

14 February 2025

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Chair
Australian Energy Market Commission
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Sydney NSW 2000

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Submitted electronically via the AEMC Rule change portal

RULE CHANGE REQUESTS: GAS DISTRIBUTION NETWORKS.

Dear Ms ~~Collyer~~ *Anna*

Energy Consumers Australia (ECA) is pleased to submit four rule change proposals which aim to update the National Gas Rules (NGR) and ensure they remain fit-for-purpose in a transitioning energy system.

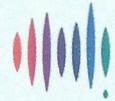
The current NGR are no longer adequately promoting the long-term interests of consumers in the context of increased household and small business electrification and a gas distribution network in decline. This document outlines four urgent amendments we believe are necessary for the NGR to continue to meet the National Gas Objective (NGO).

As consumers take up the opportunities electrification presents, they leave behind a network of gas distribution pipelines worth a combined \$11 billion.¹ However, the reality of gas network decline is not currently reflected in the NGR, which were created with the expectation of ongoing growth of the network.

This suite of rule changes will require gas distribution networks to proactively plan for the future of their networks and make decisions which will minimise any further non-critical investment. They also aim to increase the tools and information regulators, councils, governments, electricity distribution networks, advocates and other stakeholders have available to them to start actively planning for how we can fairly transition away from gas.

Failing to proactively and effectively address the decline of the network poses significant risk to consumers. Our Stepping Up report found that network prices on household gas bills would more than quadruple – from \$280 per year today to \$1,170 in 2050.² This is because, as consumers leave the gas network, the costs of maintaining and operating the network will be shared by an ever-decreasing pool of consumers, many or perhaps most of whom will be in profoundly vulnerable circumstances and least able to electrify.

Our report with Dynamic Analysis found that limiting any further spending on gas networks must be a priority for reducing the risks associated with stranded assets.³ We are confident that these four proposed changes to the NGR are necessary to ensure any future spending is prudent and that consumer interests are being prosecuted in gas network planning arrangements.



The enclosed rule change proposal includes relevant detail and argument on the four rule change requests along with suggested drafting – as an appendix – for one (that is, requiring new consumers to pay the upfront costs of connecting to the network).

Throughout the development of these rule change proposals we have engaged with a range of stakeholders, including the AEMC, AEMO, AER, Commonwealth and jurisdictional departments, Energy Networks Australia, the Australian Energy Council, and other consumer advocates.

We sincerely thank members of your team who provided critical and constructive feedback on early drafts of the rule change requests. We also thank Kieran Donoghue from Newgrange Consulting and the Justice and Equity Centre, who provided essential support in the development of the enclosed proposals.

These rule changes are crucial to ensure that consumer interests are adequately protected in the transition from gas. We look forward to engaging with the Commission and other stakeholders throughout the rule change process. Please contact me should you wish to discuss further.

Yours sincerely

A handwritten signature in blue ink that reads "Brendan French".

Brendan French
Chief Executive Officer

Gas Distribution Network Rule Change Requests

DATE: 14/02/2025

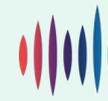


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1 Rule Change Proponent Details

Brendan French
Chief Executive Officer
Energy Consumers Australia

2 Executive Summary

Net zero targets and the economic benefits of electrification for households have profound implications for gas distribution networks and create risks for gas consumers. Australian residential and commercial gas use is expected to decline 72% by 2043¹ and to be largely non-existent by 2050² as households and businesses electrify and leave the gas network.

The Commonwealth Government's Future Gas Strategy says "households and small businesses will have, for the most part, electrified by 2050"³ as:

*"Most households are likely to embrace opportunities to reduce their energy bills and emissions by switching from gas to electric appliances when existing appliances need replacing."*⁴

The Commonwealth has also provided funding to support this transition.⁵

Multiple analyses indicate that electric cooking, heating and hot water is cheaper across a wide range of household customers. In many cases, this holds even after accounting for appliance conversion costs; the cost advantage is even higher for new homes.

If households and small businesses take advantage of government incentives and realize the benefits of electrification, there are multiple impacts to gas distribution networks. As large numbers of users leave, many of their assets will become stranded – unused before their economic life ends. Furthermore, because households pay more than 90% of gas distribution network revenue, these networks may lack the funding necessary to pay for on-going operations.⁶

The impacts on gas consumers are just as significant. In a 2023 report for Energy Consumers Australia, CSIRO undertook modelling to determine the impacts to household energy bills under the Integrated System Plan's 'step change' or central planning scenario. The modelling showed that network prices on household gas bills would more than quadruple – from roughly \$280/year today to \$1,170 in 2050.⁷ Overseas industry observers have noted that the price impacts could be even more severe. Ofgem, the British energy regulator, states that "network charges could rise by a factor of 10 within 20 years."⁸

The Commonwealth's *Future Gas Strategy* notes these issues and potential repercussions: "The rising cost of remaining on the reticulated gas network can provide the economic incentive to transition for those

¹ AEMO, 2024 Gas Statement of Opportunities (GSOO), Step Change Scenario accessed via gas forecasting data portal.

² Reedman, et. al., Multi-sector energy modelling 2022: Methodology and results: Final report, CSIRO Report No. EP2022-5553, Australia. P. 59

³ Australian Government Department of Industry, Science and Resources, [Future Gas Strategy](#), 2024. p. 38

⁴ Australian Government Department of Industry, Science and Resources, [Future Gas Strategy](#), 2024. p. 42

⁵ For example via the [Household Energy Upgrades Fund](#)

⁶ AER, 2022 Gas Network Performance Report, Figure 7-9.

⁷ Graham, P., et. al., 2023, Consumer impacts of the energy transition: modelling report, CSIRO, Newcastle.

⁸ Jan Rosenow, et. al. 2024 "[The elephant in the room: How do we regulate gas transportation infrastructure as gas demand declines?](#)", One Earth, Volume 7, Issue 7, pp. 1158-1161



able to control – and afford – the cost of switching. However, renters, those in community and social housing, and low-income households, have limited or no control over whether they electrify, even where they might want to transition.”⁹ Many if not all of these consumers are likely to be left using the gas network into the future.

Some are holding out for the possibility of widespread conversion of gas distribution networks to carry green hydrogen or biomethane. There are barriers to this happening at scale for low pressure networks: green hydrogen would be significantly more expensive than electrification while also requiring appliance conversion and multiple logistical challenges.^{10;11} The total annual production potential for biomethane in Australia is 371 PJ – only 25% of annual domestic gas use.¹² Outside of residential and commercial users, the existing gas demand that must be decarbonised to meet 2050 net zero targets is 3 times larger than biomethane potential.¹³ The feedstocks for biomethane are limited, and there are expected to be higher value uses for the scarce and expensive feedstock (e.g. aviation fuel, hard-to-abate industrial uses, gas powered generation) than household and small business use.

Even if some parts of the low-pressure gas network are still used by hard-to-electrify customers beyond net zero target dates, there is an overwhelming likelihood that large parts of the network will no longer be used. Recently, AusNet Gas Services stated the conclusion concisely in its application to the Australian Energy Regulator (AER) to reopen its access arrangement: “long term [gas] network decline is now inevitable”.¹⁴

Despite this obvious and growing risk, current and recent regulatory processes have seen gas distribution networks continue to seek large capital expenditure (capex) allowances. In two cases (Multinet in Victoria and ATCO in Western Australia), allowed capex exceeds that of the previous period. Simultaneously, gas distribution networks have also sought accelerated depreciation allowances, protecting their investors against stranded asset risk by recovering revenue at a faster rate from customers. Gas distribution networks have also sought to introduce high abolishment fees (\$800-\$1,500), which serve to disincentivise customers from disconnecting from the network. In addition, the likelihood of future abolishment costs does not appear to be factored into relevant capex assessments, such as connections and replacement (repex).

This inconsistent approach to stranded asset risk is not in the long-term interest of consumers, who are losing all ways: being exposed to future stranded asset risk while paying for accelerated depreciation on existing assets. While the relevant regulators – the Australian Energy Regulator (AER) and the Economic Regulation Authority (ERA) of WA – have used their powers under the Rules to reduce capex claims, we are concerned that this does not result in a significant enough reduction in expenditure when the full context is considered.

Gas distribution networks have fewer information provision requirements compared to electricity networks.¹⁵ While the electricity system has widespread planning requirements – the Integrated System Plan, Distribution Annual Planning Reports, and Regulatory Investment Tests for new investments – there

⁹ Australian Government Department of Industry, Science and Resources, [Future Gas Strategy](#), 2024. p. 41

¹⁰ Rosenow, J. 2024, A meta-review of 54 studies on hydrogen heating. *Cell Reports Sustainability*

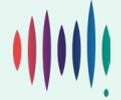
¹¹ Rosenow, J. 2022, Is heating homes with hydrogen all but a pipe dream? An evidence review.

¹² ECA analysis of DISR [Future Gas Strategy Analytical Report](#) and ARENA, [Australia's Bioenergy Roadmap Appendix – Resource Availability](#), November 2021

¹³ ECA analysis of DISR [Future Gas Strategy Analytical Report](#) and ARENA, [Australia's Bioenergy Roadmap Appendix – Resource Availability](#), November 2021

¹⁴ AusNet, [Reopener cover letter](#), October 2024

¹⁵ See Dynamic Analysis, [Turning down the gas - Minimising consumer risk](#), September 2024 for an outline of the differences in data collected



is, in fact, no planning requirement on gas distribution networks. Despite facing a high degree of uncertainty, gas distribution networks have no requirement to develop and share plans for the expected future of their systems. Gas distribution networks do not share maps of their network indicating where many consumers still exist and where only few are left, nor do they make forward looking projections about where they anticipate disconnections to happen most quickly. They also fail to provide insights into gas pipelines that may require replacement beyond the five-year cycle of their existing access arrangement. Such information would be valuable to many stakeholders, including state, territory, and local governments and electricity distribution networks, who could use these insights to deliver a lower cost energy transition overall.

Regulatory change is urgently needed to reflect these growing risks and deficiencies in order to better meet the National Gas Objective (NGO).

Energy Consumers Australia has identified four key areas in which the National Gas Rules (NGR) should be amended to recognise and address these risks:

- a. Amendment to the rules for new gas connections to require the connecting party to pay up front for their connection, to ensure other users of the gas network are not exposed to the risk of these connections becoming stranded assets.
- b. New planning requirements for gas distribution networks, to ensure regulators, governments, electricity distribution networks and other stakeholders have the necessary information to better understand opportunities to minimise capital expenditure and overall energy system costs.
- c. Amendment to the depreciation rules, to put stronger conditions around the ability of gas distribution networks to accelerate the depreciation of their regulated assets.
- d. Amendment to the capital expenditure criteria rules, to ensure that declining use of the gas network is properly considered in evaluating whether a capital project is justifiable.



3 Applicability of rule change proposals

The focus of our rule change proposals is on gas distribution networks. Energy Consumers Australia represents household and small business energy consumers. In the context of reticulated gas, small users are connected to the low-pressure component of distribution networks. They outnumber large customers and pay the vast majority of distribution charges. Indeed, the best data available indicates that households alone pay more than 93% of the cost of the gas distribution network.¹⁶

While all gas distribution consumers indirectly pay transmission costs, they are a smaller part of the bill. Transmission costs are apportioned more broadly, including to some very large users connected directly to transmission pipelines. While gas transmission networks are not immune to the same issues that threaten distribution networks, they are a discrete topic that we have not explored in detail. Seventy percent of Australia's overall gas production is sent overseas, and it reaches port via transmission networks;¹⁷ the impact on these facilities is not our focus or area of expertise. Other large consumers that connect directly to gas transmission networks use gas in ways that are less easily substitutable than gas consumed via the distribution network.

Two of the four rule change proposals – the accelerated depreciation and the capex proposals – are relevant only to scheme pipelines. Non-scheme pipelines are not price-regulated and do not have to seek regulatory approval to recover the costs of their capital expenditure. The other two proposals – the connections and planning proposals – are intended to apply to all distribution network pipelines.

¹⁶ AER, 2022 Gas Network Performance Report, Figure 7-9.

¹⁷ Geosciences Australia, [Australia's Energy Commodity Resources 2024](#)



4 Background

Australians have been aware of the need to reduce greenhouse gas emissions for several decades. Natural gas (methane) is a greenhouse gas with a global warming potential 28 times carbon-dioxide.¹⁸ When combusted, it converts into carbon dioxide. Most of the gas that flows through their networks will be combusted (some is used as a feedstock for chemical processes) and thus contribute to climate change. Methane that leaks from gas pipelines contributes directly to climate change as well.

The more recent introduction of legislated net zero targets at both national and jurisdictional levels¹⁹ has only crystallised the timeframes for decarbonisation rather than introduced it as a constraint. To facilitate achievement of these targets, Victoria²⁰ and ACT²¹ have already introduced restrictions on gas network connections and incentives for gas users to switch to electric alternatives. In both cases, these policies are forecast to drive a significant reduction in reticulated gas use over the next decade. Four of the seven gas distribution networks subject to full regulation are in these jurisdictions (See Table 1).

Table 1: List of major gas distribution networks

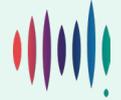
Network	Jurisdiction	form of regulation	Jurisdictional policy	customers	km pipelines	RAB (\$m)	regulatory period
Multinet	Vic	full	Gas Substitution Roadmap	719,436	10,143	1,300	1 Jul 2023 - 30 Jun 2028
Australian Gas Networks (Vic)	Vic	Scheme	Gas Substitution Roadmap	739,621	11,984	1,800	1 Jul 2023 - 30 Jun 2028
AusNet Services	Vic	Scheme	Gas Substitution Roadmap	778,752	12,337	1,800	1 Jul 2023 - 30 Jun 2028
Jemena Gas Networks	NSW	Scheme	n/a	1,476,686	25,481	3,400	1 Jul 2025 - 30 Jun 2030
Evoenergy	ACT/NSW	Scheme	Integrated Energy Plan	157,205	4,614	390	1 Jul 2022 - 30 Jun 2027
Australian Gas Networks (SA)	SA	Scheme	n/a	466,417	8,484	1,800	1 Jul 2022 - 30 Jun 2027

¹⁸ Clean Energy Regulator, [Global Warming Potential](#), updated March 2024

¹⁹ AEMC, [Targets statement for greenhouse gas emissions](#)

²⁰ Victorian Government, [Gas substitution Roadmap](#), 2022

²¹ ACT Government, [Canberra's electrification pathway](#)



Mid-West and South-West Gas Distribution Systems (ATCO)	WA	Scheme	n/a	796,665	14,500	1,600	1 July 2025 – 30 June 2030
Allgas Energy	QLD	Non-scheme	n/a	100,000	3,218	n/a	N/a
AGN Queensland	QLD	Non-scheme	n/a	89,100	3,463	n/a	N/a
Tasmanian Gas Networks	TAS	Non-scheme	n/a	15,000	839	n/a	N/a

Source: AER, ERAWA, company websites

Given that jurisdictions without specific policies in place have net zero targets by 2050 at the latest we consider there are two realistic scenarios: either they will introduce relevant policies shortly, or they are confident that the economics of electric alternatives or customer sentiment will drive a switch away from gas by small customers. Other options include:

- that the gas system is decarbonised by other means, which is highly improbable as discussed further below; or
- that the net zero targets are missed or abandoned, which we do not consider an appropriate scenario to contemplate under the NGO.

In other words, it is reasonable to suppose that even in jurisdictions that have not at this time introduced policies aimed at reducing demand on the gas networks, that demand will fall in any case.

Indeed, this thesis is supported by relevant authorities and expert forecasters. According to the Australian Energy Market Operator (AEMO), residential and commercial gas use is expected to decline 72% by 2043²². In multiple studies, CSIRO, the national science agency, projects residential and commercial gas use to be largely non-existent by 2050 as households and businesses electrify and leave the gas network.^{23;24}

The Climate Change Authority's recent Sector Pathways review asserts that "the long-term complete electrification of buildings is the optimal decarbonisation approach, and governments should develop strategies to efficiently and equitably realise this."²⁵ The Commonwealth Government's Future Gas Strategy says "households and small businesses will have, for the most part, electrified by 2050"²⁶

The number of customers connecting to the gas network has slowed significantly in recent years.²⁷ An increasing number of property developers advertise themselves as building all-electric homes in response

²² AEMO, 2024 Gas Statement of Opportunities (GSOO), Step Change Scenario accessed via gas forecasting data portal.

²³ Reedman, et. al., Multi-sector energy modelling 2022: Methodology and results: CSIRO Report No. EP2022-5553, Australia. P. 59

²⁴ Verikios, G. et. al, 2024, Modelling Sectoral Pathways to Net Zero Emissions, EP2024-4366, CSIRO, Australia.

²⁵ Climate Change Authority, Sector Pathways Review – Built Environment (2024), p. 13

²⁶ Australian Government Department of Industry, Science and Resources, [Future Gas Strategy](#), 2024. p. 38

²⁷ Analysis of Essential Services Commission, Energy Market Dashboard and Australian Energy Regulator, Retail Energy Performance Updates - accessed July 2024



to climate and health concerns. AusNet, the largest Victorian gas network, recently stated that property developers active in their service area expect “around 85% of [new housing] lots...to be all-electric,” even though many of these lots have planning permission to use gas.²⁸ Jemena, the largest gas distribution network in Australia, is forecasting customer numbers to decrease from 2028 due to slowing construction rates, changing building practices, and electrification trends.²⁹ Notably, they operate in NSW, where there is currently no state government policy prohibiting new gas connections.

There are clear financial benefits to consumers, particularly households, from electrifying. ECA’s own analysis, incorporating detailed modelling by CSIRO, found that the average household in states covered by the National Electricity Market, would save by electrifying their gas use – and that these savings would grow over time. Their analysis found that the average household saved \$290/year by electrifying their gas use in 2030, with benefits growing to \$660/year and \$810/year for households electrifying in 2040 and 2050, respectively. Households that have solar and therefore cheaper electricity would save more.³⁰

The AEMC’s own retail price projections support the thesis that electrification is in consumers’ financial interests.³¹ The Commission’s most recent Price Trends report forecasts that “electrification (including transport) is projected to reduce average household energy costs by nearly \$1,000 per year, or by almost 20% of current spending on energy.”³²

Multiple analyses over a decade have found similar results. It has been cost-effective for new homes to go all electric for several years, as can be seen from Table 2. Increasingly, retrofits of existing houses are cheaper across a wide range of household customers, even after accounting for appliance conversion costs. For example, in 2020 ACIL Allen modelling for the ACT determined that fuel switching was net present value positive for 10 of the 12 household archetypes modelled if the households did not have rooftop PV installed and 12/12 if they did have rooftop PV.³³

The Grattan institute’s 2023 analysis Flame out - the future of natural gas, found retrofits to be net present value positive across multiple jurisdictions and numbers of appliances, with only Perth homes with no gas heating returning a NPV negative outcome.³⁴

Table 2: Selected analyses of costs and benefits of household electrification

Report	Author	Year	Retrofit/ New Build	Review process	Key takeouts
Household energy choice in the ACT – Modelling and analysis	ACIL Allen	2020	Retrofit	ACT	Many customer archetypes are financially better off, and all are if they have rooftop PV. Tariff structure changes could influence results
Saving money with efficient, all-electric homes	Renew	2022	new build	Inquiry into Renewable Energy in Victoria	New build cheaper for all-electric plus ongoing savings

²⁸ AusNet, Gas Access Arrangement Review 2024-28 Variation Proposal, September 2024, p. 8.

²⁹ Jemena, 2025 Draft Plan

³⁰ Graham, P. Consumer impacts of the energy transition: modelling report, CSIRO, Newcastle 2023.

³¹ AEMC, Price Trends 2024 Final Report, November

³² Ibid., p18

³³ ACIL Allen, Household energy choice in the ACT – Modelling and analysis, 2020

³⁴ Grattan, Flame out - the future of natural gas, 2023, Appendix



All-Electric New Homes Cost assessment	GHD	2022	new build	Victoria Gas Substitution Roadmap	All-electric lower cost and manageable on single phase
Are We Still Cooking with Gas?	Renew	2014	both	n/a	New homes cheaper to go all electric Existing homes dependent on multiple factors.
<u>The Household Fuel Choice in the National Electricity Market</u>	Renew	2018	both	n/a	New homes cheaper to go all electric. Existing homes dependent on various factors.
<u>Flame out - the future of natural gas</u>	Grattan	2020	New build	n/a	A new all-electric house is generally cheaper to live in than a dual-fuel house. Retrofitting was not specifically modelled.
Getting off gas: why, how, and who should pay?	Grattan	2023	both	n/a	Retrofitting NPV positive across all jurisdictions, with the exception of Perth homes without gas heating.
<u>Castles and cars</u>	Rewiring Australia	2021	retrofit	n/a	Large savings on average from electrification
<u>Cost of switching from gas to electric appliances in the home</u>	Frontier Economics	2022	retrofit	Gas Substitution Roadmap	Electrification could be costly, especially if replacing ducted heating, due to electrical upgrade costs

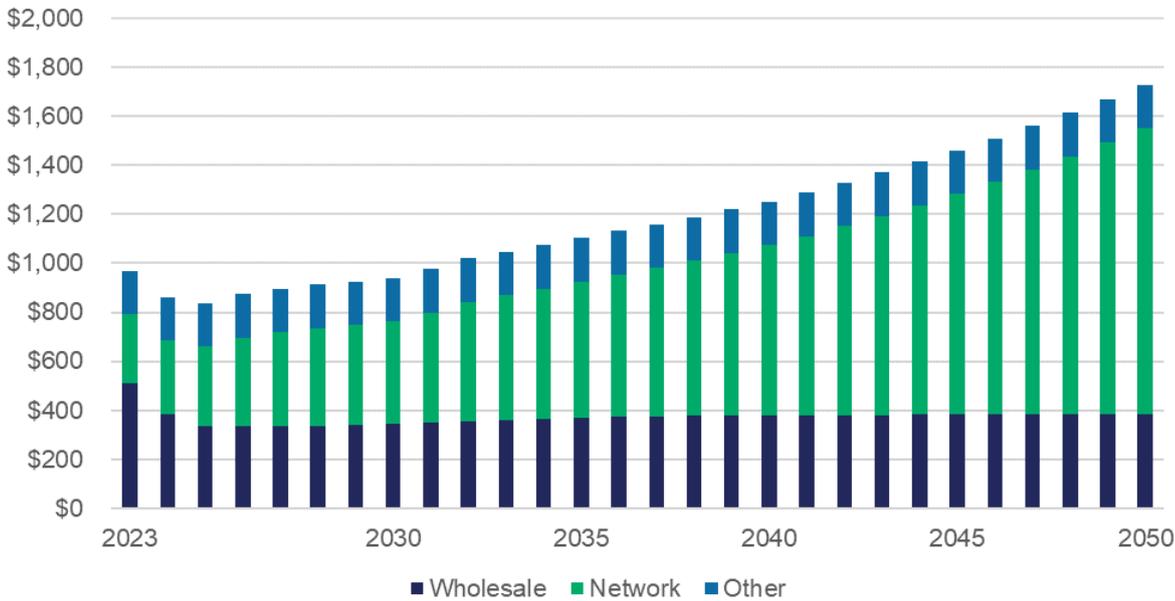
Source: Risks to gas consumers of declining gas demand, Boardroom Energy, February 2022, updated with some subsequent analyses

The economics of staying connected to gas will only get worse as other customers leave the network, and network charges per customer need to keep rising if gas distribution networks are to recover their costs. In a 2023 report for Energy Consumers Australia, CSIRO undertook modelling to determine the impacts to household energy bills under the Integrated System Plan's 'step change' or central planning scenario. The modelling showed that network prices on household gas bills would more than quadruple – from roughly \$280/year today to \$1,170 in 2050. Overseas industry observers have noted that the price impacts could be even more severe. Ofgem, the British energy regulator, states that “network charges could rise by a factor of 10 within 20 years.”³⁵

³⁵ Jan Rosenow, et. al. 2024 “The elephant in the room: How do we regulate gas transportation infrastructure as gas demand declines?”, One Earth, Volume 7, Issue 7, pp. 1158-1161



Chart 1: Projected national average annual household gas bill with decreasing customer numbers



Source: CSIRO, Dynamic Analysis and ECA, Consumer impacts of the energy transition: modelling report, July 2023

These higher prices will inevitably cause more consumers to leave, creating a reinforcing spiral where prices continually increase until most remaining gas users are consumers without the agency or financial resources to leave the network. The precise timing and pace of the decline in gas demand is unknown. If gas consumers are especially price responsive and additional support is provided to go all electric, the decline could happen more quickly. If electricity prices remain high or increase and fewer consumers than expected adopt rooftop solar (reducing the prices they pay for electricity), then the decline may happen somewhat less dramatically.

The Commonwealth’s *Future Gas Strategy* notes these issues and potential repercussions: “The rising cost of remaining on the reticulated gas network can provide the economic incentive to transition for those able to control – and afford – the cost of switching. However, renters, those in community and social housing, and low-income households, have limited or no control over whether they electrify, even where they might want to transition.”³⁶

We recognise that there are myriad challenges for consumers to electrify. The half (48%) of Australian households who rent or live in multi-family buildings will face additional barriers to going all electric. Renters rely on their landlord to invest in the necessary changes to enable electrification, but landlords have limited incentives to do so. Those in multi-unit buildings often rely on shared energy services, such as shared hot water provided by a central boiler. Large changes, such as shutting off gas supply, can require agreement from all unit owners in a building or complex.

Even detached owner-occupied houses can encounter barriers such as space limitations, wiring upgrades, and heritage listing. Barriers can also derive from people’s personal circumstances, such as where they live, infirmity/disability, income, level of literacy, fluency in English, and access to internet and digital capabilities.

³⁶ Australian Government Department of Industry, Science and Resources, *Future Gas Strategy*, 2024. p. 41



While there is substantial research and evidence on the benefits for households to electrify, there is significantly less for small business. Large commercial and industrial customers may have fewer options for electrification (or finding some other net zero alternative to gas). Such customers are typically larger users and more likely to be connected to higher pressure parts of the network. It is certainly plausible (though by no means certain) that they may benefit from a renewable gas pathway to decarbonisation, and that there may be vestigial parts of the network retained to serve such customers.

However, there is no reason why other gas customers who will eventually electrify should underwrite a gas distribution network's transition to renewable gas. Conversely, if there is a small group of commercial users who still need reticulated gas, it's unlikely to be cost-effective for them to bear the full burden of cost recovery of assets that have been stranded due to other customers leaving the network.

We recognise that there are multiple factors that customers take account of in considering electrification. Some customers prefer gas for non-economic reasons and may continue to use it even as it becomes increasingly the costlier option. Such customers may prefer to use bottled gas if and when their part of the network is decommissioned or if reticulated gas becomes prohibitively expensive, provided they can do so safely at their premises.

As noted above, other customers may wish to switch but face barriers to doing so. We are especially concerned that such customers – often those least able to afford it – will bear the brunt of ever-increasing network charges if action is not taken now to find ways to reduce the costs gas networks can charge them.

Notwithstanding these factors, economic outcomes are a powerful driver and customer defection from gas networks will generate a positive feedback loop of higher gas prices making electric alternatives ever more financially attractive.

Some have suggested that renewable gases, particularly hydrogen and biomethane, can provide an enduring alternative to fossil gas for households and small businesses. Unfortunately, there is substantial evidence that renewable gas is not a viable solution for the main users of the gas distribution network: households and small businesses.

The Victorian Government identifies in its Industrial Renewable Gas Guarantee that electrification is the least cost alternative for household fossil gas use and will ensure any renewable gases are reserved for the most hard-to-abate industries. Their Directions Paper says: "Victoria's household energy consumption will be gradually decarbonised by electrification" while "renewable gases be deployed where there is no feasible decarbonisation alternative."³⁷ The ACT's Integrated Energy Plan also acknowledges renewable gases will only be used for some "niche applications."³⁸

While many hope hydrogen has a role to play in replacing Australia's gas exports and some industrial gas use, the use of hydrogen by households and small businesses is economically inefficient and technically difficult. More than fifty independent studies on the use of hydrogen have concluded that hydrogen is inefficient and not recommended for heating buildings.³⁹ An exhaustive review of the peer-reviewed literature demonstrates that electrification is likely to always be more cost-effective than hydrogen.⁴⁰ It

³⁷ Victorian Government Department of Energy, Environment and Climate Action, [Victorian Industrial Renewable Gas Guarantee Directions Paper](#), December 2024, p. 3.

³⁸ ACT Government, [The Integrated Energy Plan 2024-2030](#), June 2024, p. 3.

³⁹ Rosenow, J. 2024, A meta-review of 54 studies on hydrogen heating. *Cell Reports Sustainability*

⁴⁰ Rosenow, J. 2022, Is heating homes with hydrogen all but a pipe dream? An evidence review.



cannot replace gas “in heating or consumer appliances above a 5 to 20 percent blend without enormous costs and disruption.”⁴¹

Unlike hydrogen, biomethane can operate without any modification to the existing gas network and is useable by existing gas appliances. Unfortunately, there is not enough domestic biomethane to replace Australia’s gas consumption. As a network-sponsored report summarises, “current projections of biomass in Australia indicate insufficient quantities will be produced to meet the scale required to entirely replace natural gas.”⁴² The Commonwealth’s Future Gas Strategy states: “biomethane is likely to be more valuable to gas users where electrification is not feasible.”⁴³

According to the Bio-Energy Roadmap, the total annual production potential for biomethane in Australia is 371 PJ⁴⁴ – only 25% of annual domestic gas use.⁴⁵ Outside of residential and commercial users, the existing gas demand that must be decarbonised to meet 2050 net zero targets is 3 times larger than biomethane potential.⁴⁶ Australia’s limited biomethane supplies are likely to focus on this market because it is more difficult and expensive for it to electrify.

Today, biogas production is around 4TJ/year,⁴⁷ or 0.001 per cent of domestic gas consumption, and biogas will still need upgrading to biomethane. The infrastructure investment required for a biomethane future is also very significant – Jemena’s demonstration plant at Malabar is intended to have initial capacity of 95 terajoules of renewable gas per annum⁴⁸ (with no guarantee that production will reach that level). This is about equivalent to the average annual gas usage of 6,300⁴⁹ NSW homes. Even if there was enough feedstock, Jemena would need more than 200 such plants to supply all its household customers let alone its larger commercial and industrial customers. Meanwhile, as AEMO’s Integrated System Plan demonstrates, the electricity system is working to build the infrastructure required to meet the new load expected from electrifying gas.

Even if some parts of the low-pressure network are still used beyond net zero target dates (2045-2050 depending on the jurisdiction), the above analysis indicates that large parts of the network will no longer be used, and so there will be no customers left on those parts of the network to pay for any outstanding costs related to those parts of the network. Recently, AusNet Gas Services, one of the Victorian gas distribution networks stated in a letter to the AER what the above evidence demonstrates: “long term network decline is now inevitable.”⁵⁰

An analogy commonly used in considering how monopoly networks should be regulated is that regulation should seek to mimic the pressures competition would exert in a competitive, unregulated market with a view to achieving similar outcomes. Accordingly, we consider it is reasonable to contemplate how a business such as a gas distribution network that was facing a permanent decline in demand would behave if it didn’t enjoy the regulatory protection of a regulated asset base (RAB). It would not assume that it would be able to recover costs through ongoing, exponential increases to its charges, given that many of its customers had viable alternative options.

⁴¹ Sara Baldwin, et. al, “[Assessing The Viability Of Hydrogen Proposals: Considerations For State Utility Regulators And Policymakers](#),” Energy Innovation, 2022.

⁴² Deloitte, [Decarbonising Australia’s gas distribution networks](#), December 2017, p. 79

⁴³ Australian Government Department of Industry, Science and Resources, [Future Gas Strategy](#), 2024. p. 31

⁴⁴ Deloitte, [Decarbonising Australia’s gas distribution networks](#), December 2017, p. 45

⁴⁵ DISR [Future Gas Strategy Analytical Report](#)

⁴⁶ DISR [Future Gas Strategy Analytical Report](#)

⁴⁷ <https://arena.gov.au/knowledge-bank/biogas-opportunities-for-australia/>

⁴⁸ <https://www.jemena.com.au/future-energy/future-gas/Malabar-Biomethane-Injection-Plant/>

⁴⁹ <https://www.jemena.com.au/future-energy/future-gas/Malabar-Biomethane-Injection-Plant/>

⁵⁰ [Letter](#) from David Smales, CEO Ausnet Services, to Clare Savage, Chair, AER, 30 September 2024.



A rational business in this situation would seek to reduce expenditure wherever possible, in particular minimising capex which might be difficult to recover in full over the longer term. In doing so, it would not neglect its statutory and regulatory obligations, but it would proactively seek change to those where they were an impediment to expenditure reduction and the underlying policy goals could be achieved more cost effectively. A corollary of this is that the network's customers would be better protected in the future against the risk of the business collapsing financially. This is the approach we consider that the gas distribution networks should be demonstrably taking, and the rules should be amended, to the extent they are able, to facilitate such an approach.

We have identified four key areas in which the NGR should be amended to better recognise and reduce the risks consumers face: connection fees, planning, depreciation, and capex criteria. We are proposing a rule change to address the issues with each of these areas. In sections 4-7 below we set out the issues, options and impacts of each of our proposed rule changes. We consider there is enough connection between each proposed rule change that the AEMC could engage in a single consultation process to consider all four. Equally we consider that each proposed change could be implemented independent of the others. We leave it to the AEMC to determine how best to consult on and consider these proposals.

In canvassing the issues as set out above, we are aware that some of these issues could be facilitated by a more holistic review of the relevant national laws and jurisdictional requirements as well as the NGR. For the avoidance of doubt, we consider that each of these rule change proposals has merit whether or not such other reforms eventuate, but we consider the benefits could be magnified with such reforms.



5 Upfront connections fees

5.1 What is the issue to be addressed?

The costs of new gas connections are mostly socialised among all customers of the network and added to the RAB, which increases the size of assets at risk of stranding. This is because Rule 119M of the NGR limits both the *circumstances* in which distributors may charge customers for new connections, and the *amount* they may charge ('connection charges'):

- Distributors may only charge for a new connection if the expected incremental revenue to be generated as a result of the capex for the relevant connection assets does not exceed the present value of that capex.
- The connection charge is limited to the difference between the present value of the capex and the value of the expected incremental revenue from the new connection.

Even where a connection charge *may* be imposed by the distributor, it does not *have* to be. And in many circumstances, a connection charge cannot under the rules cover the entire cost of the new connection.

Rule 119M does not apply to non-retail customers (Rule 119A defines 'connection', for the purposes of Part 12A, as applying only to retail customers), which means that new connections for non-retail customers are not subject to the connection charges criteria in Rule 119M described above. Technically, gas distribution networks have the *discretion* to charge non-retail customers up front the full cost of new connections, but no *requirement* to do so.

The logic of the current approach is that other customers benefit from new connections because the costs of operating and maintaining the network are largely fixed, so a new customer will pay more in network tariffs over time than the incremental cost associated with their use of the network. Thus, even though they are subsidising other customers' connection costs, existing customers can expect to pay lower network charges over time than if the new customer had not joined the network.

The approach is neither unique to Australian gas networks but nor is it universal. This approach is not used in electricity network regulation for example. However justifiable the current policy may have been in the past, the context has changed. Gas networks are no longer expected to operate indefinitely at a comparable level, and customer connections are not expected to be maintained indefinitely. As explained above, it is implausible that legislated net zero targets can be achieved without most current gas network users switching away from gas, and for household and many business customers, electrification is both lower cost and technically easier than switching to hydrogen or renewable gas. This process is under way, with connections declining and disconnections increasing. Policy is accelerating the process in some jurisdictions, meaning that the time to act is now, rather than to continue to wait while the risks to consumers grow.

Any new capex added to the RAB runs a more material risk of being stranded well before the end of its technical life (60-80 years for new service pipelines, per gas distribution networks' depreciation schedules). New customers may not stay connected long enough to contribute more in network charges than the cost of their connection, noting that both households and businesses move premises from time to time, and the new resident may have a different preference or wish to save money by electrifying. Additionally, some connections (where bans are not already in place) may be due to developer choice and the eventual customer may choose to electrify sooner rather than later. The risk is that those customers who find it difficult to switch (including renters, low-income households, apartment dwellers with a shared hot water service) are the ones left bearing the cost of other former customers' connections, including any



new connections going forward. Such an outcome is fundamentally unfair and inconsistent with the intention of the NGL and NGR.

The issue is material because customer connections are often the largest single category of capex, particularly in jurisdictions in which there are no restrictions on new connections. Even in those cases where there are constraints, it is still a material level of expenditure.

Table 3: Connections costs by gas distribution network

Network	AGN	MGN	AusNet	Jemena (draft)	AGN SA	EVO	ATCO	Total
Period	2023-28	2023-28	2023-28	2025-30	2021-26	2021-26	2025-2030	
Gross connections capex (\$m)	185.6	108.7	182.0	273.9	114.5	10.4	190.0	1065.1
Customer contributions (\$m)	19.7	15.0	76.8	16.1	0.5	0.3	0.0	128.4
Net connections capex (\$m)	165.9	93.7	105.2	257.8	114.0	10.1	190.0	936.7
Contributions as % of total	11%	14%	42%	6%	0%	3%	0%	8%
Net connections as % of total capex	38%	14%	25%	39%	22%	20%	38%	34%

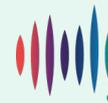
Source: Access arrangements final decisions, AER/ERA WA, except Jemena (Draft decision)

5.2 What options have been considered?

Our preferred option is to remove scope for discretion and for gas distribution networks to be required to charge new customers (both retail and industrial) the full upfront cost of the connection. This is on the basis of the principle that the user or beneficiary of a new cost item should pay for it. This ensures that costs are not added to the RAB and existing customers are not exposed to the stranded asset risk associated with new connections as a result of decisions made by others. Under this option, connecting customers would face the full cost of their decision to connect to the network in the context of the network retreat described above. This approach has recently been implemented in Victoria by the Essential Services Commission of Victoria (ESCV).⁵¹

A suboptimal option is to allow gas distribution networks the choice of whether to charge upfront for a new connection, with the proviso that any costs not recovered up front would need to be “quarantined”, such

⁵¹ Essential Services Commission of Victoria, Gas Distribution Code of Practice: <https://www.esc.vic.gov.au/electricity-and-gas/codes-guidelines-and-policies/gas-distribution-code-practice>



that the gas distribution network cannot claim accelerated depreciation or stranded cost recovery for any of these costs. Thus, the gas distribution network would bear full exposure to any stranding risk arising from their decision. (Arguably, these would be sound principles to apply to all new capex, but we recognise the NGR does not work in that way). This would include writing off any undepreciated cost arising if the new customer changed their mind, the property changed hands, or some other circumstance led to disconnection from the network. This approach would also protect existing customers from stranding risk, but it would still require them to contribute to the cost of new connections. In principle, this should be offset by the share of network charges paid by the new customers. This option is more administratively complex, as it would require a separate RAB for the new connection assets and an effective tracking mechanism to identify when any of the new customers disconnected from the network. This complexity means we do not believe this solution should be adopted.

5.3 Description of the proposed changes to the rules

The rules should provide the following:

- A positive obligation requiring the distributor to charge the customers (both retail and non-retail customers) the full upfront cost of any connection service.
- A definition of what must be included in this charge.
- The charge should be the actual cost in full, calculated individually for each customer.

To give effect to this policy intent we propose amending Part 12A, which deals with connection for retail customers.

As Part 12A only deals with retail customers, it will be necessary to provide a separate rule change in respect of non-retail customers. We have suggested a new Part 12B is inserted.

We considered including non-retail customers within Part 12A but this would be complicated, as it would require a large number of consequential rule changes. Inserting a new Part 12B is a simpler solution.

The proposed amendments build upon the approach of the Victorian Essential Services Commission as provided in section 4.2 of the Gas Distribution Code of Practice and adopts some definitions from the Victorian rules to introduce to the NGR the following terms: *main*, *metering installation*, *service pipe*, *shared distribution system*.

For this element of our proposal, we have drafted proposed new and amended rules. These are set out, along with existing relevant definitions of terms used in the drafting, in the Appendix. In the cases of the other three elements of the proposal we have not attempted to draft new or amended rules in full, but have provided a description of how the rules could be amended.

5.4 How will ECA's preferred option address the issue?

Charging customers upfront for new gas connections will address the issue of stranded asset risk arising from connection assets because the cost of new gas connection assets will not be added to the RAB.

Signalling the full cost entailed in connection is also likely to disincentivise inefficient gas connections compared to the status quo. These consumers who are disincentivised by the upfront costs will avoid adding a gas connection at a time when gas bills are expected to rise and avoid future costs related to electrifying their property.



5.5 How do these rule changes contribute to the achievement of the NGO?

The NGO states that:

“The objective of this Law is to promote efficient investment in, and efficient operation and use of, covered gas services for the long-term interests of consumers of covered gas with respect to—

(a) price, quality, safety, reliability and security of supply of covered gas; and

(b) the achievement of targets set by a participating jurisdiction—

(i) for reducing Australia’s greenhouse gas emissions; or

(ii) that are likely to contribute to reducing Australia’s greenhouse gas emissions.”

The proposed changes will advance the long-term interest of both existing and new customers, as it will promote efficient investment in covered gas services by minimising stranded asset risk, and by ensuring that new customers take account of the full costs entailed in their decision to take reticulated gas, while preserving their choice to do so. If they consider that the overall present value to them of paying for a gas connection and paying gas charges for some appliances or processes exceeds the all-electric alternative, they can still do so. This will improve the efficiency of decision-making by such customers.

To the extent that the rule change disincentivises new connections, the emissions component of the NGO will be satisfied because the all-electric alternatives will overall be lower emissions over the lifetime of the appliances purchased (particularly once accounting for the rapid electricity sector decarbonisation targets being pursued by governments at both state and territory and federal level).

By marginally decreasing one source of gas consumption, it will increase the available supply of gas and therefore marginally increase the reliability or integrity of supply. Also, by reducing stranded asset risk, it reduces the risk of future network financial distress. A network in financial distress may lack the necessary funds to operate to appropriate standards of safety, reliability and integrity of supply. Accordingly, reducing this risk contributes to the NGO.

5.6 What are the costs, benefits and other impacts of the rule changes?

Costs

- Since the rule change is aimed at changing how the costs of new connections are allocated, it will not result in any additional costs for existing customers in aggregate.
- New customers who still choose to connect will pay a cost-reflective fee for doing so.
- Indirectly, we expect it to reduce the number of new gas connections in jurisdictions in which there is not already a ban in place, as the upfront charge will act as a disincentive.
- There may be some administrative costs to distributors in terms of amending their model standing offers (and the regulators who will need to review these revised offers) and internal processes for connection charges.



Benefits

- Providing potential connecting customers with the tools to make more informed and efficient decisions about whether or not to connect to the network. This should in turn result in lower energy bills for consumers and lower greenhouse gas emissions from household energy use.
- Existing consumers will benefit from not being exposed to the costs of new connections being added to the RAB. While in the short term, this won't necessarily result in lower network charges for an individual customer if there are fewer new customers to spread the costs of the shared network across, in the long run it will reduce their exposure to the risks of stranded assets.
- Gas distribution networks are not exposed to this stranded asset risk either (unlike under the status quo) and so the rule change provides material benefits to them, notwithstanding that the NGO does not directly concern itself with service providers' interests.

Other impacts

- Policy makers will be informed by the outcomes of potential new customers' decisions about whether to connect as to the true underlying value of a gas connection.
- At the moment, there may be a split incentive problem in new residential and commercial developments – the developer currently pays no cost to connect to the gas distribution network and so agrees to include it within a new development. With the pipes laid, builders are only exposed to the comparable upfront costs between gas and electric appliances, with no exposure to the long-term difference in operating costs. A requirement to pay up front for a connection will ensure that developers (and possibly builders) better account for the true costs to the final homeowner/buyer and their long-term preferences in the developer's decision-making.



Appendix: Proposed Amendments to connections Rules

Relevant definitions from the existing National Gas Law and National Gas Rules

National Gas Law

Section 2 Definitions

retail customer means a person to whom covered gas is sold for premises by a retailer;

National Gas Rules

Rule 119A Definitions

In this part:

[...]

connection means a physical link between a distribution pipeline and a retail customer's premises to allow the flow of gas.

connection alteration means an alteration to an existing connection including an addition, upgrade, extension, expansion, augmentation or any other kind of alteration.

[...]

connection assets means the components of a distribution pipeline which are used to provide connection services.

connection charge means a charge imposed by a distributor for a connection service.

connection charges criteria – see rule 119M.

[...]

connection service means either or both of the following: (a) a service relating to a new connection for premises; (b) a service relating to a connection alteration for premises.

[...]

distribution pipeline means: (a) a scheme pipeline that is a distribution pipeline; or (b) a non-scheme pipeline for which a nominated distributor has been nominated to provide customer connection services

[...]

Proposed Amendments

Part 12A Gas connection for retail customers

Insert the following additional definitions into Rule 119A:



Rule 119A Definitions

main a low, medium or high-pressure pipe in a distribution system, other than a service pipe

metering installation the meter and associated equipment and installations, which may include correctors, regulators, filters, data loggers and telemetry relating to a distribution delivery point.

service pipe a pipe ending at a metering installation or, for an unmetered site a gas installation, which connects a main or a transmission pipeline to customer's premises, as determined by a distributor.

shared distribution system in relation to a customer, means the part of a distribution system that is used or may be used to transport gas to that customer that does not comprise dedicated facilities.

Delete Rule 119M and replace with:

Rule 119M Connection charges criteria

(1) A distributor must impose a connection charge for a connection service.

(2) The connection charge must be the sum of:

(a) the cost of purchasing and installing the connection assets necessary to provide the connection service; and

(b) the cost of augmentation of the shared distribution system which may be required to support the additional load resulting from the connection service.

(3) For the purposes of subclause (2), costs must be calculated using the following assumptions:

(a) the connection assets include mains extensions, service pipes and metering installation;

(b) the augmentation of the shared distribution system is the work necessary to purchase and install any facilities upstream of the connection.

Amend Rule 119D(1) to insert:

(ba) the manner in which *connection charges* are to be paid by the *retail customer*; and

Amend Rule 119E(3)(e) to read:

(e) the *connection charges* are consistent with the *connection charge criteria*; and

Amend Rule 119I to insert Rule 119I(2A) and (2B):

(2A) The terms of the *connection contract* must ensure that *connection charges* are consistent with the *connection charge criteria*.

(2B) The terms of the *connection contract* must provide the manner in which *connection charges* are to be paid by the *retail customer*.



Insert a new Part 12B:

New Part 12B Connection charges for non-retail customers

Rule 119ZB Definitions

In this part:

distribution pipeline means: (a) a scheme pipeline that is a distribution pipeline; or (b) a non-scheme pipeline for which a nominated distributor has been nominated to provide customer connection services

non-retail customer means any customer who is not a retail customer as defined in s 2 of the NGL.

non-retail connection means a physical link between a distribution pipeline and a non-retail customer's premises to allow the flow of gas.

non-retail connection alteration means an alteration to an existing non-retail connection including an addition, upgrade, extension, expansion, augmentation or any other kind of alteration.

non-retail connection assets means the components of a distribution pipeline which are used to provide non-retail connection services.

non-retail connection charge means a charge imposed by a distributor for a non-retail connection service.

non-retail connection charges criteria – see rule 119ZC.

non-retail connection service means either or both of the following: (a) a service relating to a new non-retail connection for premises; (b) a service relating to a non-retail connection alteration for premises.

main a low, medium or high-pressure pipe in a distribution system, other than a service pipe

metering installation the meter and associated equipment and installations, which may include correctors, regulators, filters, data loggers and telemetry relating to a distribution delivery point.

service pipe a pipe ending at a metering installation or, for an unmetered site a gas installation, which connects a main or a transmission pipeline to customer's premises, as determined by a distributor.

shared distribution system in relation to a customer, means the part of a distribution system that is used or may be used to transport gas to that customer that does not comprise dedicated facilities.

Rule 119ZC Non-retail connection charge criteria

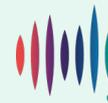
(1) A distributor must impose a non-retail connection charge for a non-retail connection service.

(2) The non-retail connection charge must be the sum of:

(a) the cost of purchasing and installing the non-retail connection assets necessary to provide the non-retail connection service; and

(b) the cost of augmentation of the shared distribution system which may be required to support the additional load resulting from the non-retail connection service.

(3) For the purposes of subclause (2), costs must be calculated using the following assumptions:



(a) the non-retail connection assets include mains extensions, service pipes and metering installation;

(b) the augmentation of the shared distribution system is the work necessary to purchase and install any facilities upstream of the non-retail connection.

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