AusNet

Access Arrangement Information

Gas access arrangement review 2024-28

Addendum to proposal – 2 September 2022

1. Overview

In July, the Victorian Government released their Gas Substitution Roadmap (the Roadmap). The document sets out a long-term decarbonisation plan for the gas sector in Victoria.

Collectively, these policies will clearly materially affect the demand for gas relative to the assumptions underpinning the June Proposal through increasing the incentives to swap gas appliances for electric appliances in existing homes and making it more unattractive to connect to gas or install a full suite of gas appliances in new homes.

In consultation with the AER and stakeholders we have agreed that an amendment to our June Proposal as early in the review process as possible is more constructive and transparent than waiting to respond to respond to a Draft Decision made on outdated information. By placing our revised forecasts, modelling and assumptions on record, stakeholder engagement can be undertaken on a solid factual basis.

The changes we have made materially affect components of the original proposal in the following ways:

- Energy demand and customer forecasts fall
- Gross and net new connections capex is reduced, and associated customer contributions rise
- Accelerated depreciation has been increased to account for potential higher inflation forecasts and increased stranding risk, and
- Tariffs have been increased as costs are shared amongst a smaller customer base and lower energy demand.

Nonetheless, as for our original Proposal, we have balanced the adjustments made to account for the increased stranding risk with the importance of maintaining affordability. Our amended Proposal results in a small real price increase for customers of around 5.5% on average over the period. As per customer consumption is forecast to continue to fall, the average bill in the new period will remain 2% lower than the current period in real terms. After these changes, AusNet should remain the lowest cost distribution network in Victoria.

This submission, including all supporting documents, collectively the 'Addendum', sets out necessary revisions to our regulatory proposal for the 2024-2028 access arrangement period. That is, the regulatory period commencing 1 July 2023 and ending 30 June 2028.

Our Addendum:

- Updates for the impact of the Victorian government's Gas Substitution Roadmap (the Roadmap). The key impacts flow from updated demand forecasts and the consequential impacts that this has on our proposal, and
- Updates for the impact of the AER's draft decision on the 6-month period. We have largely accepted the AER's Draft Decision and those impacts are included in this Addendum. We have tried to clearly disaggregate the impacts of accepting the AER's decision on the 6-month period, from the impacts of the Gas Substitution Roadmap to try and avoid confusion.

All information provided in this submission is in real 2023 prices unless stated otherwise.

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2. Amending Submission

2.1. Introduction

In July, the Victorian Government released their Gas Substitution Roadmap (the Roadmap). The document sets out a long-term decarbonisation plan for the gas sector in Victoria.

Our Access Arrangement Proposal lodged in June deliberately did not address any potential policy effects of the Roadmap due to uncertainty over what policies would be included and the timing of its release. Now that it has been released, our assessment is that the Roadmap outlines several key policies that change assumptions that underpinned our original Proposal.

In the short term, decarbonisation policies are focused on incentivising the electrification of the domestic heating sector. Longer-term, the focus will shift to decarbonising difficult to abate sectors that use natural gas for feedstock or high heat application. By this time, it is expected that multiple options will be available including hydrogen, biogas, carbon offsets and new high heat technology that can utilise renewable electricity.

In addition, we think it is likely that the reserve bank will materially increase its forecast of inflation over the upcoming access arrangement period. One of the consequences of this is to substantially reduce the amount of depreciation contained in the Proposal because under the building block regime the value of the existing regulatory asset base is indexed by inflation and netted of the depreciation component of our revenues. This would substantially unwind our stated intent to reduce the Regulatory Asset Base (RAB) due to the increased stranding risk of the gas network, a concern largely confirmed by the Roadmap. Therefore, we have revised our accelerated depreciation case to restore the total depreciation allowance to the amount originally proposed and account for the increased stranding risk arising from the Roadmap policies.

In consultation with the AER and stakeholders we have agreed that an amendment to our June Proposal as early in the review process as possible is more constructive and transparent than waiting to respond to respond to a Draft Decision made on outdated information. By placing our revised forecasts, modelling and assumptions on record, stakeholder engagement can be undertaken on a solid factual basis.

This Addendum document formally modifies our Proposal under rule 42 of the National Gas Rules (NGR) to incorporate the effects of changed assumptions and higher inflation.

The remainder of the document sets out:

- how the Roadmap policies will impact the future of gas and the upcoming access arrangement
- potential effects of higher inflation forecasts, and
- the specific changes made to components of the Proposal affected by this new information, including demand and connections, capex and opex and depreciation.

2.2. The Roadmap

The Roadmap sets out the Victorian Government's long-term plans to decarbonise the gas supply industry in Victoria. It describes how a combination of energy efficiency, electrification, hydrogen and biogas will be used to cut carbon emissions while keeping bills down.

In the near to medium term, the Roadmap promotes electrification of existing and new housing as the primary method of abatement in the sector. Longer term investments are made in developing renewable gas options for the later decarbonisation of hard to abate sectors in industry also providing additional optionality for renewable domestic energy solutions. The Roadmap states:

> "It is particularly critical for Victoria to proactively prepare for and manage the shift to renewables because we have the highest use of gas for heating, cooking and hot water in Australia. This transition will involve

guiding an orderly decarbonisation of the gas system over the long term. The Roadmap represents the start of this journey.

Decarbonising the gas sector requires immediate investment in the existing technologies that are available now – energy efficiency and renewable electricity – and in the new technologies that can play an increasingly larger role in the future, such as hydrogen and biomethane." [1]

Nevertheless, while the document supports and values optionality, the intent to support electrification as the main decarbonisation pathway is clear. The Roadmap states:

"Electrification reduces demand for fossil gas, freeing up gas for industrial users to secure it on more affordable terms.

The modelling shows that widespread electrification does not materially increase energy costs for users that do not switch, as increases in gas network tariffs (driven by declining volumes) are largely offset by reduced price pressure in the wholesale gas market. Effective and efficient regulation can help minimise network costs."[2]

Three major policy changes are set out, that will encourage electrification of households, reproduced from the Roadmap below:

"At the centre of the transition to efficient, electric homes, is the Victorian Energy Upgrades (VEU) program, which will evolve and expand in 2022. The VEU program has provided households and businesses with discounted energy efficient products for more than a decade. The program will now be strengthened to support the shift to electrification. Government will develop new incentives through the VEU program to help replace gas water heating and space heating with efficient, low-emissions electric equipment while phasing out incentives for all residential gas products by late 2023. The program will also provide new electrification options and support for business, while continuing to help those businesses who can't shift off gas to make their operations more efficient.

…

Government will implement changes in 2022 to the planning system to remove barriers to all-electric homes and new developments and support the take up of efficient electric appliances. Amendments to the Victoria Planning Provisions will allow developers and homeowners to choose all-electric new homes.

Victoria is also committed to raising energy efficiency standards for new homes under changes to the National Construction Code (NCC). Proposed changes include increasing building efficiency from 6 to 7 stars and strengthening standards for fixed appliances such as heating and cooling, hot water and lighting. At the same time, the Plumbing Regulations 2018 will be aligned to ensure consistency with the changes to the NCC 2022."[3]

These policies are described in more detail below largely taken verbatim from the Roadmap. [4]

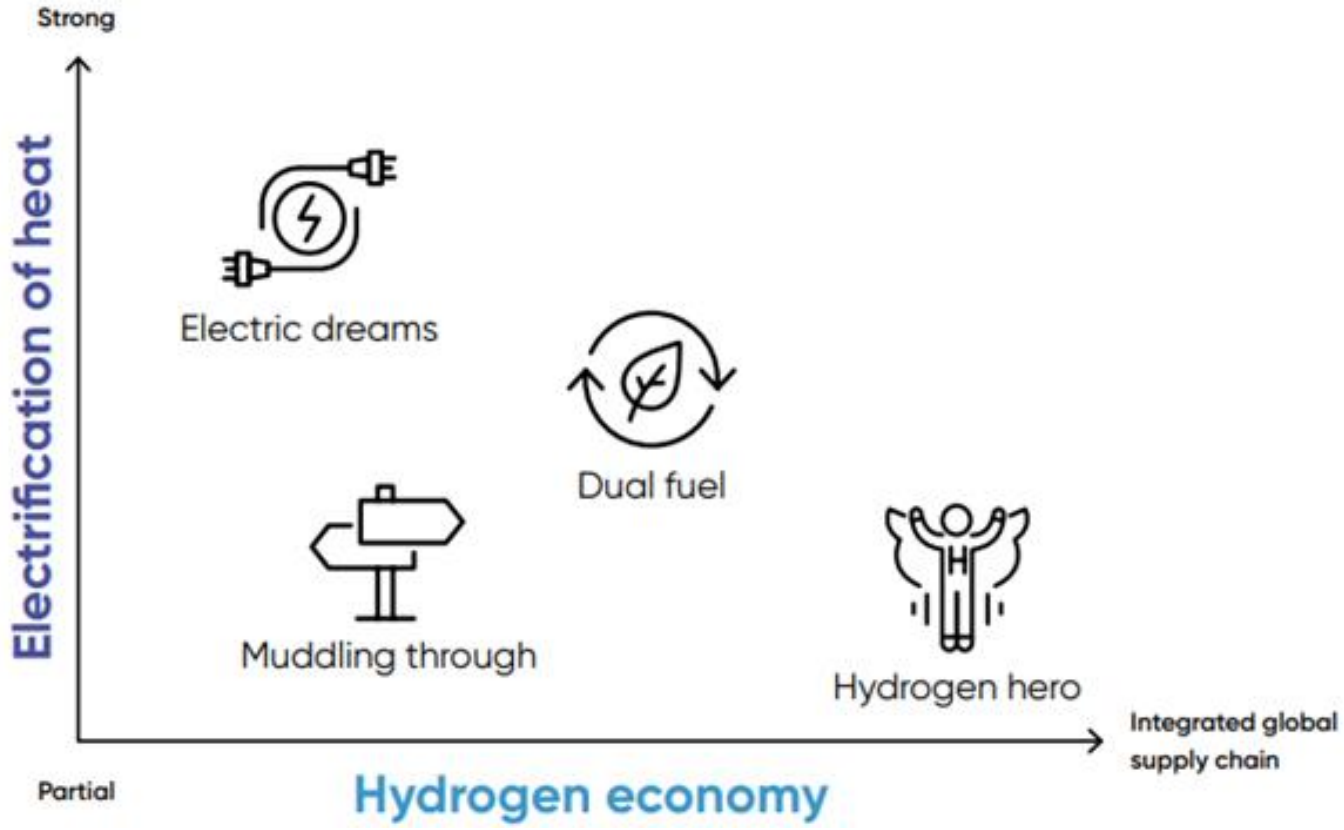
The Victorian Government has indicated it will continue to engage and collaborate with the community and industry during the gas sector's transition to net zero emissions, including on a Roadmap update report in 2023.

2.2.1. Future of gas scenarios

The original Proposal set out our approach and actions to deal with the uncertain future role of gas as the Victorian economy decarbonised. The proposed actions, particularly the proposed accelerated depreciation, were supported by an analysis of four possible future scenarios for the gas sector, co-designed with industry experts. This approach allowed stakeholders to understand what issues and risks we believed needed to be addressed in reaching a judgement on the appropriate profile of capital recovery in the face of uncertainty and provided transparency on potential future price paths. The diagram below provides a profile of the four scenarios used.

[1] Page 7, Gas Substitution Roadmap
[2] Page 12, ibid
[3] Page 10, ibid
[4] Page 24-25, ibid

Figure 2.1: Future of Gas Scenarios



As described above, the Roadmap provides more certainty around the primacy of the electrification pathway to decarbonise. We have modelled two additional scenario which reflect different views of the possible impact of the Roadmap and the outcomes of these scenarios have some similarities to either an Electric Dreams or a Dual Fuel scenario. We consider this makes a scenario somewhere between the Dual Fuel and Electric Dreams (complete electrification of domestic loads) the most probable outcome and that Hydrogen Hero and Muddling Through are no longer likely outcomes.

The modelling and analysis are described in more detail in Section 3. In summary, a higher weighting of pessimistic scenarios materially strengthens the case for the accelerated depreciation proposed.

2.2.2. Key Policy Changes

2.2.2.1. Changes to the Victorian Energy Upgrades (VEU) program

The VEU is a long-standing energy efficiency program that has been focused on replacing older inefficient appliances, equipment and lighting with modern energy efficient equivalents. The program has been technology neutral, that is applicable to both gas and electricity. The Roadmap announces changes to the VEU to develop new incentives to help replace gas water heating and space heating with efficient, low-emissions electric equipment while phasing out incentives for all residential gas products by late 2023. The program will also provide new electrification options and support for business, while continuing to help those businesses who can't shift off gas to make their operations more efficient. The Government will shortly be releasing discussion papers regarding these changes and will work with industry to implement these changes.

2.2.2.2. Changes to the Victorian Planning Provisions

The Victorian Government's engagement with the development and building industry revealed a widespread misconception that connection to gas reticulation where available was compulsory for various energy requirements. This was consistent with what AusNet heard through our own pre-lodgement engagement processes. In response, the Government will make clear that gas connection is not mandated in new housing estates through changing the

Victoria Planning Provisions, which give gas distribution businesses a formal approval power for new residential subdivisions, to remove the effective mandate to connect to gas.

2.2.2.3. Introduction of new Efficiency Standards for new housing

The Victorian Government is proposing stronger efficiency standards for new homes to be introduced through the 2022 National Construction Code (NCC 2022). This includes a move to a 7 star efficiency standard for building design and construction and new efficiency requirements for fixed appliances such as heating and cooling, hot water systems and lighting, to come into effect. Victoria will also adopt the national Plumbing Regulations 2018 to ensure consistency with the changes to the NCC 2022, and to remove barriers to the installation of efficient electric hot water systems, helping households to capture further benefits from investing in solar panels, and supporting those who choose all-electric new homes. At the end of August, State and Territory Building Ministers announced the finalised NCC 2022 would be published on 1 October 2022 with the standard to coming into effect in most States (including Victoria) on 1 May 2023. Transitional periods would extend to 1 October 2023. This is consistent with our initial expectations of a 12-month transition period from September 2022.

Under NCC 2022, new homeowners and developers will be able to choose a mix of fixed appliances that suit them (including heating, cooling and hot water) provided they meet the new whole of home energy budget. The whole of home energy budget provides for installation of on-site energy generation and storage (e.g. solar panels) and will be supported by new assessment tools through the Nationwide House Energy Rating Scheme (NatHERS).

Minimum energy efficiency standards for rental homes are also being introduced to cut bills and improve comfort for renters. A new heating minimum standard took effect in March 2021, with standards for ceiling insulation and draught proofing proposed for future consideration.

The tools supporting the introduction of NatHERS have been released in beta form for industry feedback. Our analysis agrees with general industry consensus that for many house configurations the installation of gas appliances for heating and hot water cannot meet the energy rating requirements without the installation of a PV system.

2.2.3. Effects of these policies on our Proposal

Collectively, these policies will clearly materially affect the demand for gas relative to the assumptions underpinning the June Proposal through increasing the incentives to swap gas appliances for electricity appliances in existing homes and making it more unattractive to connect to gas or install a full suite of gas appliances in new homes.

Specifically, the changes to the Victorian Energy Upgrades program will affect the demand from our existing customer base by encouraging the replacement of gas appliances with electrical appliances. The changes to planning arrangements and the introduction of the 7-star standard for new home construction will impact on the number of future gas connections and the appliance mix and consequent demand where gas connections continue.

The changes to customer connections and demand forecasts materially affect the following components of the original proposal:

- Energy demand and customer forecasts fall
- Gross and net new connections capex is reduced and associated customer contributions rise, and
- Tariffs will rise as costs are shared amongst a smaller customer base and lower energy demand

There are minor impacts on:

- Augmentation capex
- Opex growth adjustments

Other aspects of our capex proposal are not materially impacted by these changes because they are safety or compliance driven. Likewise base opex costs are not impacted.

These changes are explained in more detail in sections 4, 5 and 6.

2.3. Inflation

Since our Proposal was lodged in June, inflation expectations have continued to rise. The regulatory regime ensures the real value of the RAB is protected by indexing the RAB by inflation. To ensure that the correct real return is earned by the regulated network, the building block methodology used to set our revenue forecasts offsets the value of the forecast indexation against the depreciation cashflows. The result is referred to as regulatory depreciation.

Higher inflation reduces regulatory depreciation and revenues while leading to higher RAB values in the future. This is the opposite of what we have tried to achieve with our original accelerated depreciation proposal. A 0.25% increase in the inflation forecast decreases bills by ~2.2% while increasing the RAB by $23m.

Therefore, while we have not updated the inflation forecast for this Addendum, we believe that higher inflation forecasts will likely create additional headroom for accelerated depreciation whilst maintaining an acceptable price path. This has been one of the important considerations underlying our higher accelerated depreciation case outlined in the Future of Gas discussion in Section 3 below.

2.4. Evidence Gathering

2.4.1. Our approach

The Roadmap initiatives aim to influence the decisions of the Victorian development and home building industries, their customers, and owners of existing residential dwellings. While the intent of the policies – encouraging electrification of new and existing households – is easily understood, their actual impact on new and existing customer demand is much less obvious and not easily modelled without making some assumptions.

Understanding directly from the decision makers what will influence and change decisions on gas reticulation and gas connections has been a critical input to helping us form these assumptions. As such, engaging with these decision-makers to understand how the initiatives impact their decision-making has been the focus of our research and engagement activities undertaken since lodgement.

In response to the Victorian government's clear encouragement for electrification of the residential gas load, the critical areas we sought insights on to inform our demand forecasts in section 4 were:

- whether the sentiment of customers and other key stakeholders in the supply chain towards gas has shifted substantially
- what proportion of new estates will likely reticulate gas infrastructure in the next regulatory period
- what proportion of new homes will connect to our gas network in the next regulatory period
- what the appliance mix in new homes might be – particularly whether they will be using electric or gas heating, hot water and cooking appliances.

There are 3 key groups of decision-makers who influence the future growth of gas connections and demand on our network, and who we put particular effort into engaging with:

- developers of new estates (and their consultants) account for 89% of new homes connecting to our network. They make decisions on what types of infrastructure are installed in the estate, including whether the estate will be "dual fuel" (with gas and electricity) or all-electric. This initial decision by developers precedes the decisions on appliance mix in the home. If gas is not reticulated by a developer, new homes in that estate will not connect to our network
- for new homes built by volume builders, which account for the vast majority of connections to our network and almost all new homes in estates, key decisions are made by:
    - home buyers – their evolving preferences indirectly influence decisions made by the developers and builders about their product offerings. Home buyers are also ultimately responsible for choosing the appliances in their home, but where a volume builder is used, as is the case in most estates, this choice is very strongly guided by the builder, and

  - the volume builders, who are responsible for meeting building standards and appliance mix offerings and work closely with energy assessors to ensure they are compliant

- for custom new home builds, including in-fill, knock down/rebuilds and renovations, which account for 11% of connections, home buyers/owners are the key decision-makers on gas connections and appliance selection and disconnections.

2.4.2. Estate developers

We have undertaken significant engagement with the greenfield development industry – the key decision-makers on whether gas is reticulated at a new estate – to understand their connection intentions.

Our engagement channels include:

- **AusNet Quarterly Developer Consultative Committee (DCC)** – The agenda for our July 2022 meeting included an item on the Victorian Gas Substitution Roadmap to test developers' awareness of it and to help inform the developer survey we undertook. Our DCC is held quarterly and comprises approximately 15 developers and representatives from the Urban Development Institute of Australia (UDIA) and the Association of Land Development Engineers (ALDE)
- **Developer survey** – We surveyed 27 developers from across Victoria (all 3 gas network distribution areas) on their gas reticulation intentions and the factors that influence them. The survey was sent to approximately 200 developers and their consultants on our gas and electricity distribution networks, which cover most of the key growth areas in metropolitan Melbourne and key regional centres.

  Our gas and electricity projects teams provided the list of key contacts they engage with for estate connections to whom the survey was sent. This list was not filtered or screened, and we believe it to be a very reliable representative sample of the key decision-makers in the Victorian development industry. More than one-in-8 completed the survey, representing over 24,000 lots (noting that some lots will be double-counted by developers and their consultants). There was a wide range of organisations who responded, including very large developers and consultancies to boutique companies.

  A confidential copy of the survey data has been included as a supporting document.
- **Meeting with the Urban Development Institute of Australia (UDIA)** – We met with a senior representative from the UDIA to understand their views on the Roadmap and whole-of-home energy budget, what they are hearing from their members, and to clarify some questions we had following the survey and validate our interpretation of the data collected.
- **Developer Industry Forum** – more than 135 developers and consultants (and upwards of 155 people in total) attended a forum we held for the development industry on the future of gas in new estates. In this forum – for which the topic and agenda items were set primarily by developers – we talked about the operating environment for gas (including key policy/standard changes and positions), played back what we have heard from developers and other parts of the supply chain for information and validation, answered developers' questions (about capital contribution calculations, what electrification means for the electricity network, and developing all-electric vs dual-fuel estates), and renewable gases. The agenda included 2 guest presentations from AGIG on renewable gases and the Gas Appliance Manufacturers Association of Australia (GAMAA) on the incoming whole-of-home energy budget and how it might be met by different mixes of appliances in differently sized homes.

  The same group who were sent the developer survey were invited to the Forum, with an acceptance rate of approximately 3-in-4.

  The slide pack and Q&A document from this session will be posted on the AusNet website in the very near future.
- **Meeting with the Association of Land Development Engineers (ALDE)** – We met with a senior ALDE representative to understand how their members (developers' consultants) are interpreting the impacts of the Roadmap and whole-of-home energy budget, what they are hearing from their members, and to clarify some questions we had following the survey and validate our interpretation of the data collected.
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2.4.3. Home Builders

We spoke with a range of representatives from within the home building industry, covering both the custom/boutique and volume building perspectives.

Our engagement channels included:

- Interactions with the **Housing Industry Association (HIA)** via a meeting, phone calls and emails to help us understand the incoming changes for the home building sector and how they are responding to them. The HIA also shared insights from members that they had engaged with
- Interactions with **Design Matters**, an industry association for home building assessors, who shared preliminary insights and connected us with members
- Meetings with **2 home building assessors,** one of which was heavily involved in the development of the NCC 2022 update and works closely with volume builders, and one who works in the custom-building space. Assessors are key enforcers of home building standards
- Interactions with **Design Matters**, an industry association for home building assessors, who shared preliminary insights and connected us with members
- Interactions with the **Gas Appliance Manufacturers Association of Australia (GAMAA)** President and Vice President via a meeting, phone calls and emails. GAMAA representatives are extremely well-connected to the home building industry (a key customer group of appliance manufacturers) and conversations around future appliance mixes. GAMAA and GAMAA members have also modelled the costs of dual fuel vs all-electric homes, some of which was shared at the Developer Industry Forum
- **Desk-based research** to understand how the home building industry is responding and how product offerings are changing. This included reviewing news media, builders' websites and promotional materials, and posts and commentary on LinkedIn.

2.4.4. Customers

We obtained the views of end-use customers and home buyers via:

- Our **Energy Sentiments Survey**, which surveys a broadly representative sample of AusNet customers' views on a range of electricity and gas issues, including attitudes toward gas and switching intentions. The Energy Sentiments Survey has been conducted every 6 months since April 2021
- The **research commissioned by the Victorian Government** to inform the Gas Substitution Roadmap. This research is cited in the Roadmap and is publicly available
- **Other stakeholders in the supply chain**, many of whom engage directly with customers and home buyers, who shared insights into how customers are thinking and feeling and key trends with us.

2.4.5. Intelligence-sharing with AGIG

In addition to the evidence-gathering we undertook, AGIG was doing likewise in parallel, in particular meeting with large developers and home builders. We shared intelligence with AGIG on what each business was hearing throughout the preparation of this Addendum.

2.4.6. Further Engagement

Engagement will continue post this Addendum being lodged.

2.5. How we have used evidence

AusNet has approached its modelling using both bottom-up and top-down methodologies, the latter being used as a reasonableness check on the bottom-up results. Significant amounts of qualitative evidence have been gathered bolstered by what quantitative evidence is available. Assumptions used for modelling, nonetheless, rest on the exercise

of informed judgement. In coming to these judgements, set out in detail in the demand forecasting section (section 4), we have been informed by the feedback below

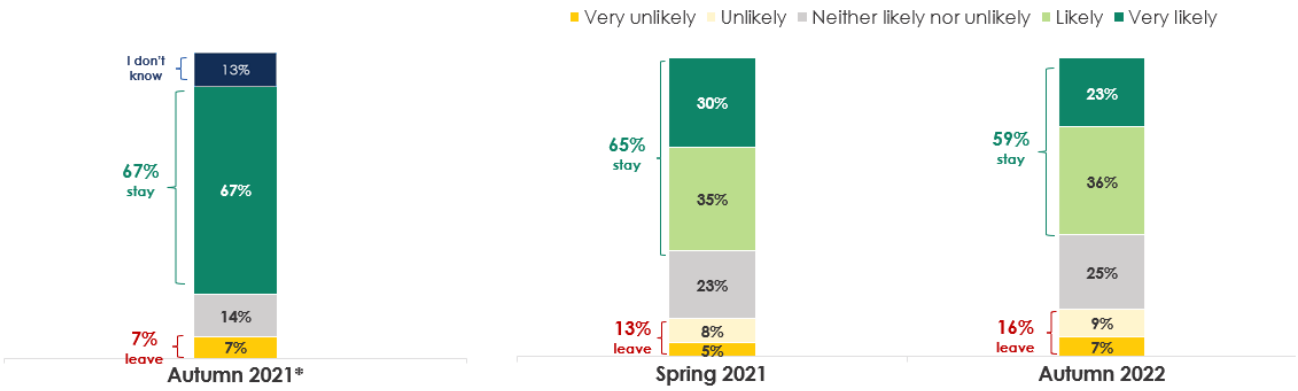
2.5.1. Customer feedback

What is clear is that there are fundamental shifts in customer attitudes to gas that are becoming apparent in our data, to key parts of the supply chain, and in broader press narratives.

Our own customer research – via the 6-monthly Energy Sentiments Survey – has shown a significant shift in the number of customers that are contemplating conversion to all electric homes, with this number more than doubling in the past 12 months. This data in shown in Figure 2.2below. Over the past year, the number of customers who can foresee themselves still using the gas connection to their home in 10 years has fallen by 8% (from 67% to 59%), with fewer than 1-in-4 customers now thinking it "very likely" that they will still be using their gas connection in 10 years' time. A further 16% think it unlikely they'll be using their gas connection (7% "*very unlikely*" and 9% "*unlikely*"), with this proportion more than doubling in the last year. Our own research showed similar data to Energy Consumers Australia's national behaviour survey of energy consumers last year, and AGIG's tracking research also shows similar trends.

At face value, if these intentions are acted upon, it implies the expected abolishment rate of the sunk customer base would average 1.6% per year.

Figure 2.2. ***Intention of home-owners and owners of small business premises on the AusNet gas networks to continue using their gas connection. Question: In 10 years' time, how likely are you to be using the gas connection at your house/business?***



* NB A different version of this question was asked in Autumn 2021 but comparable data is shown

n = various (195 to 366)

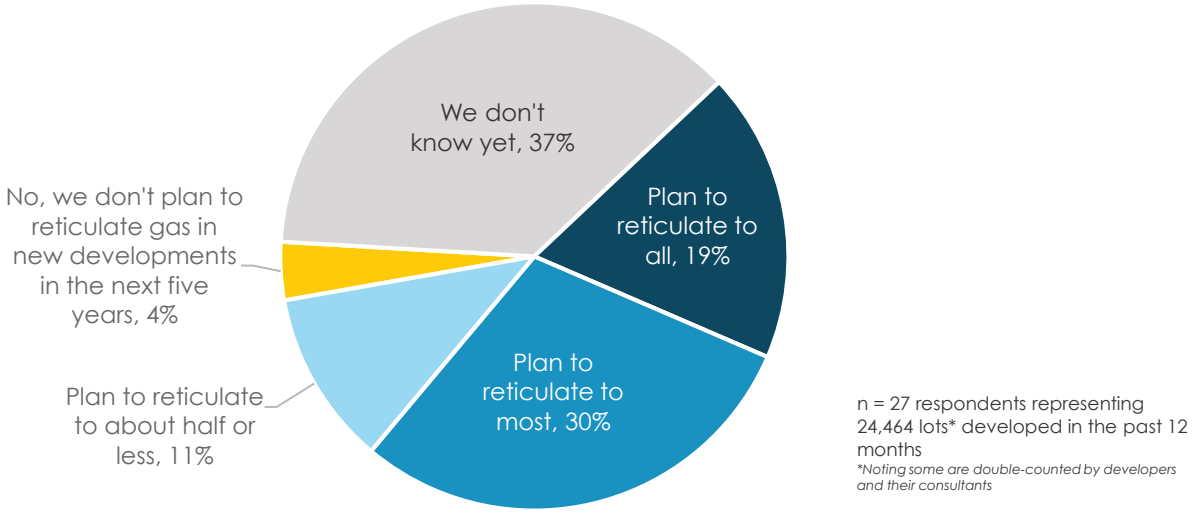
Source: AusNet Energy Sentiments Survey

2.5.2. Developer feedback

There is considerable variation among developers' intentions to continue reticulating gas to new estates. The survey data, combined with the qualitative additional comments to the survey and our discussions with the development industry, paint a very nuanced picture about the future of gas reticulation in new estates.

A survey of developers and consultants representing over 20,000 lots, shown as Figure 2.3 below, clearly shows considerable uncertainty around the 5-year outlook for gas reticulation in new estates.

Figure 2.3. ***Intention of developers and consultants to reticulate gas in new estates in the next 5 years***



Source: AusNet Developer Survey, August 2022

Only 19% plan to reticulate gas to all new estates. Historically 80-90% of estates have connected to gas, and almost all have connected where it is practical to do so. It is our sense that, if this question were asked 12-24 months ago, the "*plan to reticulate to all*" and "*plan to reticulate to most*" categories would have accounted for close to 100% of this graph rather than the 49% now.

With respect to the speed of any transition, developers have told us that for developments underway with permits, most still plan to reticulate gas in the near-term. There are some differences in how these permits are approached, with some developers intending to follow the energy mix proposed in the overarching permit for the development front (rough estimate of 10-15 years between permit being granted and homes connecting), and others addressing energy mix on a precinct-by-precinct basis (roughly 3 years from permit to homes connecting).

For developments that do not yet have permits, developers report significant uncertainty around their intentions to install reticulated gas infrastructure. Some developers told us that they will be pushing to not install gas, while some others said they currently plan to continue connecting gas until told otherwise by government or home-buyers.

A nuanced picture emerged from the detailed comments provided (including in the survey). Many developers and their consultants see significant hurdles arising to the use of gas in the medium to long-term. Hurdles cited include:

- rising difficulties obtaining financing and permits to connect to gas under increasingly strong environmental sustainability (ESD) obligations
- the slow speed of renewable gas development. Some wonder whether gas infrastructure should be installed just in case it's needed in the future (due to the much lower cost of installing it before the estate is fully developed compared to retrofitting the estate later).
- capital contributions costs for gas. While there is low understanding of the relative costs of dual-fuel vs all-electric estates, developers report that this cost comparison influences their decisions regarding whether to reticulate gas
- local and state government positions that may be announced in the future are creating uncertainties for them, and
- that gas networks being determining referral bodies (i.e. needing to sign-off on new developments whether they include gas or not) is causing time delays and adding to costs (noting this is likely to be changed by the Victorian Government).

So, while developers have provided relatively consistent feedback that existing development fronts committed to connect to gas will be honoured, getting new permits and funding for gas connected estates will become increasingly difficult. We understand some consultants have started factoring these considerations into project feasibility studies.

There is also view, particularly among smaller developers and home builders, that all-electric homes are starting to be considered the easy option, due to the additional complexities and uncertainty around the future of gas.

This is confirmed by other evidence. On 21 July 2022, 24 Victorian councils, under the banner of the Council Alliance for a Sustainable Built Environment, announced that they submitted a Planning Scheme Amendment (PSA) to the Department of Environment, Land, Water and Planning (DELWP). The PSA seeks to change the planning requirements

for those councils to ensure new developments are designed to be climate resilient and sustainable. A key component of the PSA is support for electrification (shifting from gas connections) and greater Solar PV on buildings.

Likewise, a growing number of financial institutions are offering interest rate discounts to new homeowners who go fully electric, and increasing pressure from investors and the general public is leading financial institutions to more carefully consider the environmental impacts of projects they fund.

2.5.3. Home builder feedback

Evidence gathered from the building sector showed a sharp rise in builders' considerations of all-electric homes. This sector is very familiar with the potential consequences of the 7 star standard and extensive work is underway preparing compliant plans and options. Home builders are used to sustainability and liveability requirements being ratcheted up, and some in this industry group commented that they expect a further increase to 8 stars in the next update to the NCC in 3 years' time.

While historically it has been very difficult to buy an all-electric volume home in Victoria, home builders are starting to advertise all-electric options and some, including Henley Homes & Arden Homes, are providing all-electric options only. At the volume builder end, Stockland has offered an all-electric estate at Knox in Melbourne's south-eastern growth corridor.

It is widely agreed in the industry that building homes with gas heating and/or hot water will become much more difficult following the introduction of the whole-of-home energy budget and 7 star rating schemes, and only practical for larger homes that have enough roof space to support significant solar PV assets (and impractical for apartments, units and small homes).

There is strong sentiment among many that home builders (and many home buyers) are motivated by installation cost, and that running costs are unimportant or of secondary importance. This prioritisation may help the case for gas appliances in the near-term but if consumer awareness and concern about running continues to rise and if consumers are installing significant amounts of solar that they cannot absorb in-home or export to the grid, this may quickly change.

This agrees with our interpretation of the appliance choice outcomes that fall out of the NatHERS appliance energy budget models. Our interpretation has been endorsed by builders, appliance manufacturers and energy assessors who will apply the models and certify standard plans.

Nonetheless, there is still a strong sentiment among many that home builders (and many home buyers) are motivated by installation cost, and that running costs are unimportant or of secondary importance. This prioritisation may help the case for gas appliances in the near-term but if consumer awareness and concern about running costs continues to rise and if consumers are installing significant amounts of solar that they cannot absorb in-home or export to the grid, this may quickly change.

2.5.4. Higher gas prices

In addition to policy changes, market consensus is emerging that higher gas prices are likely continue in the medium term further supressing demand. The Gas Statement of Opportunities (GSOO) 2022 was published by AEMO in March 2022 and it provides updated forecasts of retail gas prices under a range of scenarios. Relative to the gas price forecasts in the 2021 GSOO, prices are projected to be higher over the near-term, before falling to a level around $1/GJ higher than the previous forecasts.

We asked independent consultants *The Centre for International Economics* (CIE) to model the effects of prices taken from the 2022 GSOO. In isolation, these prices would see demand drop by an average of 1-2% compared to the demand modelled in our June Proposal, based on prices taken from the 2021 GSOO.

2.5.5. Conclusion

Taken as whole, we believe the evidence indicates that there will be material effects on new connections and on disconnection of the existing customer base by the end of the regulatory control period. However, these effects will not be seen overnight as customers, builders and developers complete existing construction pipelines and adjust to new incentives and preferences. A 12-month transition period has been announced for the introduction of the 7-star standard.

For new connections, all electric estates will become increasingly common, where gas estates continue to be developed the percentage of new houses in the estate that connect will decrease and the number of appliances that are connected will decrease lowering the demand per connecting customer.

To represent these conclusions, we have made the following assumptions for our demand and connections modelling:

- We have assumed by the end of the regulatory period only 50% of new housing estates will be reticulated. In these estates we have assumed only 50% of houses will connect to gas and that gas heating or hot water will be electrified in these houses cutting demand per new connection by 40%.
- For the existing customer base, we assume that incentives and preferences will gradually increase the abolishment rate from 0.25% to 1% at the end of the period. We have used a conservative assumption much lower than that implied by our customer research on the basis that the indicated intent is not always followed through by actions and that the rate of change will gradually lift.
- We have modelled transition by assuming new changes in the first year of the period and then a straight-line extrapolation the end of period position. This is consistent with the transition arrangements announced for the introduction of the NCC 2022.

We have tested the outcomes against several market and government forecasts of future gas demand trajectories under different scenarios including:

- The AEMO 2022 ISP/GSOO progressive change scenario, representing pre-Roadmap policies;
- The AEMO 2022 ISP/GSOO step change scenario, considered by stakeholders to be the most likely outcome; and
- The Victorian Government modelling provided in the Roadmap document

This shows that our detailed modelling outcome lies closer to the progressive change scenario than the other more rapid transition scenarios. As such, we consider this demonstrates our forecasts are both conservative and realistic when compared to independent market and government forecasts.

Our demand forecasts are discussed in more detail in Section 4 below.

2.6. Further Stakeholder Engagement

In addition to the extensive engagement we undertook to gather evidence to inform this Addendum to the Proposal outlined in Section 2.4, we have continued to meet with the Victorian Gas Networks Stakeholder Roundtable (VGNSR) and Retailer Reference Group (RRG).

Since the release of the Roadmap, 2 combined VGNSR/RRG meetings have been held. The details of these meetings are below:

- **VGNSR/RRG Meeting #11 – Wednesday 10 August 2022**

  This meeting focussed on:

  - updating stakeholders on the new regulatory timeframes (allowing for the preparation and submission of the Addendum reflecting the Roadmap initiatives)
  - testing our interpretation of the Roadmap and its key policies
  - seeking feedback on our approach to engaging with key industry sectors and gathering evidence to support the Addendum

- **Post-Lodgement Deep Dive #1 on Demand Modelling – Friday 26 August 2022**

  The purpose of this meeting was to "deep dive" into our demand modelling. This deep dive was discussed with the VGNSR and RRG prior to the submission of our proposals in June, and was used to share and test:

  - our evidence-gathering activities, and how we have used this evidence to inform assumptions in the demand models
  - our approach to updating our demand models following the release of the Roadmap
  - our approach to modelling new Future of Gas accelerated depreciation scenarios, and
  - the positions we would be including in the Addendum to our proposal.

The slide packs and minutes from these sessions will be posted on the Gas Matters website in the very near future.

Stakeholders have been complimentary of the extensiveness of our evidence-gathering activities, and of the narrative starting to become clearer.

Several areas for further exploration were suggested, including:

- the assumptions we made in our demand modelling, and explaining the differences between our demand modelling and the modelling in the Roadmap and the "step change" scenario in AEMO's GSOO
- the consequences of getting demand forecasts wrong – what will happen during the regulatory period if demand is significantly higher (or lower) than we forecast
- what the proposal means for different customer segments, including for large customers and from an intergenerational equity perspective (if large numbers of disconnections)
- connection and disconnection charges and processes
- accelerated depreciation proposals and the assumptions underpinning them
- better understanding the impacts of the Roadmap (if any) and our updated modelling on commercial and industrial loads, and
- accounting for changes to emissions frameworks.

2.7. Supporting documents

The following document provides further information on survey feedback:

- ASG - Developer Survey Key Results - 2 Sep 2022 - CONFIDENTIAL

3. Future of gas

3.1. Changes as a result of the Roadmap

The intention of the Future of Gas Modelling was never to pick a 'winning' scenario but rather to test the outcome of our proposal against a range of plausible scenarios and ensure that it produced an acceptable outcome under these scenarios. This remains the appropriate framework to consider this modelling through.

As a result of the release of the Gas Substitution Roadmap, we have produced additional scenarios for our Future of Gas Modelling, reflecting the Roadmap (We have actually modelled two possible scenarios of the Roadmap). There is still considerable uncertainty about the future outcomes, so these do not represent the authoritative or dominant scenarios considered for the overall Future of Gas analysis. However, having said that, the release of the Roadmap does have certain impacts that cannot be ignored:

- the Roadmap narrative is strongly biased towards electrification, for at least the medium term. As a result, the Hydrogen Hero and Muddling Through scenarios are now unlikely to occur. The emphasis and weighting on these scenarios should be lessened in considerations going forward.
- the full electrification or dual fuel scenarios are now the more credible types of outcomes that we expect to occur. Either scenario sees a significant lessening of consumption on the gas network as wide scale electrification occurs. The key difference being that in the Dual Fuel scenario a non-trivial role for mains delivered gas (transitioning to hydrogen) remains indefinitely. Whereas in the Electric Dreams scenarios, the gas network will eventually need to be decommissioned in its entirety.
- the Roadmap scenario looks to be similar to either a full electrification scenario or a dual fuel scenario. Which future emerges remains uncertain and depends to a large degree on Government Policy responses.

As a result, the stranding risk that our gas network faces has materially increased under the Roadmap. The scenarios where the network would not end up stranded are now less likely to occur. The Dual Fuel scenario we modelled in our original Proposal remains a credible scenario and did not leave the network stranded. However, it did have strongly increasing prices towards 2050 as the demand on the network reduced. In this case, our accelerated depreciation proposal helped mitigate these price rises in the future and possibly avoid an environment that these rising prices push the gas network into a death spiral. Consideration of the impact of accelerated depreciation on our Dual Fuel scenario remains important in setting our accelerated depreciation proposal.

To account for the increased asset stranding risk we have decided to increase our accelerated depreciation from $150m to $200m. The modelling of the Roadmap scenario and analysis of changes in asset stranding risk are set out below.

3.2. Modelling results

Under the Roadmap, there is a strong policy push towards electrification. This is particularly evident in:

- A reduction in the number of homes that would consider connecting to the gas network on economic grounds. In our original Proposal, we assumed an additional 2% of the customer base could potentially connect to the network each year and then the proportion of these customers chose to connect based on the cost differential (NPV) of connecting either gas or electrical appliance.[5] We have reduced this assumption to 0.5%, which largely reflects the impacts of the 7 Star Rating changes, which we consider will increasingly result in new estates not having reticulated gas, meaning many homes will not have the option to connect to gas even if the costs are favourable.
- Electrical Appliance Subsidies – to 2028. Whilst subsidies have not been announced, this modelling has chosen to include subsidies for switching to electric appliances. Without subsidies it is hard to see how a short-term decrease in consumption anywhere near comparable to modelling provided as part of the Roadmap is achievable.

We have modelled two scenarios of the Roadmap. Modelling the policy changes in the Roadmap do not produce demand reductions close to the modelling presented with the Roadmap. This is consistent with the analysis done by

[5] 2% reflects the long term rate of connection to our gas network.

CIE in Section 4.2. As such, we created a second scenario which uses higher wholesale gas prices to push the scenario closer to the modelling outcomes produced in the Roadmap. The two scenarios produced are:

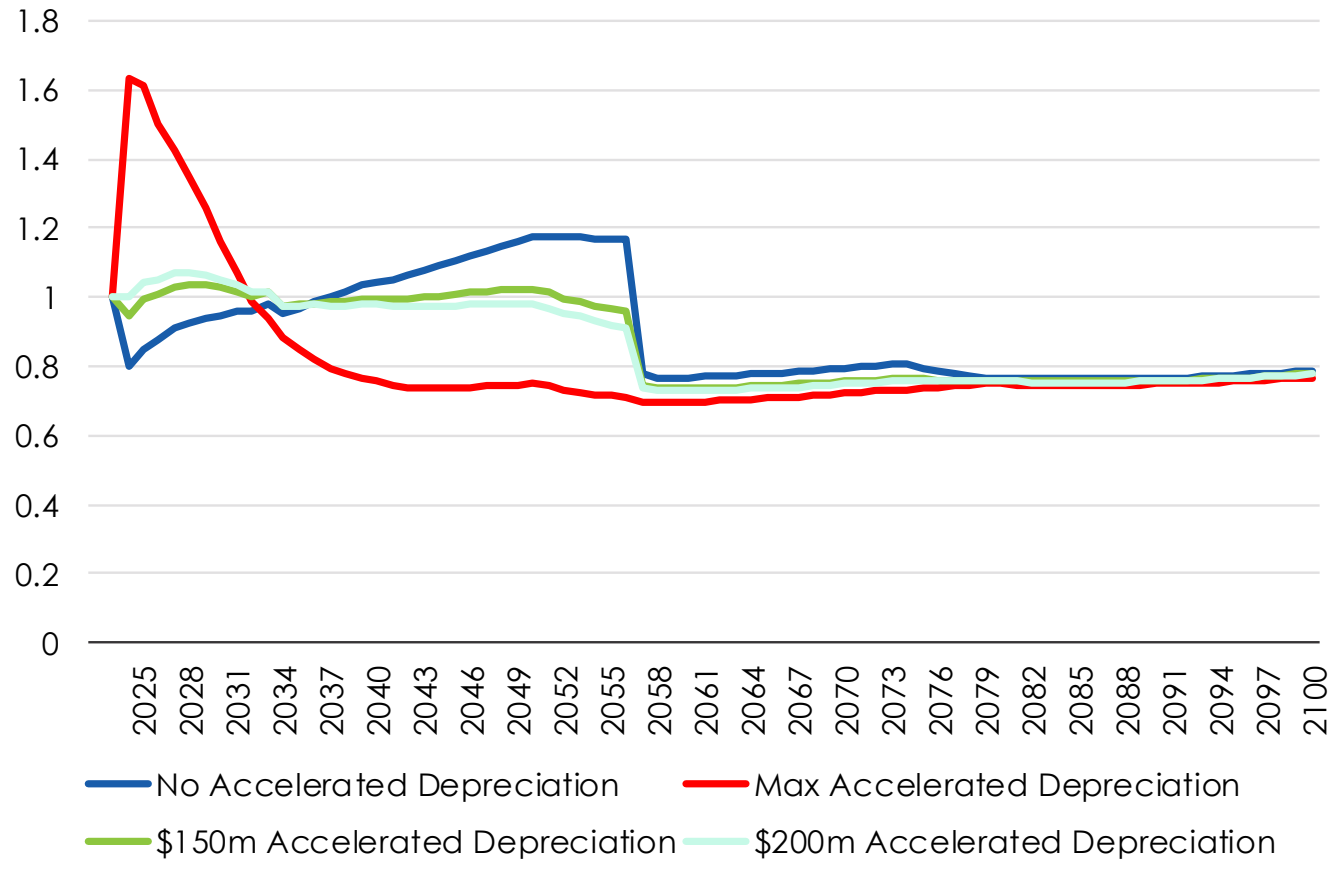
1. Roadmap Scenario 1: Subsidies + Gas Connection Policy Changes + Consumer Preference Changes
2. Roadmap Scenario 2: Subsidies + Gas Connection Policy Changes + Consumer Preference Changes + Gas Price Escalation

In the second scenario we have aggressively increased the wholesale gas price assumption to drive the gas volumes down closer to the forecasts provided by in the Roadmap. It is important to note that these aggressive increases in wholesale gas price assumption are still not sufficient to drive volumes as low as seen in the Roadmap.

3.2.1. Roadmap Scenario 1

Figure 3.1 shows the price path that would eventuate from four possible accelerated depreciation profiles. The dark blue line shows the price path (specifically, the variable component of the residential bill) with no accelerated depreciation.[6] The green line shows the price path in this scenario with $150 million accelerated depreciation (our original Proposal), the light blue line shows $200m accelerated depreciation (our modified Proposal) and the red line shows a theoretical 'maximum' level of accelerated depreciation. In our modelling ~$700 million of accelerated depreciation in the next access arrangement period is the upper limit on accelerated depreciation. If more than this maximum amount of accelerated depreciation is used, then the price rises faced by customers in the short term is too high and starts the death spiral effect, essentially forcing us to adopt an electrification pathway.

Figure 3.1: Residential distribution (volumetric) price per GJ Growth Index



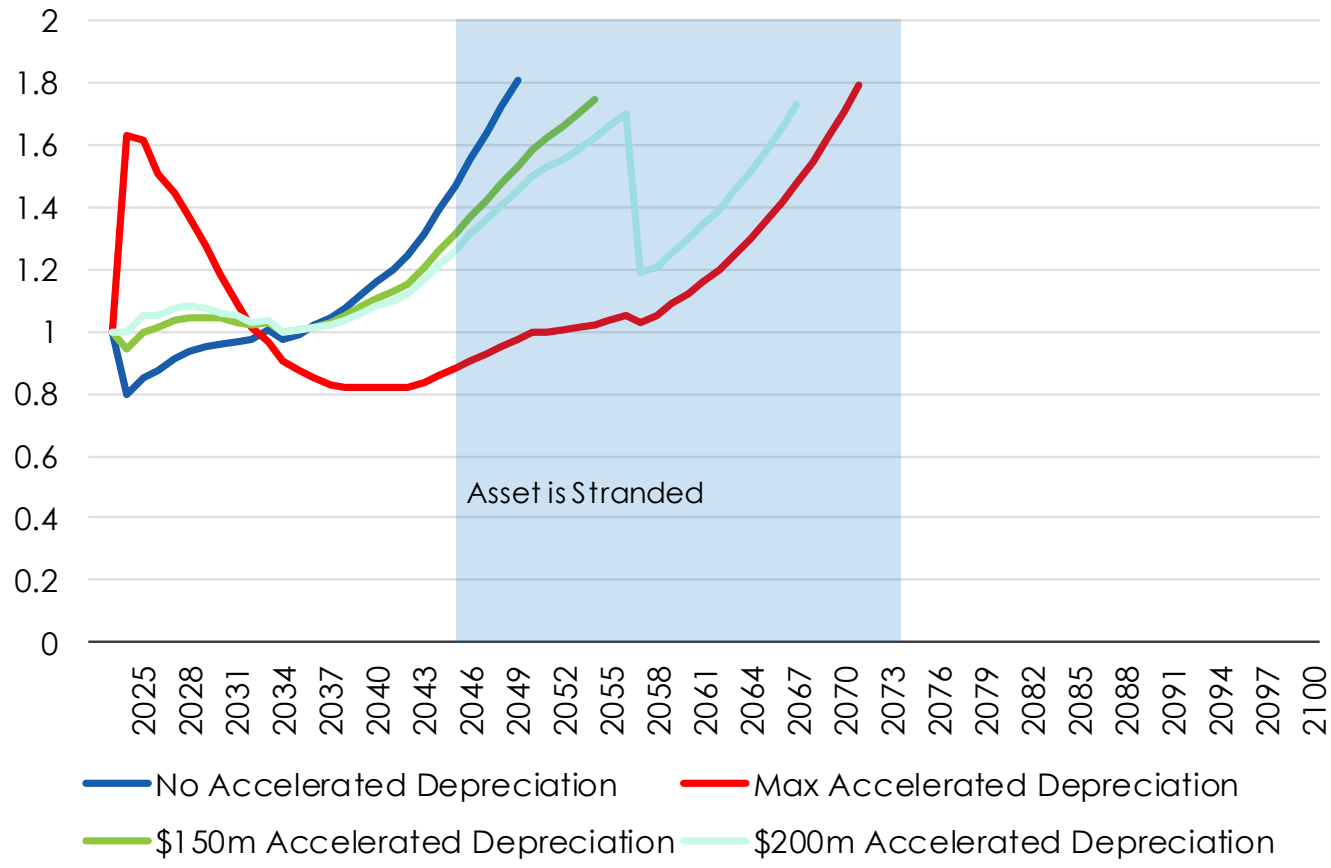
This version of the Roadmap modelling looks similar to the Dual Fuel scenario in our original Proposal. Without accelerated depreciation, prices would be lower in the next regulatory period, before increasing by a solid amount in the next regulatory period. Under this version of the scenario, prices do not rise extremely rapidly and the network does not strand. Regardless, our accelerated depreciation proposal significantly smooths the expected price path for customers over time. Accelerated depreciation provides protection against future high prices by allowing sunk costs to be recovered earlier than would otherwise be case. Where accelerated depreciation is not implemented and the future price of gas is too high, this scenario could inadvertently tip into a scenario where the network does face spiralling prices and the asset strands.

[6] The price paths for the fixed component and commercial customers can be found in the modelling files. As they are similar in outcome they are not presented here.

3.2.2. Roadmap Scenario 2

Figure 3.2 shows the price path that would eventuate from four possible accelerated depreciation profiles. The dark blue line shows the price path (specifically, the variable component of the residential bill) with no accelerated depreciation. The green line shows the price path in this scenario with $150 million accelerated depreciation (our original Proposal), the light blue line shows $200m accelerated depreciation (our modified Proposal) and the red line shows a theoretical 'maximum' level of accelerated depreciation. In our modelling ~$700 million of accelerated depreciation in the next access arrangement period is the upper limit on accelerated depreciation. If more than this maximum amount of accelerated depreciation is used, then the price rises faced by customers in the short term is too high and starts the death spiral effect, essentially forcing us to adopt an electrification pathway.

Figure 3.2: Residential distribution (volumetric) price per GJ Growth Index



Source: Roadmap – Consumer Choice Model and Roadmap – Building Blocks Model

While accelerated depreciation can partly help mitigate future price rises to after the mid-2040s, our modelling shows that, in Roadmap Scenario 2, this is insufficient to prevent increasingly unpalatable price rises. Under this scenario we would, therefore, face increased asset stranding risk, as we would be unable to fully recover our capital base from our customers as they would be increasingly leaving the gas network following the significant price rises. From the point customers cannot cover the costs of the network, there may need to be some government assistance to keep the gas network operating until an orderly decommissioning of the network can be completed. However, in this scenario, accelerated depreciation can significantly delay the stranding date under this scenario, which significantly decreases AusNet's stranding risk and greatly increases the total energy delivered to our customers. Importantly, this approach to accelerated depreciation would keep prices within 20% of current levels until the mid-2040s, so looks to lock in some degree of price stability for the next few regulatory periods.

Under Roadmap Scenario 2, the capital base will start to decline (due to a reduction in capex and no new connections) and customer numbers and consumption would begin to decline. However, a rapid shutdown of the network would still occur in 2040, the time at which prices become unsustainable (which in the model manifests as an abrupt end to the network in 2049). Some of the price and asset stranding risk could be mitigated by slowing the transition off the gas network, but this will be dependent on Government policy and consumer choices.

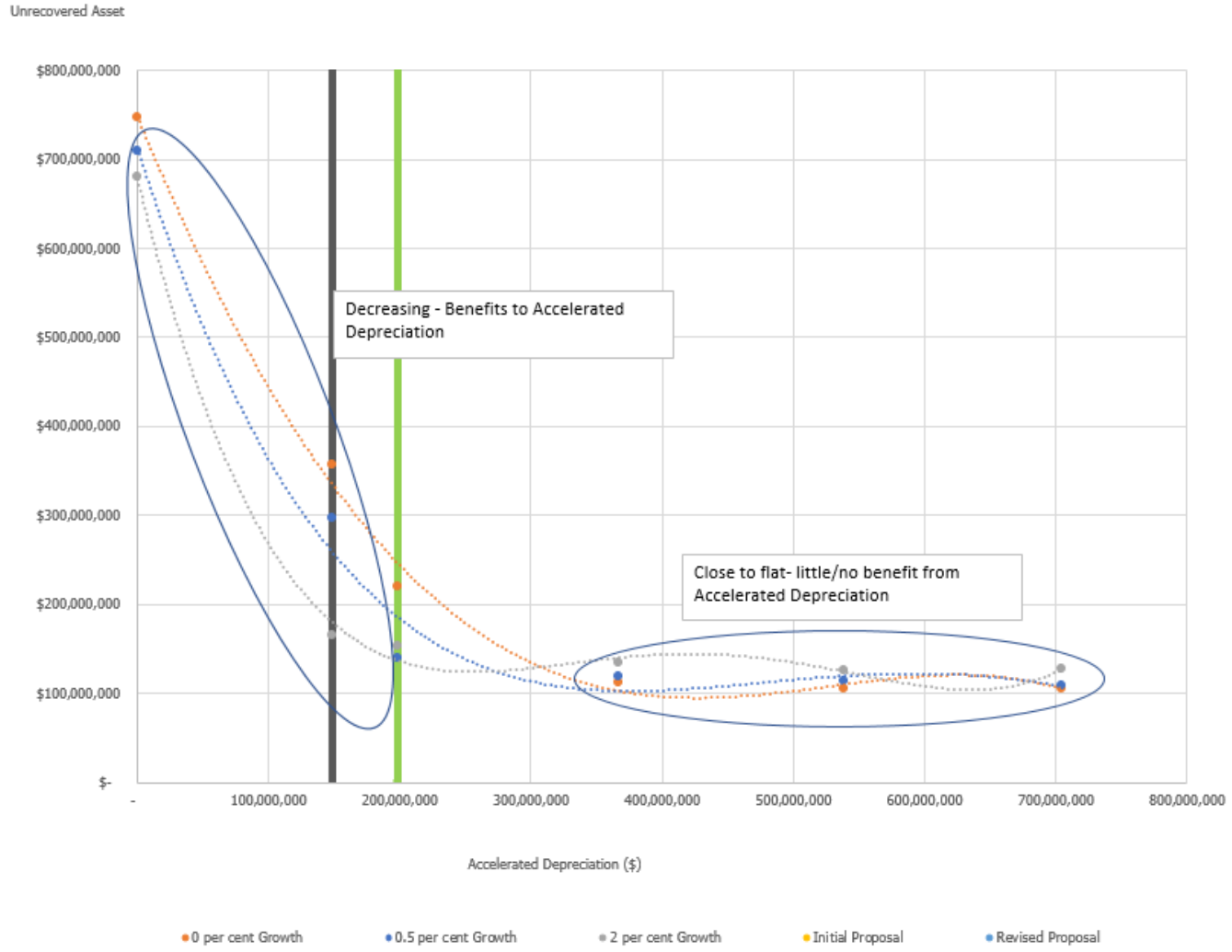
3.2.3. Increasing the Accelerated Depreciation Proposal

We have undertaken additional analysis of the Roadmap scenario 2, which shows the relationship between accelerated depreciation and asset stranding risk as well as the relationship between accelerated depreciation and

the total amount of energy delivered by our networks. [7] [8] This analysis shows that, where AusNet faces a stranding risk, then there is a range of accelerated depreciation proposals that deliver benefits to AusNet (through lower stranding risk) and our customers (through encouraging the delivery of greater gas volumes). However, once the accelerated depreciation gets too high, the short term price impact leads to demand destruction while also no longer reducing the stranding risk. We consider that this analysis can put sensible upper limits on our accelerated depreciation proposal.

We note that this analysis varies with each scenario and so again this is not a single definitive scenario for consideration.

Figure 3.3: Compromised Asset vs Accelerated Depreciation – Scenario 2

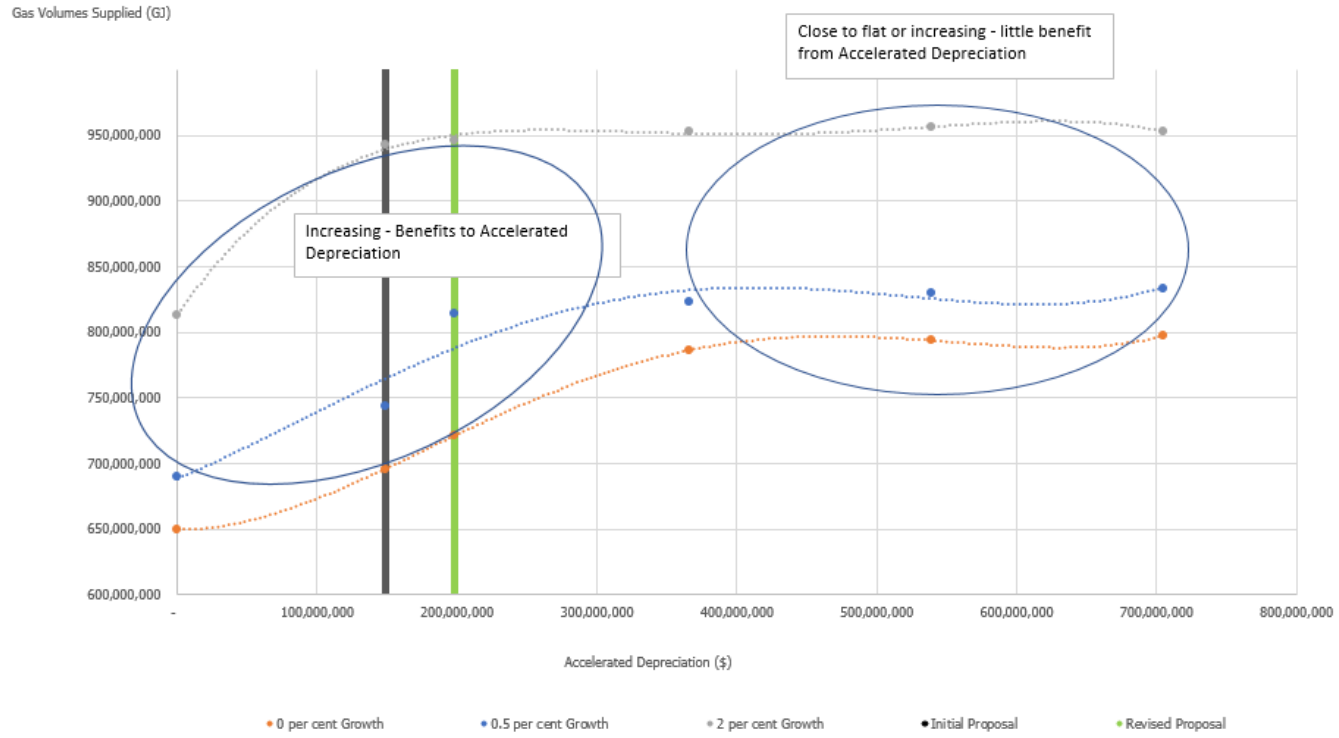


Source: Roadmap – Consumer Choice Model and Roadmap – Building Blocks Model

[7] Under scenario 1, where the network does not strand, then changing the accelerated depreciation does not impact the unrecovered asset (as there is no unrecovered asset). However, price path stability and reducing the risk that a stranding scenario eventuates are still benefits of Accelerated Depreciation in these circumstances.

[8] The total energy deliver can be considered a rough proxy for the consumer surplus generated by our network. Customers will only buy gas if they perceive a benefit and so if we have delivered more gas over the life of the asset, then the consumer surplus should be greater.

Figure 3.4: Volume vs Accelerated Depreciation – Scenario 2



Source: Roadmap – Consumer Choice Model and Roadmap – Building Blocks Model

Figure 3.2 and Figure 3.3 both show that the region where there is diminishing returns to both AusNet and its customers is significantly higher than the accelerated depreciation we included in our original Proposal. Additionally, we consider the short-term price path offered by increasing our accelerated depreciation profile from $150 to $200m is still reasonable for our customers in the short term and assists in mitigating future price rises for our customers. As such, on balance, we consider that increasing our accelerated depreciation proposal to $200m is prudent, efficient and in the long-term interests of both AusNet and its customers.

3.2.4. Accounting for Affordability

As for our original Proposal, we have balanced the adjustments we have made to account for the increased stranding risk with the importance of maintaining affordability. Our amended Proposal results in a small real price increase for customers of around 5.5% on average over the period and because per customer consumption is forecast to continue to fall, the average bill in the new period will remain lower than the current period in real terms. After these changes, AusNet should remain the lowest cost distribution network in Victoria.

Furthermore, as discussed in Section 2.3 above, we consider likely price impacts from this increase will be reversed by higher inflation forecasts that are likely closer to the Final Decision.

3.3. Supporting documents

- Future of Gas Models:
  - ASG – GAAR – Gas Substitution Roadmap – Consumer Choice Model – 2 September 2022 – PUBLIC
  - ASG – GAAR – Gas Substitution Roadmap – Building Blocks Model – 2 September 2022 – PUBLIC

4. Demand and customer forecasts

4.1. Introduction

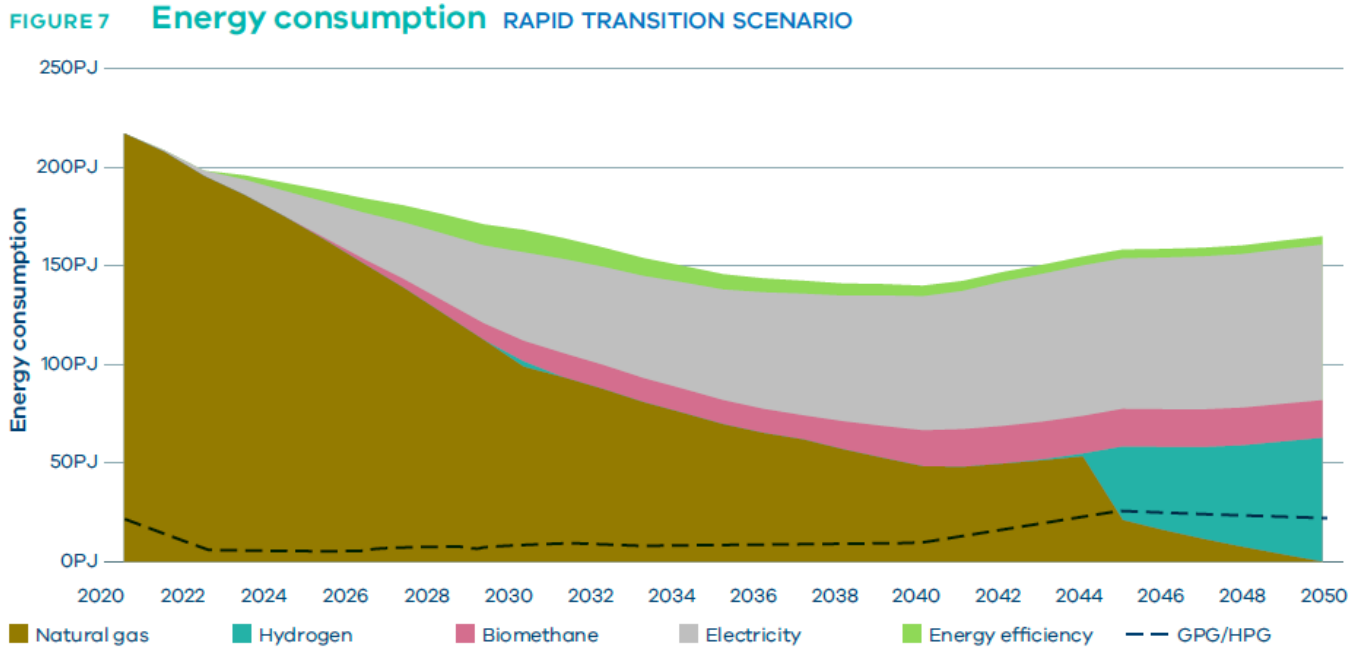
The Roadmap has significant consequences for AusNet's forecasts of customer growth and gas consumption. The original Proposal forecast a continuation of strong customer growth, partially offset by declines in average consumption per customer. These forecasts were developed by independent consultants *The Centre for International Economics* (CIE), whose forecasts of AusNet's gas demand for the 2013-17 and 2018-22 GAARs were both accepted by the AER.

AusNet again engaged CIE to assess the impact of the Roadmap on our demand forecasts for the 2024-2028 GAAR. CIE's report is included as an Appendix and it should be read in conjunction with this chapter.

4.2. What the Roadmap says about gas demand

The Roadmap foreshadows significant reductions in gas consumption, with immediate effect. The roadmap's *Rapid Transition* scenario, for example, shows annual declines of 8-9% between now and the end of the access arrangement period.

Figure 4.1: Roadmap Rapid Transition scenario



Source: Victoria's Gas Substitution Roadmap

CIE tested whether the policies foreshadowed in the Roadmap could bring about the outcomes presented above, by undertaking a bottom-up analysis of the likely impacts of those policies. In preparing this analysis, CIE also confirmed with DELWP that the above scenarios were not derived from the specific policies outlined in the Roadmap. The aim of this analysis was, therefore, to understand the gap between the bottom-up impacts of Roadmap policies and the top-down impacts presented in the above chart.

CIE determined that a bottom-up analysis of the individual direct policy impacts would result in less than a 1% reduction to the forecasts contained within the original Proposal. Given the Roadmap predicted 8-9% reductions *per annum*

over the next decade, CIE concluded that "much of the actual policy change is not yet obvious and that indirect impacts on gas take up are not well understood."[9]

CIE's report provides more detail on the bottom-up impacts of the Roadmap policies. For the purposes of this Addendum, however, the bottom-up impacts have not been used. Rather, several scenarios have been modelled as a means of understanding how different assumptions relating to customer connections, disconnections and usage per customer lead to different outcomes of overall gas consumption and how those outcomes compare to the Roadmap.

4.3. Changes as a result of the Roadmap

Section 2 sets out the evidence we have gathered, and how it has been used to help form assumptions that underpin our updated demand modelling. This section shows the numbers we have inputted into our model. Judgement has been applied when interpreting the significant amount of qualitative and quantitative insights we gathered to inform the scenarios below.

4.3.1. Residential customer numbers

As presented in our original Proposal, the growth in our customer base is influenced by:

1. The number of potential gas customers, as measured by the forecast number of occupied dwellings
2. The 'marginal penetration rate' of new customers, i.e. the proportion of customers in occupied dwellings who elect to connect to gas
3. The number of customers disconnecting from the gas network, either permanently, or to undertake a 'knock down / rebuild' (i.e. demolishing an existing dwelling and replacing it with one or more new dwellings).

The Roadmap will have direct impacts on (2) and (3), whereas (1) is impacted by population growth and general economic factors.

4.3.1.1. Proportion of new dwellings connecting to gas (marginal penetration rate)

The marginal penetration rate of new customers connecting to the network will be reduced, due to:

1. fewer developers electing to connect new estates to the reticulated gas network
2. a lower proportion of customers within gas-connected estates choosing to connect their property to the gas mains within those estates.

The Roadmap does not contain any forecasts of the likely impacts of the government's policies on new connections to gas, though there is strong evidence to support growing anti-gas sentiment and switching intentions across the housing supply chain as detailed in section 2. In particular, around 80% of our developer base are expressing uncertainty around their gas connection intentions beyond their existing commitments.

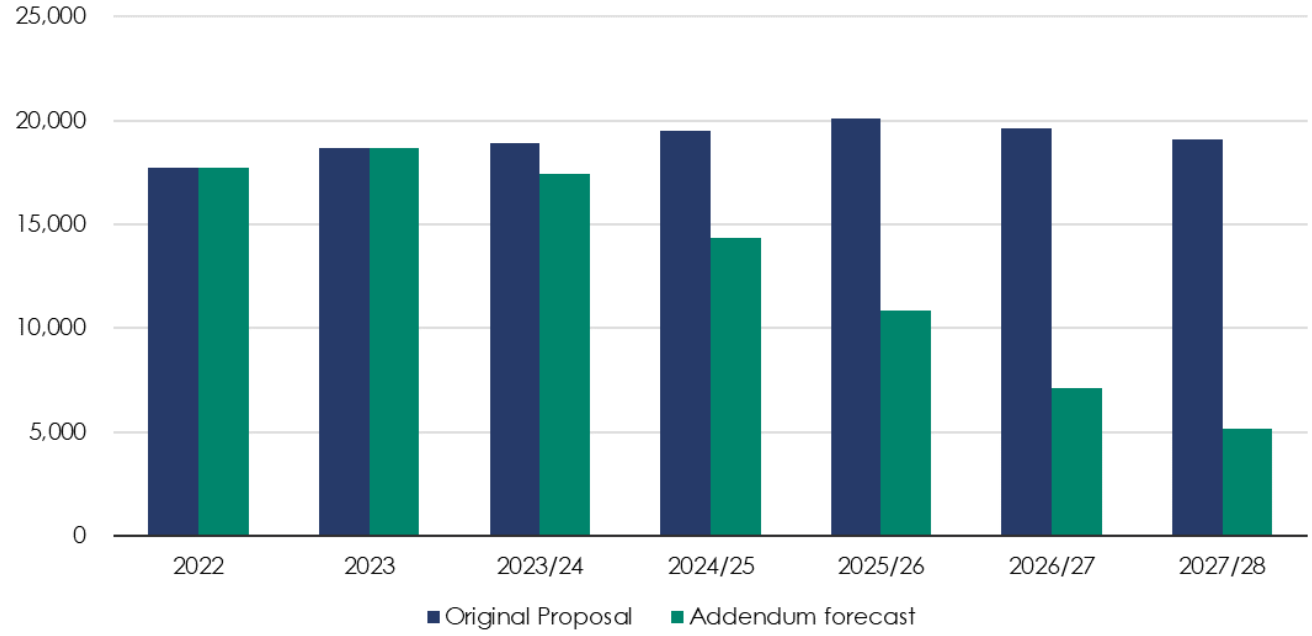
Taking into account the extensive evidence described in Section 2.5 from key decision makers and stakeholders regarding existing planned new connections, we assumed connections to be unchanged in 2023 as new standards were transitioned in. We then modelled three scenarios:

1. That by 2027/28, there is a 50% reduction in new estates connecting to gas and 50% reduction of customers within those gas-connected estates who connect their property to gas
2. That by 2027/28, there is a 75% reduction in new estates connecting to gas and 75% reduction of customers within those gas-connected estates who connect their property to gas
3. That by 2027/28, no new estates or customers will connect to gas.

For the purposes of our central model used to derive our revenue requirement and prices in this Addendum, the first of the three above scenarios was adopted. The impact on new (gross) connections is presented below.

[9] CIE, 2022, *The impact of the Victorian Gas Substitution Roadmap on forecasts of gas usage and connections in the AusNet distribution area*, p.13.

Figure 4.2: New residential connections



Source: AusNet Services

4.3.1.2. Disconnection of existing dwellings

The scale of reductions in gas usage in the Roadmap cannot be met by changes to new customers alone. The large majority of AusNet's customer base – even by the end of the access arrangement period – will comprise customers *currently* connected the network, rather than *future* customers. This means that the ~50% reduction in residential and commercial gas consumption envisaged by the Roadmap must be making some assumptions about the existing base of gas customers.

In AusNet's network, the current annual disconnection rate is approximately 0.25% of the existing customer base. That is, every year, around 0.25% of connections are disconnected (abolished). However, these disconnections are mostly associated with 'knock-down/rebuilds', where the existing connection is removed and one or more connections are re-instated, usually because of building works on a property.

Given the Roadmap impacts could only be achieved with a large reduction in either existing connections, or existing customer consumption, AusNet has assumed that *permanent* disconnections (not associated with knock-down/rebuilds) will becoming increasingly prevalent. This will be driven by incentives to replace end-of-lie gas appliances with electric appliances and the continued uptake of rooftop solar PV, making an all-electric home more economically attractive.

As described in Section 2.5, our consumer sentiment evidence shows 16% of our existing customer base think it unlikely they'll be using their gas connection in 10 years time, with this proportion more than doubling in the last year. At face value, if these intentions are acted upon, it implies the expected abolishment rate of the sunk customer base would average 1.6% per year.

However, intent is not always followed through by actions. Whilst disconnections will become more common, our more conservative view is that unless they are given or find more compelling reasons to electrify than they currently have, the large majority of gas customers will continue to enjoy a gas connection throughout – and beyond – the next regulatory period and that the rate of electrification will only gradually lift from current levels.

For this Addendum, we have assumed that from CY2024, 0.75% of the customer base permanently disconnects, growing to 1.0% of the customer base from CY2027. And for the existing 0.25% of customers who engage in knock-down/rebuild and who currently re-connect to gas, we have applied the same assumptions for the penetration rate. That is, by 2028, only 25% of customers who undertake building works on their property will re-connect to gas.

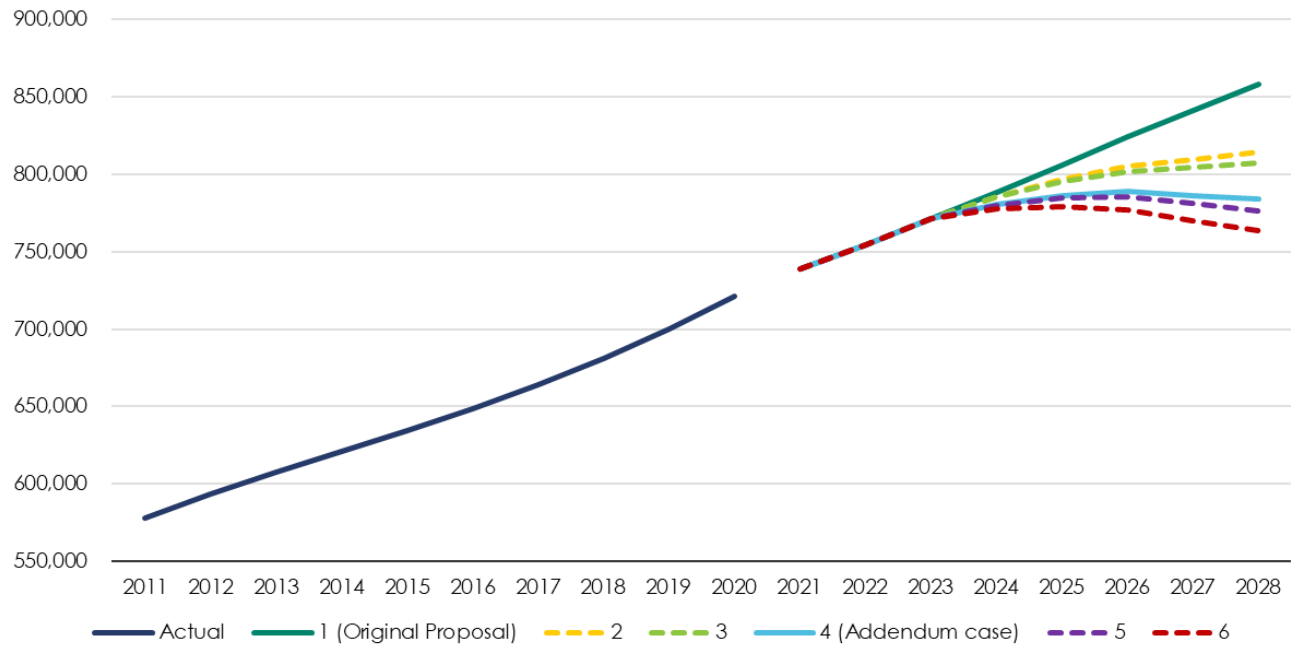
4.3.1.3. Impact of changes to penetration rate and disconnections on customer numbers

The impact of AusNet's assumptions regarding new customers connecting to the network and existing customers disconnecting from the network are presented in the below chart and table. The chart also shows the various scenarios

modelled by CIE and AusNet, which are:

1. Original Proposal
2. 50% reduction in new estates, 50% reduction in new customers, no change to existing base[10]
3. 75% reduction in new estates, 75% reduction in new customers, no change to existing base
4. 50% reduction in new estates, 50% reduction in new customers, 0.75% to 1.0% disconnections from existing
5. 75% reduction in new estates, 75% reduction in new customers, 0.75% to 1.0% disconnections from existing
6. No new customers, 0.75% to 1.0% disconnections from existing

Figure 4.3: Residential customer numbers (calendar years)



Source: AusNet Services

Table 4.1: Residential customer number forecast (average in regulatory year)

	2023-24	2024-25	2025-26	2026-27	2027-28
Original Proposal	779,829	797,292	815,283	832,736	849,632
Annual growth		2.2%	2.3%	2.1%	2.0%
Addendum Proposal	775,783	783,255	787,570	787,612	785,044
Annual growth		1.0%	0.6%	0.0%	-0.3%

Source: AusNet Services

4.3.2. Residential gas consumption

The amount of gas delivered via the reticulated gas network is the product of the number of customers and the average consumption per customer. Of the policies announced in the Roadmap, the changes to the VEU program and the alignment with the NCC 2022 will directly impact gas consumption.

[10] In this list, 50% or 75% reduction in new customers means, for example, "50% reduction in new customers connecting in new estates that are connecting to gas", so multiplying the reductions would mean a 50% reduction in estates x 50% reduction of customers within those estates with gas = 25% of customers who would have connected to gas will now connect to gas (i.e. a 75% reduction in the baseline). "No change to existing base" means that we do not observe an increase in disconnections from the existing customer base, which is differentiated by scenarios 4-6, in which 0.75% of customers disconnect annually from CY24-26, increasing to 1.0% in CY27-28.

4.3.2.1. Changes to the VEU program

Regarding the VEU, CIE analysed the uptake of gas related incentives under the VEU, such as installing efficient instantaneous gas hot water systems, or installing 5 star gas ducted heating. CIE found that removing these incentives (and the appliances installed under them) would result in a reduction of just 0.03% in gas consumption per annum.

CIE also noted that the Roadmap indicates there will be additional incentives to encourage customers to switch from gas to electric appliances. Whilst these incentives are yet to be announced, CIE conducted an analysis of the impact on gas consumption if these future gas to electric incentives created the same number of Victorian Energy Efficiency Certificates (VEECs) as are currently being generated under the gas incentives. Once again, CIE found that the impacts were immaterial – just 0.1% of gas consumption per annum.

4.3.2.2. Changes to energy efficiency standards

The move to 7 star standard new homes has the potential to have significant impacts on gas usage for our new customers. These impacts are both direct and indirect in nature.

"Direct" impacts are associated with the ability of a new home to meet the 7 star standard whilst having a gas connection. If the 7 star standard can only be met by reducing the number of gas appliances, this would clearly have a direct impact on the gas consumption within that home.

To estimate the direct impacts on gas consumption, CIE analysed the Consultation Regulatory Impact Statement (RIS) that was prepared during the NCC 2022 development process. The RIS assessed the costs and benefits of the proposed changes to the NCC 2022, including a 'whole of home' energy budget. The impacts on homes were shown for Class 1 dwellings (detached houses) and Class 2 dwellings (apartments). Class 1 dwellings make up the large majority of AusNet's new customers.

CIE calculated that Class 1 dwellings could satisfy the energy standards by installing rooftop solar PV and that the anticipated reduction in gas consumption for these dwellings was only 3.5%. Class 2 dwellings, on the other hand, have minimal to zero access to rooftop PV and, therefore, could only achieve the energy budget by switching some gas appliances to electric, resulting in a 27% decrease in gas consumption for those homes.

Therefore, the "direct" impacts calculated by CIE are 3.5% for detached houses and 27% for apartments.

The "indirect" impacts are harder to quantify. The impacts are expected to come about via the preferences of customers who have met the energy budget by an increased reliance on either PV or some electric appliances. Put another way, just because these customers *can* use gas and meet the energy budget, it does not mean that they *will* use gas. For example, if a customer in a detached house has achieved the energy budget by installing rooftop PV, does this make that customer more likely to install electric appliances to take advantage of the electricity being generated on their roof?

CIE investigated this question, but could not find any robust research on the (current or future) propensity of customers with solar PV to use electric instead of gas appliances. It seems logical that rooftop PV owners will wish to take advantage of their electricity generation by, say, using an electric hot water system as opposed to gas. Without robust research into the topic, however, we have adopted top down assumptions.

4.3.2.3. Assumptions adopted for Addendum forecasts

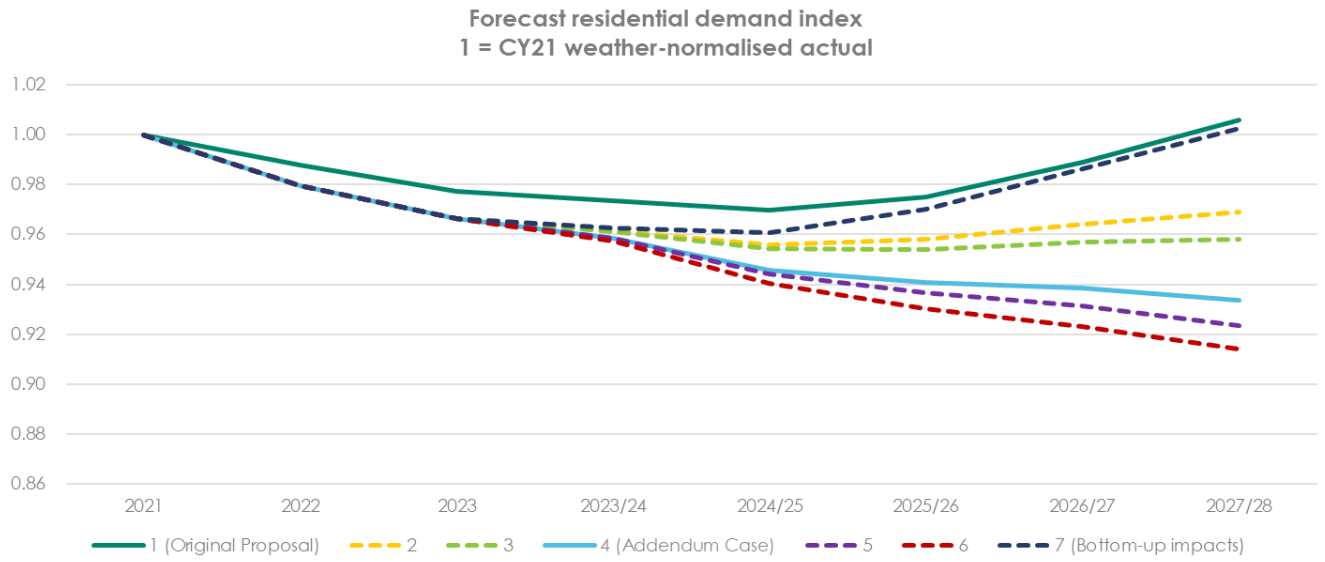
CIE's analysis of the VEU program and direct impacts of the 7 star energy efficiency standards resulted in reductions to gas consumption that were far below the Roadmap's top down estimates (Figure 4.1). Taking into account the likely indirect impacts of the new standards, we have assumed that the energy consumption of new connections to our network is 40% lower than the forecasts prepared by CIE for our original Proposal. This reduction is assumed to be driven by customers' preferences for using their rooftop PV to power either electric hot water or heating within their homes and, therefore, not using gas appliances for these purposes.

Whilst the changes to the VEU program could also impact the gas usage for our existing customer base, for example, by attractive incentives to replace existing gas appliances with electric, we have not applied a further adjustment to the existing customer base. We note that our original Proposal contained a post-model adjustment, based on AEMO's GSOO, that forecast an accelerating trend of energy efficiency and appliance switching for these customers.

Should further detail emerge on the policies underpinning the government's Roadmap, we will seek to incorporate these into the Revised Proposal. We consider the 40% reduction in new customer consumption is a reasonable estimate of the likely direct and indirect impacts of the new standards, as customers choose to electrify either their heating or hot water as part of their new build. However, it is important to note that they still do not come close to the Roadmap projections.

The figure below presents the impact on our gas consumption when the 40% reduction in new customer consumption is applied to the customer forecast scenarios presented in section 4.3.1.3. The chart is presented as an index, with the weather-normalised actual gas consumption in 2021 being the starting point. An additional scenario has been presented, which is CIE's estimate of the bottom-up impacts of the Roadmap policies. By the end of the regulatory period, AusNet's forecast residential gas consumption is 7.2% lower than the original Proposal.

Figure 4.4: Forecast residential gas consumption index (1 = 2021 weather-normalised actual gas consumption)



Source: AusNet Services

The gas consumption depicted in the above charts is represented in the table below, which shows how residential gas consumption over the forthcoming regulatory period compares to the original Proposal.

Table 4.2: Residential gas consumption

	2023-24	2024-25	2025-26	2026-27	2027-28
Original Proposal	31,255	31,135	31,298	31,747	32,284
Addendum Proposal	30,773	30,362	30,199	30,130	29,971
% change	-1.5%	-2.5%	-3.5%	-5.1%	-7.2%

Source: AusNet Services

4.3.3. Commercial customer numbers

Our original Proposal highlighted the methodology employed to forecast commercial customers, which was to apply a ratio of new commercial customers to new residential customers, based on the historical correlation between these two customer groups.

In the time available to prepare this Addendum, it was not possible to adequately assess the extent to which the policies or outcomes contained within the Roadmap will affect this relationship of new commercial customers to new residential customers. It seems logical that new commercial connections will be lower than those forecast in the original Proposal, but by how much and when is currently uncertain.

Given that AusNet's consumption and revenue is dominated by the residential segment, we have used the time available since the publication of the Roadmap to focus on residential impacts only. We note that the residential segment comprises 84% of Tariff V (residential and commercial) gas consumption and 97% of Tariff V revenue.

This is not to say that the impacts on the commercial sector are unimportant or should not be assessed. Between now and the Revised Proposal, more research will be undertaken into the likely uptake of gas within the commercial sector and potential disconnections from the existing customer base. The outcomes of this research will be applied to the forecasts included in the Revised Proposal.

4.3.4. Commercial gas consumption

Of the policies foreshadowed in the Roadmap, the changes to the VEU program are likely to have the largest impact on the commercial customer base. The other policies (changes to planning provisions, 7 Star home efficiency standards and changes to the NCC) are all residential in nature.

Whilst the VEU program will have the biggest impact on the commercial sector, it is a program that will impact both the residential and commercial sectors. As noted above, a bottom-up analysis of the Roadmap policies resulted in only a very small impact to demand. CIE found that a VEU-related reduction of just 0.1% per annum was supported by its analysis, with this impact being "highly speculative".

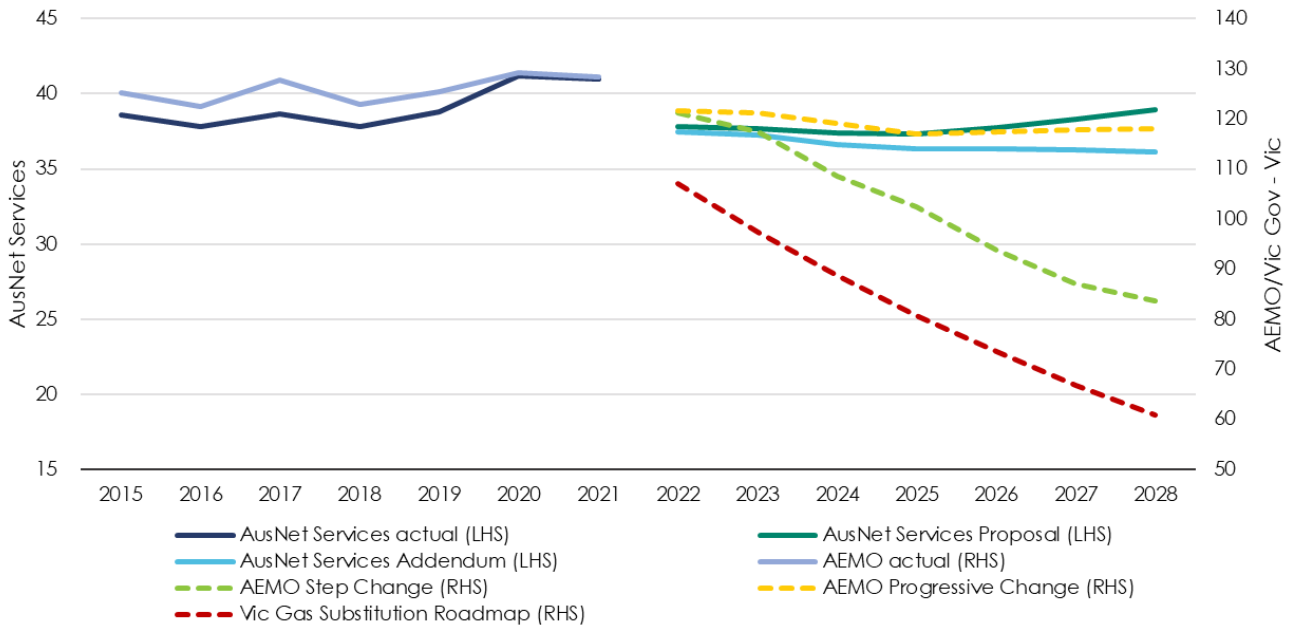
Given the uncertainty of the impacts of the Roadmap on the commercial sector and, as mentioned above, the relatively small contribution of the sector to Tariff V gas consumption and revenue, the commercial gas consumption forecasts in the original Proposal have been retained. The outcomes of the further research we intend to undertake on the commercial sector will be incorporated into the Revised Proposal forecasts.

4.3.5. Tariff V (residential and commercial) gas consumption

The forecast Tariff V gas consumption in this Addendum is put into further context below. The below chart presents AusNet's Addendum forecasts and original Proposal forecasts and compares them to:

- AEMO's 2022 GSSO Progressive Change and Step Change scenarios
- an estimate of the Roadmap forecast for residential and commercial customers.[11]

Figure 4.5: Forecast Tariff V gas consumption (PJ)[12]



Source: AusNet Services

There are a number of callouts from the above chart:

1. AusNet's addendum forecasts follow a similar profile to AEMO's Progressive Change scenario
2. AEMO's Step Change scenario, which AEMO notes is considered the "most likely" scenario by its stakeholders, contemplates a much more aggressive reduction in gas demand than either its Progressive Change scenario, or AusNet's addendum forecast
3. The Roadmap forecasts are more aggressive again – projecting that Tariff V consumption will more than halve between 2020 and 2028.

In summary, AusNet's Addendum forecasts are at the upper end of the range of scenarios contemplated by AEMO, but are significantly higher than the Roadmap forecasts. This is the case even though:

1. Customer growth by 2027/28 is approximately 25% of the original Proposal, a combination of 50% of estates being reticulated and 50% of customers still choosing to connect to gas in those estates.
2. The existing customer base is contracting by between 0.75% and 1.0% per annum
3. New customers are using 40% less gas than forecast in the original Proposal.

AusNet will continue to engage with stakeholders and monitor developments within the gas sector, including customer preferences, housing industry trends and government policies. The demand forecasts included in our Revised Proposal will incorporate the latest data in what continues to be an evolving energy landscape.

[11] This estimate was developed by taking the opening 2020 value in the Rapid Transition scenario (~214 PJ, which reconciled to AEMO's published 2020 actual demand for Victoria) and deducting GPG load (from the Rapid Transition chart) and industrial load (from AEMO). This derived a 2020 figure of 125 PJ for residential and commercial (R&C) customers. This 129 PJ compared well with AEMO's 2020 R&C load of 129 PJ. Then, all of the reduction associated with energy efficiency and electrification between 2020 and 2028 was applied to the R&C sector. The reductions associated with biomethane were assumed to be achieved by the industrial sector, so are not included in Figure 4.5.

[12] Actual consumption is not weather normalised. 2020 and 2021 were both colder than average years, so some of the step down between 2021 and 2022 is due to weather.

4.3.6. Industrial customers and energy

As with the commercial customer segment, there are few policies or statements within the Roadmap that provide strong evidence for its impact on the industrial segment. The Roadmap notes that reducing gas consumption in the residential and small commercial sector will "free up gas for the industrial sector" and that alternative gases such as biomethane or hydrogen may be "particularly important for some industrial energy users". We have, therefore, not adjusted our industrial demand forecasts down in response to the Roadmap.

It is far more likely that wholesale gas prices will be the key determining factor underpinning the future of our industrial customer base. As wholesale gas prices increase, our industrial customers report it becoming increasingly difficult to operate and compete (in domestic and international markets or with substitute products). Our industrial forecasts are linked to AEMO's industrial forecasts in its GSOO, which contain AEMO's forecast of gas prices.

For the moment, the 2022 GSOO's Progressive Change scenario does not depict a rapid reduction in industrial demand. Therefore, we have decided not to revise our industrial forecasts at this time. More evidence on the viability of gas within the industrial sector will be gathered prior to, and included within, the Revised Proposal.

4.4. Supporting documents

The following document provides further information on our demand forecasts:

- ASG - CIE Final report_Impact of the GSR on Ausnet gas usage forecasts - 2 SEP 2022 - Public

5. Capital expenditure

5.1. Changes as a result of the Roadmap

As a result of the Roadmap we have examined the possible impact on our capex program. We have concluded that only three elements of our capex program need to change at this time. The first area is connections capex which is directly related to the level of gas penetration in new estates. The second affected element is customer contributions which is affected by both the level of gas reticulation as well as the level of gas uptake within an estate. The third element is augmentation expenditure which is affected by future levels of demand. We have not changed the other elements as there will either be no impact, or the impact will be immaterial. Any minor variations to expenditure in other areas are a result of updates to escalation factors, not as a result of the Roadmap.

Table 5.1: Programs affected by the Roadmap

PROGRAM	CHANGE	SIZE	REASONING
Capex – Mains Replacement	No	N/A	Mains Replacement targets high risk and low performing assets which are driven by safety concerns.
Capex – Customer Connections	Yes	Material	Less will be spent on Customer Connections if developers do not fully reticulate their new estates or if customer preferences shift towards renewable options.
Capex – Meter Replacement	Yes	Immaterial	Meter replacement program addresses issues with ageing meter families which have failed the quality testing. The majority of the program will still be required to ensure integrity in billing for continuing customers. The volumes may change in the next period if there is material reduction in the installed meter base.
Capex – Augmentation	Yes	Modest	In the next regulatory period, we anticipate only a modest impact on our Augmentation program. Our Augmentation projects have been identified to address existing network issues. An immediate and material decrease in demand is required to defer many of our augmentation projects. Only projects scheduled into the latter half of the program can be deferred out of the regulatory period.
Capex – SCADA	No	N/A	Assets are becoming obsolete and must be replaced independent of the volume of gas flowing through the network.
Capex – ICT	No	N/A	Our investments are independent of customer numbers or volumes. We either make our investment or we accept the risk of continuing. We upgrade or refresh therefore based on risk of failure, security and industry technology shift. This relates to both capex and opex.
Capex – Other	No	N/A	Other category covers safety pipeline integrity, regulator security and performance and buildings. They are not affected by decreasing gas demand.
Capex – Capital Contributions	Yes	Material	It is likely that we would charge a higher percentage in contributions to recoup connection costs if the network is less likely to be utilised in the future. Existing customers should not have to subsidise new connections.

Source: AusNet

5.1.1. Residential Customer Connections Capex

Connections Capex relates to capital expenditure required to connect new properties to the network. This covers both greenfield connections, where new residential estates are reticulated with gas, and brownfield connections where a

building has been knocked down, rebuilt and reconnected to the network. As a result of the Roadmap, we are forecasting a decrease in both categories of connections.

Currently, almost all new greenfield estates are reticulated with gas. Moving forwards, we expect the proportion of residential estates reticulated to gradually decrease over the 5-year regulatory period, reaching approximately 50% by 2028 as a direct result of the Roadmap. We also expect a decline in the uptake of gas within estates that are reticulated to decline to 50% by 2028. As a result, the total number of new connections decreases to 25% of existing levels by the end of the regulatory period. We have phased in these impacts over time to reflect our understanding of likely transition periods and increasing awareness by eventual homeowners of all electric options for their new homes.

With respect to brownfield developments, it was previously assumed that all rebuilt buildings would reconnect to gas. Moving forward, it is assumed that only 25% of brownfield sites will reconnect to gas, consistent with the assumption for new estates.

Over the 5-year period, these reductions in both greenfield and brownfield connections equate to a 28% reduction in Connections Capex.

Table 5.2: Changes in the Residential Connections Capex forecast as a result of the Roadmap ($2022)

	JUN-2024	JUN-2025	JUN-2026	JUN-2027	JUN-2028	TOTAL
Pre Roadmap						
Gross Customers	18,938	19,529	20,107	19,614	19,103	97,290
Capex (m)	$40.4	$41.6	$42.9	$41.8	$40.7	$207.4
With Roadmap						
Gross Customers	17,405	14,370	10,856	7,100	5,197	54,927
Capex (m)	$38.5	$35.2	$30.6	$24.0	$20.1	$148.4

Source: AusNet

5.1.2. Capital Contributions

When a new estate connects to our network, we perform a cost/revenue test to determine whether any upfront capital contribution is required. If an estate is expected to provide more revenue through future tariffs than the cost of connecting them, then no capital contribution is required. In these circumstances, existing customers benefit because there are more customers to share a portion of the existing network costs. However, if the costs of connecting are higher than the expected tariff revenue, then a capital contribution is required to ensure that existing customers are not made worse off by connecting these new customers. Currently, the majority of new estates are not required to make a capital contribution. Across the network, approximately 9% of customer connections Capex is recovered through capital contributions.

Our capital contributions model has assumptions about the proportion of houses that will ultimately connect to the gas network and the amount of gas those homes will consume these are key inputs into calculating the expected tariff revenue and have been set based on historical experience.

We expect that in the future:

- Less houses in reticulated estates will connect to the gas network.
- Houses that do connect are likely to connect fewer gas appliances, leading to lower consumption per house.

These impacts will lead to a greater proportion of estates needing to make an upfront capital contributions. As such, we expect to recover a greater proportion of the connections capex upfront.

For the estates which still connect to gas, Capital Contributions are expected to rise from the current level of 9.5% of Connections Capex to approximately 50% by 2028. There is an offsetting impact, because estates which choose not to connect to gas will not require a Capital Contribution (as there is no work required from AusNet). The net impact is that over the 5-year regulatory period we expect that total contributions will more than double from previous estimates.

Table 5.3: Capital Contributions are forecasted to increase over time ($m, $2022)

	Jun-2024	Jun-2025	Jun-2026	Jun-2027	Jun-2028	Total
Pre Roadmap ($m)	$3.83	$3.95	$4.07	$3.97	$3.87	$19.70
With Roadmap ($m)	$4.95	$7.45	$9.67	$10.35	$10.04	$42.47
Increase ($m)	$1.12	$3.50	$5.60	$6.38	$6.17	$22.77
Increase (%)	29%	89%	138%	161%	159%	116%
Proportion of Connections Capex	13%	21%	32%	43%	50%	29%

Source: AusNet

5.1.3. Augmentation

In addition to the decreases in gas reticulation and gas uptake discussed above, we are also predicting a decrease in demand from existing customers, as well as an increase in disconnections caused by customers converting to electrical appliances. As a result of these decreases in forecasted growth and demand, AusNet is prepared to defer the installation of a new City Gate at Werribee out of the regulatory period. This results in a drop in Augmentation expenditure of approximately 14% over the 5-year period. We note that some facilities upgrades at the Heaths Road and Old Snyedes Road City Gates and pipeline reinforcement around Werribee is still required, even if a new city gate is not constructed in the next regulatory period.

Table 5.4: Werribee Augmentation capex ($m June 2023)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Original Proposal	1.1	0	0	0	5.9	**6.9**
Roadmap Update	1.1	0	0	0	2.6	**3.6**

5.2. Key Charts and Tables from our proposal updated

Table 5.5: Gross capex comparison 2024-28 ($m June 2023)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Original Proposal	117.8	122.2	119.5	106.8	96.7	**563.0**
6 Month Update + Q&A Changes	116.2	120.5	117.9	105.3	95.3	**555.2**
Roadmap Update	117.2	116.7	108.0	89.4	73.0	**504.4**
Change from 6 Month to Roadmap Update	1.1	-3.8	-9.9	-15.9	-22.3	**-50.8**

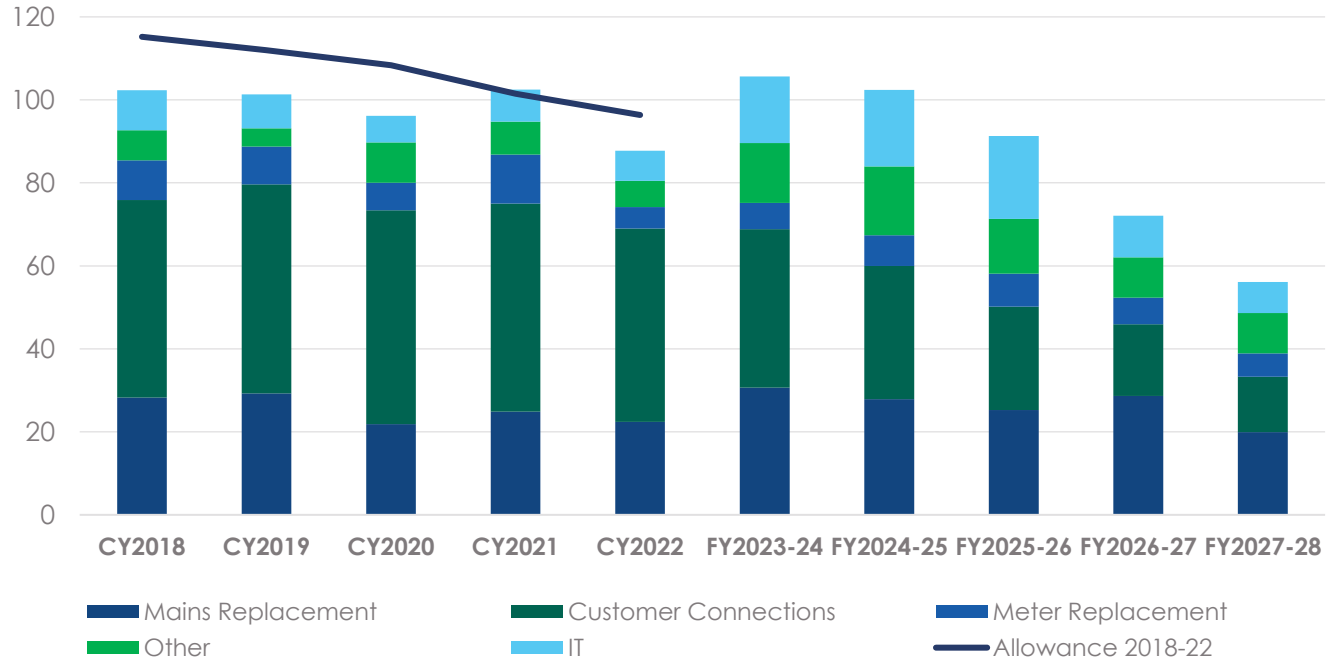
Source: ASG Proposal PTRM (2024-28)

We are now forecasting $504.4m gross capex over the forthcoming access arrangement period. This is 10.4% ($58.4 million) below the expected capex in the current access arrangement period and 8.9% ($49.4 million) below the approved capex in the current access arrangement period.[13] Capex is expected to drop rapidly throughout the period as connections capex declines. Future regulatory periods would then expect to see capex levels more than

[13] Any underspend in total capex in the current access arrangement represents savings that will be passed on to our customers. Customers benefit in the forthcoming and subsequent regulatory periods as there will be through lower capital base growth than would otherwise be the case.

50% lower than current annual expenditure as a result of the large reduction in connections and the completion of the low pressure mains replacement program by the end of this regulatory period.

Figure 5.1: Net capex, actual and forecast ($m, real 2023)



Source: AusNet

We are forecasting total gross capex of $504.4 million for the forthcoming access arrangement period, which equates to net expenditure of $427.6 million after customer contributions. Table 5.6 below, provides annual and total capex forecasts by expenditure category.

Table 5.6: Overview of our proposed capex by driver ($m, June 2023)

Capex by driver	CY2018	CY2019	CY2020	CY2021	CY2022	Jan-Jun 2023	FY2024	FY2025	FY2026	FY2027	FY2028	CY2018-22	FY2024-28
Mains replacement	28.3	29.3	21.9	24.9	22.4	22.3	30.6	27.9	25.2	28.6	19.9	**126.7**	**132.3**
Customer connections*	53.6	59.1	59.7	60.0	55.3	24.1	46.7	43.2	38.5	31.5	27.2	**287.7**	**187.0**
Meter replacement	9.5	9.1	6.6	11.8	5.2	3.1	6.3	7.4	8.0	6.4	5.7	**42.2**	**33.7**
Augmentation	0.4	1.3	4.3	5.8	3.9	2.7	4.9	6.5	3.6	2.1	2.6	**15.7**	**19.8**
SCADA	0.7	0.4	0.4	0.5	1.4	0.2	1.2	1.2	0.3	0.2	0.3	**3.4**	**3.2**
ICT	9.7	8.2	6.5	7.7	7.3	3.6	16.1	18.5	20.0	10.0	7.4	**39.3**	**72.0**
Other*	6.6	2.7	5.1	6.2	11.2	4.8	11.3	12.0	12.4	10.5	10.0	**31.7**	**56.3**
Total Gross capex	**108.8**	**110.0**	**104.4**	**117.0**	**106.5**	**60.7**	**117.2**	**116.7**	**108.0**	**89.4**	**73.0**	**546.7**	**504.4**
Customer contributions	-6.5	-8.7	-8.2	-14.5	-18.8	-7.2	-11.6	-14.3	-16.7	-17.3	-16.9	**-56.6**	**-76.8**
Net capex	**102.3**	**101.3**	**96.2**	**102.5**	**87.8**	**53.5**	**105.7**	**102.4**	**91.3**	**72.1**	**56.1**	**490.1**	**427.6**

Source: AusNet

Note: Some components in both the 'Customer connections' and 'Other' categories lead to up-front payments from customers. These are summated into the 'Customer contributions' category in table 5.6.

Table 5.7: Customer connections capex ($2023, $m)

Program	Volume	Capex ($m)
Residential connections	54,927	158.8
Commercial and Industrial Tariff V connections	723	19.5
Commercial and Industrial Tariff D connections		8.7
Gross customer connections		187.0
Customer contributions		-61.1*
Net customer connections		125.9

Source: AusNet, Capex model

Note: Some components in both the 'Customer connections' and 'Other' categories lead to up-front payments from customers. These are summated into the 'Customer contributions' category in table 5.2.

5.3. Supporting documents

As part of this addendum, we are resubmitting the following updated documents:

- ASG – GAAR 2024-28 – Capex Model - 2 SEP 2022 – PUBLIC
- ASG – GAAR 2024-28 – Capex Model - 2 SEP 2022 – CONFIDENTIAL

6. Operating expenditure

6.1. Changes as a result of the Roadmap

As a result of the Roadmap, we have examined the possible impact on our opex forecast. We have concluded the Roadmap will only impact the 'trend' component of the opex forecast as it is the only component that relates to demand and volumes. The changes to the opex forecast are largely flow on effects of CIE's revised demand. We have not changed the other elements as there will either be no impact, or the impact will be immaterial.

We have updated our opex forecast to align with CIE's revised demand reflecting the Roadmap, specifically:

- We have reduced our customer numbers (in the trend parameter) to reflect CIE's revised forecast.
- We have reduced our mains length forecast (in the trend parameter) to align with CIE's underlying forecasting assumptions i.e., a progressive reduction in the proportion of estates being installed with gas reticulation has reduced our mains length forecast.
- We have reduced productivity growth from 0.4% to 0% p.a. because productivity improvements are unlikely when:
    - The Roadmap is forcing networks to increasingly shift the focus of their operations from growing to just maintaining a safe and reliable network for a progressively smaller customer base i.e., significant investments or adoption of technology to drive efficiency or progress cannot be supported when the network is in decline or winding down.
    - We have not embedded any strategic or real augmentation capex that would unlock productivity gains. The only augmentation capex in our program relates to addressing existing network issues.
    - There is slowing and negative growth in customer numbers i.e., economies of scale will not exist.
    - We have already embedded $5.6 million of opex savings in our Original Proposal, which is equivalent to a productivity growth of 0.7% p.a. – further productivity savings cannot be sustained.

Additionally:

- We have updated the CPI to reflect the latest ABS and SoMP data release.
- While we have increased our IT step change by $0.9 million, we note that this is a mechanical adjustment related to the reduced trend parameter above. Our overall approach to IT has not changed between the Original Proposal and this Addendum (see discussion below).

We have not updated the following elements of our opex forecast:

- The choice of the base year because CY2021 remains the most recent year of available and audited data.
- Recovery of the ESV levies via the control mechanism because this approach ensures customers only pay for the exact levied amount (no more and no less) and it avoids the need for us to continually propose a step change for large increases in the ESV levies as seen in recent years. The AER's Final Decision for AusNet's 2013-17 access arrangement approved a step change for the ESV levies – this demonstrates that the levies may continually give rise to future step changes if it is the sole mechanism for cost recovery.
- The transfer of capitalised corporate overhead from capex to opex because in an environment where the future of the gas network is uncertain, lowering the amount of expenditure that is capitalised, lowers prices in the long term and also decreases the stranding risk that could be borne by AusNet and its customers.
- Priority Service Program because vulnerable customers need our support now, more than ever, to navigate a multitude of issues particularly the high cost of living.
- IT step change because these costs remain stable unless there are very large increases or decreases to customer numbers or volumes. We either incur these costs or we accept the risk of continuing our gas operations. We upgrade or refresh our IT based on risk of failure, security and industry technology shift and these factors have not been affected by the Roadmap.

6.2. Key Charts and Tables from our proposal updated

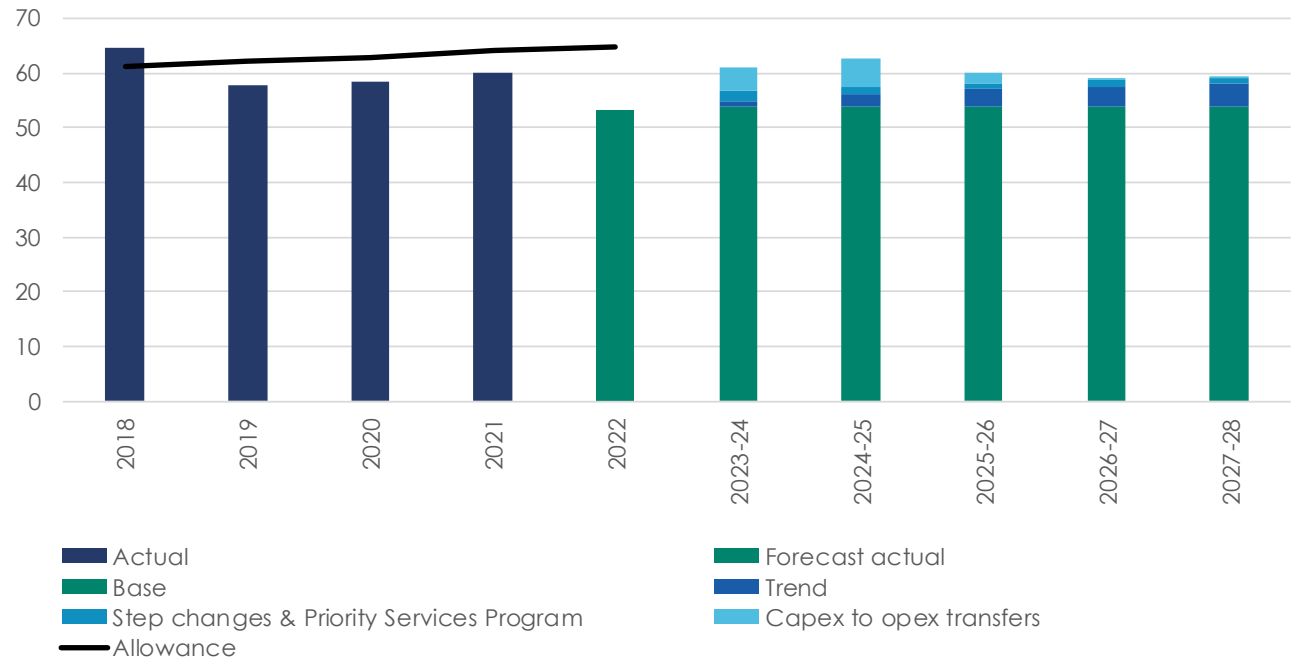
Table 6.1: Opex forecast (ex DRC) comparison 2024-287 ($m June 2023)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Original Proposal	60.0	61.7	59.5	59.4	60.0	**300.6**
6 Month Update + Q&A Changes	61.2	62.9	60.7	60.5	61.1	**306.4**
Roadmap Update	61.0	62.5	60.0	59.2	59.2	**302.0**
Change from 6 Month to Roadmap Update	-0.2	-0.4	-0.7	-1.3	-1.9	**-4.5**

Source: ASG Proposal PTRM (2024-28)

Actual, estimated and forecast controllable opex for the current and forthcoming access arrangement periods are shown in the figure below.

Figure 6.1: Summary of operating expenditure forecast excluding debt raising costs ($m, June 2023)



Source: AusNet

Table 6.2: Summary of operating expenditure forecast ($m, June 2023)

	2023-24	2024-25	2025-26	2026-27	2027-28	TOTAL
Base	53.7	53.7	53.7	53.7	53.7	**268.7**
Trend	1.2	2.3	3.2	3.8	4.2	**14.8**
Capex to opex transfers	4.4	5.2	2.0	0.6	0.3	**12.4**
Step changes	(0.0)	0.4	0.4	0.4	0.3	**1.5**

Priority Service Program	1.7	0.9	0.6	0.6	0.6	**4.5**
Total opex excluding debt-raising cost	61.0	62.5	60.0	59.2	59.2	**302.0**
Debt raising cost	0.9	0.9	0.9	0.9	0.9	**4.4**
Total opex including debt-raising cost	61.9	63.4	60.9	60.1	60.1	**306.4**

Source: AusNet

Note: Excludes ESV levies as we have proposed its recovery via the control mechanism.

Table 6.3: Rate of change (%)

	2023-24	2024-25	2025-26	2026-27	2027-28
Output growth	1.86%	1.38%	1.07%	0.66%	0.43%
Real price growth	0.38%	0.56%	0.62%	0.36%	0.30%
Productivity growth	0.00%	0.00%	0.00%	0.00%	0.00%
Rate of change (YoY)	2.26%	1.95%	1.70%	1.02%	0.72%

Source: AusNet

Table 6.4: Output growth rates (%)

	2023-24	2024-25	2025-26	2026-27	2027-28
Customer	1.64%	0.95%	0.54%	0.01%	-0.31%
Mains length	2.04%	1.74%	1.50%	1.20%	1.03%
YoY growth	1.86%	1.38%	1.07%	0.66%	0.43%

Source: AusNet

Table 6.5: Customer growth

	2023-24	2024-25	2025-26	2026-27	2027-28
Residential	775,783	783,255	787,570	787,612	785,044
Commercial	16,754	16,808	16,864	16,918	16,970
Total	792,537	800,063	804,434	804,530	802,014
YoY growth %	1.64%	0.95%	0.54%	0.01%	-0.31%

Source: CIE

Table 6.6: Mains length growth

	2023-24	2024-25	2025-26	2026-27	2027-28
Mains length	12,833	13,058	13,255	13,415	13,554
YoY growth %	2.04%	1.74%	1.50%	1.20%	1.03%

Source: AusNet

Table 6.7: Productivity growth

	2023-24	2024-25	2025-26	2026-27	2027-28
Productivity	0%	0%	0%	0%	0%

Source: AusNet

6.3. Supporting documents

In additional to the PTRM and relevant parts of the RIN templates submitted as part of this proposal, the following documents are provided in support of this chapter:

- ASG – GAAR 2024-28 Opex Model – 2 SEP 2022 – PUBLIC
- ASG – GAAR 2024-28 - EPA cost build up – 2 SEP 2022 – CONFIDENTIAL

7. Capital base

7.1. Changes as a result of the Roadmap

The closing capital base is lower due to reductions in capex because of the Roadmap update and as a result of increasing the accelerated depreciation by $50m.

7.2. Key Charts and Tables from our proposal updated

Table 7.1 below shows the projected capital base for the modified Proposal compared with the original Proposal while Table 7.2 also disaggregates the effect of the 6-month and other minor adjustments (an increase of $1.3m in total) from the Roadmap impacts (a decrease of $157.6m in total), for a net change of $156.3m when compared to the original Proposal.

Table 7.1: Projected capital base ($m nominal)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28
Opening capital base	1,862.5	1,909.0	1,952.3	1,977.8	1,974.7
Net capex	111.5	109.7	100.7	81.9	65.6
Straight line depreciation	-120.8	-123.7	-133.8	-144.3	-152.6
Inflation on Opening capital base	55.9	57.3	58.6	59.3	59.2
Closing capital base	**1,909.0**	**1,952.3**	**1,977.8**	**1,974.7**	**1,947.0**
Change from Original Proposal	-11.4	-33.5	-65.8	-106.8	-156.3

Source: ASG Proposal PTRM (2024-28)

Note: We have forecast zero asset disposals over the 2024 to 2028 access arrangement period.

Table 7.2: Projected capital base comparison ($m nominal)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28
Original Proposal	1,920.4	1,985.8	2,043.6	2,081.4	2,103.3
6 Month Update + Q&A Changes	1,922.9	1,987.8	2,045.1	2,082.8	2,104.6
Roadmap Update	1,909.0	1,952.3	1,977.8	1,974.7	1,947.0
Change from 6 Month to Roadmap Update	-13.9	-35.5	-67.3	-108.1	-157.6

Source: ASG Proposal PTRM (2024-28)

7.3. Supporting documents

The following documents are provided in support of this chapter:

- ASG - GAAR 2024-28 PTRM - 2 SEP 2022 – PUBLIC
- ASG - GAAR 2018-23 RFM (5.5 Years) - 2 SEP 2022 - PUBLIC

8. Depreciation

8.1. Changes as a result of the Roadmap

The main change to depreciation is as a result of increasing accelerated depreciation via the Future of Gas modelling from $150m to $200m. There are also minor changes as a result of:

- a lower capital base (due to lower capital expenditure);
- accepting elements of the AER's draft decision on the 6 month period; and
- updates to address issues identified by the AER in the ongoing Q&A process.

8.2. Key Charts and Tables from our proposal updated

Table 8.1: Proposed long Future of Gas accelerated depreciation 2024-287 ($m June 2023)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Accelerated depreciation - Future of gas	26.0	26.0	26.0	26.0	26.0	**129.9**
Existing asset classes offset	-3.2	-3.2	-3.2	-3.2	-3.2	**-16.2**
Net accelerated depreciation	**22.7**	**22.7**	**22.7**	**22.7**	**22.7**	**113.7**
Net FoG Acc Dep – Original Proposal	12.7	12.7	12.7	12.7	12.7	**63.7**
Change from Original Proposal	10.0	10.0	10.0	10.0	10.0	**50.0**

Source: ASG Proposal PTRM (2024-28)

Table 8.2: Long life assets accelerated depreciation 2024-28 ($m June 2023)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28		Total
Existing assets		77.3	70.5	69.8	69.2	68.4	**355.2**
Accelerated depreciation – Asset lives		17.3	17.3	17.3	17.3	17.3	**86.3**
Accelerated depreciation - FoG		22.7	22.7	22.7	22.7	22.7	**113.7**
New assets		-	6.1	12.6	19.1	23.2	**61.0**
Less indexation on opening capital base		-54.2	-54.0	-53.6	-52.7	-51.1	**-265.6**
Net depreciation allowance		**63.1**	**62.6**	**68.8**	**75.5**	**80.5**	**350.6**
Change from Original proposal	8.7	9.3	9.5	9.8	10.0		**47.2**

Source: AusNet Services PTRM Model (2024-28)

Table 8.3: Net depreciation allowance comparison 2024-287 ($m June 2023)

Regulatory year	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Original Proposal	54.4	53.4	59.3	65.8	70.5	**303.4**
6 Month Update + Q&A Changes	53.1	52.3	58.2	64.6	69.3	**297.6**
Roadmap Update	63.1	62.6	68.8	75.5	80.5	**350.6**
Change from 6 Month to Roadmap Update	10.0	10.3	10.6	10.9	11.2	**53.0**

Source: ASG Proposal PTRM (2024-28)

8.3. Supporting documents

The following documents are provided in support of this chapter:

- ASG - GAAR 2018-23 Depreciation Tracking Model - 2 SEP 2022 – PUBLIC
- ASG - GAAR 2018-23 Depreciation Tracking Model - 2 SEP 2022 – PUBLIC

The Future of Gas Models (as detailed in Chapter 3) are also relevant for this chapter.

9. Total revenue

9.1. Changes as a result of the Roadmap

Our revenue requirement (unsmoothed, nominal) is $69.2m higher than the original proposal. This is due to the following impacts

- Return on Capital is $10.6m lower due to lower capital base (as a result of reduced capital expenditure and higher accelerated depreciation).
- Return of Capital is $52.3m higher due to increased accelerated depreciation.
- Revenue Adjustments are $12.2m higher. This is mainly due AusNet accepting the AER's draft decision on the 6 month period. We have accepted the AER extending the 2022 tariffs by indexing for a half year of inflation (rather than a full year as we originally proposed. This has reduced the negative true up in the 2024-28 period.
- Tax Allowance is $13.6m higher due to the lower capex from the Roadmap update (which reduces the tax offsets) and higher revenue, largely from the higher accelerated depreciation.

9.2. Key Charts and Tables from our proposal updated

Our revenue requirement is $1,260.4 million (unsmoothed, nominal). The various revenue components are set out by year in the table below.

Table 9.1: Total building block revenue requirement ($m, nominal, unsmoothed)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Return on Capital	94.9	96.3	97.4	97.5	96.3	**482.4**
Return of Capital	65.0	66.4	75.2	85.0	93.3	**385.0**
Operating Expenditure[14]	63.8	67.3	66.5	67.6	69.6	**334.8**
Revenue Adjustments	-3.6	5.5	1.6	1.7	1.9	**7.1**
Net Tax Allowance	11.5	9.5	9.2	10.0	10.9	**51.1**
Unsmoothed Revenue Requirement	**231.6**	**245.0**	**249.9**	**261.9**	**272.0**	**1,260.4**

Source: AusNet Services PTRM (2024-28). Excluding Ancillary Reference Services

Revenue adjustments in the table above includes our updated EBSS of $12.3 million. Our EBSS has increased from $10.8 million in our Original Proposal to $12.3 million in this Addendum because we have updated our approach to align with our Revised Proposal to the AER's Draft Decision for the extension period from 1 January to 30 June 2023. We have also updated our CPI forecast to align with the latest ABS and SoMP data release. Our update to the EBSS is not related to the Roadmap.

Importantly, the EBSS carryover amounts related to 2015 and 2017 includes Ancillary Reference Services, while the amounts for 2018 to 2022 do not. The Ancillary Reference Services forecast for 2023-24 to 2027-28 (the Sixth Access

[14] Excluding Ancillary Reference Services

Arrangement Period) was based on a bottom-up approach and not a single year revealed cost approach – this excludes Ancillary Reference Services from being included in the EBSS for 2018 to 2022. See clause 6.4.2(g)(3) of AusNet's Reference Tariffs and Reference Tariff Policy document (Part B) for the 2018 to 2022 access arrangement period. We also confirm that the total opex amounts reported in our RINs, for 2018 to 2021, are exclusive of debt-raising cost. See our Revised Proposal for more information.

Table 9.2: Change from Original Proposal ($m, nominal, unsmoothed)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Return on Capital	0.1	-0.6	-1.7	-3.2	-5.2	**-10.6**
Return of Capital	8.9	9.9	10.5	11.1	11.8	**52.3**
Operating Expenditure[15]	1.1	1.0	0.5	-0.1	-0.8	**1.7**
Revenue Adjustments	12.3	0.0	-0.1	-0.1	-0.1	**12.2**
Net Tax Allowance	1.8	2.4	2.9	3.2	3.4	**13.6**
Unsmoothed Revenue Requirement	**24.2**	**12.7**	**12.1**	**11.0**	**9.2**	**69.2**

Source: AusNet Services PTRM (2024-28). Excluding Ancillary Reference Services

Table 9.3: Total smoothed revenue requirement ($m, $June 2023)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue required	224.9	227.7	230.8	233.4	235.2	**1,152.0**
Price change (% real)	2.87%	1.37%	1.37%	1.37%	1.37%	
Change from Original Proposal	23.4	19.0	13.7	7.0	-1.0	**62.1**

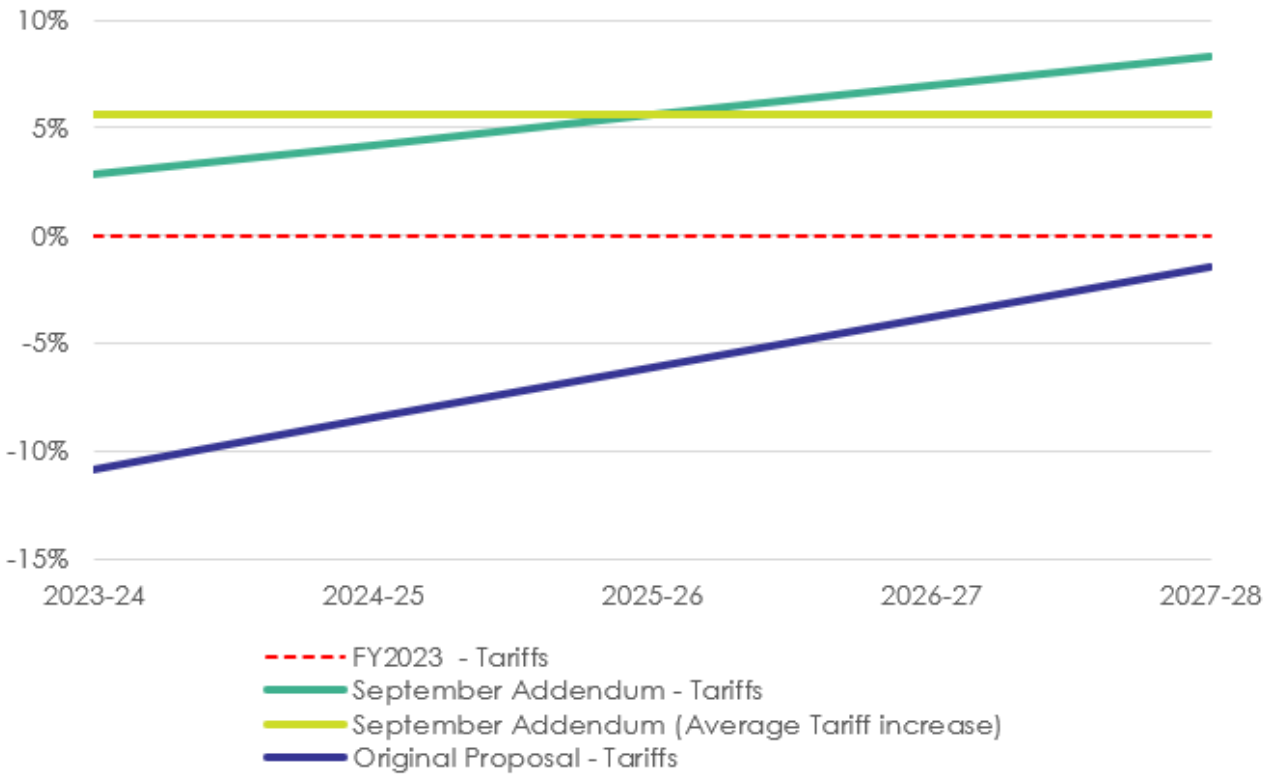
Source: AusNet Services PTRM (2024-28)

9.2.1. Affordability and price/bill outcomes

As for our original Proposal, we have balanced the adjustments we have made to account for the increased stranding risk with the importance of maintaining affordability. Our amended Proposal results in a small real price increase for customers of around 5.5% on average over the period (see Figure 9.1) and because per customer consumption is forecast to continue to fall, the average bill in the new period will remain 2% lower than the current period in real terms (see figure 9.2). After these changes, AusNet should remain the lowest cost distribution network in Victoria.

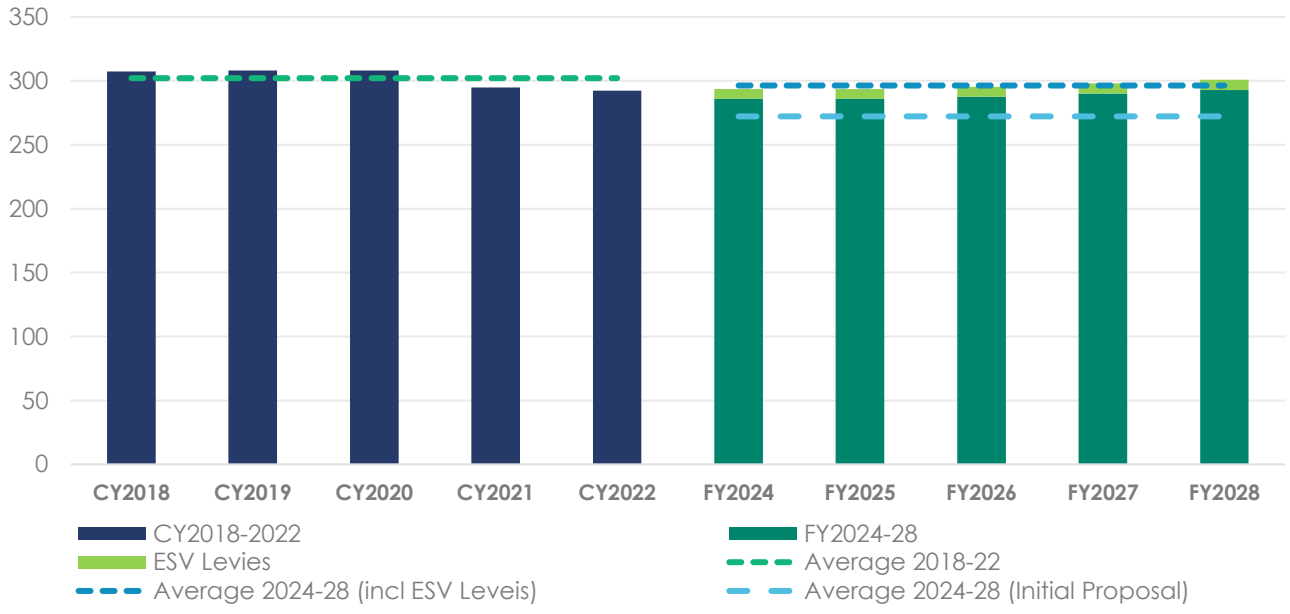
[15] Excluding Ancillary Reference Services

Figure 9.1: Real Price Increases



Source: AusNet

Figure 9.2: Average smoothed revenue per customer ($ June 2023)



Source: AusNet

The table below shows the average bill expected per customer in nominal dollars.

Table 9.4: Average bill by customer type ($nominal)

CUSTOMER TYPE	VOLUME	2022-23 (CURRENT)	2023-24 (YEAR 1)	2024-25	2025-26	2026-27	2027-28
Small residential (GJ)	15	$187	$199	$207	$216	$226	$236
Medium residential (GJ)	40	$255	$270	$282	$295	$308	$321
Large residential (GJ)	70	$337	$357	$372	$389	$406	$424
Small commercial (GJ)	15	$194	$205	$214	$224	$233	$244
Medium commercial (GJ)	75	$377	$400	$417	$436	$455	$475
Large commercial (GJ)	700	$2,291	$2,428	$2,535	$2,647	$2,763	$2,885
Small industrial (MHQ)	5	$1,600	$1,695	$1,770	$1,848	$1,929	$2,014
Medium industrial (MHQ)	20	$6,247	$6,619	$6,911	$7,215	$7,533	$7,865
Large industrial (MHQ)	80	$19,828	$21,009	$21,935	$22,901	$23,910	$24,964

Source: AusNet

9.3. Supporting documents

The following documents are provided in support of this chapter:

- ASG - ARS revenue & expenditure forecast HY23 and 2024-28 - 2 SEP 2022 – CONFIDENTIAL
- ASG – GAAR 2024-28 – Proposal PTRM - 2 SEP 2022 – PUBLIC
- ASG - GAAR ARS revenue & expenditure forecast HY23 and 2024-28 - 2 SEP 2022 - PUBLIC
- ASG - GAAR 2024-28 EBSS - 2 SEP 2022 – PUBLIC
- ASG - GAAR 2024-28 CESS - 2 SEP 2022 - PUBLIC

10. Reference tariffs

10.1. Changes as a result of the Roadmap

The following tables have been updated to reflect changes to our proposal as a result of the Roadmap.

Table 10.1: LRMC results – Domestic

Pricing zone	Peak ($/GJ)	Off peak ($/GJ)
Central	$1.7399	$0.0644
West	$1.8975	$0.0714
Adjoining Central	$1.4247	$0.0514
Adjoining West	$2.0303	$0.0745

Table 10.2: LRMC results – Non-Domestic

Pricing zone	Peak ($/GJ)	Off peak ($/GJ)
Central	$0.3311	$0.0030
West	$0.0590	$0.0005
Adjoining Central	$0.0085	$0.0001
Adjoining West	$0.0122	$0.0001

Source: AusNet

Table 10.3: Small customers stand alone and avoidable cost results

Tariff class	Stand alone	Avoidable cost	Average revenue
Central – Domestic	$2,172	$661	$984
West – Domestic	$2,293	$556	$826
Adjoining Central – Domestic	$1,647	$775	$1,154
Adjoining West – Domestic	$2,426	$868	$1,291
Central – Non-domestic	$21,904	$1,141	$1,701
West – Non-domestic	$13,551	$710	$1,058
Adjoining Central – Non-domestic	$8,469	$1,838	$2,743
Adjoining West – Non-domestic	$16,638	$3,186	$4,754

Source: AusNet

Table 10.4: Large industrial customers stand alone and avoidable cost results

Tariff class	Stand alone	Avoidable cost	Average revenue
Tariff D – 0m from transmission with MHQ of 387 GJ/hr	$483 per MHQ	$162 per MHQ	$203 per MHQ
Tariff D – above the MHQ of 387 GJ/hr threshold	$913 - $389 per MHQ	$129 - $55 per MHQ	$203 per MHQ
Tariff M -0m from transmission assuming usage equivalent to citigate capacity of 387 GJ/hr	$483 per MHQ	$162 per MHQ	$264 per MHQ
Tariff M – 825m from transmission assuming average usage equivalent to citygate capacity of 387 GJ/hr	$528 per MHQ	$162 per MHQ	$264 per MHQ
Tariff M – 0m from transmission assuming largest Tariff M customers of 102 MHQ and citygate of 387 GJ/hr	$1,840 per MHQ	$162 per MHQ	$264 per MHQ

Source: AusNet

Table 10.5: Tariff V Haulage Reference Services

Central	Unit	Domestic	Non-domestic
Fixed charge	$/day	0.4854	0.5067
Peak 0 – 0.1	$/GJ	6.6866	1.2046
Peak > 0.1 – 0.2	$/GJ	4.0302	1.1476
Peak > 0.2 – 1.4	$/GJ	0.7007	1.0327
Peak > 1.4	$/GJ	0.6294	0.7883
Off peak 0 – 0.1	$/GJ	2.2665	1.1414
Off peak > 0.1 – 0.2	$/GJ	1.7912	0.7986
Off peak > 0.2 – 1.4	$/GJ	0.6865	0.6575
Off peak > 1.4	$/GJ	0.2435	0.6374

West	Unit	Domestic	Non-domestic
Fixed charge	$/day	0.4854	0.5067
Peak 0 – 0.1	$/GJ	3.5344	1.8409
Peak > 0.1 – 0.2	$/GJ	2.5450	1.5515
Peak > 0.2 – 1.4	$/GJ	0.8221	0.9585
Peak > 1.4	$/GJ	0.7880	0.3594
Off peak 0 – 0.1	$/GJ	1.0928	0.8530
Off peak > 0.1 – 0.2	$/GJ	1.0241	0.7186
Off peak > 0.2 – 1.4	$/GJ	0.5839	0.3463
Off peak > 1.4	$/GJ	0.1152	0.2576

Adjoining Central	Unit	Domestic	Non-domestic
Fixed charge	$/day	0.4854	0.5067
Peak 0 – 0.1	$/GJ	10.9506	4.5025
Peak > 0.1 – 0.2	$/GJ	7.8918	4.2905
Peak > 0.2 – 1.4	$/GJ	2.8109	4.0559
Peak > 1.4	$/GJ	2.6954	3.8308
Off peak 0 – 0.1	$/GJ	4.9042	4.1445
Off peak > 0.1 – 0.2	$/GJ	2.8441	3.9785
Off peak > 0.2 – 1.4	$/GJ	2.4747	3.8552
Off peak > 1.4	$/GJ	2.3799	3.7610

Adjoining West	Unit	Domestic	Non-domestic
Fixed charge	$/day	0.4854	0.5067
Peak 0 – 0.1	$/GJ	7.6736	5.5561
Peak > 0.1 – 0.2	$/GJ	6.4427	5.2153
Peak > 0.2 – 1.4	$/GJ	3.3065	4.4795
Peak > 1.4	$/GJ	2.9657	3.9375
Off peak 0 – 0.1	$/GJ	4.5537	4.2714
Off peak > 0.1 – 0.2	$/GJ	3.4439	4.0641
Off peak > 0.2 – 1.4	$/GJ	2.4659	3.5530
Off peak > 1.4	$/GJ	2.3887	3.3834

Source: AusNet

Table 10.6: Tariff M Haulage Reference Services

Blocks	Central	West	Adjoining Central	Adjoining West
0 – 10 MHQ (GJ/hr)	775.8712	775.8712	775.8712	775.8712
10 – 50 MHQ (GJ/hr)	738.9526	738.9526	738.9526	738.9526
>50 MHQ (GJ/hr)	154.2948	154.2948	154.2948	154.2948

Source: AusNet

Table 10.7: Tariff D Haulage Reference Services

Blocks	Central	West	Adjoining Central	Adjoining West
0 – 10 MHQ (GJ/hr)	353.9345	353.9345	353.9345	353.9345
10 – 50 MHQ (GJ/hr)	337.0833	337.0833	337.0833	337.0833
>50 MHQ (GJ/hr)	163.6581	163.6581	163.6581	163.6581

Source: AusNet

10.2. Supporting documents

The following documents are provided in support of this chapter:

- ASG - Gas Tariff Approval Model - Aug 2022 - PUBLIC

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