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14 February 2025

Ms Anna Collyer
Chair
Australian Energy Market Commission
Level 15, 60 Castlereagh Street
Sydney NSW 2000

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

Brendan French

Brendan French
Chief Executive Officer

ENERGY CONSUMERS AUSTRALIA

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 2043[1] and to be largely non-existent by 2050[2] 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 levels[19] has only crystallised the timeframes for decarbonisation rather than introduced it as a constraint. To facilitate achievement of these targets, Victoria[20] and ACT[21] 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 2043[22]. 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

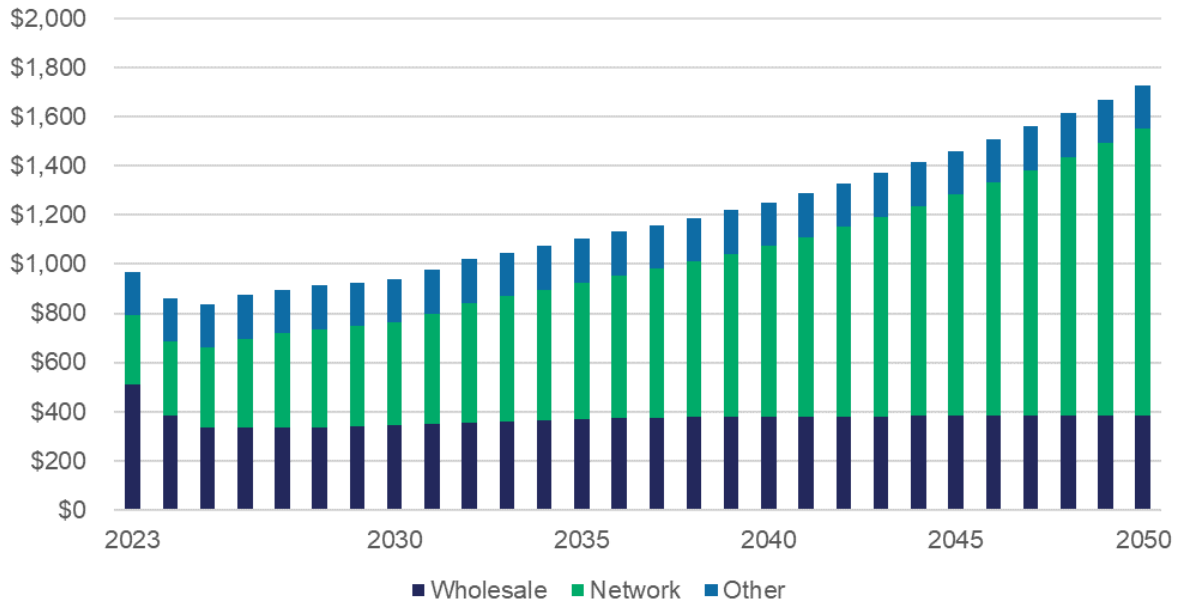
All-Electric New Homes Cost assessment	GHD	2022	new build	Victoria Gas Substitution Roadmap	All-electric lower cost and manageable on single phase
Are We Still Cooking with Gas?	Renew	2014	both	n/a	New homes cheaper to go all electric Existing homes dependent on multiple factors.
The Household Fuel Choice in the National Electricity Market	Renew	2018	both	n/a	New homes cheaper to go all electric. Existing homes dependent on various factors.
Flame out - the future of natural gas	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.
Castles and cars	Rewiring Australia	2021	retrofit	n/a	Large savings on average from electrification
Cost of switching from gas to electric appliances in the home	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 PJ[44] – 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 annum[48] (with no guarantee that production will reach that level). This is about equivalent to the average annual gas usage of 6,300[49] 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 New gas planning requirements

5.1 What is the issue to be addressed?

Gas distribution networks provide limited public information, particularly in comparison to electricity networks. As noted above, it is hard for interested stakeholders to evaluate capex business cases, because not enough of the relevant information is provided. Yet as network utilisation declines, there will be increasing opportunities for strategic decommissioning of parts of the networks. These opportunities are likely to require a range of stakeholders to co-ordinate a response to successfully implement local electrification programs.

Accordingly, it is important that more granular and regular information on gas usage, disconnection rates and asset replacement programs is available to help stakeholders understand where and when these opportunities will arise. There are currently many parties with a stake in the future of gas distribution networks and local gas use, including jurisdictional and local governments, electricity networks who need to factor in electrification levels to their own planning, businesses offering products and services that support the energy transition and NGOs with an interest in this area. All these parties, in addition to gas networks themselves, are currently largely guessing without strong evidence or data about when, where and at what trajectory consumers will exit the gas network.

As discussed above, the level of capex sought by gas distribution networks, even in jurisdictions with clear electrification targets and policies, means that we need to start identifying opportunities for reducing network capital by strategic decommissioning sooner rather than later.

Electricity networks are required to publish annual planning reports for distribution and transmission respectively. The publications provide a wealth of information on planned investments over a 5-to-10-year time horizon including ratings of major assets, replacement needs, and demand forecasts. There is no equivalent requirement for gas networks to publish such information. This prevents adequate understanding of emerging issues and new constraints. Even if the driver for electricity network planning is not identical to that for gas network planning, they share much in common. Both are monopoly assets providing a public service. The current and future status of both gas and electricity distribution networks will have a material impact on the energy transition, particularly how it impacts households and small businesses. Stakeholders broadly depend on insights about both networks, and these insights can drive new interest in how networks evolve. Better planning can help identify granular opportunities for consumer investments and actions that can help minimise network and consumer expenditure.

At present, stakeholders that are directly impacted by the future of the gas distribution network, most notably state and local governments and electricity distribution networks, have no access or insights into maps showing where the gas network exists and where consumers are connected to it. This information along with solid approaches to forecasting future gas demand and network disconnections at a granular level can provide insights to ensure that underutilised and expensive gas networks do not operate for only a handful of consumers who may be happy to switch to electricity if provided with the financial assistance to do so.

Moreover, there may be gas distribution networks that are likely to need significant replacement expenditure or other maintenance costs in the next 10-20 years – a time horizon that would not necessarily trigger a network to disclose the information in their access arrangement. Future information identifying such looming issues could compel governments or others to identify electrification programs for these areas to mitigate or avoid future replacement plans.

Given that gas network demand management is not well developed we think an important initial step is that these reports appropriately identify demand management options and specify them in such a way that potential providers have a basis for engagement with gas networks. We recognise that formalising the cost benefit analysis and procurement processes in a similar way to the electricity network Regulatory Investment Tests (RITs) would be more costly and onerous.

While our focus is on the development of distribution network planning documents that identify granular opportunities for strategic decommissioning and keep a range of stakeholders updated on the pace of change in gas network demand and customer numbers, we note that such documents alone will not constitute a holistic long term gas system plan akin to the Integrated System Plan (ISP) for electricity, being neither system wide, nor projecting out to 2050. On the one hand, the system planning context is different for gas with many transmission pipelines being non-scheme pipelines, while on the other, there could be benefit in developing a shared vision of the likely future demand changes for gas. Our focus is squarely on the gas distribution network, however, because we think better planning there has the greatest opportunity for benefit at lowest cost.

5.2 What do the existing rules allow for?

Information-gathering provisions relevant to gas distribution networks are spread across the NGL, the NGR and AER specifications. The fact that certain information requirements (such as the requirement to respond to a Regulatory Information Notice (RIN) issued by the AER, per Division 4 of the NGL) are embedded in the law should not preclude adding specific components of those requirements via a rule change. Indeed, electricity planning is mandated in the rules despite similar information-gathering provisions. Detailed RIN specifications are determined by the AER, which consults on changes to these specifications.

Access arrangement information requirements are contained in the rules, primarily via Rule 72, with Rule 43 providing for the AER to request further information as necessary. System planning information for the purposes of the Gas Statement of Opportunities (GSOO) is also contained in the NGR with various elements of Rule 135KE setting out the current requirements for parties to provide information to AEMO.

As with the capex criteria, an argument can be made that the current provisions are flexible enough to allow for changes in the information provided. However, this is limited to the existing information collection processes set out, namely the access arrangement every five years, the annual RINs and the annual GSOO.

We consider the key report to fill the gap is a Gas Annual Planning Report (GAPR) that provides a multi-year forecast of each gas distribution network that keeps stakeholders up to date with the transition process and provides the latest view on how fast demand is falling. The GAPR should also include details of planned replacement or augmentation projects that could be avoided by strategic decommissioning, demand management or other non-pipeline alternatives. To inform stakeholders of where there may be opportunities for electrification, the information must be provided at appropriate granularity, such as the low-pressure distribution main, or part thereof on which each project will be carried out. Information on the drivers of planned projects, such as asset age and demand forecasts should be included. A high level cost range would assist in identifying where the greatest savings are likely to be made. Aggregate customer information for each of the relevant distribution mains will be required, including number of customers, their consumption patterns and the forecast rate of disconnections and decline in demand, in each case by customer class.

The GAPRs should be published and include mandatory consultation with relevant stakeholders, including specifically the relevant electricity network who may need to plan for an increase in demand on their network if a strategic decommissioning and electrification project is carried out. Consultation with local councils and state governments in areas with fast declining customer numbers should also be mandatory.

The frequency of all outputs in a GAPR may not need to be annual. For example, in even years, the GAPR could include simple statistics on current gas use and rates of disconnection. In odd years, it could include a more complete forecast and plan for the future of the gas network.

5.3 Description of the changes to the rules

To give effect to our preferred option in the rules, it is necessary to introduce a new rule or rules. Below we have attempted to articulate the key elements that would be required.

Drawing on the sections of the electricity rules that specify network planning requirement, there may be merit in having one rule set out the process – the Gas Annual Planning Review and another setting out the parameters for publication of the annual report, or GAPR.

The Gas Annual Planning Review rule should set out the scope of the review, including the appropriate forward planning period. We think twenty years would be preferable as it aligns with the ISP's planning horizon (in the rules, though it is often longer in practice). Effective planning beyond ten years likely requires scenario-based analysis, and we would be open to consideration of a shorter period if there is evidence that a longer period would not be cost justified. Independent of the forecasting period, gas distribution networks should have to specify the expected useful life of all their assets. For assets with between ten and twenty years of remaining useful life, scenario-based planning would likely make sense to understand the costs and benefits of different approaches to address expected asset failure or replacement. The rule would also specify that each service provider with a declared distribution system should carry out the review and develop a report for its full declared distribution system.

It should also set out the requirements, including the need to develop demand forecasts, and the granularity of the forecasts. We are open to how the granularity should be determined and defined, noting that it should be at a level that allows for consideration of strategic decommissioning projects and localised demand management options. The requirements should also set out that the network should have regard to the current and forecast number of customer connections and disconnections; their energy consumption; and relevant legislation or regulations of a participating jurisdiction that may impact the forecasts. It should identify potential augmentation and replacement projects in each area and set out the drivers for these (asset age, demand, reliability standards, regulatory requirements etc). It should also then canvass alternatives to these potential investment projects and where these are inhibited by regulatory requirements. The underlying assumptions should be published subject to appropriate confidentiality concerns.

This rule should also require networks to develop a consumer engagement strategy for the review and specify how the strategy and attempts to elicit demand response should be published (along similar lines to the electricity equivalent).

The Gas Annual Planning Report (GAPR) rule should set out an appropriate deadline for publishing the report, the details of what should be included in the report (which would largely flow from the requirements of the review above) and specify how stakeholders can contact a relevant representative of the network about the report. As noted above, the report should not necessarily require or include the same level of

forward planning and analysis every year – but every part of the service area should be thoughtfully planned at least every two years.

Having specified that the GAPR is a distribution network obligation, there is no risk that the new rules could be inappropriately applied to other scheme pipelines. There may be merit in a introducing a similar requirement to the transmission scheme pipelines as well, but we have not specifically analysed the case for this.

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

Our preferred option addresses the issue by making explicit more of the information and the appropriate level of granularity required from gas distribution networks in order for all stakeholders to plan effectively for the winding down of large parts of the gas distribution networks and the transition to electrification.

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

The changes will advance the long-term interest of customers by facilitating more efficient investment and operation of the pipelines, which is in the long-term interests of consumers of covered gas with respect to price. Specifically, the GAPR will improve visibility of opportunities for demand management or to decommission parts of the gas network as an alternative to costly replacement investment. This will increase the chances that such opportunities can be implemented where they are cost-effective and thus can materially improve the efficiency of the electrification transition.

As an obvious example, if a pipeline servicing 1,000 residential customers is decommissioned rather than replaced, decommissioning avoids the direct cost of the replacement and the future cost of 1,000 individual abolishments (around $1m based on the typical cost allowed for abolishments). Since most gas distribution networks are running meter replacement programs, it will also avoid a certain number of future gas meter replacements. Unaccounted for gas will be lower, as will overall emissions, because most if not all consumers will electrify rather than use bottled gas. The customers will make a material saving on their appliance running costs by switching. While there will be a cost entailed in appliance replacement. with enough forward notice – enabled by planning – there is a greater opportunity to mitigate or avoid this cost. In other words, if affected consumers recognise they are likely to only have a limited number of years of gas service remaining, they can switch to an electric appliance at appliance failure rather than on the timeline of the network infrastructure. Jurisdictional policy will determine to what extent those replacement costs are subsidised.

Better forward planning and – where appropriate - strategic decommissioning of old assets will, at the margins, facilitate the safety, reliability and security of the gas network, which will otherwise become increasingly financially challenging if customer disconnections are purely on an individual basis and do not allow the efficient downsizing of the network.

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

Costs

The costs are modest: much of the information sought will already be available to the gas distribution networks, it just isn't regularly collected and published.

Forecast, scenario-based planning, and the evaluation of opportunities for demand management and strategic decommissioning will have some cost, but the costs will be small compared to the potential

benefits of achieving a more efficient transition. Because gas networks perform such little planning today, the absolute cost of improved planning may be surprising. Regardless, the value of the gas distribution network asset base is $11.2 billion, and an asset base of that level justifies significant planning investment given the uncertainty it faces.[51]

Benefits

There are myriad benefits to better gas distribution network planning. Stakeholders will be better informed on the details of the decline of the gas distribution networks and will receive appropriate notice on when particular parts of the network might be suitable for strategic decommissioning. In particular this will assist policymakers in optimising policy design and budgeting for support programs for electrification and allow local communities to organise themselves in a timely manner if they are interested in participating in a strategic decommissioning project. Consumers benefit from advance notice of when gas infrastructure might end, allowing them to avoid ill-timed investments in replacing gas appliances, only to learn that their local gas network may not be useful – or cost effective – within the expected life of a new gas appliance. Electricity distribution networks will benefit from greater understanding of when additional load might come to their system.

Additionally, the GAPR will also be a useful input into future access arrangements as it will both "set the scene" and also be a publicly available source of key forecasts and assumptions underpinning gas distribution networks' proposals. By planning efficient and prudent investment long-term, particularly in the context of a shrinking network, regulators and stakeholders can have more confidence in the shorter-term revenue and investment decisions made. Without such planning, it is difficult to determine the prudency or efficiency of network proposals given the necessarily short-term focus of an access arrangement in the context of a longer-term transition of the gas network.

To the extent that the GAPR facilitates strategic decommissioning, it will contribute towards emissions reduction.

Other impacts

The granular level and regular publication of the GAPR will assist electricity networks in their own planning and forecasting as it will help them better identify and quantify the impact of electrification on electricity demand. Such information will allow them to plan and invest prudently to facilitate additional electricity demand from consumers.

[51] AER, Gas Distribution Network Infographic, 2024 Network Performance Report. https://www.aer.gov.au/documents/aer-gas-distribution-infographic-2024-electricity-and-gas-network-performance-report

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