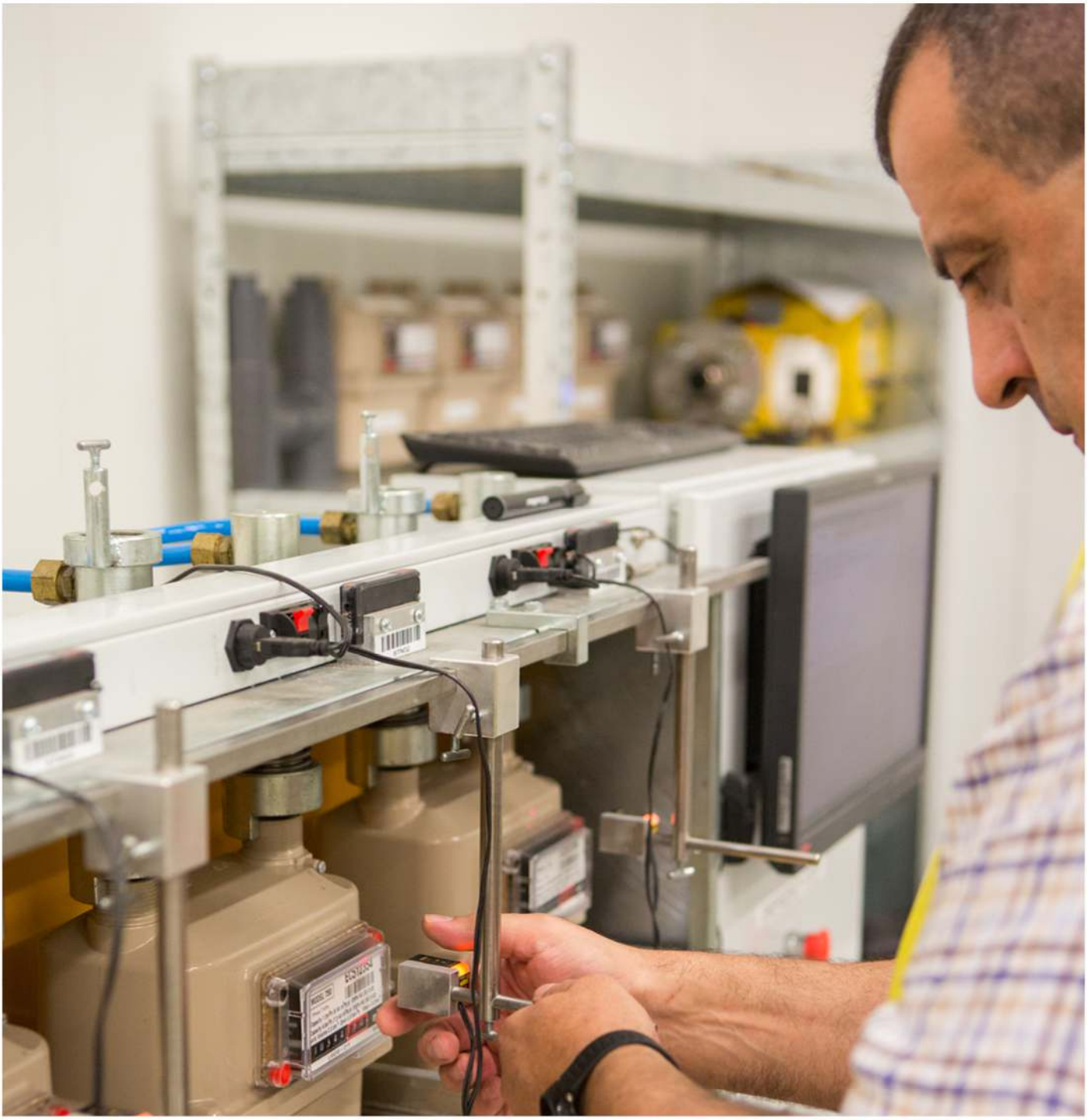

Jemena Gas Networks (NSW) Ltd

2020-25 Access Arrangement Proposal

Attachment 7.10

Proposed changes to asset lives for new investments

Jemena
bringing energy to life

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Abbreviations

AA	Access Arrangement
ABS	Australian Bureau of Statistics
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CALD	Culturally and Linguistically Diverse
CCP	Consumer Challenge Panel
COAG	Council of Australian Governments
Core	Core Energy & Resources
ECA	Energy Consumers Australia
ESS	Energy Savings Scheme
GSOO	Gas Statement of Opportunities
IAP2	International Association of Public Participation's
IPART	Independent Pricing and Regulatory Tribunal
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
PIAC	Public Interest Advisory Centre

Overview

Summary

Chapter 3 and section 7.3 of our 2020 Plan discuss the unprecedented change in our Australian energy market. A key driver of this change is the move to a decarbonised energy sector and the associated trends for greater electrification. While natural gas has historically been promoted as the low-carbon energy option, the change in the energy market, and government decarbonisation targets, means that the future of natural gas beyond 2050 is no longer assured, because it contains carbon.

While the gas industry is also embarking on a pathway to low carbon future by testing hydrogen to replace natural gas, there are still major technological and cost barriers. The CSIRO estimates that the best case 2030 cost of hydrogen production from clean energy is approximately $2.2-2.4/kg (or approximately $20/GJ).[1] This is approximately double the current wholesale cost of gas $8-12/GJ. While it is hoped that the cost of production will fall, this is by no means certain.

Given the size of our network and asset base, it is imperative that we take sustainable steps to ready ourselves for the low carbon future and recover any new investment in our network in a reasonable time frame.

Current circumstances show that engineering considerations alone are no longer sufficient for assessing economic life of some of our assets. As part of our 2020 Plan, we are proposing a change to the asset lives for new investments that we make in our network from 1 July 2020. Our proposal is to shorten the future asset lives for 10 of our 24 our new asset classes[2], to enable us recover the costs of these new assets over their current expected economic lives and better support efficient growth in the market for gas distribution services. The effect of this change is to better match utilisation and cost recovery for future investments in the network for these asset types.

Recognising that this change will impact customer bills (i.e. marginally higher now and lower in the long-term), we robustly tested our proposal with customers at multiple stages of the engagement process and across all residential forums in NSW. Our customers have overwhelmingly voted in support of our proposal both before, and after, seeing the impact of this change in asset lives in the context of other initiatives proposed in our Draft 2020 Plan.

What we are proposing is desirable and compliant

Rule 89(1)(a) of the National Gas Rules (**NGR**) provides that our depreciation schedule should be designed:

> *"so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services".*

Our proposal represents a measured and incremental step towards better achieving this.

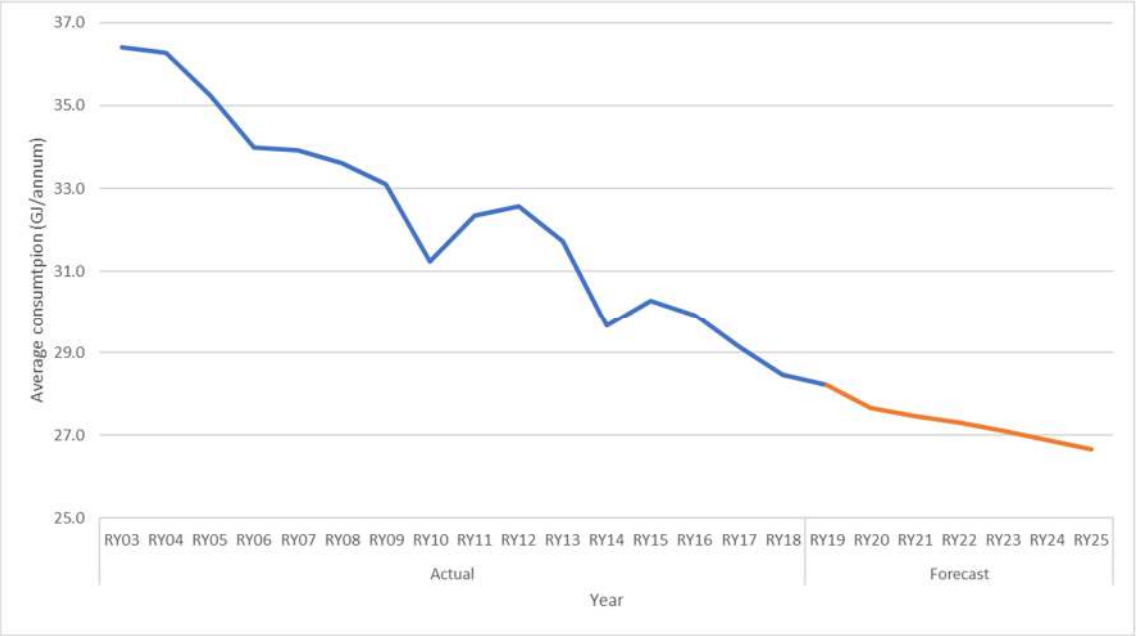
Current lives will not continue to promote efficient growth

While new customers continue to connect to our network, they have for some time been using less gas per customer. Figure OV–1 illustrates this historical and forecast trend in our volume market (which comprises residential and small business customers consuming <10TJ per annum) between 2002-03 and 2024-25. Our records show a declining trend since the average volume market usage rates peaked around the year 2000. Independent experts Core Energy & Resources (**Core**) forecast this trend will continue for both residential and small business customers alike.

1 CSIRO, National Hydrogen Roadmap, 2018, page xv

2 Of these 10 asset classes, our 2020 Plan includes forecast expenditure in only 7 of the asset classes.

Figure OV–1: Volume market – demand per connection (GJ/annum)- actual and forecast



Source: historical actual data (JGN), forecast data (Core)

Figure OV–1 shows the value proposition of gas is diminishing, and future customers will value the availability of gas less than current and past customers. In this way, compliance with Rule 89(1)(a) requires our depreciation profile to support lower future prices to preserve efficient growth in future gas use. Our proposal is also supported by:

- the user pays principle and aligning who pays with who values the service most, as between current and future customers
- recovering our forecast investment costs in a manner that least distorts demand for our services over time
- maintaining our incentives for efficient investment amid future gas market uncertainty.

Economic lives for new assets are now shorter than engineering lives

Our standard asset lives currently do not reflect a market-based view of the economic life, that is the period of time over which the market is likely to be willing to pay for them. It is now evident that they need to be adjusted.

It is not uncommon for the economic life of a product to change over time as technologies and other products change and affect demand for it. In competitive markets, firms manage this risk by front-loading their cost recovery or entering long-term contracts that ensure repayment over the contract term.

The NGR seek to replicate workable competition by allowing for the economic lives and depreciation schedule to adapt to changing market conditions with the overarching objective of cost recovery and efficient market growth and utilisation over time. Rule 89 on depreciation criteria states that the depreciation schedule should be designed:

a) *so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services; and*

b) *so that each asset or group of assets is depreciated over the economic life of that asset or group of assets; and*

c) *so as to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset, or a particular group of assets*

d) *so that (subject to the rules about capital redundancy), an asset is depreciated only once (i.e. that the amount by which the asset is depreciated over its economic life does not exceed the value of the asset at the time of its inclusion in the capital base (adjusted, if the accounting method approved by the AER permits, for inflation)); and*

e) *so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs.*

Our standard asset lives were initially confirmed in the Independent Pricing and Regulatory Tribunal's (**IPART**) 2000 Access Arrangement (**AA**) decision.[3] This followed an assessment by its engineering consultants (Ewbank Preece) for its Draft Decision.[4] JGN understands that, at that time, the assessment reflected engineering considerations of design lives and not economic considerations associated with the expected lives of a viable market for natural gas in NSW over the time period contemplated by the longest of those asset lives (i.e. out to 2080). Indeed, we have found no evidence that there was even any assessment at that time of the availability of sufficient natural gas reserves to supply NSW to 2080.

Current circumstances show that engineering considerations alone are no longer sufficient for assessing economic lives. This is particularly evident when:

- our current longest life (of 80 years) means we are inherently assuming a viable gas market out to the turn of the next century in 2100 even though there is a stated NSW Government target of net-zero emissions by 2050.
- the Australian Energy Market Operator's (**AEMO's**) March 2019 Gas Statement of Opportunities (**GSOO**) is forecasting supply shortfalls in the southern region of Australia by 2030 under all current scenarios.[5]

We need to act now

The customer impact by acting now will be less than waiting another five years and then taking action. The decline in average consumption has been evident since 2009, as shown in Figure OV–1. This decline is forecast by Core to continue. This means that delaying this proposal by another five years will have a higher cost per customer over the long-term than if it is approved and applied now.

Acting now also aligns to the depreciation criteria. The current market is mature whereas the 'green gas' hydrogen market is presently speculative—and is why JGN is proposing to include its share of the Western Sydney Green Gas trial costs in the speculative capital account, not in the RAB currently paid for by our customers. The principles in Rule 89 are consistent with effecting an efficient depreciation profile which reflects the maturity of the market.[6]

Acting now preserves investment incentive

The National Gas Objective (**NGO**)[7] and the Revenue and Pricing Principles[8] together require efficient investment in the provision of natural gas services, and also that we be afforded a reasonable opportunity to recover at least our efficient costs.

As owners and operators of the JGN network, we currently face:

3 IPART, *Final Decision Access Arrangement for AGL Gas Networks Ltd Natural Gas System In NSW*, Attachment 5 p.275 (July 2000).

4 IPART, *Draft Decision Access Arrangement for AGL Gas Networks Ltd Natural Gas System In NSW*, section 8.4.2, pp.135-136 (October 1999)

5 AEMO, *Gas Statement of Opportunities*, chapter 4, (March 2019)

6 NGR rule 89(2)

7 The National Gas Objective is contained in section 23 of the National Gas Law.

8 The Revenue and Pricing Principles are contained in section 24 of the National Gas Law

- falling economic lives of natural gas assets amid declining average gas demand, higher wholesale natural gas prices and moves to electrification and decarbonisation
- an accrued opening RAB of existing investment yet to be recovered of $3.2 billion that would not be affected by this proposed proactive asset life change
- potential application of asset redundancy provisions in Rule 85
- a rate of return that provides no compensation for asset redundancy risk because the Australian Energy Regulator's (**AER's**) Rate of Return Binding Instrument compensates gas networks at the same rate as electricity networks that do not face equivalent RAB redundancy provisions. The risk is magnified for JGN's long life 80 year assets compared to 40-50 year electricity assets.

Absent this proposed change, the riskiness of our future investment and lack of risk compensation will prejudice our ability and incentive to secure funds for the capex required to meet our customers' service performance, safety and network growth expectations.

We are sharing risk and managing current and future affordability

We propose a measured approach that begins incrementally addressing intergenerational equity and preserving forward-looking investment incentives whilst:

- avoiding creating any short-term affordability problems by implementing it amid price cuts that mean there will still be net price reductions of around 18% over five years
- continuing to share the risk of long-term asset stranding between JGN and our customers, because applying the revised lives to new investment only means that by the end of the next AA period (RY25) 77% of our RAB will still be subject to the existing longer asset lives whereas only 23% will be subject to the revised lives.

Our customers support our commitment to sustainability

Our comprehensive customer research and engagement program identified that our customers want us to consider fairness in the context of:

- our existing and future customers;
- the service levels that they receive; and
- the different needs of our diverse customers from across the state.

Our customers also told us that they expect us, and other parts of the energy industry, to innovate and plan for the future so that they can continue to use gas in the longer term, as we move to a zero-carbon future.

This led us to develop our proposal to change asset lives for new investment to ensure fair recovery of costs from customers.

We tested this proposal with our customers both in developing our Draft 2020 Plan and in testing how that plan had responded to their earlier input.

Initially, we presented our customers with two options around how we recover our costs. These were to maintain our current asset lives, or to speed up the recovery of some new categories of investment – we presented these under different future scenarios.

Most customers voted to change the asset lives. They wanted us to take a proactive approach to managing future uncertainty and to minimise any negative customer consequences. They saw this as a way for current customers to do a little now to protect future generations from the greater price implications of not acting now.

They saw that changing the recovery period for new investments was a low risk or 'no regrets' approach. Customers preferred this approach as something that could be revisited as the future becomes clearer without impacting service quality or availability.

Given the strong support from our customers, we incorporated the change to asset lives for new investment into our Draft 2020 Plan, which we published in January 2019.

In March 2019, we held a fourth deliberative forum to provide customers who had been involved in our engagement program with an overview of our Draft 2020 Plan, and to ensure that we had accurately captured and reflected their feedback in our Draft 2020 Plan.

During the fourth forum, we outlined how we had responded to feedback on the key themes of fairness and sustainability, highlighting that we had incorporated customer preferences on changing asset lives for new investments into our plans. We then asked our customers to vote on how well we had responded to their feedback. Their feedback supported us retaining this proposal in our 2020 plan:

- 78% of our customers considered that we had responded very well or quite well to their feedback on the key theme of fairness
- 74% of our customers considered we responded very well or quite well to their feedback on the key theme of the future
- 90% of our customers strongly or moderately agreed that our Draft 2020 Plan was in their long term interests.

Our proposal advances the objectives and principles of the regulatory regime

We expect that our proposal to shorten the asset lives of new investment will advance the NGO and will be consistent with the Revenue and Pricing Principles.

A key focus of the NGO is to promote efficient investment in natural gas services. The incentive to invest is influenced by the extent that JGN can expect to recover at least the efficient costs of supply and so earn a normal return on investment. Shortening the asset lives of new investments in the manner we propose, given the impending threats to cost recovery, supports this outcome and so promotes the NGO.

The NGO also includes a focus on efficient use and price. In terms of these outcomes for customers, adjusting regulatory deprecation only changes the timing of revenue received by the regulated business.

Customers have endorsed the changes in prices over the short to medium term and the proposed approach seeks to avoid material price increases in the future that may further discourage gas use and, as such, the approach should promote the efficient use of natural gas services in the future.

The Revenue and Pricing Principles particularly support our proposal because they provide guidance that regulated businesses be provided with a reasonable opportunity for cost recovery. In addition, they seek to deliver an expectation of ensuring at least a normal return, and that the AER has regard to the costs and risks associated with under investment. Specifically, the key aspects are:

- A regulated network provider should be provided *"with a reasonable opportunity to recover at least the efficient costs"* the operator incurs.[9] It is clear that if an impending threat to future cost recovery exists and action is not taken in sufficient time, then this principle cannot be met.
- A price or charge for the provision of the service should allow *"a return commensurate with the regulatory and commercial risks involved"* in providing the services.[10] Again, if the approach of the regulator does not allow for capital invested to be returned to investors, it is clearly not possible for the businesses to earn a return commensurate with the regulatory and commercial risks involved.

9 Section 24(2) of the NGL

10 Section 24(5) of the NGL

- *"Regard should be had to the economic costs and risks of the potential for under and over investment"* by a regulated network service provider.[11] Where there is a real risk of costs being unrecovered this is likely to have a detrimental impact on the incentives for investment and quality of service for customers. Under such circumstances returning capital invested to investors earlier than otherwise would incentivise the businesses to continue to invest in the network to ensure its safety and reliability.

[11] Section 24(6) of the NGL

1. What are we proposing

1.1 Our proposal to change asset lives for new investment

We are proposing to align the standard asset lives for new investments made from 1 July 2020 with our current and best view of their economic lives. We no longer consider that legacy engineering views of asset lives are fit for the effective commercial life of assets we install in future for the asset classes affected by this change.

We are not proposing to change the asset lives that apply to investments we have already made.

The AER has previously adopted terminology of:

- standard asset lives (the expected useful life of new assets)
- remaining asset lives (the expected useful life of existing assets)[12]

Our proposal is to therefore modify some of the standard asset lives, but retain our remaining asset lives unchanged from those previously approved by the AER.

Proposed standard asset lives for new investments

For new investments we make on our network from 1 July 2020, we propose increasing cost recovery for these new investments by adjusting the standard asset lives to reflect a current view of their likely economic lives.

Table 1–1 details the changes to asset lives that we propose for new investment.

Table 1–1: Proposed changes to asset lives for new investments

Asset Class	Current standard lives (years)	Proposed standard lives for new investment (years)	Percentage of capital expenditure in asset class compared to capital program as a whole
Trunks	80	50	0%
High pressure mains	80	50	13%
Meters/meter reading devices	20	15	21%
Medium pressure mains	50	30	15%
Medium pressure services	50	30	32%

The proposed changes only affect 10 of the 24 asset classes in our RAB.[13]

1.2 What are the impacts in the 2020-25 AA period?

The revenue impact of changing the standard asset lives for this subset of our asset classes is $22M ($2020) over the 2020-25 period. This equates to $3 per customer per year more over this period.

When considered in the context of other reductions in our total proposed revenues, and the increase in the total customer numbers, the net pricing outcome our customers will experience in this 2020-25 period is a $244 reduction in bills.

[12] See for example: AER, Attachment 5 – Regulatory depreciation | Final decision: Australian Gas Networks Access Arrangement 2016–21, section A.3.1 p.5-32, (May 2016).

[13] The standard assets lives for following asset classes will remain unchanged: fixed plant – distribution, HP services, country POTS, buildings, computers, software, fixed plant, furniture, land (which doesn't depreciate), leasehold improvements, low value assets, mobile plant, vehicles, stock, equity raising costs. We are proposing to accelerate depreciation of existing pigging and inspection costs to better reflect to usage of these assets. This is discussed separately in section 2.3 of Attachment 7.9.

As we discuss in section 3, our current customers who will incur these near-term price impacts support this change.

1.3 What long-term outcome will this support?

This change does not alter the costs we are entitled to recover for making these new investments

While this change in asset lives increases our revenue requirement in the 2020-25 period, it will not change the amount of money that we recover over each asset's economic life—under the regulatory framework we are only allowed to cover the cost of our investments once.[14]

Changing the asset lives for new investment will only speed up the time over which we recover the cost of our future investments, and will thereby preserve our incentive to make those investments at the prevailing rate of return notwithstanding the increasing recovery risk.

While shortening the period of time over which we recover our costs increases customer bills in the short-term, it will result in lower bills in the long-term. This is illustrated in the information that we presented to our customers when we engaged with them on this topic (see Attachment A).

Our proposal supports future gas market growth and better aligns recovery with customer value

This change will help us improve fairness across generations, by better aligning the recovery of costs with the realisation of benefits, and will better preserve our incentive to invest efficiently. Additionally, this approach is consistent with the policy objective for depreciation, and economic regulation more broadly. This is because the proposed approach maintains a high degree of confidence that investments in the network will be recovered over their economic lives. As the return on capital allowance does not allow gas distribution companies to earn a higher return despite this greater risk, we think that it is appropriate to manage for this risk through the depreciation allowance of our revenue requirement.

Our proposal does not shift risk from JGN to its customers

It is important to recognise that our proposed change to asset lives for new investment does not reallocate risk from JGN to its customers. As discussed in section 5, the regulatory framework is intended to ensure JGN can recover its efficient investments in the network from its customers. This requires that the funds invested are recovered at a sufficient rate so that our investors recover all of their efficient costs over the asset's economic life. Bringing forward the recovery of our future investments does not constitute a shift in risk from JGN to its customers—it simply aligns the recovery of our investment with the realisation of the benefits provided to our customers. It does so having regard to the way current and future customers will value and use natural gas, which has changed since our RAB and assets lives were established by IPART back in 2000.

The regulatory framework assumes that cost recovery will occur, as the rate of return does not compensate JGN for asset stranding risk. As noted by the AER:[15]

> *"To the extent that there are genuine risks of extreme changes in demand for specific service providers which present the potential for stranding of an asset, the regulatory regime for gas and electricity can mitigate this risk by providing prudent discount and accelerated depreciation provisions."*

The risks associated with stranding of our existing $3.3B investment remain unchanged and are borne by us. Had we sought to apply this change retrospectively to existing investments (i.e. shorten the remaining asset lives), then yes, this could be characterised as adjusting the risk sharing between us and our customers relative to when those investments were made. However, we are not proposing this. Even for the new capital expenditure the risks of under-recovery is not fully mitigated for JGN as these assets continue to depreciate beyond 2050. For example, even if the asset lives for medium pressure mains is lowered to 30 years, any investment in this asset

[14] Rule 89(1)(d).

[15] AER, Discussion paper – The allowed rate of return, compensation for risk and the use of data when judgement is required. February 2018, p34.

category in 2025 would only be recovered by 2055. Overall it is expected that JGN will continue to have $2.5B of unrecovered investment at RY50 even under the proposed new asset lives—the change in asset lives only reduces the unrecovered investment by $0.37B.

2. Why do this and why do this now?

2.1 The future of gas is uncertain

The decisions we make today have long-term consequences for our customers and our network. Given the size of our network and asset base, it is imperative that we begin to take sustainable steps now to ready ourselves for an uncertain future. This includes our proposal to change the asset lives for the new investments we make on our network.

As discussed in Chapter 3 of our 2020 Plan, the Australian energy market is undergoing a period of unprecedented change. A key driver of this change is the move to a decarbonised energy sector and the associated trends for greater electrification.

2.1.1 Decarbonisation

In December 2015, 195 countries, including Australia, agreed on the United Nations' Paris Agreement on climate change. This agreement commits countries to reducing the amount of carbon dioxide they emit into the atmosphere. In line with the Paris Agreement, Australia has committed to a low carbon future, and the Federal Government has set a target to reduce carbon emissions to 26-28% below 2005 levels by 2030. The NSW Government has endorsed the Paris Agreement and stated it will take action consistent with the level of effort required to achieve Australia's commitments to the Paris Agreement. It has also made a commitment to a net-zero carbon future by 2050.

While natural gas has historically been promoted as the low-carbon energy option, the change in the energy market means that the future of natural gas beyond 2050 is no longer assured, because it contains carbon.

Internationally, a number of cities and countries have already committed to banning natural gas by 2050.[16] While no such ban exists in Australia at this time, there have been efforts to ban natural gas infrastructure from some new developments.[17]

While the industry is currently putting significant effort into identifying a credible pathway to a net-zero carbon future, success is not assured either technically or from a cost competitiveness perspective. Although we have recently seen significant growth in customers connecting to our network—driven by the NSW housing boom—it is possible that Government policy changes to meet the net-zero carbon target could make the gas network too expensive to be competitive in the long-term, or make continued operation of the network infeasible. Any reduction in average loads will continue to put upward pressure on the network costs borne by each of our future customers.

Should this happen, we are likely to see customers disconnect from our network in greater numbers, meaning that there will be fewer customers over which to spread our largely fixed costs. The customers remaining on the network at that future time are likely to be those who are constrained in their ability to switch technologies. This may be due to cost constraints or for practical reasons. This raises an issue of fairness, as those customers who are less able to afford price increases would have price increases imposed on them with little capacity to respond.

Should this occur, it is unlikely that we would be able to recover all of the investments we have made in our network. This is because these investments are recovered over a long period (i.e. up to 80 years). Such an outcome would be contrary to the objectives and principles of the regulatory framework, which seeks to provide businesses with a reasonable opportunity to recover their efficient costs – see section 5.1.

[16] The Netherlands and Vancouver have already committed to banning natural gas by 2050, and the UK Government has committed to a net zero carbon target. National Infrastructure Commission in the United Kingdom has also stated that burning natural gas for heating is not a long-term option.

[17] In 2018, the ACT Government made a variation to its Territory Plan in 2018 to waive the requirement for a new residential development in Ginninderry to be provided with a natural gas infrastructure. In NSW, one of the largest developers has made a commitment to transition away from gas in new builds from 2020, and to retire and electrify existing assets that have gas.

2.1.2 Changing gas value proposition and declining per-customer gas use

The trends in our customers' demand for gas show a declining market share for gas relative to other energy sources, and relative to the historical market share gas enjoyed when IPART established our RAB asset lives back in 2000.

Consumption on a per customer basis has steadily fallen over time (see Figure OV–1). The reduction in consumption is driven by a combination of factors including energy efficiency improvements, appliance substitution, smaller dwellings and higher gas prices:

- with existing customers – we are seeing falling total and peak loads
- with new customers – as they are tending not to install gas heaters. Most of our new customers (high-rise dwellings) are only using gas for hot water and maybe cooking. Rarely do units have bayonet points for heaters. New homes are also not installing gas heaters, as evidenced by their low loads.
- If current trends continue, consumers will only use our network for hot water heating and cooking. This makes it easier for customers to switch away (i.e. fewer appliances to change) when renovating or when appliances break down. These markets are also most susceptible to further change from improvements in electric cooking technology (which has already improved significantly over the last decade) and the increasing penetration of solar (to an extent this is already occurring with the introduction of gas boosted solar hot water systems) – further encouraged by new renewable and emission reduction schemes.
- We are experiencing ongoing reductions in industrial gas use, in part due to rising gas costs and international competitive pressures on Australian industry. Over time, this will result in increased prices for our future residential customers under the NGR building block regulatory regime.

Our expert demand forecaster – Core – has independently observed the same gas usage declines across our customer base. For the tariff market it found:

> *The forecast shows a continuance of a trend increase in residential gas demand evident in the historic gas demand data. The major factors driving the trend in projected gas demand include:*
>
> - *Continued connections growth albeit at a moderately reduced rate- a correction in NSW dwelling completions is expected after historic growth prevailed from 2013.*
> - *An increasing preference for medium density and high-density dwelling types, such as multi-unit apartments. These dwellings typically exhibit lower energy demand due to smaller floor space and lower number of average residents per dwelling.*
> - *Improvements in the energy efficiency of buildings and appliances*
> - *An increasing preference for electric appliances and other energy sources instead of gas appliances- particularly in MD/HR dwellings where there is a higher incidence of gas used only for water heating. Frequently, gas space heating and cooking is not supported by large apartment building designs.*[18]
>
> *The significant factors driving the expected reduction in residential demand per connection are continued gains in energy efficiency, appliance substitution, movements in gas prices and electricity prices. Additionally, the proportion of less gas-intensive dwelling types is increasing across the network and this is also contributing to a lower weighted average demand per connection forecast.*[19]

For our demand market it found:

> *Capacity demand (as measured by MDQ) for Tariff D customers is forecast to fall by an annual average of -2.18% p.a. from 2021 to 2025 as shown in the table below. This fall is attributable to a*

[18] Core Energy, Gas Demand and Customer Forecasts | Jemena Gas Networks | NSW Gas Access Arrangement 2021-2025, May 2019, p.35.

[19] Ibid, p.39

continued reduction in gas-intensive industrial capacity and an increase in operational energy efficiencies at the individual plant level.

The decline in MDQ is projected to continue its decline albeit at a slower rate than the historical period:

- *known and projected business closures/capacity reductions are not as significant relative to the large closure events contained within the historical period;*
- *continuing trend in energy efficiency, including peak demand as a response to increased energy costs and profit pressures more broadly.*[20]

These continuing demand trends show that the value proposition of gas is likely diminishing, and future customers will value availability of gas less than current and past customers.

Absent corrective action[21] to adapt our economic lives for new assets and the resulting depreciation profile to reflect this trend, future customers will face higher costs and consequently use less of our services than is efficient. Such an outcome would not be consistent with the NGO, or the stated preference of our current customers as discussed in section 3.2.

2.2 What does net-zero carbon mean for JGN?

In the context of our current remaining asset lives, the target is not far off

As noted above, in 2016, the NSW Government committed to an aspirational objective to achieve net-zero carbon emissions by 2050. It stated that this target is:

> *"intended to provide a clear statement of the government's intent, commitment, and level of ambition and to set expectations about future emissions pathways that will help the private sector and government agencies to plan and act."*[22]

The net-zero carbon emission target forms a key part of the NSW Government's Climate Change policy framework for NSW. In making the commitment to achieve net-zero carbon emissions, the NSW Government noted that it aims to:[23]

- attract investment by providing policy certainty
- guide public and private sector decision making, particularly for long-lived assets
- ensure consistency of NSW Government policy with the international and national policy context and the likely long-term direction of government and private sector action on climate change.

Policy initiatives have been electricity-centric

To deliver on its commitments, the focus to date of the NSW Government has been on promoting the use of renewable electricity generation, primarily solar, wind and hydro. Key NSW Government initiatives include:

- The NSW Energy Savings Scheme (**ESS**) – The ESS is designed to reduce energy consumption in NSW by creating financial incentives for organisations to invest in energy savings projects. Energy savings are achieved by installing, improving or replacing energy savings equipment. This scheme provides financial incentives to install energy efficient equipment and appliances in NSW households and businesses. It does not apply to gas appliances.

20 Ibid, pp.15-16.

21 Of the kind contemplated in the Rule 89 depreciation criteria.

22 Factsheet: Achieving net-zero emissions by 2050, Office of Environment and Heritage, November 2016

23 NSW Climate Change Policy Framework, State of NSW and Office of Environment and Heritage, 1 October 2016

- Rolling out rooftop solar on government buildings through the Solar Power Purchase Agreement Program, complemented by a new Smart Batteries program.
- Supporting solar farm development – NSW is home to Australia's largest utility scale solar plants at Nyngan, Moree and Broken Hill.
- The 10 year Empowering Homes Program, which provides no-interest loans to residential and small businesses in NSW for solar and battery storage systems. No-interest loans of up to $9,000 for battery systems and up to $14,000 for solar-battery systems will be available under the program.

To date, there has been limited focus by the NSW Government on alternative low-carbon gas, such as hydrogen, and it is one of the few state governments without a hydrogen strategy or roadmap.[24]

The NSW Government's continued focus on promoting the use of renewable electricity will inevitably place more pressure on JGN, as households transition to being fully electric—given temperate climate in the coastal areas of our network, natural gas is substitutable for alternative sources of energy.

As a prudent service provider, it is essential that JGN prepares for a full range of possible future scenarios. This means taking steps now to position itself for an uncertain future.

We do not yet know if hydrogen a viable alternative to, or complement for, natural gas

In December 2018, the Council of Australian Governments (**COAG**) Energy Council committed to developing and implementing a national strategy for hydrogen, in close consultation with industry and the community. This includes investigating the use of hydrogen in gas networks. The hydrogen strategy is due to be presented to the Federal Government in December 2019.

While it is encouraging that the Federal Government and COAG are committed to developing a hydrogen strategy, there is still significant uncertainty as to whether hydrogen will be a viable alternative to natural gas domestically. One of the key barriers to the viability of hydrogen for use in Australia is its cost of production.

While it is technically possible to produce hydrogen from clean energy, the process is currently prohibitively expensive. The CSIRO estimates that the best case 2030 cost of hydrogen production from clean energy is approximately $2.2-2.4/kg (or approximately $20/GJ).[25] This is approximately double the current wholesale cost of gas $8-12/GJ. While it is hoped that the costs of production will fall, this is by no means certain.

Further other challenges remain:

- the extent to which hydrogen prices would need to fall to remain competitive with low or zero marginal cost electricity is likely to be ambitious to assume from current information
- the share of natural gas that hydrogen would need to displace to achieve carbon neutrality is unproven and well beyond current Australian trials that range from 2-10%
- a higher rate of hydrogen content may require appliance churn, which may trigger greater electrification of the appliance stock rather than embracing a new fuel unfamiliar to consumers and manufacturers.

These challenges are further evidenced by ARENA funded research by the University of Queensland on '*The Australian public's perception of hydrogen for energy*'. The study, which involved a sample size of 2,877 participants, found that less than half would be willing to pay more for hydrogen technologies than conventional technologies even if there were clear environmental benefits.[26]

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[24] See for example, The SA Government's '*A Hydrogen Roadmap for South Australia*' (Sep 17), the Victorian Government's '*Victorian Hydrogen Investment Program'* (2018)

[25] CSIRO, National Hydrogen Roadmap, 2018, page xv

[26] Dr Victoria Lambert and Professor Peta Ashworth, University of Queensland, *The Australia public's perception of hydrogen for energy*, December 2018, page 16. The study combined a literature review, ten focus groups (N=92) and a nationally representative online survey (N=2,785).

2.3 What is the problem to be solved?

The problem we face is twofold:

1. The economic lives of our gas network assets are now likely to be much shorter than the technical engineering design lives that have informed our current rates of regulatory depreciation
2. As a consequence of long asset lives, our depreciation schedule results in current customers who do value our service paying less than they value it whereas future customers will need to pay more.

Economic lives are now less than engineering lives

Our standard asset lives were initially confirmed in the IPART 2000 AA decision.[27] This followed an assessment by its engineering consultants (Ewbank Preece) for its draft decision.[28] JGN understands that at this time the assessment reflected engineering considerations of design life and not economic considerations associated with the expected life of a viable market for natural gas in NSW over the time period contemplated by the longest of those asset lives (i.e. out to 2080). Indeed, we have found no evidence that there was even any assessment at that time of the availability of sufficient natural gas reserves to supply NSW out to 2080.

The AER has recognised this issue in existing regulatory practice:

> *Both the electricity and gas legislation require the funds invested to be recovered over the economic lives of the asset. Determining the economic life of an asset is difficult. The economic life need not match the technical life of the asset, but if an asset is technically available for use then clearly it can serve an economic purpose. An implicit assumption in most analysis of depreciation is that the economic and technical lives are closely related in practice, particularly if the investment was approved with relative certainty. We have generally taken a similar approach in practice.*
>
> *The proposed changes we have encountered regarding asset lives relate to both standard asset lives (the expected useful life of new assets) and the remaining asset lives (the expected useful life of existing assets). We have generally conducted the assessments of standard asset lives from an engineering perspective, by way of general benchmarking of these lives across service providers.*[29]

Current circumstances show that engineering considerations alone are no longer sufficient for assessing economic life. This is particularly evident when:

- our current longest life (of 80 years) means we are inherently assuming a viable gas market out to the turn of the next century in 2100 even though we have a stated NSW government target of zero net emissions by 2050
- AEMO's March 2019 GSOO is forecasting supply shortfalls in the southern region of Australia by 2030 under all current sce*narios*[30]
- the wholesale gas prices experience since Australian LNG exports drove our wholesale gas prices towards global parity have challenged the commercial viability of a range of gas applications.[31]

This issue affects our assets in several ways:

- Pipeline assets with current standard lives of 80 and 50 years for high pressure mains and medium pressure mains and services respectively require equal annual asset recovery over a period much longer than the 2050 net-zero emission target

27 IPART, Final Decision Access Arrangement for AGL Gas Networks Ltd Natural Gas System In NSW, Attachment 5 p.275 (July 2000).

28 IPART, Draft Decision Access Arrangement for AGL Gas Networks Ltd Natural Gas System In NSW, section 8.4.2, pp.135-136 (October 1999).

29 AER, Attachment 5 – Regulatory depreciation | Final decision: Australian Gas Networks Access Arrangement 2016–21, section A.3.1 p.5-32, (May 2016).

30 AEMO, *Gas Statement of Opportunities*, chapter 4, (March 2019)

31 Industrial demand over the current AA period is lower than the last AA period, with many industrial customers reducing their usage in response to higher wholesale prices.

- Metering assets with current standard lives of 20 years are higher than most of our peers and do not reflect the risk of technical obsolescence arising from the need to be able to meet metrology standards amid the move to blending hydrogen into the distribution system, given hydrogen has different physical and heating value properties to natural gas for which these meters are designed.

We need to align who pays how much with how they value their gas service to support efficient utilisation and gas market growth

Our 2020 Plan includes investments that will deliver consumer benefits both in the short and long term, over and above their costs. These benefits will be in the form of lower bills and continued access to a safe and reliable gas service.

For example over the 2020-25 period alone we plan to invest $331M[32] in connection capex to deliver $644M[33] in customer benefits[34] over the period to 2050. The net benefit of this investment is about $313M[35] or $209 per customer by 2050.[36]

While this investment results in clear customer benefits there can be a mismatch between who pays for and who benefits.

Our customers currently pay for the investments made on our network over 50 or 80 years (depending on the type of asset). Investments that we make over 2020-25 will not be fully recovered until 2105. This is a significant risk given the policy and consumer trends described earlier that result in an uncertain future of gas. There is a very real risk that a significant number of customers disconnect well before these assets are paid off, leaving fewer customers on our network paying for the remainder of the costs.

This can be seen in looking at who benefits and who pays for our investment in connections (see Figure 2–1). Without changes to asset lives:

- Customers over the 2020-50 period will pay $166M[37] ($110 each) towards the cost of the investment and receive $644M in benefits over the period to 2050 ($430 each). These customers will be better off by $479M ($319 each). Customers over this period receives benefits above what is calculated in our cost benefit analysis as these customers do not pay for all of the investment costs.
- Customers beyond 2050 will pay $166M.[38] The benefits will depend on how many customers connected over the 2020-25 period stay connected.

If the market risks to the gas network eventuate, customers connected after 2050 will not receive any significant benefits from these investments – but will continue to pay for the costs.[39]

32 The present value of our volume market connection capex and all augmentation capex for the 2020-25 period. We included augmentation capex (even though not all costs driven by new connections over the 2020-25 period) to be conservative when calculating the net benefit of our connections program.

33 The present value of the expected revenue of 2020-25 volume market connections over the period to 2050 ($698.8M) with incremental opex netted off ($53.7M).

34 Connecting new customers allows us to spread our largely fixed costs across more customers resulting in lower prices and bill reductions. We forecast the customer benefits of lower cost burden by looking at net present value of the expected revenue of 2020-25 volume market connections over the period to 2050.

35 The present value of benefits ($644.3M) minus the cost of the investment ($331.1M).

36 $313.2M divided by 1.5 million customers (the number of customers forecast to be connected in 2025).

37 For simplicity we have applied an asset life of 50 years (as the majority of the spend will be allocated to the medium pressure mains/services asset class) and will be fully paid by 2075 (2025 + 50 years). With straight line depreciation this means 50% of the costs will be paid by 2050 ((2050-2025)/50). This provides $165.6M (50% of $331.1M). For simplicity, we have also excluded the cost of capital for this analysis.

38 The proportion of the investment costs not paid over the 2020-50 period. We have not provided a per customer number given the uncertainty over this timeframe.

39 This does not mean that the investment is inefficient or imprudent. Even if all customers connected over the 2020-25 period leave in 2050 the consumer benefits would still exceed the costs.

While we hope that our customers will remain connected (allowing the benefits to continue to be realised) given the current headwinds our network faces there is not sufficient certainty that this will happen.

Uncertainty within these timescales is recognised by the AER who recommends against counting potential benefits beyond 20 or 30 years when conducting cost benefit assessments.[40]

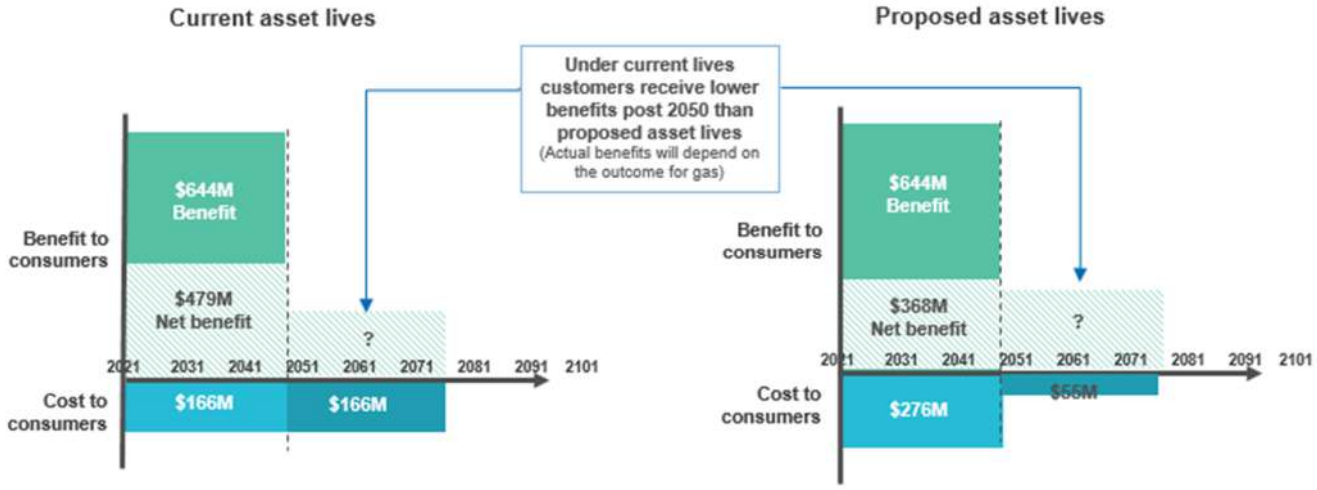
Our proposed solution is to improve the alignment between when customers pay for and receive the benefits of the investments.

As noted in Section 1.1, we propose to do this by shifting forward when customers pay for new assets by reducing asset lives for new investments—recognising that there has been a shift in the economic lives of our assets. This change will enable us to recover the costs of the new investments we make in our network by 2075 rather than 2105. If customers are expected to use the network more heavily now than future customers are likely to, current customers should pay relatively more than future customers.[41]

The improved alignment between who benefits and who pays can be seen by looking again at our connections investment. The proposed change in asset lives would mean:

- Consumers over the 2020-50 period pay $276M[42] ($184 each) towards the cost of the investment and receive $644M in benefits over the period to 2050 ($430 each). These customers will be better off by $368M ($246 each). While these customers are not as well off as without the change to asset lives the benefit these customers will receive remains above what is calculated in our cost benefit assessment.
- Customers beyond 2050 will pay $55M towards this investment.

Figure 2–1: Customer costs and benefits



Our proposed change lowers, but does not eliminate, the risk that a relatively small group of our customers—those still connected beyond 2050—end up paying for the benefits received by the larger number of customers who were connected over the 2020-50 period.

Moreover, it is worth keeping in mind that under our proposal most of our assets (indeed 77% of the RAB at the end of RY25) will continue to depreciate at their legacy asset lives, meaning JGN continues to bear the asset redundancy risk for the greater share of the assets involved in providing our services.

Figure 2-2 illustrates this issue. It shows that absent our proposed change, our RAB will remain largely constant out to 2050, even though the prospects of it being fully-recovered after then become increasingly uncertain. It also

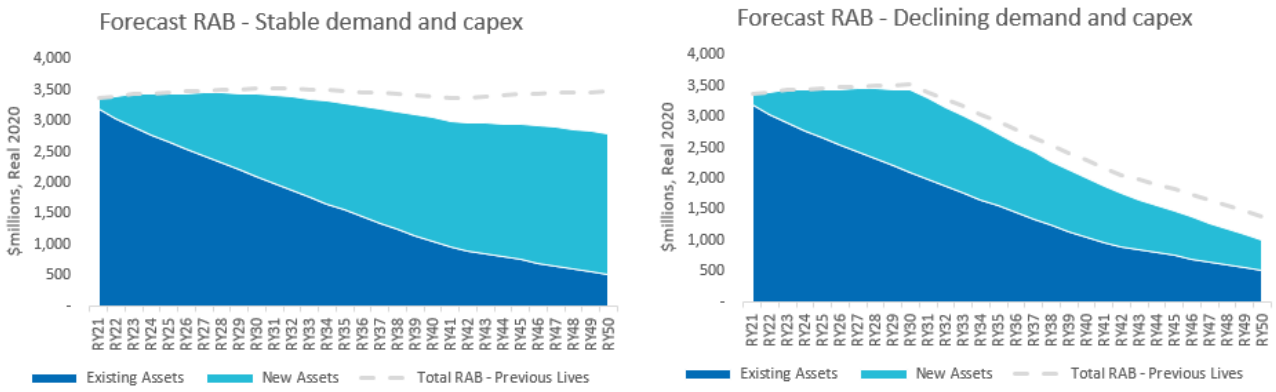
40 AER 2019, Distribution Gas Network Capital Assessment, p. 17

41 Our analysis here has not taken into the expected reductions in consumption which would amplify our conclusions here.

42 We have proposed to reduce the asset lives of the medium pressure mains/services asset class to 30 years. Applying the same simplified calculation for the 50 year asset lives the proportion of the investment paid over the 2050 period is 83% (2050-2025)/30.

shows that even with this measured and incremental change, JGN will still face material asset stranding risk by 2050, and will therefore have ongoing incentives to continue to market natural gas and prudently explore ways to decarbonise the gas supply through initiatives like hydrogen green gas.

Figure 2-2: Forecast RAB growth under current and proposed asset lives



Under a stable demand scenario where JGN is expected to invest capex at current levels, our proposed approach lowers the investment risk only marginally because in 2050 we are expected to still have $2.8B in unrecovered investment compared to $3.5B if we do not lower the asset lives as proposed.

Even under a declining demand and capex scenario where the risks eventuate and we stop spending on new connections related capex we are still expecting to have about $1.0B of unrecovered investment in 2050.

This is not an issue of current asset redundancy, imprudent past investment or inefficient forecast investment

As discussed above, this issue is not a question of inefficient/imprudent investment either in the past or over the 2020-25 period. All of our assets in place and planned investments will continue to deliver consumer benefits in excess of their cost by 2050.

Our initial asset base was based on an optimised and depreciated costing determined upon by IPART, and all capital added since then has been reviewed and deemed conforming capex (i.e. prudent and efficient) by the AER since then. Economic Insight's benchmarking analysis (Attachment 6.4) shows that JGN is a relatively efficient performer in its use of both opex and capital inputs.

2.4 Why act now?

We have had feedback from Energy Consumers Australia (**ECA**) that it is not clear whether our proposed change should be made now or whether it may be more prudent to defer making the decision until 2025-30, when more information in available to assess whether stranded asset risk is real or not.

While we are investing in a hydrogen trial, and other low-carbon alternatives, with the aim of showing that our pipeline assets *may* be able to transport hydrogen, there is currently very little certainty that we will be able to transition to a low-carbon network by 2050.

Even if our hydrogen trial is successful from technical and safety perspectives, the commercialisation of distributed hydrogen is far from certain which means that the risks for JGN are asymmetric—JGN will be reliant on other market participants to produce hydrogen at a price which can compete with electricity, and has no ability to control this part of the supply chain.

As a prudent service provider, it remains appropriate to take early action—if there is not a bias towards early action, and it eventuates that hydrogen does not replace gas, then there will be a point where it is simply not

possible to recover all of the capital associated with some investments. As noted in section 5.1, this is contrary to the revenue and pricing principles in the National Gas Law (**NGL**) which stipulate that a service provider should be provided with *a reasonable opportunity to recover at least the efficient costs.*

Even if we were to assume that waiting another five years could sustain efficient capex incentives over the next AA period, the forecast demand trend shows acting in five years' time will result in a higher cost per customer over the long-term than if it is applied and approved now. Moreover, it is not clear that the other favourable building block conditions that have supported affordability outcomes in our 2020 Plan will be present then.

While there is a small increase in annual residential bill of $3 in RY21-25 under our proposed approach, this mitigates the average annual bill increase of $43 and $86 in the long term (from RY51 onwards) if we were to delay by either 5 or 10 years respectively (see Attachment B for details).

By acting now and assuming hydrogen proves to be viable and commercially competitive, then customers in the future will get lower prices compared with inaction on asset lives. As explained in section 3, our customers were aware of this as they considered whether or not we should change the asset lives for new investments–they told us that they viewed it as a low risk approach.

An alternative approach would be to reassess asset lives if hydrogen does prove to be viable. A similar approach was considered by the IPART in its recent draft decision on the NSW Rail Access Undertaking.[43] IPART has approved a change to the remaining mine life of the Railcorp Hunter Valley Coal Network sectors existing assets to reduce the stranding risk. This risk has arisen due to announcements about the closure of a number of power stations. In its decision, IPART has noted:

> *We consider that bringing forward the terminal date to 2040 would reduce the risk of stranding RailCorp's assets, while mitigating price impacts for access seekers, which may reduce demand for the use of the rail line.*[44]

and

> *There may be more certainty when we next undertake this review in 2024. At that stage, we can adjust the remaining mine life and depreciation schedule to reflect the longer or shorter remaining life. However, if we wait until our next review, in 2024, when there may (or may not) be more certainty about the future of coal-fired generation, we would create substantial price shocks for access seekers if we reduce our terminal date.*
>
> *Alternatively, reducing the remaining mine life now spreads the price increase over a longer period. If we find at the next review that the power stations are likely to continue beyond the terminal date then we can adjust the depreciation schedule at that time.*
>
> *In making our draft decision, given the above uncertainty we have reviewed the price impacts of different options and selected one that provides an appropriate balance between ensuring that our decision does not create stranded assets for RailCorp or unnecessary price impacts for access seekers.*[45]

2.5 Is this the best option for addressing this issue?

We have carefully considered how we should best support efficient future utilisation of gas and mitigate the risk and incentive consequences of being unable to fully recover our investments beyond 2050. When considering the options that were available to us, we have been guided by what is permitted within the regulatory framework, and by the feedback that we received from our customers throughout our customer engagement program. In particular, we have considered the impacts in the context of the four key themes which arose throughout the course of our engagement, namely: affordability, a safe and reliable gas service, fairness and the future.

43 IPART, NSW Rail Access Undertaking – Review of the rate of return and remaining mine life, April 2019

44 Ibid, p2

45 Ibid, p20

Table 2–1: Options considered

Option	Comment	Outcome	Consistent with customer feedback
Compensating asset recovery risk via rate of return	The binding rate of return instrument does not account for asset stranding risk. The AER has been very clear when addressing the cost of capital for the regulated energy networks that the regulatory WACC should not – and so, as estimated, does not – seek to compensate for potential stranded asset risk.	N/A	N/A
Reduce service levels (to reduce forecast capex)	Only $3.2M of the capex program has a key driver of maintaining service levels.	This option would result in minor reduction in capex but would adversely impact JGN's reputation with its customers. It would have an immaterial impact on reducing stranding risk	This option is inconsistent with customer feedback - our customers told us that they want us to maintain existing service levels.
Scale back marketing/growth opportunities	We have an obligation under the NGR to provide potential customers with an offer to connect to our network – we have limited control over how many customers we connect. Our marketing program is based on increasing utilisation of our network – increasing/maintaining load.	Scaling back marketing would only marginally reduce opex but would lower demand. This would increase prices for all JGN customers.	Our customers told us that it is sensible for us to seek ways to ensure that the network remains utilised. If we were to scale back investment in growing our network, this would lead to higher prices.
Accelerate depreciation of all assets (i.e. lower remaining asset lives and standard asset lives)	We have adopted a measured approach and are only proposing to change the asset lives of certain new assets. This means that we will continue to bear the risk that we will not recover the full costs of investments made before 30 June 2020. We believe that this approach strikes a fair balance between the impacts on our existing and future customers, and is consistent with feedback we received on the key theme of fairness. This is the approach adopted by IPART in its draft decision for Railcorp's Hunter Valley Coal Network sectors.	Significant price increases	Recognising that affordability is a key issue for our customers, we did not test this option.

Option	Comment	Outcome	Consistent with customer feedback
Increasing customer contributions by introducing a charge for standard connections	Our research indicates that introducing a charge for standard connections would influence some potential customers not to connect to gas (a $300 charge would result in around 23% of potential customers choosing not to connect). This would actually increase bills over the long term. This does not impact non-standard connections, where contributions are payable if Rule 119M is satisfied.	Reduction in net capex but likely to increase prices for all customers if electricity to gas customers choose not to connect. This would reduce the cost-competitiveness of gas.	Our customers were supportive of a charge assuming that it lowered prices for all customers.
Innovation to prove and ready the network for a low carbon alternative gas	We are investing in a hydrogen trial with the aim of showing that hydrogen can be used within our network. Note, even if the trial is successful, transitioning our network to enable the distribution of low carbon gas will only be possible if hydrogen can be competitively produced and delivered to our network.	We are including this expenditure as speculative capex.	Our customers want us to work towards a renewable future.
Charge network exit fees where customers disconnect early	If the life of a customer connection becomes insufficient at the prevailing tariff to pay-off the assets built and used to service them, a disconnection fee equivalent to a contract exit fee may be appropriate to protect the interests of remaining customers and JGN. This would require amendment to our connection and use of system agreements, and its introduction may impede our marketing of natural gas.	Exit fees would be treated as a capital contribution and deducted from the RAB.	While this may support the fairness and future sustainability outcomes, it is unlikely to be implementable within the next five years given the contractual changes that may be needed to apply it.

3. How does our proposal reflect customer preferences

3.1 Our consultation with customers

Given the importance of this issue, and its impact on our revenue requirements in the 2020 Plan period, we consulted with our customers on our proposal at multiple stages of the engagement program. We sought to understand whether they would support our proposal to speed up the recovery of our new investments in the proposed asset classes.

We presented our customers with two options around how we recover our costs. These were to maintain our current asset lives, or to speed up the recovery of some new categories of investment that we make by shortening the standard asset lives to align with the future economic lives.

Consistent with how we tested our future investment approach for our capital program, we explored these options under two different scenarios, so that customers had a view of the price impacts should the gas network either decline or thrive beyond 2050.

Most customers supported a change to the asset lives. Customers told us that they want us to take a proactive approach to managing future uncertainty and to minimise any negative customer consequences.

They saw this as a way for current customers to do a little now to protect future generations from much more significant price implications which is exactly what Rule 89(1)(a) contemplates. Even though they are generally positive about the future of gas, this approach was considered appropriate, as it also pays off the asset sooner, thereby reducing future bills if the asset thrives. Customers also preferred this approach as something that could be revisited as the future becomes clearer without impacting service quality or availability.

They saw that changing the recovery period for new, medium pressure mains and services assets was a low risk or 'no regrets' approach.

We tested this proposal with customers at the same time we asked them about whether we should change our approach to investing in the network (see section 5.3 of our 2020 Plan, and Attachment A which shows the bill impacts which we presented to customers when discussing this topic). Customers told us that they recognised the link and felt most comfortable with faster recovery of our future investment costs, and a long-term investment approach paired together. While customers also had the opportunity to change their voting when the combined bill impacts of these two strategies were presented, very few customers did so.

Table 3**–**1 summarises the results of the voting by customers at our deliberative forums. This shows the results after the final round of voting.

Table 3–1: Customer support for change in asset lives at deliberative forums

	Goulburn	Griffith	Western Sydney	Bathurst	Newcastle	Total
Voted for the change in asset lives	12	7	14	15	17	65 (81%)
Voted against the change in asset lives	4	4	3	3	1	15 (19%)

We also tested this proposal with customers at our culturally and linguistically diverse (**CALD**) engagement where all of the group voted in support. Additionally, at the over-55s forum, the majority of our customers agreed with the proposal.

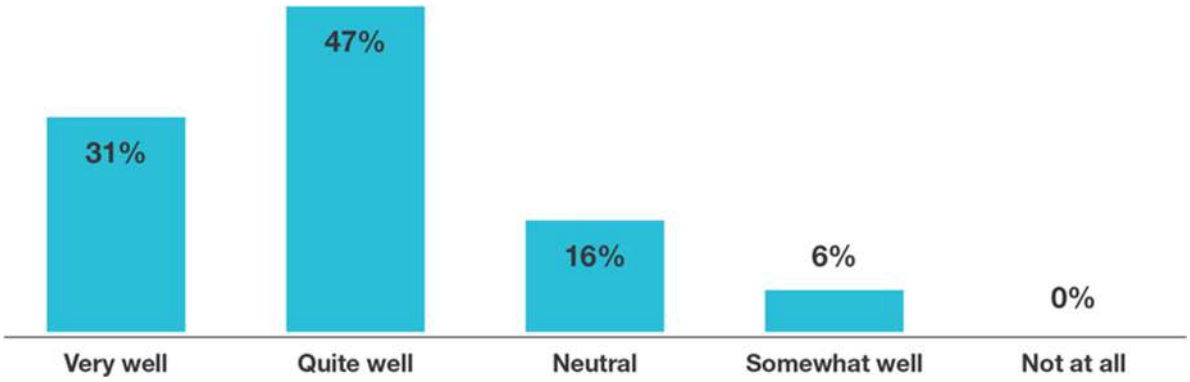
Given the strong support from our customers, we incorporated the change to asset lives for new investment into our Draft 2020 Plan, which we published in January 2019. In section 3.2, we discuss the results of our fourth deliberative forum, in which we presented our Draft 2020 Plan to our customers to ensure that we had accurately captured their preferences on this topic. As noted in section 3.2, our customers again voted overwhelmingly in support of this proposal.

3.2 Our customers supported our Draft 2020 Plan

As outlined in Chapter 2 of our 2020 Plan, in March 2019 we held a fourth deliberative forum with a group of customers from across NSW. This forum followed three previous forums held throughout 2018, where we sought inputs and feedback from our customers to help shape our plans for the 2020-25 period. The purpose of the fourth forum was to provide customers who had been involved in our engagement program with an overview of our Draft 2020 Plan to ensure that we had accurately captured and reflected their feedback in our Draft 2020 Plan.

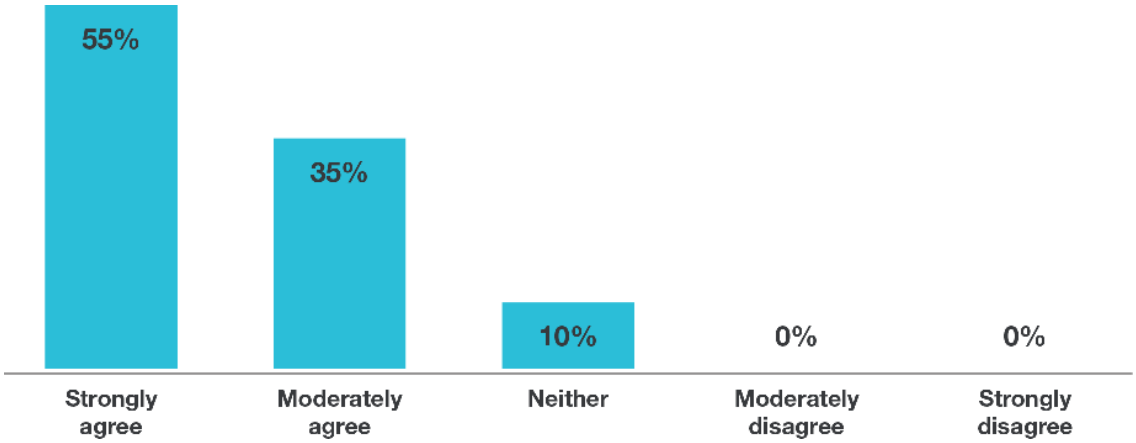
During the fourth forum, we outlined how we had responded to feedback on the key theme of fairness, highlighting that we had incorporated customer preferences on changing asset lives for new investments into our plans. We then asked our customers to vote on how well we had responded to their feedback. As shown in **Figure** 3**–**1, a significant majority (78%) of customers considered that we had responded very well or quite well to their feedback on the key theme of fairness. Additionally, 90% of our customers strongly or moderately agreed that our Draft 2020 Plan was in their long term interests (see **Figure** 3**–**2).

Figure 3–1: Forum 4 voting results on how well Jemena has responded to customer feedback on fairness



Source: Draft 2020 Plan Consultation Report, RPS (included in Attachment 2.2)

Figure 3–2: Forum 4 voting results on whether the 2020 Plan is in customers' long term interests



Source: Draft 2020 Plan Consultation Report, RPS (included in Attachment 2.2)

(1) The question asked was: To what extent do you agree that the Jemena Gas Networks' Draft 2020 Plan is in the long-term interests of customers?

Given the strong positive response from our customers, we have not changed the approach we set out in our Draft 2020 Plan.

4. What have other stakeholders said about this proposal?

As we prepared our 2020 Plan we continually engaged with consumer advocates, our Customer Council as well as AER staff and the Consumer Challenge Panel (**CCP**). This section explores issues they raised and their feedback on our Draft 2020 Plan.

4.1 Are customers capable of understanding this issue?

AER staff and CCP have constructively challenged us on whether our customers are capable of understanding the topic of asset lives and depreciation in sufficient detail to meaningfully engage on this topic.

We strongly believe that—through the application of a best practice community engagement program—our customers were fully equipped to engage on this topic and clearly understood the various trade-offs that they were being asked to consider.

Moreover, many of our residential and business customers engage meaningfully with equivalent issues in their daily decisions on loan repayments for mortgages, hire-purchase agreements for appliances and cars, and telco contracts that involve either buying upfront or paying off over time the handsets and modems they require.

Our engagement program was carefully designed to reflect and embed the International Association of Public Participation's (**IAP2**) Core Values and current best practice community engagement. These core values and our approach to addressing these are set out in **Table** 4**–**1.

Table 4–1: IAP2 core values and how we have applied these

IAP2 core value	JGN action	Implications for the AER's review
Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.	Our customer and stakeholder engagement program detailed in Attachment 2.1 of our 2020 Plan was designed consistent with this value.	The AER should weight our customers views at least as highly, if not higher than, those of consumer representative organisations.
Public participation includes the promise that the public's contribution will influence the decision.	Our research and engagement program was predicated on this value, and our Draft 2020 Plan consultation tested our efficacy in delivering on it.	It will be incumbent on the AER to explain to our customers how their views on this issue have been accounted for in its decision.
Public participation promotes sustainable decisions by recognising and communicating the needs and interests of all participants, including decision makers.	Our customers were surveyed about their views on the future and sustainability and this proposal is a key response to what they said they valued in terms of fairness and future sustainability.	
Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision.	Attachment 2.1 of our 2020 Plan shows that we obtained professional support to ensure our research and engagement program was representative and robust.	
Public participation seeks input from participants in designing how they participate.	Attachment 2.1 of our 2020 Plan sets out how we sought input from our customers about the topics and issues that are important to customers and how they wanted us to engage with them.	

IAP2 core value	JGN action	Implications for the AER's review
Public participation provides participants with the information they need to participate in a meaningful way.	We ensured our engagement had options, impacts and implications explained in a robust and accessible way to those who we sought feedback from.	
Public participation communicates to participants how their input affected the decision.	Our Draft 2020 Plan consultation tested our efficacy in delivering on this value, and our 2020 Plan explains how engagement informed our final decisions.	It will be incumbent on the AER to explain to our customers how their views on this issue have been accounted for in its decision.

A key benefit and objective of commencing engagement with our customers so early was that we could provide them with sufficient information on our business, and the market within which we operate, that they could participate in a meaningful way, even when we discussed complex issues. Indeed, as noted by our engagement partner RPS (previously Straight Talk), *"deliberative approaches to engagement on complex issues has been recognised as innovative and best practice".*

As noted by our RPS:

> *Activities were designed specifically for each customer segment with a focus on ensuring that customers had the information they needed to be able to engage in a meaningful way, cognisant of the implications of their decisions; and that the advice and direction sought would have genuine influence over the decisions that Jemena took regarding its Revenue Proposal.*[46]

And:

> *Several in-depth, comprehensively deliberative processes were developed which would allow small, broadly representative groups of customers to meet several times, to absorb and examine the concepts Straight Talk and Jemena were presenting and importantly to question and challenge these, prior to making any decisions or recommendations. Importantly, multiple, divergent views and opinions were presented so that customers had access to the full spectrum of views to consider.*

And finally:

> *Customers appreciate the value of the assets that Jemena has and their long life; they think it is sensible for Jemena to seek ways to ensure that the network remains utilised. Customers had no problem with the concept of the value of the network asset and that this should be maximised and that by doing so, the model of Jemena slowly recouping costs over time could be fairly maintained (as opposed to a future where customers were rejecting gas, leaving those least able to choose left on an increasingly expensive system). They related this to their own long-term investment decisions and 'good business'.*

4.2 Feedback from consumer advocates

In addition to the feedback from our customers on our Draft 2020 Plan, we received written submissions from the Public Interest Advisory Centre (**PIAC**)[47] and **ECA**.[48] The feedback that we received on our proposal to change asset lives for new investment, together with our response, is included in the following table.

46 Straight Talk, Jemena Customer Engagement Report, April 2019, (included in Attachment 2.2 of 2020 Plan)

47 PIAC, *Submission to Jemena Gas Networks' Draft 2020 Plan*, 21 March 2019 (available on https://yournetwork.jemena.com.au/draft-2020-plan/documents)

48 Energy Consumers Australia, *Jemena Gas Networks Draft 2020 Plan Submission*, March 2019 (also available at the above link)

In contrast to our customers, both the PIAC and ECA expressed reservations with our proposal to change asset lives for new investments but did not link these reservations to our customer's feedback or to the relevant rules under which this proposal must be assessed.

As a point of principle, where we have had specific feedback from our customers on a topic, we have reflected their preferences into our 2020 Plan, even where this is divergent with the feedback from customer advocates. We believe that this approach is consistent with our key engagement objective to let customers' views shape our regulatory proposal (see Chapter 2 of our 2020 Plan), and with the IAP2 principles.

Table 4–2: Summary of submissions on our Draft 2020 Plan

Topic	Author	Feedback	How we are responding
Sharing risk	PIAC	PIAC stated that under our proposal, consumers in the near term will pay more for these assets rather than JGN in the future. In other words, it represents a transfer [of risk] between consumers in the short-term and our shareholders in the longer term	As discussed in section 1.3, we do not agree that this proposal represents a transfer of risk between us and our customers. We are allowed under the regulatory framework to recover our efficient costs, and we are not compensated for asset stranding risk, or the risk that it will not recover its investments in the network. Our proposal includes changing the asset lives only for new investments. This means that we continue to bear the material risk that we will not recover the $3.3b of investments that we have already made in our network. See Figure 2-2.
	ECA	ECA sought a demonstration that JGN is sharing some of the risk of asset stranding. It is not apparent to ECA that the risk should solely be shared between current and future customers.	
Other options available	PIAC	While PIAC is generally supportive of our analysis in arriving at our proposal and the engagement we have conducted to minimise negative impacts on consumers, PIAC suggests that doing the "least bad" version of accelerated depreciation doesn't necessarily make it good. PIAC urged us to think outside the current regulatory framework and to consider whether it is reasonable to expect customers to 'foot the bill' for the full risk that we do not have a product in the future.	Table 2–1 sets out alternative options we have considered. As a regulated gas distribution business, it is necessary that we operate within the constraints of the regulatory framework. Our proposed changes to asset lives is permitted within the regulatory framework, and has been identified by the AER as an appropriate action to take to the extent that there are genuine risks of extreme changes in demand for specific service providers which present the potential for stranding of an asset (see section 1.3). We welcome PIAC's support of the analysis we have done in arriving at our proposal. As noted above, we do not accept PIAC's view that customers are "footing the bill" for something that they should not be. Under the regulatory framework, we are allowed to recover our costs from both current and future customers. The change that we are proposing only acts to change the period over which we recover our efficient investments, which will deliver customers benefits well before 2050. As noted in section 3, we engaged with our customers on the intergenerational impacts of this change, and received their support.
	ECA	ECA sought a clearer demonstration that all options for addressing the risk have been considered.	

Topic	Author	Feedback	How we are responding
	ECA	ECA encouraged us to consider alternative options – for example, whether it may be appropriate to move from straight line depreciation to economic depreciation. To help inform views, any further analysis should outline impacts of different depreciation methodologies.	Our proposal is to update the economic lives of our assets to reflect the future shorter lives but retain straight line depreciation over these lives. We assume ECA is referring to the declining balance depreciation method. Consistent with the AER's published view on this, we do not think it would be a commensurate response to the identified problem.[49]
Deferral of the decision	ECA	It is not clear to ECA whether this change should be made now or whether it may be more prudent to defer making a decision until the 2025-30 period. ECA considered that deferring this change by five years may not significantly increase bills for consumers during the later period and may enable more information to be available to assess whether or not the stranded asset risk is real.	As set out in section 2, the things that would extend future economic lives back to past levels are currently highly speculative and the bill impact we have calculated would be higher in future. As set out in section 3 our customers see this as a no regrets option that is preferable now and can be changed in future if the gas market thrives.
Inconsistency with affordability theme	ECA	The ECA noted that this proposal to change asset lives is inconsistent with the key theme of affordability.	Our proposal aims to reflect consumers' nuanced preferences and values. While consumers told us affordability was their number one priority they still supported reducing asset lives. Consumers valued the long term benefits that this option provides more than the short term affordability benefits of making no change. It is also important to recognise that although this proposal will place an upward pressure on bills in the short term, this is being done within the context of overall price reductions for all customer groups over the 2020-25 period. If our proposed strategies are constrained only to those which lower or maintain current prices in the short term, then our ability to meet the NGO—which requires us to assess the merits of our proposal within the context of the long term interests of consumers—will be severely constrained.
Likelihood of stranded asset risk	ECA	ECA would like to understand the extent to which this [stranded asset] risk is more heightened in NSW than in other jurisdictions	It is internationally recognised that there is uncertainty around the future use of gas networks. For instance, due to these risks Ofgem is currently considering whether its approach to regulatory asset lives and depreciation remains appropriate.[50] We think that risks are higher in NSW as gas is more easily substitutable to electrical appliances given our temperate climate. Further, the comparative data in **Figure** 4**–**1 shows that our gas consumption is already below the national average and is lower than

[49] The AER has stated that it does not see change to RAB inflation indexing or reliance on declining balance depreciation methods as having an outcome commensurate with the problem being considered. See AER, Attachment 5 – Regulatory depreciation | Final decision: Australian Gas Networks Access Arrangement 2016–21, sections A.3.2 and A.3.3, (May 2016).

[50] Ofgem 2019, *RIIO-2 Sector Specific Methodology Annex: Gas Distribution*, p.7 Available: https://www.ofgem.gov.uk/system/files/docs/2018/12/riio-gd2_sector_annex_0.pdf

Topic	Author	Feedback	How we are responding
			any other state or territory with equivalent distribution system coverage. **Table** 4–3 also shows that our metering asset lives are out of keeping with those of our peers and several of our pipeline categories are currently at the highest end of our peers.

4.3 Feedback from AER staff

AER staff have also provided feedback on this element of our Draft 2020 Plan as follows:

> *We hope to see evidence that JGN have given due consideration on the following:*
>
> - *Explanation on why proposed asset lives does not align with other gas businesses*
> - *The importance of the National Hydrogen Roadmap 2018-25 targets*
> - *Demonstrate the timing for change in 2020-25 is reasonable/appropriate*
> - *Alternate interpretation of NSW 2050 aspirational target*
> - *Alternate approach to changing asset lives*
> - *Relationships with technical lives and possibility of postponing investment in the short term*
> - *Maximise affordability in the short term*

Below we explain how we have considered each of these items, some of which we have grouped for consideration.

Benchmarking asset lives

Table 4–3 provides benchmarking of our proposed new standard asset lives to a range of our peers. It shows that our proposal is not out of line with these peers. While this is relevant to some extent, factors that diminish the extent to which benchmarking should be the sole consideration here, are:

- Our network operates in a temperate East Coast Australian climate and under the climate change and emissions policies of the NSW government. The closest climate proxy is the two Queensland distribution networks which have both now been reclassified by the National Competition Council as being subject to light handed regulation in recognition of the competitive constraint affecting demand in their climate. In this way, we would expect our economic lives to be lower than the peers cited here.
- The AER has conceded in prior reviews that*: "We have generally conducted the assessments of standard asset lives from an engineering perspective, by way of general benchmarking of these lives across service providers*".[51] For the reasons identified in this attachment, this is no longer a sufficient means of determining economic lives.

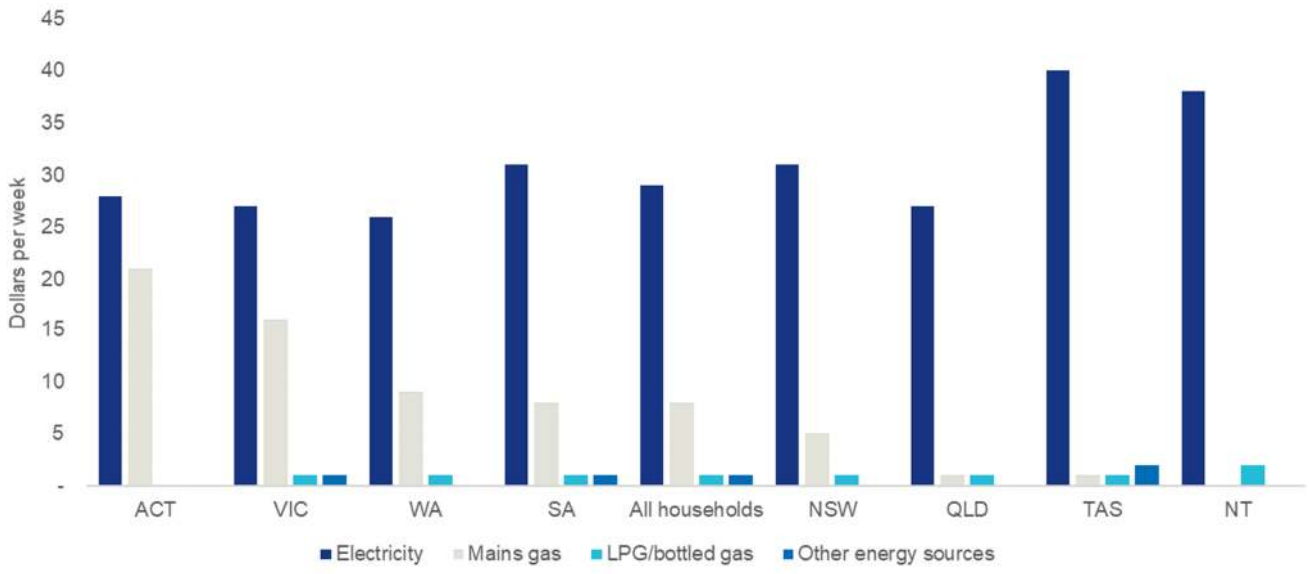
[51] AER, Attachment 5 – Regulatory depreciation | Final decision: Australian Gas Networks Access Arrangement 2016–21, section A.3.1 p.5-32, (May 2016).

Table 4–3: Benchmarking standard asset lives

Asset Class	JGN current standard asset lives	JGN proposed standard asset lives 2020-25	AGIG (SA) 2016-21	EvoEnergy (ACT) 2016-21	MultiNet (Vic) 2018-22	AGIG (Vic) 2018-22	AusNet Services (vice) 2018-22
Trunks	80	50	60	80	50	60	60
High pressure mains	80	50	60	80	50	60	60
Meters/meter reading devices	20	15	15	15	15	15	15
Medium pressure mains	50	30	60	50	50	60	60
Medium pressure services	50	30	40	60	60	60	60

When benchmarking our asset lives, the divergence in average use per customer across these geographies must be considered. The last Australian Bureau of Statistics (**ABS**) Household Energy Consumption Survey, Australia showed that even back in 2012, NSW had lower household mains gas expenditure than the national average and less than any other state or territory with comparable coverage of its gas distribution system.

Figure 4–1: Household energy expenditure by source ($ week)



Source: ABS 4670.0 - Household Energy Consumption Survey, Australia: Summary of Results, 2012

Alternative approaches to changing asset lives and relationships with technical lives and possibility of postponing investment in the short term

Table 2–1 sets out alternative options we have considered, including the possibility of postponing investment in the short term which we had tested with our customers.

As noted in section 2.3, the nexus between technical and economic life has been broken by our expected demand trends. The depreciation criteria considered in section 5.2 are explicitly designed to provide flexibility to deal with the identified problem of diminishing future economic lives.

Extent and role of current climate policies

AER staff have asked how we have considered the National Hydrogen Roadmap 2018-25 targets and what they see as an alternate interpretation of NSW 2050 aspirational target. We have considered these in section 2, including that the CSIRO estimates that the best case 2030 cost of hydrogen production from clean energy is approximately $2.2-2.4/kg (or approximately $20/GJ).[52] This is approximately double the current wholesale cost of gas $8-12/GJ and therefore reinforces that the ability for future hydrogen-use to support retaining current economic lives is highly speculative.

Why now and how is that reasonable and consistent with affordability?

We have sought to demonstrate the timing for change in 2020-25 is reasonable and appropriate by:

- answering the question of 'why now' in section 2.4
- testing whether current customers who will pay for this support it, and it is therefore reasonable in their eyes – see section 3
- ensuring our proposal is reasonable relative to other options including the alternatives considered in Table 2–1, and the asset life options considered against the depreciation criteria in section 5.2.

We note that affordability is important to our customers and our 2020 Plan delivers on this. Maximising affordability in the short term is not however an objective of the National Gas Objective or Revenue and Pricing Principles, nor is it a relevant consideration in applying the depreciation criteria. Indeed, it is future affordability and market facilitation as contemplated by rule 89(1)(a) discussed at section 5.2.1 that drives this proposal.

Nonetheless, we are pleased that our 2020 Plan provides an opportune time to apply this asset life change because we are still able to provide price reductions of 18% over five years to support affordability in the short term.

[52] CSIRO, National Hydrogen Roadmap, 2018, page xv

5. How does this comply with the regulatory framework?

Our proposal better reflects the regulatory framework requirements than would be the case if the status quo is maintained for new investments. This framework relevantly has both:

1. Objectives and principles that require efficient investment incentives predicated on a reasonable expectation of cost recovery, and fostering efficient utilisation of the natural gas assets and services.
2. Depreciation criteria that preserve cost recovery while requiring that the profile of this recovery over an asset's economic life recognises the dynamic nature of that economic life and how the profile of recovery should be used to manage utilisation and thus market growth and the economic life of the asset.

This section discusses both these important elements of the regulatory framework, and how our measured and customer-supported approach to addressing sustainability challenges will be rule compliant, while better advancing the NGO.

5.1 Consistency with the objectives and principles

The *National Gas Objective* as stated in the NGL is:

> *"to promote **efficient investment** in, and **efficient operation and use** of, **natural gas** services for the **long term interests of consumers of natural gas** with respect to price, quality, safety, reliability and security of supply of **natural gas**."*[53] *(emphasis added)*

Relevantly to our proposal, this objective means:

- the operation of the regime must preserve our incentive to invest efficiently, including by giving us a reasonable expectation of recovering that investment
- how we price our services and recover our investment must support efficient utilisation, including which customers we recover our sunk costs from and in what relative proportion over time
- any consideration of hydrogen as potentially protecting the status quo assumption about economic life of gas distribution assets must:
  - be considered within a regime explicitly designed for natural gas
  - recognise that any attempt to change the NGL to incorporate hydrogen would require a much greater evidence base for both the viability and desirability of hydrogen in supporting the long-term customer interests contemplated in the NGO in order to withstand the regulatory impact statement and legislative review processes needed to achieve this.

A further key tenet of the regulatory framework, as set out in the *Revenue and Pricing Principles* in the NGL, is cost recovery:

> *A service provider should be provided with **a reasonable opportunity to recover at least the efficient costs** the service provider incurs in:*
>
> *(a) providing reference services; and*
>
> *(b) complying with a regulatory obligation or requirement or making a regulatory payment.*[54]

Our proposal to adopt a more realistic view of the economic life of new investments by adjusting their asset lives to reflect current and anticipated circumstances is consistent with the NGO as relevant for depreciation, and with the intended outcomes of economic regulation more broadly. This is because the proposed approach:

53 NGL Part 3, division 1, clause 23.

54 NGL Part 3, division 2, clause 24(2).

- maintains a high degree of confidence that costs (i.e. the regulatory asset base) will be recovered over the economic life of the assets
- it does not lead to a recovery of costs in a profile over time that distorts the efficient use of the assets.[55]

Finally, the *Revenue and Pricing Principles* in the NGL also require that:

> *Regard should be had to the economic costs and risks of the potential for under and over investment by a service provider in a pipeline with which the service provider provides pipeline services.*
>
> *Regard should be had to the economic costs and risks of the potential for under and over utilisation of a pipeline with which a service provider provides pipeline services.*[56]

Our proposal directly addresses these requirements by:

- acknowledging the asymmetric risk our customers face in regards to investment incentives, whereby the consequence of underinvestment is worse than that of over investment
- ensuring our economic lives reflect our current and future customers value, and likely utilisation, of natural gas now and into the future and therefore seeks to profile our future investment recoveries to align with this, and thereby best support efficient utilisation of the distribution system in the future.

5.1.1 The importance of cost recovery

The provision of a reasonable expectation of cost recovery has been, and remains, a fundamental component of the building block approach to regulation in Australia, as well as in jurisdictions with comparable regulatory regimes (such as New Zealand and the UK). The reason for providing a reasonable assurance of cost recovery is that this is a necessary requirement for investment to take place given a competitive market for investment funds; recognising that the investments made are for the benefit of customers. This is particularly relevant in this case given that our proposal to change asset lives is only for new investments.

Providing a reasonable expectation of cost recovery, and so a normal return on investment, is not something that is unique to economic regulation and is also an expectation of workably competitive markets. In competitive markets, investment in a particular activity will only occur if a normal return on investment is expected – and, to the extent that returns fall below this level, net exit from the industry occurs and equilibrium is restored when new investment can expect to earn a normal return.

Achieving the cost recovery objective requires that the funds invested are recovered at a sufficiently fast rate so that investors recover all costs during the economic life of an asset. We believe that there is sufficient uncertainty about the future utilisation of pipeline assets (relative to current and past rates of utilisation) that the current standard asset life does not provide confidence that the cost recovery objective will be achieved. With this future constraint to cost recovery, maintaining an expectation of earning a normal return on investment requires recovering a greater proportion of the cost while the capacity to recover (i.e. customer utilisation) is higher. The implication being that the amount left to recover in the future is consistent with the expected future capacity to recover.

Shortening the asset life for new investment reduces the risk associated with the investments and preserve our efficient investment incentives. This is through lower risk of stranded assets on investment we haven't yet made. We note that regulators have accepted that this is a role for depreciation[57] and the NGR depreciation criteria are

[55] We note also that a further role for depreciation is to facilitate the prudent and efficient financing of the assets in question. However, in this case this is more about using depreciation as a tool to achieve a financeability (cashflow) objective provided for in rule 89(1)(e) rather than an objective for depreciation in and of itself. Therefore, we do not address financeability further here.

[56] NGL Part 3, division 2, clause 24(6) and (7).

[57] See for example the AER's decisions to shorten remaining asset lives on the Amadeus Gas Pipeline and for Envestra's (now Australian Gas Industry Group) metering assets as cited in AER, Attachment 5 – Regulatory depreciation | Final decision: Australian Gas Networks Access Arrangement 2016–21, section A.3.1 p.5-32, (May 2016).

designed in recognition of this principle. Compensation from other means has not been the preferred approach of the AER.[58]

Importantly, in order to preserve an expectation of full cost recovery, it is necessary that there be a bias towards early action. This is because should competition and technological changes lead to constrained prices and the stranding of assets, there will be a point where it is simply not possible to recover all of the capital associated with some investments no matter the intention of regulators. The implication being that there is very limited opportunity to rectify mistakes that are made early. One such mistake would be to discount the prospect of concerns about stranded assets materialising.

5.2 Consistency with the depreciation criteria

In this section we detail how the proposal for updating some of our standard economic lives is consistent with the depreciation criteria in the NGR.

The Rule 89 depreciation criteria state that the depreciation schedule should be designed:

> *a) so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services;*
>
> *b) so that each asset or group of assets is depreciated over the economic life of that asset or group of assets;*
>
> *(c) so as to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset, or a particular group of assets;*
>
> *(d) so that (subject to the rules about capital redundancy), an asset is depreciated only once (i.e. that the amount by which the asset is depreciated over its economic life does not exceed the value of the asset at the time of its inclusion in the capital base (adjusted, if the accounting method approved by the AER permits, for inflation)); and*
>
> *(e) so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs.*

We consider each of these criteria below, assessing the options of:

1. Do nothing | Retain current lives for existing and new assets (i.e. for remaining asset lives and standard asset lives)
2. Forward-looking change | Update the standard asset lives for the proposed asset categories shown in **Table 1–1**
3. Full change | Update the standards and remaining asset lives for the asset categories shown in **Table 1–1**.

5.2.1 Promoting efficient growth in the market for reference services

Rule 89(1)(a) provides that the depreciation schedule should be designed *"so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services".* This criterion is interpreted as requiring the consideration of whether the proposed profile of depreciation would accord with the use of the network such that depreciation is recovered at times when pipeline use is high and lower when the threat of lower use is high.

The primary aim of this criterion is to optimise the use of the assets over their economic life. The approach to the asset lives for new investment supports this objective, and at worst, will not be counter to its aims in the current

[58] The AER has stated that it does not see change to RAB inflation indexing or reliance on declining balance depreciation methods as having an outcome commensurate with the problem being considered. See AER, Attachment 5 – Regulatory depreciation | Final decision: Australian Gas Networks Access Arrangement 2016–21, sections A.3.2 and A.3.3, (May 2016).

context, not least because it can be reviewed in future as additional information on expected long-term utilisation becomes known.

We are not proposing to change the profile of depreciation in terms of adopting the diminishing value depreciation method or removing the RAB indexation approach. The AER has previously indicated that the profiling change associated with either of these is unlikely to be commensurate with the problem being addressed.[59]

Instead, our proposal simply means that future investments will have a shorter life, and indeed a life that is closer to the remaining life of our existing assets for these categories. This is shown in Table 5–1.

We consider this best promotes efficient growth in the market for reference services by not expecting customers past 2050 to value and therefore pay for these assets at the same rate as current customers. Our customers have supported the proposed profile of prices and so have thereby demonstrated a willingness to pay for the advancement of depreciation in order to avoid future price increases.

Table 5–1: Proposed changes to standard asset lives compared to equivalent remaining asset lives

Asset Class	Current standard asset lives (years)	Current remaining asset lives (years)	Proposed standard lives for new investment (years)
Trunks	80	35.9	50
High pressure mains	80	49.2	50
Meters/meter reading devices	20	8.2	15
Medium pressure mains	50	23.8	30
Medium pressure services	50	37.2	30

Option assessment against Rule 89(1)(a)

The *do nothing* option cannot be considered to be consistent with this principle given current knowledge about:

- declining average use per customer and pattern of greater electrification
- the 2050 net-zero carbon target
- challenges to domestic gas reserves identified in AEMO's GSOO
- the infancy of hydrogen as a viable complement and lack of rules framework to support its optimal adoption under the NGR.

The *forward-looking change* option best ensures that new investments are recovered over a period in which there is more reasonable certainty of the market for gas services being able to sustain the repayment of the costs for those services without unduly jeopardising demand for those services.

It recognises that remaining customers in the future are likely to be those that are constrained in their ability to switch technologies. This may be due to cost constraints or for practical reasons of substitutability (e.g. where gas is used as a feedstock to chemical or fertiliser production). We consider that in addition to the economic efficiency justification this raises an issue of fairness. That is, not adjusting depreciation may see those customers that are less able to afford price increases having price increases imposed on them with little capacity to respond to those price increases.

The *full change* option would equally address this criterion, but at a much greater near-term price and thus market impact. We are not yet convinced that this is necessary on available information. It should instead be assessed again at the next AA review when emissions policy and hydrogen viability are clearer.

[59] See AER, Attachment 5 – Regulatory depreciation | Final decision: Australian Gas Networks Access Arrangement 2016–21, sections A.3.2 and A.3.3, (May 2016).

5.2.2 Assets are only depreciated once

Our proposal to retain straight line depreciation, and administer this through the inflation indexed RAB using the AER's RAB roll forward model and PTRM means this criterion is complied with.

Option assessment against Rule 89(1)(d)

Our proposal and all options assessed meet this criterion.

5.2.3 Meeting our cash flow needs

Option assessment against Rule 89(1)(e)

Our proposal is based on sufficient cashflow over a declining economic life expectancy rather than marking up a cashflow shortfall driven by other factors. In this sense:

- The *do nothing* option would not be consistent with this criterion because the economic life of new assets has changed.
- The *forward-looking* change option ensures our future investment meets this criterion.
- The *full* change option is not yet proven to be a proportionate response to the problem being addressed. While for metering assets, it seems sensible, we currently consider the remaining asset lives for the other pipeline categories (shown in Table 5–1) are sufficiently close to the proposed amended lives that they do not presently need changing.

Attachment A
Customer engagement materials on asset lives

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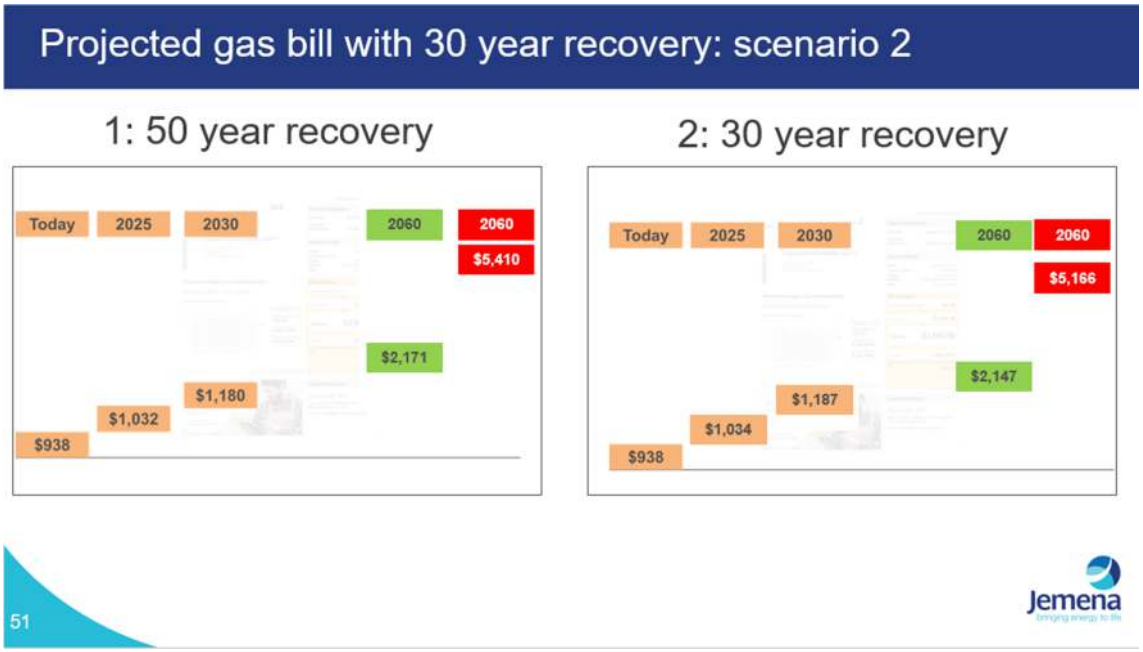
A1. Price impacts of changes to asset lives

The figure below formed part of the materials discussed with customers on the proposal to change asset lives for new investment.

Figure A1–1: Summary of engagement materials



(2) Scenario 1 is to leave asset lives unchanged. Scenario 2 is to change asset lives. For simplicity, the two options were termed '50 year recovery' and '30 year recovery'

(3) Green cells show the retail bill if the gas network is 'thriving', which means that it continues to operate as it has historically, with no decline in customer numbers or consumption due to decarbonisation. Red cells show the bills if the gas network is 'declining' due to a transition away from natural gas as a result of decarbonisation.

(4) Bill impacts assume that the only change is due to the change in asset lives, ie. on an all else equal basis.

The workings underpinning this analysis are provided in an excel model, which accompanies this attachment (Attachment 7.10 – Attachment A support).

Attachment B
Impact of deferring the change to asset lives

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B1. Impact of deferring the change to asset lives

We evaluated three options to consider how our proposal of changing new asset lives now would compare against if we were to delay this proposal by 5 and 10 years. We have considered the impact of these options on our depreciation building block costs and the resulting impact on our share of customers' bills:

- **Option 1 – Act now and lower new asset lives** – under this option we lower the asset lives for new assets from RY21 as shown in Table 1–1, a further reduction in these new asset lives by five years in RY26 and by 10 years from RY41 onwards.
- **Option 2 – Defer by five years** – under this option there is no change to lives for new assets until RY26 onwards. This means that asset lives under this option are the same as option 1 from RY26 onwards but higher in RY21-25 period.
- **Option 3 – Defer by 10 years** – under this option, asset lives remain unchanged during the RY21-30 period, then we lower the asset lives for new assets from RY31 onwards. This means that asset lives under this option are the same as option 1 from RY31 onwards, but higher in RY21-30 period.

Table B1–1 summarises the asset lives under the three options.

Table B1–1: New asset life options (years)

Assets Lives	RY21 to RY25		RY26 to RY30		RY31 to RY40	RY41 to RY60
	Option 1	Options 2 & 3	Options 1 & 2	Options 3	All Options	All Options
Trunks	50	80	45	80	20	10
High pressure mains	50	80	45	80	20	10
Meters/meter reading devices	15	20	15	20	15	10
Medium pressure mains	30	50	25	50	20	10
Medium pressure services	30	50	25	50	20	10

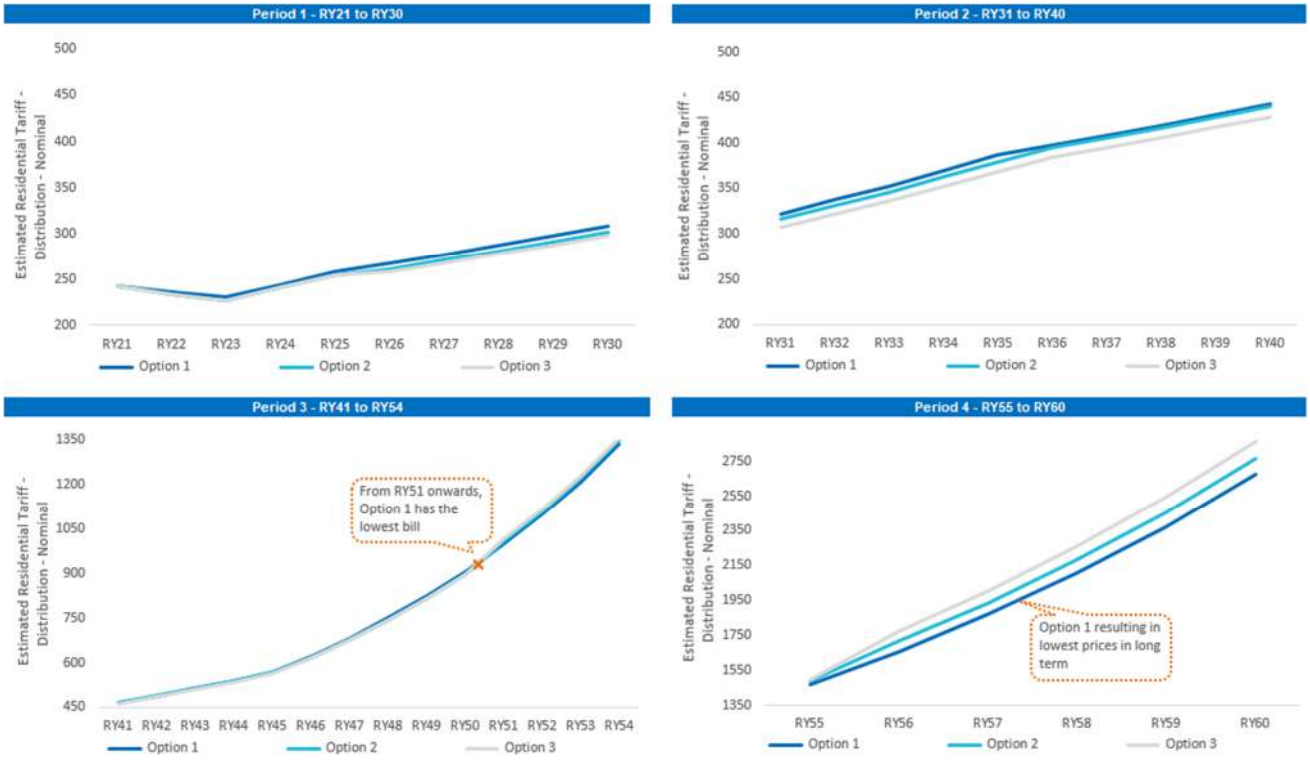
For the purposes of this analysis we assumed that the demand for gas consumption will decline over the time horizon due to decarbonisation initiatives and substitution by electrical products. These assumptions are provided below in Table B1–2 and applied to all three options.

Table B1–2: Volume forecasts (%)

	RY26 to RY30	RY31 to RY35	RY36 to RY40	RY41 to RY45	RY46 to RY60
Volume forecast	1.00%	-1.35%	-2.7%	-5.4%	-10.8%

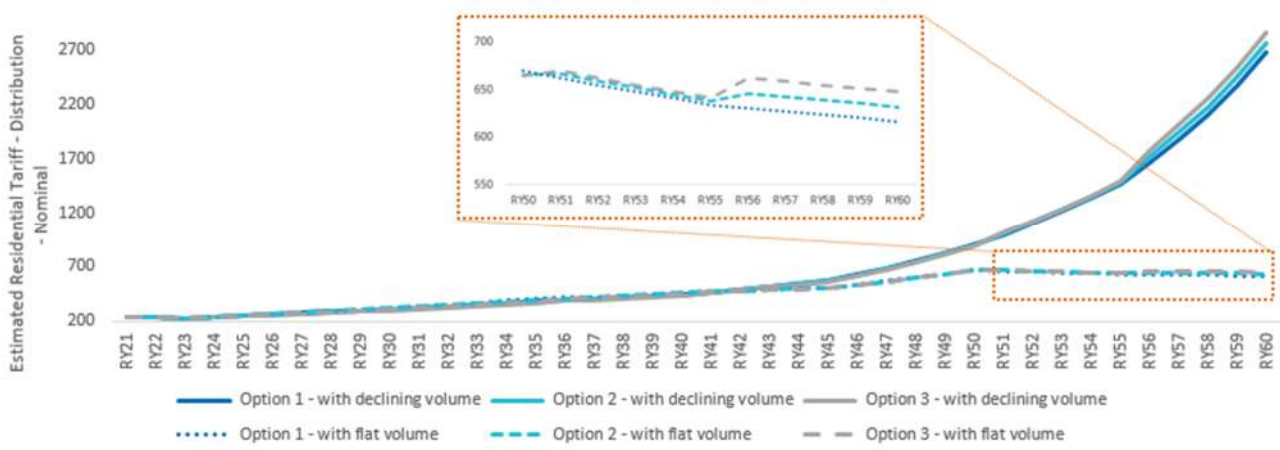
The impact of the three options on residential network charges, based on the above volume forecasts, is provided below in Figure B1–1. It can be see that while there is a small increase in annual residential bill of $3 in RY21-25 under option 1 this mitigates the average annual bill increase of $43 and $86 under options 2 and 3 respectively in the long term (from RY51 onwards).

Figure B1–1: Impact on typical 15 GJ residential customer network bill



We also considered an alternative scenario where we compared these options against a flat volume forecasts, that is, the volumes remain at current levels in all future years. This is a relevant counterfactual because if hydrogen tests are successful and JGN is able to maintain the current volumes over the longer term then we need to consider the impact of this scenario on the three options. This analysis is presented in Figure 5–1 below

Figure 5–1: Impact on typical 15 GJ residential customer network bill



The comparison shows that all options would result in flatter residential bill profiles over the long term under a flat volume scenario, with option 1 resulting in the lowest long term residential bill. Under this scenario the residential bill under option 1 is on average $10 lower than option 2 and $19 lower than option 3 from RY51 onwards.