3
Rate of return

June 2020

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585 165
Email: AERInquiry@aer.gov.au

AER reference: 63819

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
ACCC	Australian Competition & Consumer Commission
AER	Australian Energy Regulator
ACG	Allen Consulting Group
bppa	Basis points per annum
Capex	Capital expenditure
CE	Consensus Economics
CEG	Competition Economists Group
CPI	Consumer Price Index
Instrument/2018 instrument	2018 rate of return instrument
JGN	Jemena Gas Networks (NSW) Ltd
NGL	National Gas Law
NGR	National Gas Rules
Opex	Operating expenditure
PTRM	Post-tax revenue model
PwC	PricewaterhouseCoopers
RBA	Reserve Bank of Australia
SMP	*Statement on Monetary Policy*
TMI	Trimmed Mean Inflation
WACC	Weighted average cost of capital

3 Rate of return

The return each business is to receive on its capital base, known as the 'return on capital', continues to be a key driver of proposed revenues. We calculate the regulated return on capital by applying a rate of return to the value of the capital base.

We estimate the rate of return by combining the returns of the two sources of funds for investment: equity and debt. The allowed rate of return provides the business with a return on capital to service the interest on its loans and give a return on equity to investors.

An accurate estimate of the rate of return is necessary to promote efficient prices in the long term interests of consumers. If the rate of return is set too low, the network business may not be able to attract sufficient funds to be able to make the required investments in the network and reliability may decline. Conversely, if the rate of return is set too high, the network business may seek to spend too much and consumers will pay inefficiently high tariffs.

We also make an estimate of inflation expected over the next ten years, which sits alongside our nominal estimate of the rate of return. Together these determine the effective real return that will be provided to investors over time.

3.1 Final decision

The 2018 Rate of Return Instrument (2018 Instrument) specifies how we will estimate the return on debt, the return on equity, and the overall rate of return.[1] In this final decision, we apply the 2018 Instrument to Jemena Gas Networks' (JGN) access arrangement proposal for the 2020–25 access arrangement period, and estimate an allowed rate of return of 4.49 per cent (nominal vanilla) as required under the NGL.[2]

JGN has accepted the application of the 2018 Instrument.[3]

We apply the binding 2018 Instrument to calculate the rate of return. The value, in Table 3.1, will apply to the first year of the 2020–25 access arrangement period. A different rate of return will apply for the remaining regulatory years of the period. This is because we will update the return on debt component of the rate of return each year in accordance with the 2018 instrument, which uses a 10-year trailing average portfolio return on debt that is rolled-forward each year. Hence, only 10 per cent of the return on

---

1 AER, *Rate of return instrument*, December 2018. See https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-guideline-2018/final-decision.

2 The legislative amendments to replace the (previous) non-binding Rate of Return Guidelines with a binding legislative instrument were passed by the South Australian Parliament in December 2018. See, Statutes Amendment (National Energy Laws) (Binding Rate of Return Instrument) Act 2018 (SA). NGL, Chapter 2, Part 1, division 1A; NEL, Part 3, division 1B.

3 JGN, *Revised 2020 plan*, January 2020, pp. 30-31.

debt is calculated from the most recent averaging period with 90 per cent from prior periods.

Table 3-1 AER's final decision on JGN's rate of return (% nominal)

	AER draft decision (2020–25)	JGN's Revised Proposal (2020–25)	AER final decision (2020–25)	Allowed return over the access arrangement period
Nominal risk free rate	0.94%[a]	1.01%	1.03%[b]	
Market risk premium	6.1%	6.1%	6.1%	
Equity beta	0.6	0.6	0.6	
Return on equity (nominal post–tax)	4.60%	4.67%	4.69%	Constant (%)
Return on debt (nominal pre–tax)	4.36%	4.55%	4.35%[c]	Updated annually
Gearing	60%	60%	60%	Constant (60%)
Nominal vanilla WACC	4.46%	4.60%	4.49%	Updated annually for return on debt
Expected inflation	2.45%	2.38%	2.27%	Constant (%)

Source: AER analysis; JGN, *Revised 2020 plan*, January 2020, pp. 30-31.

[a] Calculated using a placeholder averaging period of 20 business days ending 31 August 2019.

[b] Calculated using an averaging period of 20 business days ending 20 March 2020.

[c] We use the proposed debt averaging period. The return on debt has been updated for this averaging period.

We note that JGN's proposed risk free rate[4] and debt averaging periods were submitted with its initial access arrangement proposal and complied with the conditions set out in the 2018 Instrument.[5] Therefore, we are required to apply these averaging periods to estimate its rate of return for the upcoming regulatory period per our application of the 2018 Instrument.

We specify these periods in confidential Appendix A.

3.2 Expected inflation rate

Our estimate of expected inflation is 2.27 per cent (detailed in Table 3-2). Our method for estimating expected inflation uses forecasts of short-term inflation published by the

[4] This is also known as the return on equity averaging period.

[5] AER, *Rate of return instrument*, December 2018, cll. 7–8, 23–25, 36; AER, *Final decision, JGN access arrangement 2020 to 2025, Attachment 3–Rate of return confidential appendix A: Equity and debt averaging periods*, June 2020.

Reserve Bank of Australia (RBA) for years 1-2 and a return to the mid-point in years 3-10. Our approach has been applied consistently since 2008 as was adopted by JGN in its proposed access arrangement and our draft decision. Based on the information currently before us, we remain of the view that our approach is likely to result in the best estimate of expected inflation in the circumstances of this decision.

Table 3-2 AER Expected Inflation (per cent)

Expected Inflation	2020–21	2021–22	2022–23 to 2029–30	Geometric average
AER draft decision	2.00	2.50	2.50	2.45
AER final decision update	1.25	1.50	2.50	2.27

Source: RBA, *Statement on Monetary Policy*, August 2019, Appendix: Forecasts; RBA, *Statement on Monetary Policy*, May 2020, Appendix: Forecasts.

In making this decision we have addressed a range of issues that have arisen in the months leading up to this decision. We address these by discussing our approach to estimating expected inflation and response to COVID-19 impacts.

We then respond to specific issues raised by JGN in Appendix B.

3.2.1 Our approach to estimating expected inflation and response to COVID-19 impacts

JGN adopted our inflation approach in its revised proposal, but proposed that we conduct a review into the method for estimating expected inflation and then apply the result of that review to its final decision. JGN also wrote to us on 6 March 2020 indicating that we should reconsider our inflation approach, noting that:[6]

> "…financial markets have been extremely volatile due to the impact of coronavirus on global economic activity and investment."

We ran a short consultation process on the proposal to delay our final decision and use the RBA's May 2020 forecasts of short-term expected inflation rather than its February forecast. We expected the RBA's May forecast would reflect recent changes arising from the impact of COVID-19. JGN supported the delay and the use of forecasts from the RBA's May SMP, and noted that the outcome of the 2020 inflation review would not apply to JGN.

After the release of the RBA's May SMP, JGN made a further submission, stating that we should use the year-to-December CPI forecasts, rather than the year-to-June CPI or we should use the trimmed mean inflation.[7] JGN submitted that the series date

[6] JGN, *Submission regarding extremely low return on equity from short term market fluctuations*, 6 March 2020, p. 1.

[7] JGN, *Inflation Forecast for JGN 2020-25 Access Arrangement*, 11 May 2020.

should align with series used to index the capital base,[8] and the year-to-June 2021 CPI forecast was 'distorted' by the Federal Government's short-term childcare subsidy.

For this final decision, we estimate expected inflation in a manner that is consistent with the method specified in the PTRM. In applying this method we have made two adjustments to our usual practice:

- We use inflation forecasts from the most recent RBA SMP released on 8 May 2020. The SMP is released quarterly. Our usual approach is to use the RBA's February SMP in the PTRM in April final decisions for network businesses with regulatory years starting 1 July (that is, the regulatory period is based on financial years).[9] However, we delayed our decision to allow us to use the RBA's May forecast as we expected it would be a more accurate reflection of the economic outlook for the next regulatory control period.
- We use the RBA's trimmed mean inflation (TMI) forecasts for the first two regulatory years (year-to-June 2021, and year-to-June 2022).[10] Our usual implementation is to use the (headline) consumer price index (CPI) forecasts for these periods.[11] In the current circumstances of COVID-19, we consider that the TMI series better reflects expectations of core inflation as set out in the RBA's SMP. Further, the TMI smooths the transient volatility in the CPI forecasts in the RBA's May SMP.

In response to JGN's submission of 11 May 2020, we do not consider that it is appropriate to use year-to-December CPI because:

- The expected inflation estimate should align with the regulatory control period, which is on a financial year basis. In particular, the estimate of expected inflation should not include forecasts from the six months prior to 1 July 2020, as this period does not fall in the regulatory period.
- The capital base is indexed for actual inflation outcomes. We do this by consistently using a lagged series of CPI outcomes through time. The consistent use of this lagged series means that all past movements in CPI are captured in the capital base. By contrast, switching to a year-to-December 2019 or to a year-to-December 2020 forecast would mean we would either skip a six month period included in the capital base roll forward or double count a six month period.
- Our decision to use the TMI series addresses JGN's concern about transient volatility affecting CPI forecasts.

---

8 JGN, *Inflation Forecast for JGN 2020-25 Access Arrangement*, 11 May 2020.

9 The PTRM method specifies that we will use the *latest available* RBA SMP.

10 We have consistently used the TMI forecasts from the May RBA SMP in other related areas of our decision, in particular our opex assessment (see attachment 6).

11 The PTRM method specifies that we will use RBA SMP inflation forecasts for the first two years, but does not specify the series used.

During COVID-19 we have also been monitoring other methods to estimate expected inflation. We note the RBA stated that market measures during this time have been more difficult to interpret as the functioning in the markets for these instruments has been significantly impaired recently.[12] We also note these market measures also performed poorly during the global financial crisis.[13]

Whilst recognising the uncertainty caused by the COVID-19 pandemic we consider that, on the information currently before us, our decision on the estimate of expected inflation is the best possible in the circumstances.

3.3 Value of imputation credits

Our final decision applies a value of imputation credits (gamma) of 0.585 as set out in the binding 2018 Instrument.[14] This was the result of extensive analysis and consultation conducted as part of the 2018 rate of return review.[15] JGN's revised proposal has adopted the value of gamma set out in the 2018 instrument.[16]

3.4 Capital raising costs

In addition to compensating for the required rate of return on debt and equity, we provide an allowance for the transaction costs associated with raising debt and equity. We include debt raising costs in the operating expenditure (opex) forecast because these are regular and ongoing costs which are likely to be incurred each time service providers refinance their debt.

On the other hand, we include equity raising costs in the capital expenditure (capex) forecast because these costs are only incurred once and would be associated with funding the particular capital investments.

Our final decision forecasts for debt and equity raising costs are included in the Overview (opex) and Attachment 5 (capex), respectively. In the sections below, we set out our assessment approach and the reasons for those forecasts.

3.5 Equity raising costs

Equity raising costs are transaction costs incurred when a service provider raises new equity. We provide an allowance to recover an efficient amount of equity raising costs.

We apply an established benchmark approach for estimating equity raising costs. This approach estimates the costs of two means by which a service provider could raise equity—dividend reinvestment plans and seasoned equity offerings. It considers

---

12 For current commentary see: RBA, *Statement on Monetary Policy May 2020*, 8 May 2020, p. 82.

13 For information during the global financial crisis see: Letter to ACCC, (2007), Reserve Bank of Australia. The Treasury Bond Yield as a Proxy for the CAPM Risk-free Rate, (2007), Australian Treasury.

14 AER, *Rate of return instrument*, December 2018, clause 27.

15 AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 307–382.

16 JGN, *Revised 2020 plan*, January 2020, p. 31.

whether a service provider's capex forecast is large enough to require an external equity injection to maintain the benchmark gearing of 60 per cent.[17]

Our benchmark approach was initially based on 2007 advice from Allen Consulting Group (ACG).[18] We amended this method in our 2009 decisions for the ACT, NSW and Tasmanian electricity service providers.[19] We further refined this approach in our 2012 Powerlink decision.[20]

Our benchmark approach is implemented in the PTRM to estimate equity raising costs. Other elements of our decision act as input to this assessment, particularly the level of approved capex and the return on equity. It also requires an estimate of the dividend distribution rate (sometimes called the payout ratio) as an input into calculating equity raising costs. The dividend distribution rate is also estimated when we estimate the value of imputation credits. We consider that a consistent dividend distribution rate should be used when estimating both the value of imputation credits and equity raising costs.

JGN's revised proposal proposed zero equity raising costs and accepted our decision to apply the benchmark approach to estimate equity raising costs.[21] We determine zero equity raising costs for this distribution determination based on the benchmark approach, using updated inputs.

3.6 Debt raising costs

Debt raising costs are the transaction costs incurred each time debt is raised or refinanced as well as the costs for maintaining the debt facility. These costs may include underwriting fees, legal fees, company credit rating fees and other transaction costs. We provide an allowance in opex to recover an efficient amount of debt raising costs.

3.6.1 Current assessment approach

Our current approach to forecasting debt raising costs is based on the approach in a report from the Allen Consulting Group (ACG), commissioned by the Australian Competition & Consumer Commission (ACCC) in 2004.[22] This approach compensates for the direct cost of raising debt.

---

17 AER, *Final decision Amendment Electricity distribution network service providers, Post-tax revenue model handbook*, 29 January 2015, pp. 15, 16 & 33. The approach is discussed in AER, *Final decision, Powerlink Transmission determination 2012-13 to 2016-17*, April 2012, pp. 151–152.

18 ACG, *Estimation of Powerlink's SEO transaction cost allowance-Memorandum*, 5 February 2007.

19 For example, see AER*, Final decision, ACT distribution determination 2009–10 to 2013–14*, April 2009, Appendix H.

20 AER, *Final decision, Powerlink Transmission determination 2012–13 to 2016–17*, April 2012, pp. 151–152.

21 JGN, *Revised 2020 plan*, January 2020, p. 32.

22 PricewaterhouseCoopers, *Energy Networks Association: Debt financing costs*, June 2013.

It uses a five year window of bond data to reflect the market conditions at that time. Our estimates were updated in 2013 (based on a report by PricewaterhouseCoopers (PwC), which used data over 2008–2013) and most recently in 2019 by Chairmont.[23]

The ACG method involves calculating the benchmark bond size, and the number of bond issues required to rollover the benchmark debt share (60 per cent) of the capital base. This approach looks at how many bonds a regulated service provider may need to issue to refinance its debt over a 10 year period. Our standard approach is to amortise the upfront costs that are incurred in raising the bonds using the service provider's nominal vanilla weighted average cost of capital (WACC) over a 10-year amortisation period. This is then expressed in basis points per annum (bppa) as an input into the PTRM.

This rate is multiplied by the debt component of the service provider's projected capital base to determine the debt raising cost allowance in dollar terms. Our approach recognises that part of the debt raising transaction costs, such as credit rating costs and bond master program fees, can be spread across multiple bond issues, which lowers the benchmark allowance (as expressed in bppa) as the number of bond issues increases.

3.6.2 Revised proposal and new CEG report

JGN did not accept our draft decision for debt raising costs of 5.5 bppa in its 2020–25 revised proposal.[24] It proposed direct debt raising costs of 8.46 bppa informed by both the CEG and Chairmont estimates of benchmark debt raising costs.[25]

JGN stated that we should review the three additional costs in its 2020–25 initial proposal. It also submitted a new CEG report (dated December 2019) which disagreed with Chairmont's report.[26]

3.6.3 Final decision

Our final decision is to accept the debt raising costs proposed by JGN in its 2020–25 revised proposal which are based on an annual rate of 8.46 basis points.[27]

JGN's key focus was one component of our draft decision–Chairmont's estimate for the 'arrangement fee'.[28] Having regard to JGN's submission, we consider that Bloomberg is likely to be the most suitable source of information for the 'arrangement fee' at this time because it is the only known published source of data to us and was

---

23 Chairmont, *Debt Raising Costs*, 29 June 2019.

24 JGN, *Revised 2020 plan*, January 2020, p. 21

25 JGN adopted CEG's updated estimate of PwC's 2013 estimate for the arrangement fee and used Chairmont's estimates for the remaining categories.

26 CEG, *The cost of arranging debt issues*, December 2019.

27 Please also see the opex attachment for our overall decision on JGN's revised opex proposal.

28 JGN, *Revised 2020 plan*, January 2020, p. 19; CEG, *The cost of arranging debt issues: A report for Jemena Gas Networks*, December 2019, p. 3.

previously used to estimate the 'arrangement fee'. We have updated the 'arrangement fee' using Bloomberg data and the selection criteria consistent with the PwC report. This leads to an annual total debt raising cost of 7.92 bppa which is not materially different to the estimate proposed by JGN of 8.46 bppa. Therefore, our final decision is to accept JGN's revised debt raising costs.

We also note that we are currently reviewing our approach to determining debt raising costs. We have obtained actual debt raising costs from relevant regulated businesses. However, the information that we currently have is not sufficiently complete and so not suitable to inform this final decision. When analysis of this material is complete, we expect to be able to use this information to inform our benchmark approach.

A Confidential appendix (averaging period)

B Additional information on expected inflation

In this appendix we respond to specific issues raised by JGN and other network businesses. The topics we address are:

- details on our review of the regulatory treatment of inflation (section B.1)
- background on the existing inflation framework (section B.2)
- gas rules 60 and 65 (section B.3)
- a description of recent stakeholder engagement on inflation (section B.4)
- a discussion of JGN's submission to the gas model review (section B.5)
- a response to issues raised in JGN's revised proposal (section B.6)
- monitoring of methods to estimate expected inflation (section B.7).

B.1 Initiation of our review of inflation

We last ran a comprehensive review of inflation in 2017. Our final position at the conclusion of that review was that we would maintain our existing inflation approach. We indicated that we would continue to monitor inflation related data. Our ongoing monitoring through to early 2020 indicated broadly consistent observations in the key information we relied on in 2017.

Based on the information currently before us, we remain of the view that our approach (adjusted for the use of trimmed-mean inflation) is likely to result in the best estimate of expected inflation in the circumstances of this decision. However, we have recently observed some movements across the spectrum of data and information we monitor. In the context of the broader evidence in front of us, including the factors listed below, we considered it prudent to seek input from all stakeholders about whether any change is warranted.

No individual piece of evidence was determinative in our decision to consult with stakeholders. Our decision was prompted by recent changes in the evidence, combined with an existing body of information that has gradually evolved. When considered in aggregate, together with submissions from some network businesses, these supported the commencement of broader consultation.[29] We initiated the review on 7 April 2020.[30]

While not an exhaustive list, some of the changes in recent months included:

- A shift in tone in RBA commentary compared to previous statements:

[29] Commencing in April 2020 also means that, if necessary, any recommendations from the inflation review will feed into development of the 2022 rate of return instrument.

[30] All documents associated with the 2020 inflation review, including the initiation notice, are available at www.aer.gov.au.

> The global outbreak of the coronavirus is expected to delay progress in Australia towards full employment and the inflation target.[31]

- Some recent forecasts of the survey measures we monitor have been returning to the mid-point at a slower rate than previously.

This was in conjunction with a series of CPI outcomes below 2.5 per cent (the midpoint of the RBA target band). Also forecasts of inflation from the RBA for the next 2.5 years in its February 2020 SMP were lower than previously. Consulting with stakeholders will allow us to consider any potential impact on longer term inflation expectations.

We will apply any changes arising from our inflation review prospectively to subsequent gas and electricity regulatory determinations. We note that the 2020 inflation review could not be completed, having regard to the consultation processes required by the rules and the complexity of the topic for this final decision.

The application of our estimate of expected inflation in our regulatory framework is complex with a range of interrelationships. In particular, it is critical that the rate of return and inflation are estimated contemporaneously and consistently because of their relationship. Our estimate of expected inflation must correspond with the approach incorporated in our 2018 Rate of Return Instrument. Further, each potential indicator of expected inflation has strengths and weaknesses and require careful assessment, as we did in 2017. This review will allow us to transparently and comprehensively revisit the assessments we made in 2017 in consultation with all stakeholders.

Further, most stakeholders have not yet had the opportunity to fully engage on this issue, as JGN adopted our current approach in its revised proposal. The outcomes of the inflation review will feed into development of the 2022 rate of return instrument. There are many interrelationships between inflation and the rate of return instrument and this allows us to take them into account.

B.2 Background on inflation and expected inflation in our framework

In our existing framework we incorporate inflation in the PTRM, annual pricing process and the Roll Forward Model (RFM). Inflation also affects many of the inputs to these models. These effects are individually accounted for in the current methodology. This section explores the existing methodology and the issue of appropriately accounting for inflation.

B.2.1 Outline of our current approach

Inflation is a general measure of an increase in prices and fall in the purchasing value of money. Inflation refers to changes in the general or overall price level, rather than prices for particular products. The most common measure of inflation is the Consumer

[31] RBA, *Statement by Philip Lowe, Governor: Monetary Policy Decision*, 3 March 2020.

Price Index (CPI) published by the Australian Bureau of Statistics (ABS). The treatment of inflation is an important component of our regulatory framework.

Under our framework, we set the maximum revenue that network businesses can recover from customers. We do this in a regulatory determination process in consultation with a wide range of stakeholders.

We set the total revenue with reliance on many different inputs of inflation.[32] We can summarise the key inflation aspects of the current regulatory framework as follows:

- In the PTRM:
    - Include expected inflation (embedded in the nominal rate of return) in the return on capital building block
    - Deduct expected inflation from the return of capital building block
    - Include expected inflation in the projected capital base roll forward (consistent with the deduction from the return of capital building block)
    - Generate first year nominal revenue and X factors consistent with the estimate of expected inflation, where the NPV of unsmoothed revenues equate to the NPV of smoothed revenues.[33]
- In the annual pricing process:
    - Adjust smoothed revenue to reflect actual inflation (CPI outcomes) within the regulatory period—effectively replacing the estimate of expected inflation for within-one regulatory period cash flows.[34]
- In the RFM:
    - Include actual inflation in the capital base roll forward—effectively replacing the estimate of expected inflation for all subsequent regulatory period cash flows.

Combined, this framework:

- derives an initial real rate of return from the initial nominal rate of return and estimate of expected inflation[35]
- delivers the initial real rate of return plus ex-post inflation outcomes.

---

[32] We included detailed descriptions of the operation of the PTRM, RFM and annual pricing process in our April 2017 inflation review discussion paper. For further details, see: AER, *Regulatory treatment of inflation, Discussion paper*, April 2017, pp. 9–16.

[33] The X factors can be interpreted as the change in real revenue each year—that is, before the adjustment of revenue for inflation. They are expressed in negative terms by convention (so a negative X factor results in a real revenue increase).

[34] This describes the 'complete' pricing adjustment (implemented for APA VTS); the standard approach introduces a first year pricing effect.

[35] In other words, the initial real rate of return is the expected (*ex ante*) real rate of return on equity at the start of the regulatory period.

When we calculate revenues in the PTRM, we must use an estimate of expected inflation as actual inflation is not yet available. Debt and equity investors similarly must make assessment of expected inflation, and seek nominal returns that recover expected inflation on top of their required real returns. We set our ex ante estimates of nominal rate of return and expected inflation to align with these investor expectations.

Then, as the regulatory period progresses and actual inflation becomes known, the annual pricing process replaces the estimate of expected inflation used in the PTRM. During the annual pricing process, tariffs are varied using actual inflation to set the allowed revenue for the coming year. In this way the prices faced by consumers and the revenues received by the networks change by actual inflation, but are constant in real terms (while ignoring other non-inflation factors).

At the end of the regulatory period, the RFM process rolls forward the regulated asset base using actual inflation. In effect the network business has its revenue adjusted by actual inflation in each annual revenue adjustment and its asset base is adjusted only at the end of each regulatory period.

Investors receive the initial real rate of return, derived from the initial nominal rate of return and the estimate of expected inflation, plus actual inflation outcomes.

This type of regulatory framework is referred to as 'CPI minus X' incentive regulation. It is important to note that our allowed revenue for the five year period is only ever used at the time of our determination to provide stakeholders with an indication of the prices that will occur over the regulatory period. Once we commence the regulatory period we start with our allowed revenue in the first year and then escalate this each year with actual inflation less the X factors we set in step one. This is the CPI minus X mechanism in action.

The consequence of this approach is that as we progress through the regulatory period we effectively displace the estimate of expected inflation that was built into our allowed revenue with the actual inflation outcome in each year as it becomes known:

- From the customer perspective, purchasing power is preserved under this approach. At the beginning of the regulatory period they receive an estimate of the bills they will receive across the five year period. During the period, if actual inflation differs from the initial estimate of inflation, the bills they will receive may be higher or lower than initially expected.
- From the network and investor perspective, this preservation of purchasing power applies equally to the rate of return that is incorporated in our allowed revenue. This approach means that network businesses and their investors ultimately receive a revenue allowance with the same purchasing power as initially targeted. This is known as a real rate of return and we describe this overall approach as targeting the initial real rate of return on capital.

In our view, this illustrates why a CPI minus X incentive regime that targets the real rate of return is desirable. Having revenue move with CPI preserves the purchasing power of the network business and its investors, no matter the inflation outcome.

Similarly, consumers pay prices that are constant in real terms and so their purchasing power is also preserved.

Our approach works symmetrically in the event of deflation—prices and asset values decline in line with actual inflation and purchasing power is preserved.

The overall trend of inflation revealed by the RBA's estimates, and supported by the commentary provided in the Statement on Monetary Policy, is that, following the commencement of the restrictions required to address COVID-19, there will be a rapid and severe economic contraction, which will see significant deflation to the year ended 30 June 2020. The RBA then sees that there will be very little inflation to 31 December 2020, followed by a significant increase in inflation in the first six months of 2021.

We note that this expected deflation does not occur during the forthcoming regulatory control period that commences on 1 July 2020. However, if deflation does occur in any regulatory control period, the CPI minus X mechanism and RFM model will adjust revenue and the capital base for investors to receive the initial real rate of return, derived from the initial nominal rate of return and the estimate of expected inflation, plus actual inflation outcomes (which would be negative in this case).

B.2.2 Appropriately accounting for inflation

In the regulatory framework, inflation has an effect on revenues, costs and capital base.[36]

- The return on capital building block applies a nominal rate of return to the capital base. As the nominal rate of return includes expected inflation, part of that building block is the result of expected inflation.
- The return of capital building block removes expected inflation of the capital base from forecast depreciation. This avoids compensation arising from the effects of inflation being double counted by including it in the return on capital building block and also as a capital gain (through the indexation of the capital base). The approach provides for the same total annual revenue and capital base value as if a real rate of return is used in combination with an indexed asset base.
- Other building blocks (such as operating expenditure or opex) include an inflation component, as the costs forecast in real dollar terms are escalated to nominal dollars using expected inflation in determining the required nominal revenues.

B.2.3 Risk and return (interaction between treatment of inflation and the instrument)

The networks expect to receive a set real rate of return on the overall regulated asset base, but inflation-related risks may still be present.[37] However, network businesses

[36] For more information see *SAPN [2016] ACompT 11* (the SAPN Decision) at [553]–[557] and *Re ActewAGL Distribution [2017] ACompT 2* (the ActewAGL Decision) at [355]-[359].

are likely to be compensated for these risks through our current approach to setting the rate of return.

The rate of return instrument is used to set a 10 year nominal rate of return for regulatory revenue determinations, and was set with full knowledge of the 2017 inflation review (which left the existing approach unchanged). The 2018 Rate of Return Instrument is designed to work together with the current inflation approach to deliver the intended inflation compensation package (real rate of return). To calculate the real rate of return, the 10 year annualized expected inflation is deducted from the nominal return, and both have the same time horizon.

B.3 Gas rules 60 and 65

JGN changing position between initial and final proposal

The NGR provides that a service provider may submit amendments or additions to its access arrangement to address our draft decision. However, these amendments must be limited to those necessary to address aspects of our draft decision, unless we approve further amendments.

In our draft decision, we accepted JGN's proposal with respect to inflation, hence we did not require further amendments as the matter was settled. JGN changing its position in the revised proposal is not permitted under r 60(2) of the NGR, hence no further consideration is required.

Further, in prior access arrangement periods, JGN applied our standard approach for estimating inflation— both the inflation target of real rate of return and outturn inflation.

The 2020 inflation review has commenced, to explore whether the regulatory framework successfully delivers the current target (a real rate of return), and whether we should use a nominal or hybrid return. However, this review is scheduled for completion in December 2020, and changes arising from the inflation review (if any) would apply to subsequent gas access arrangements on a prospective basis.

Potential reopener

JGN proposed that the inflation review outcomes could be applied to its access arrangement under a reopener clause (NGR r. 65). If JGN were to submit an r.65 variation proposal, we would consider that proposal on its merits.

B.4 Stakeholder engagement since September 2019

Over the past year we have continued our ongoing monitoring of data and information and held two workshops in which we arranged for stakeholder input to help us consider

---

[37] These inflation-related risks include the first year pricing effect and inflation lags and (for equity holders) the effect of fixed nominal debt issuance.

whether existing analysis remains valid and to assess the ongoing suitability of the PTRM.

We have analysed whether submissions contain new evidence, particularly whether there is evidence to demonstrate there may be better alternatives available than the current method, conducting ongoing analysis of relevant data as it becomes available, opening issues up to discussion in appropriate sector wide forums, and providing ongoing updates to stakeholders about our views and intentions.

Below sets out our recent engagement with networks and their submissions about our approach to inflation.

We have been monitoring inflation on an ongoing basis since the 2017 inflation review (the last major review). In the 2017 review we stated that we would continue to monitor inflation, in particular through the Consensus Economics (CE) survey of long term inflation expectations.[38]

In January 2019, we received initial proposals from SA Power Networks, Ergon Energy and Energex in which our existing approach to inflation would apply. In June 2019, we received an access arrangement proposal from JGN to also use our existing approach. We then accepted this in our draft decisions.

On 5 September 2019, we held a working group on 'expected inflation and low CGS yields'. This was an AER staff led meeting attended by a cross-section of stakeholder representatives (networks, consumers, investors and retailers). In the working group meeting, Energy Networks Australia (ENA) raised concerns about our approach to inflation including that outturn inflation has been lower than recent RBA forecasts.

On 20 September 2019, Jemena Gas Networks (JGN) wrote to us requesting that the gas financial model development include consultation on how the expected inflation assumption is applied. SA Power Networks also wrote to us requesting that we open a new review into our method for estimating expected inflation.

We reviewed SA Power Networks' letter and considered the then most recent data on inflation expectations. We considered the working group was the appropriate forum to continue exploring the issues raised in SA Power Networks' letter. We wrote to SA Power Networks on 7 November 2019 to inform them of our approach.

On 11 November 2019, we received a second letter from SA Power Networks regarding its concern with our approach to inflation. In this letter, SA Power Networks quoted commentary made by the RBA around expected inflation. SA Power Networks stated that the remarks made by the RBA indicated that long term inflation expectations had changed — unanchored from the RBA's mid-point of 2.5 per cent. However, when we considered the RBA commentary in full, we found there was no

[38] AER, *Regulatory treatment of inflation, Final position*, December 2017, p. 48.

indication that the RBA was stating that long term inflation expectations had become unanchored.

On 28 November 2019 we held a second working group meeting with a range of stakeholder representatives. We discussed our response to the September inflation material. There was also initial discussion of further ENA material from early November. Following the meeting, Queensland Treasury Corporation (QTC) submitted a further note on a number of matters it raised during the meeting.

In December, SA Power Networks, Ergon Energy and Energex submitted their revised regulatory proposals for the 2020–25 regulatory period. In January, we then received JGN's revised access arrangement proposal for the same period. In their revised proposals, they all adopted our current method for estimating expected inflation, but raised a number of concerns with our approach. SA Power Networks expanded on its previously raised concerns in its revised proposal.

In early March 2020, we received two further letters from SA Power Networks and JGN regarding a review of inflation. SA Power Networks' letter contained similar concerns on inflation as its revised regulatory proposal, but incorporated more recent data and statements from the RBA. JGN's inflation concerns were similar to those it raised in the Review of Regulatory Gas Financial Models. We have considered these concerns when making our decision.

Further, SA Power Networks stated that we should reconsider our inflation approach in light of 'the outbreak of coronavirus and the effect of this on global financial markets'.[39] Other network businesses also made a number of recent submissions to us on inflation, and in particular the inflation approach that would be applied to final decisions for Energex, Ergon Energy and JGN (prior to the completion of the inflation review).[40] We considered these when making our adjustments in response to COVID-19 detailed above.

B.5 Response to submission to the gas model review

Jemena's submission on the proposed models focused primarily on our approach to estimating expected inflation.[41] Building on its earlier submission,[42] Jemena stated:

---

39 SA Power Networks, *Letter re: SA Power Networks - Determination 2020–25*, 4 March 2020; see also SA Power Networks, *SA Power Networks 2020–25 distribution determination in light of COVID-19*, 8 April 2020, SA Power Networks, *Email re: URGENT SA Power Networks 2020–25 Revised Proposal, Covid-19*, 14 April 2020, SA Power Networks, *Letter re: Proposal to delay final decisions for SA Power Networks, Energex, Ergon Energy, Directlink and Jemena Gas Networks*, 28 April 2020, SA Power Networks, *Inflation forecast for SA Power Networks 2020–25 revenue determination*, 11 May 2020.

40 Energy Queensland, *Inflation forecast for Energex and Ergon Energy's 2020–25 final decisions*, 11 May 2020. JGN, Letter re: *Inflation forecast for JGN 2020–25 access arrangement*, 11 May 2020; JGN, JGN Inflation forecast for 2020–25 *Access Arrangement - Further submission to the AER*, 15 May 2020.

41 Jemena, *Submission regarding proposed financial models*, January 2020, pp. 1–3.

42 Jemena, *Response to preliminary regulatory model consultation*, September 2019, p. 1.

- The AER's current inflation approach results in under compensation for NSPs.
- The current review of gas financial models was the appropriate place to consider changes to the AER's treatment of inflation.
- The inflation approach should change to either:
    - adopt a nominal rate of return target (for at least the return on debt), or
    - estimate expected inflation using a market based approach such as the bond breakeven method (either in isolation, or averaged with another method).

Consistent with our position in the proposed gas post-tax revenue model's explanatory statement,[43] we consider that:

- The current inflation approach provides appropriate compensation for NSPs, in particular:
    - NSPs receive a real rate of return plus outturn inflation that is set with regard to any inflation-related risks they bear
    - There is appropriate adjustment for the effect of inflation on the capital base (indexation).
- The economy-wide impact of inflation means there should be unified treatment of inflation across gas and electricity service providers.[44]
- We do not accept the suggested changes in inflation approach that have been put forward by Jemena should be made unilaterally. In particular, we note that we considered the substantive content underlying the evidence included in the Jemena submissions in our inflation review conducted in 2017, and we consider our analysis and conclusions from that review remain valid.
- In the 2020 inflation review we will consider the treatment of inflation on a sector-wide basis and intend to make any future changes (if any) to our approach on inflation on a consistent basis for both electricity and gas network service providers.

B.5.1 The current inflation approach

Our current approach to estimating annual expected inflation over a 10 year period combines the Reserve Bank of Australia's (RBA's) short term inflation forecasts (for years 1 and 2) and the mid-point of the RBA target band (i.e. 2.5 per cent) for years 3 to 10, and taking a geometric average across the 10 yearly figures. This approach has been used for more than a decade and was last reviewed in 2017.[45] The evaluation of alternative methods for estimating expected inflation was 'Issue 1' in the 2017 review.

---

[43] AER, *Explanatory statement – Proposed gas post-tax revenue models*, December 2019, pp. 15–16.

[44] This prevents any inflation-related distortion to investment incentives.

[45] See the AER website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-expected-inflation-2017.

Our current inflation approach targets the delivery of a real rate of return on capital plus outturn inflation. The real rate of return is derived from the nominal return on capital less expected inflation.

In the 2017 review, we examined whether the AER should target the delivery of a real return on capital, a nominal return on capital, or a hybrid approach that targets a nominal return on debt and real return on equity. This was 'Issue 2' in that review. We decided to maintain the existing target—that is, the delivery of a real return on capital plus outturn inflation. There was broad stakeholder agreement that the regulatory models delivered this rate of return target.

This leads to a number of key principles relevant to Jemena's recent submission, all of which were established in the 2017 review:

- An AER estimate of expected inflation above the 'true' (unknowable) expected inflation embedded in the nominal rate of return will result in under-compensation for networks.[46] This occurs because our approach effectively calculates a real rate of return by deducting expected inflation from the nominal rate of return. If the deduction is too large the real rate of return will be too small.[47]
- Outturn inflation below our estimate of expected inflation does not result in under-compensation. The network will recover less nominal revenue than initially expected, but this is because inflation is lower than initially expected, and it will still have the same value in real terms.[48]
- Outturn inflation below our estimate of expected inflation does not prove that our estimate of expected inflation was incorrect.[49] The *ex post* outcome does not change the *ex ante* expectation. In other words, the inflation expectation set in advance is what matters – no subsequent outcome can change the view that was initially held.[50]

B.5.2 Evidence of under compensation

Jemena's submissions to our gas model process identified a number of reasons why it considered that our existing approach resulted in under compensation for service providers. In each case—with one exception—we have already considered matters that were substantively identical during the 2017 inflation review. This gives us a reasonable basis to consider that the existing inflation approach, which was endorsed in the 2017 review, provides appropriate compensation for NSPs.

---

46 The reverse is also true. That is, an AER estimate of expected inflation below the 'true (unknowable) expected inflation embedded in the nominal rate of return will result in over-compensation for networks.

47 AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 23–24, 43, 68.

48 AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 10, 15, 23–24, 64–74.

49 However, note the corollary: outturn inflation equal to the AER's estimate of expected inflation does not prove that the AER's estimate of expected inflation was correct.

50 AER, *Regulatory treatment of inflation, Final position*, December 2017, p. 24, 74–75.

Low actual inflation

Jemena submitted that actual inflation outcomes have been below the AER's estimate of expected inflation, leading to under compensation 'relative to the nominal return used in the PTRM'.

We consider, consistent with the 2017 review, that there is no under compensation when outturn inflation differs from expected inflation under our existing approach.[51] Nominal revenue will be lower in a low inflation environment (and higher in a high inflation environment), but this preserves real revenue outcomes and investors receive a revenue allowance with the same purchasing power as initially targeted. The 2017 review established that the real rate of return target is delivered with only minor variation.

Cash flow analysis

Jemena submitted cash flow analysis that showed the combination of capital base indexation and fixed nominal debt meant the NSPs were in a loss making position and unable to pay dividends to equity holders. Jemena's initial submission stated that this occurred only where inflation outcomes differed from expected inflation; but the latest submission appeared to state that this would occur even where actual inflation equalled the initial estimate of expected inflation.

We consider that the cash flow analysis presented by Jemena does not appear to consider all relevant cash flows and financing effects, and so reaches incorrect conclusions. As we established in the 2017 review, it is necessary to consider the inflation interactions across the entire set of regulatory models (PTRM, RFM and annual pricing process) to understand the delivery of the targeted real rate of return plus outturn inflation.[52] Jemena's calculations focus only on the PTRM's return *on* capital building block and one component of the PTRM return *of* capital building block (that is, the reduction in this building block due to indexation). Jemena does not include the full return of capital building block (cash flow to equity investors) and the issuance of debt to maintain the benchmark gearing (also freeing up cash flow for equity investors). The correct analysis has already been undertaken:

- Scenario A: outturn inflation equals expected inflation: The electricity PTRM (and now gas revenue model) already includes a correctly constituted analysis of cash flows to equity holders in this scenario, which shows the availability of annual cash returns (and the delivery of the correct overall return across time).[53] Further, the PTRM also includes calculation of available dividends (as this is required for the calculation of benchmark equity raising costs), accounting for the relevant financing effects (increase in debt for existing assets and debt/equity financing of capex).[54]

---

51 AER, *Review of expected inflation, Final position*, December 2017, pp. 10, 15, 23–24

52 AER, *Review of expected inflation, Final position*, December 2017, p. 64.

53 See rows 105 to 115 of Analysis' worksheet in the distribution PTRM.

54 See rows 27 to 36 of 'Equity raising costs' worksheet in the distribution PTRM.

- Scenario B: outturn inflation differs from expected inflation. We agree with Jemena that there will be inflation-related changes to equity returns; but do not agree with the calculation it presented or the conclusion it made. This scenario requires consideration of the set of regulatory models (PTRM, RFM and annual pricing) but Jemena's calculation does not appear to do so. The correct exposure for equity holders was already derived (in both algebraic and spreadsheet form) in the 2017 inflation review.[55] The 2017 review also found that there was appropriate compensation for this equity exposure to inflation outcomes already included in the calculation of the appropriate rate of return.

Finally, although Jemena submitted that equity holders will not invest if they do not receive a proportion of their returns immediately in cash (dividends), this position appears unsupported and there are some economic grounds (substitutability of dividends and capital gains) suggesting it would not hold.

Market based measures of inflation

Jemena submitted that using a market based measure of expected inflation (that is bond breakeven approach) would result in more accurate 'forecasts' of expected inflation. It also proposed that this might be averaged with the RBA approach to achieve a more accurate measure.

We consider that this matter was dealt with in the 2017 review, where we considered the strengths and weaknesses of market based bond breakeven, swaps and the RBA approach (and surveys). Jemena did not advance substantive material not already considered in that review in its submission to the gas model review.

ERA acceptance of bond breakeven

Jemena submitted that the ERA rejected our approach in the ERA's rate of return statement and instead applied the bond breakeven method to estimate expected inflation. Jemena also noted that this approach was supported by the Independent Panel which reviewed the ERA's approach.

The ERA published its rate of return guidelines in 2018; so this was not directly considered in our 2017 inflation review. Hence, this submission is new. However, it is open to the AER and ERA to arrive at different reasonable positions, noting there were other contextual differences (such as the ERA's use of a five year term) at play.

Moreover, in our 2017 review we considered the substantive questions around the accuracy of the bond breakeven approach. Jemena appears to overstate the ERA Independent Panel's endorsement of bond breakeven estimation, as it cautioned against the potential inefficient pricing of indexed bonds. This goes directly to our

---

[55] AER, *Review of expected inflation, Final position*, December 2017, pp. 64, 89–98; Sapere, *Efficient allocation and compensation for inflation risk, Report prepared for the Australian Energy Regulator*, 25 September 2017, pp. vi, 16–20, 25–26.

expressed concern about the presence of substantial and time varying biases and premiums in this market based measure.

Jemena referred to the following ERA statement as evidence that our approach was inappropriate:[56]

> An expected negative real risk free rate is likely to have adverse regulatory implications, since investors would be unwilling to lend funds with an expected negative real rate of return, when withholding investment offers a zero per cent rate of return.

The zero per cent rate of return on withheld investment is a nominal rate; in the presence of (positive) inflation this will result in a negative real rate of return. Hence, investors would be willing to invest in a negative real rate of return so long as it was above the withholding alternative.

B.5.3 Adopting an inflation approach on a sector-wide basis

We conducted a comprehensive sector wide review of our compensation approach for both gas and electricity in 2017.[57]

The 2017 review included consultation with a broad set of stakeholders, including investors, networks (gas and electricity), retailers and consumers. It involved the consideration of written submissions, public forums, technical workshops and bilateral meetings. The public phase of the review took nine months.[58]

We considered the inflation interactions across all elements of our regulatory framework (including the revenue model, the roll forward model and annual pricing or tariff processes).

In that review, we considered that, as inflation is an economy-wide indicator, there should be a consistent treatment of inflation across regulated electricity and gas network service providers. That reasoning remains valid.

We note that all gas models currently used by regulated service providers adopt our standard approach to dealing with inflation. In this way, codifying our existing inflation approach in the revenue models is a continuation of current practice and entails no change in the inflation compensation package. It maintains consistency with our approach for electricity network service providers.

---

[56] ERA, *Final gas rate of return guidelines, Explanatory statement, Meeting the requirements of the National Gas Rules*, 18 December 2018, p. 252.

[57] See the AER website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-expected-inflation-2017.

[58] As we found that we should maintain our current inflation approach, it was not necessary to add an implementation phase to the end of the review.

B.6 Response to issues raised in the revised proposal

JGN's revised access arrangement proposal: [59]

- Used a cash flow analysis to imply that under the existing approach to inflation no dividends will be available for equity holders under current conditions and there is not a reasonable opportunity to recover costs.
- Implied that long term inflation expectations have changed because actual inflation were below 2.5 per cent midpoint for 21 consecutive quarters.
- Quoted a number of statements from the ERA in which they adopted the bond breakeven approach.
- Conducted statistical testing (mean absolute error) of 3 and 5 year inflation forecasts to show breakeven or average of breakeven and RBA method resulted in a lower mean absolute errors over previous years.
- Recommended that an averaging of two approaches be used.
- Recommended that the regulatory framework target the nominal return on debt.

B.6.1 Cash flow analysis

This issue is identical to the concern raised in the gas model review, and has been addressed in section B.5.

B.6.2 Low inflation

The figure JGN provided shows actual inflation being below the 2.5 per cent midpoint for 21 consecutive quarters. However, this does not necessarily flow directly to inflation expectations no longer being anchored at the 2.5 per cent midpoint.[60] Long periods of inflation below (or above) the mid-point of the RBA band would be expected purely by chance — as shown in Figure B.2. Furthermore, CE data implies longer term inflation expectations remain anchored within the RBA target band.

B.6.3 ERA statement

These issues are identical to the concerns raised in the gas model review, and has been addressed in section B.5.

---

[59] JGN, Revised 2020-25 access arrangement - Attachment 7.2 - Response to draft decision - Inflation, January 2020, pp. 1-9.

[60] JGN, Revised 2020-25 access arrangement - Attachment 7.2 - Response to draft decision - Inflation, January 2020, p. 7.

B.6.4 Statistical test

JGN used statistical testing of 3 and 5 year inflation forecasts and found that breakeven or a hybrid approach (a mix of the bond breakeven and RBA methods) results in a lower mean absolute error than the existing approach.

However, inflation outcomes (ex post) do not directly correspond to the inflation expectations held previously. This is because we are estimating expected inflation at a point in time, and not the performance of a forecast after the inflation outcome is known. Ex post inflation may feed into future inflation expectations, but no evidence has been provided to show that this has happened. Moreover, the test horizon is not appropriate and for consistency with the rate of return, a 10 year horizon should be used.

We completed the analysis using a 10 year horizon. It was found that the existing approach has the minimum mean absolute error for forecasts of that length.

B.6.5 Averaging of two approaches

A hybrid or mixed approach is not used because it is unclear how the weights could be chosen objectively. The weights would also be time varying (due to time varying bias/premia) meaning that weights would need to change with each estimation.

There is an inverse relationship between the weight assigned to a method and its relative bias. The method with a relatively lower bias would be assigned more weight and vice versa. Thus, there would be considerable difficulty forming a plausible or consensus view that one method is, for example, twice as close as another method to inflation expectations, and therefore should be assigned double the weight. Furthermore, the weights would be time varying due to time varying bias and as a result, weights would need to change with each estimation. Whilst, an approach that assigns the same weight to each method, regardless of the magnitude of their relative bias, is unlikely to produce the best estimates of expected inflation.

Equally as difficult to do would be estimating the net effects of the biases affecting each method over time or at any point in time. The estimation is not only an extremely complex exercise, but it is also subjective. This is because it is sensitive to chosen study parameters, such as choice of model, sample period and proxies for expected inflation. This would render the estimation of assigned weights a difficult, subjective and potentially contentious exercise. The result would be estimates of expected inflation that are more complex, less predictable, and are less transparent without necessarily improving the congruency of such estimates with expectations of inflation. Indeed, if the net effects of the biases and the associated weights are not robust to different study parameters used to estimate them, such estimates may be less congruent with inflation expectations.

B.6.6 Targeting nominal return on debt

JGN advocated that the regulatory framework should target a nominal return on debt. The alternative targets were considered in the 2017 review, and no new evidence has

been submitted by JGN. This would be a fundamental change and would need to be considered in a sector wide review if implemented. However, we have had insufficient time to complete a new review in time, and this issue will be explored again in the new review.

B.7 Monitoring of indicators of expected inflation

Our existing approach estimates expected inflation using a 10-year geometric average of:

- For year one and two, the latest RBA's short term forecasts of inflation
- For years three to 10, the midpoint of the RBA's inflation target band (that is, 2.5 per cent).

Consistent with our 2017 inflation review, based on the information currently available to us and the analysis we have been able to conduct within the decision timeframe for this access arrangement, we have not identified a better approach to estimating expected inflation. The review we commenced on 7 April 2020 will enable us to test all available information comprehensively, including hearing from all stakeholders.

Below we detail some of our recent research in this area.

B.7.1 Recent commentary from the RBA

Table B.3-3 RBA short term inflation forecasts from the Statement on Monetary Policy

Year to…	Dec 2019	Jun 2020	Dec 2020	Jun 2021	Dec 2021	Jun 2022
November 2019 SMP						
Headline CPI	1.90%	1.90%	1.80%	1.90%	1.90%	NA
Trimmed Mean CPI	1.60%	1.60%	1.80%	1.80%	1.90%	NA
May 2020 SMP						
Headline CPI	1.80%*	-1.00%	0.25%	2.75%	1.25%	1.50%
Trimmed Mean CPI	1.60%*	1.50%	1.25%	1.25%	1.25%	1.50%

Notes: * indicates actual CPI outcome. NA indicates not available (beyond the forecast horizon)

The RBA maintained a cash rate of 0.25 per cent in its 5 May interest rate decision. We note that it has decreased the cash rate from 1.50 per cent to 0.25 per cent in the last 12 months. It has also introduced a yield target on 3-year Australian Government bonds of 0.25 per cent. The RBA stated in its May 2020 interest rate decision:[61]

[61] P Lowe, *Statement: Monetary policy decision*, 5 May 2020.

> The Board will not increase the cash rate target until progress is being made towards full employment and it is confident that inflation will be sustainably within the 2–3 per cent target band.

The RBA is the expert body in this field. Our use of the 2.5 per cent midpoint reflects the RBA's stated commitment to, and the action it takes to deliver on, its target band for inflation (2 to 3 per cent). The RBA Governor stated in July 2019:

> Whether or not further monetary easing is needed, it is reasonable to expect an extended period of low interest rates. On current projections, it will be some time before inflation is comfortably back within the target range. The Board is strongly committed to making sure we get there and continuing to deliver an average rate of inflation of between 2 and 3 per cent. It is highly unlikely that we will be contemplating higher interest rates until we are confident that inflation will return to around the midpoint of the target range.[62]

We have corresponded with the RBA in the past on this topic and the RBA stated:

> The AER currently estimates inflation expectations by averaging the mid-points of the RBA's published forecast ranges for headline CPI inflation and its target range (i.e. 2½ per cent). Since the RBA adopted inflation targeting in the early 1990s, long-term inflation expectations have been well anchored in line with the Bank's target. This approach appears to be congruous with the AER's aim for a transparent, replicable and simple measure. However, we recognise that it has some limitations. Firstly, the mid-points of the published forecast ranges are not necessarily the RBA's central forecasts. Secondly, if actual long-term inflation expectations were to move notably for a sustained period, it would not be valid to use the Bank's target as a proxy.[63]

We consider a reasonable reading of the body of RBA statements on inflation supports our use of the midpoint of the target band.[64]

Our use of the 2.5 per cent midpoint does not mean we expect inflation to exactly align with this value every year; but rather that this is the expected value across that time period where the RBA targets the 2 to 3 per cent band. For example, the RBA Governor stated:

> We have never thought of our job as keeping the year-ended rate of inflation between 2 and 3 per cent at all times. Indeed, since June 1993, CPI inflation has been below 2 per cent for 24 per cent of the time, and coincidentally above

---

62 P Lowe, *Speech, Inflation targeting and economic welfare*, 25 July 2019.

63 RBA, *Letter re: regulatory treatment of inflation – inflation expectations*, 5 July 2017, p. 2.

64 For example, see RBA Interest rate decision statements from September 2019 to February 2020; Statement on Monetary Policy from August 2019, November 2019 and February 2020; P Lowe, *Speech, Inflation and monetary policy*, 18 October 2016; P Lowe, *Speech, Inflation targeting and economic welfare*, 25 July 2019; P Lowe, *Speech, An economic update*, 24 September 2019; P Lowe, *Speech, Some echoes of Melville*, 29 October 2019; P Lowe, *Speech, Unconventional monetary policy, some lessons from overseas*, 26 November 2019.

> 3 per cent for 23 per cent of the time. What is important is that we deliver an average rate of inflation consistent with the medium-term target.[65]

We acknowledge that the RBA does not specifically target the midpoint of the 2 to 3 per cent band:

> In Australia, since the early 1990s we have had a flexible inflation target. Our target is to achieve an average rate of inflation, over time, of between 2 and 3 per cent. This means that there is an acceptable degree of variation in inflation from year to year, and we have been prepared to use this flexibility. Our focus is very much on the medium term – hence 'on average' and 'over time'. The Board is seeking to provide a strong nominal anchor that people can rely on when making their decisions.[66]

Further, when inflation departs from the target band, the RBA does not specify a particular time for returning inflation within the target band. This quote from the RBA Governor in 2016 helpfully illustrates the RBA's decision making process:

> Take the current situation [in October 2016] of low inflation as an example. Over recent times, we have considered the impact of our decisions not only on the future path of inflation, but also on the health of the balance sheets in the economy. Achieving the quickest return of inflation back to 2½ per cent would be unlikely to be in the public interest if it came at the cost of a weakening of balance sheets and an unsustainable build-up of leverage in response to historically low interest rates. Conversely, the case for moving more quickly would be strengthened in a world where the labour market was deteriorating and people were having increasing difficulty finding jobs.[67]

The most recent statements from the RBA have suggested that it might take longer for inflation to return its target band than in the past. This was a factor prompting us to commence a review of our approach to inflation. In its March Monetary Policy Decision the RBA stated:

> The global outbreak of the coronavirus is expected to delay progress in Australia towards full employment and the inflation target.[68]

We have therefore tested our use of the mid-point of the target band by reviewing other information.

B.7.2 Low out-turn inflation

The catalyst for several recent submissions from networks and investors is the low inflation outcomes in recent years. The Consumer Price Index (CPI) for the year to March 2020 was 2.2 per cent. Since the September 2014 quarter, inflation has been

---

65 P Lowe, *Speech, Inflation and monetary policy*, 18 October 2016.

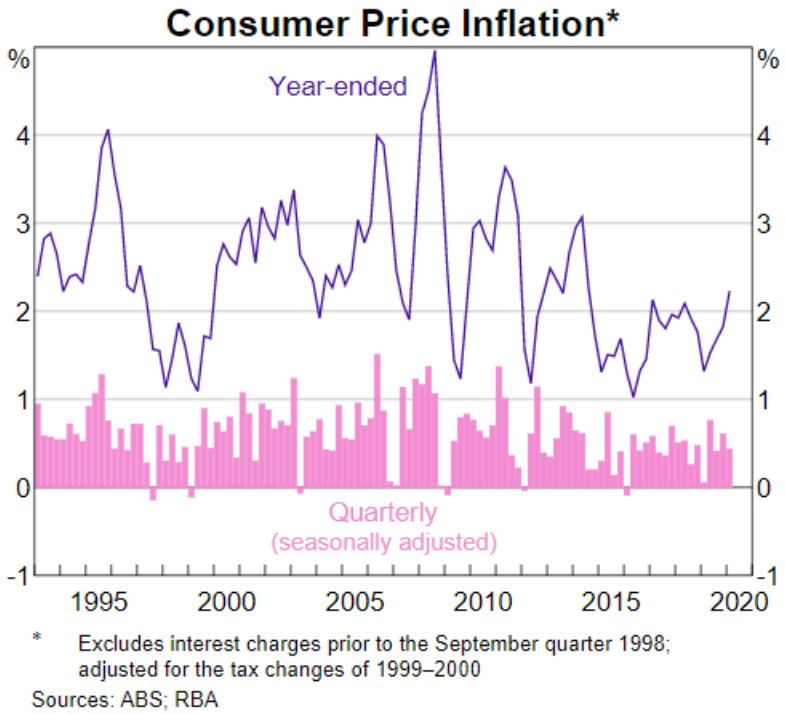
66 P Lowe, *Speech, Some echoes of Melville*, 29 October 2019.

67 P Lowe, *Speech, Inflation and monetary policy*, 18 October 2016.

68 RBA, Statement by Philip Lowe, Governor: Monetary Policy Decision, 3 March 2020.

below the midpoint of the target band (year on year relative to the prior year corresponding quarter), a period of 23 consecutive quarters. The broader history (since the commencement of inflation targeting) is shown in the RBA graph below.

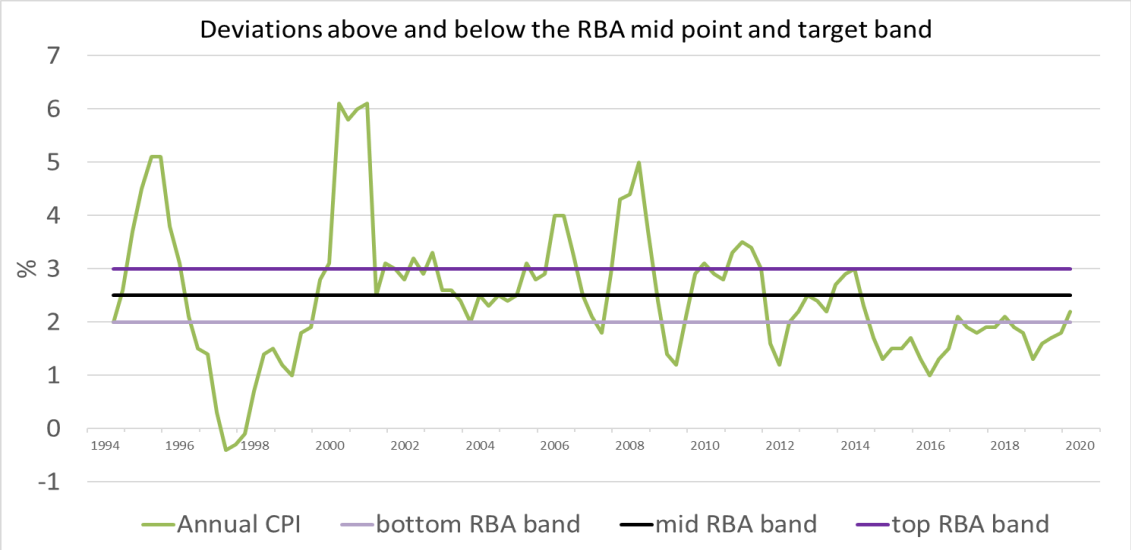
Figure B.1 Graph 4.1 from RBA May 2020 Statement of monetary policy



Since inflation targeting began in the early 1990s inflation has varied above and below the mid-point of the target band. On multiple occasions and for extended periods it has been above or below the target band. The RBA has consistently taken action to move inflation back within its target band. The average inflation outcome across this period is almost exactly 2.5 per cent.[69] Figure B.2 shows CPI outcomes against the upper and lower bounds of the target band and the midpoint.

[69] From Sept 1994 to Mar 2020, CPI rose from 62.3 to 116.6, a geometric average of 2.513% p.a. over 102 quarters.

Figure B.2 Annual outturn inflation over the period from Sep 1994 to Mar 2020



Notes: CPI, all groups, average 8 cities, calculated as per cent change on same quarter prior year

The core implicit assumption in network submissions appears to be that past low inflation outcomes have changed forward looking inflation expectations, and in particular that this means the RBA cannot credibly deliver inflation within the target band in the medium term. We have considered this possibility carefully.

However, it is important to note that there is no under-compensation for regulated networks when outturn inflation is lower than expected.[70] Once we set the initial revenue target in our regulatory determinations, network prices are escalated annually with reference to CPI outcomes. The capital base is also escalated annually with reference to outturn inflation. This means that network revenues and assets are preserved in real terms and not eroded by movements in inflation. Outturn inflation is relevant to the extent that it informs expectations of future inflation. In the review we want to consider whether the inflation outcomes below the mid-point of the target band is impacting expectations.

B.7.3 Consensus Economics survey data

Consistent with the 2017 inflation review, we monitor survey data on long term inflation expectations to assess whether any de-anchoring of expectations from the RBA target band has occurred.[71] With the current information available to us, we consider that the CE quarterly survey is the best available measure of its type.

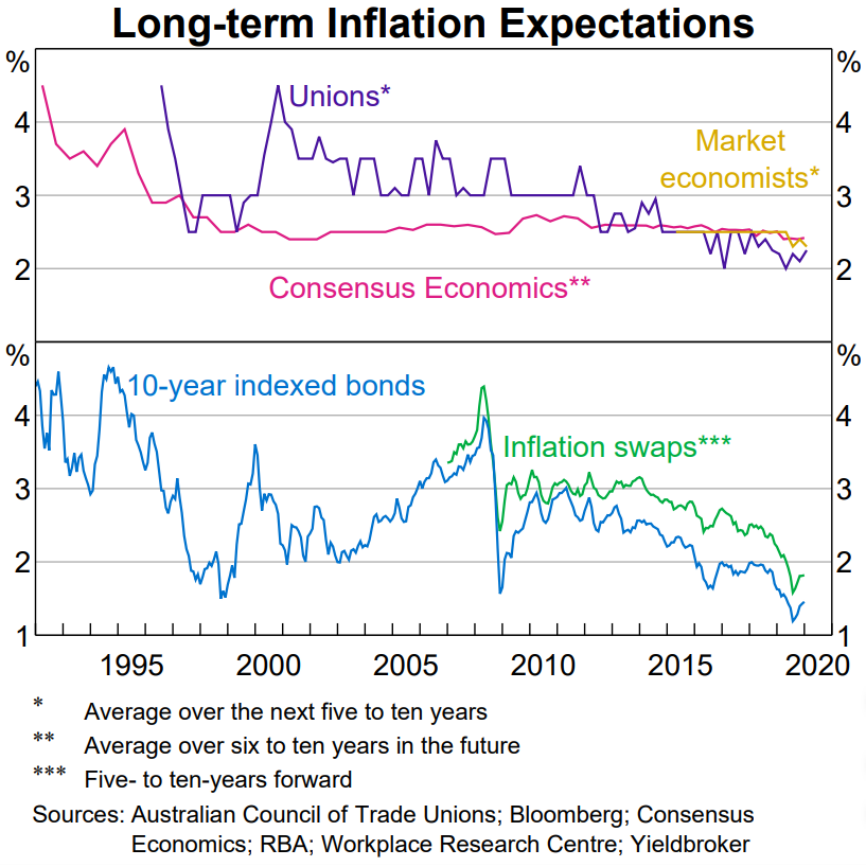
The CE data continues to suggest that long-term inflation expectations are set within the target band and consistent with our use of the midpoint. While the CE survey is

[70] AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 9–10, 15–16, 65–67.

[71] AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 45, 55.

proprietary, the RBA publishes a summary figure which shows six-to-10 year CE inflation expectations (pink line).

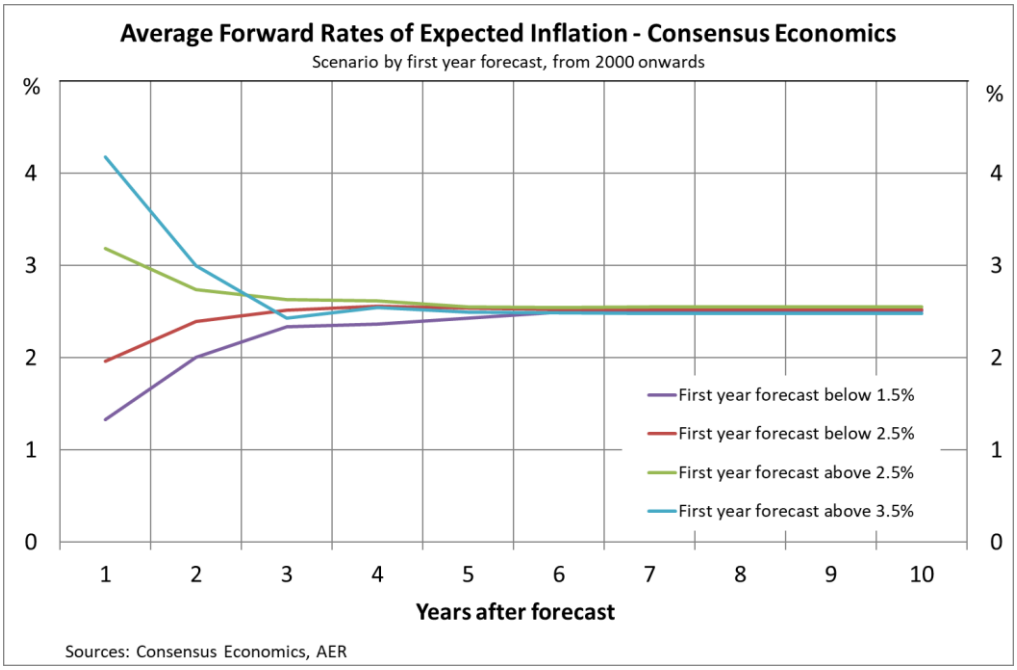
Figure B.3 Graph 4.13 from RBA Feb 2020 Statement of monetary policy[72]



The CE survey data also allows us to observe estimates of the expected rate of reversion back to the mid-point of the target band. This was a particular focus in the 2017 inflation review, and we have updated this analysis as part of our inflation monitoring.

[72] Here we use a chart from February SMP chart of May as it is not available with unadjusted market measures of expected inflation.

Figure B.4 Average forward rates of expected inflation, with groups based on expected inflation in year one (from 2017 inflation review, data updated to Apr 2020)



The updated dataset supports the conclusions in the 2017 inflation review, that even where there are low (or high) inflation expectations for the current year, the path of inflation expectations on average returns back to the midpoint relatively quickly.[73] However, while this is the case on average, it does not apply to forecasts in every period and some recent forecasts return to the mid-point at a somewhat slower rate. This is something we intend to investigate and discuss with stakeholders as part of the inflation review.

B.7.4 Market based measures

Figure B.3above (from the RBA) includes measures of expected inflation based on the bond breakeven approach and inflation swaps. The advantages and disadvantages of these alternatives were examined in detail during our 2017 inflation review. We found that both bond breakeven and swaps were affected by substantial time varying biases and premiums.[74] The observed pattern of expected inflation from market-based measures since the 2017 review is consistent with that finding. The 2017 review noted that it was difficult to estimate the magnitude of these biases (or limits to that

[73] AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 13–14, 49–52, 110–112.

[74] AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 45–62; see also ACCC/AER Working Paper Series No 11, *Best estimates of expected inflation, A comparative assessment of four methods*, October 2017 version.

magnitude) but referred to empirical analysis which identified premiums of more than 200 basis points at times.[75]

In its 2017 letter to us, the RBA stated:

> As noted in previous correspondence between the Bank and the AER, market-based measures of inflation expectations have several shortcomings that probably make them unviable alternatives to the current method.[76]

More recently the RBA has commented on the difficulty in using these measures:

> Both short- and long-term market-based measures of inflation expectations have declined since the widespread outbreak of COVID-19 in early 2020; however, it is difficult to interpret the magnitude of these declines because functioning in these markets has been significantly impaired recently.[77]

B.7.5 Cumulative movement in indicators

One of the submissions put to us is that most of the indicators of future inflation published by the RBA are towards the lowest they have been and lower now than in 2017.[78] Therefore, the cumulative weight of this decline suggests that our existing approach is no longer realistic.

We agree that measures of expected future inflation published by the RBA are at (or close to) all-time lows.

However, most of the measures of expected inflation published by the RBA are short term. These short term estimates are compatible with the continued use of the RBA approach, given we consider short term inflation expectations are well reflected in the RBA's one and two year forecasts we use.

The long term estimates of expected inflation published by the RBA can be grouped into:

- Market based measures —specifically the 10 year bond breakeven estimate and an estimate based on inflation swaps between five and ten years forward.
- Survey estimates—specifically the CE estimate already noted (average annual expected inflation over six to 10 years in the future) and surveys of unions and market economists (each reported as average annual inflation over the next five to 10 years).

The survey estimates are all below, but still close to, the 2.5 per cent RBA midpoint.

---

75 AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 61–62, 119–121.

76 RBA, *Letter re: regulatory treatment of inflation – inflation expectations*, 5 July 2017, p. 1.

77 RBA, *Statement on Monetary Policy May 2020*, 8 May 2020, p. 82.

78 See, for example, Energy Networks Australia, *Estimation of expected inflation, Requirement for a review*, 7 November 2019, slide 10.

The cumulative decline in indicators then rests on the two market based measures. The bond breakeven and swap based estimate are well below 2.5 per cent. As described above, we do not consider these estimates to be reliable due to time varying risk premiums embedded in these measures. The issues with the bond breakeven and swap based estimates were extensively covered in our 2017 inflation review.[79] However, as part of our upcoming review we will reconsider the available information around these measures and are open to receiving new information that might suggest greater weight can be applied to these measures.

[79] AER, *Regulatory treatment of inflation, Final position*, December 2017, pp. 45–62; see also ACCC/AER Working Paper Series No 11, *Best estimates of expected inflation, A comparative assessment of four methods*, October 2017 version.