AER Submission re reference tariff variation and declining block tariffs

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I agree that this submission can be made publicly available. This submission reflects my personal views.

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My background

I have an honours degree in engineering and Dip.Ed, and I have worked on energy issues since the 1970s for governments, community groups, and across all sectors of the economy. I have a number of awards for my contribution to energy efficiency and climate policy, programs and education. I have been involved in many studies of individual site energy use from energy intensive plants to small households, design of efficient appliances and equipment, and development and implementation of policies and programs for appliances, buildings and industry. I provide policy advice to many groups including the Energy Efficiency Council, and I work with the Australian Alliance for Energy Productivity on commercial/industrial energy productivity transformation.

Summary

The whole energy sector is experiencing disruptive change and uncertainties. Past regulatory practices will add to problems, not address them. How language is interpreted and methodologies for calculation of benefits are applied can have major impacts on outcomes regarding NEM objectives and issues that AER is able to consider. For example, how can application of a 7% pa discount rate and a timeframe of only 10 years reflect the long-term impacts on consumers? How will climate impacts and impacts on specific groups of consumers such as those who cannot 'go off gas' be equitably dealt with? This submission explores some options.

It seems clear that addressing the long-term interests of consumers in relation to gas now means rapid, broad shifts from gas use. In turn, this requires consideration of the implications for the

electricity demand profile if a societal least cost outcome is to be achieved. Some of these implications are discussed.

Issues related to the debate over gas 'abolishment' charges are explored as a case study of the need to consider disruptive, rapid and uncertain change and to review interpretation of 'efficiency'.

It is unlikely that a focus on network reference tariff decisions alone will have a major impact on overall energy service costs and provision. So, while AER must now make decisions on this, it should flag the broad implications of its decisions for gas networks and the whole energy services sector. The aim of the NEM objectives is long term benefit for consumers of all energy services, so achieving that broad objective may mean network operators should pursue actions that may not, at present, seem to be in their interests. AER must find ways of dealing with these potential tensions.

With regard to consideration of declining block tariffs, the language is ambiguous: different versions of such a tariff structure can have different impacts on different consumer groups. Instead of proposing a specific approach, I have prepared a list of key outcomes/criteria that a tariff structure should meet. These include:

- Equity and reduction in disconnections due to unpaid bills now and in a future where gas retail prices may increase due to disruptive change
- Encouragement of energy efficiency improvement instead of increased gas use,
- Incentives for network operators to improve societal economic efficiency, especially regarding 'abolishment' strategies and achievement of urgent carbon emission reduction
- Discouragement of network investment in projects at risk of becoming 'stranded' assets or heavily dependent on future revenue in a context of declining numbers of consumers and amount of gas used per consumer.

As an outcome of this work, AER should identify options for broad transformation of many aspects of the NEM institutional and operational structures.

Introduction

This consultation reflects recent and potentially dramatic changes related to energy and climate policy and outcomes that impact on gas network operators.

It focuses specifically on Reference Tariff design and community concerns about the impacts of the present 'declining block' gas network tariffs. The consultation paper outlines a range of options for these, as well as providing useful background context.

This is a complex area, and many relevant factors are changing fast, with future circumstances being very uncertain. Some fundamental aspects of present energy market design are clearly outdated, while existing market designs also seem to have failed to achieve the present NEM objectives. These cannot be adequately addressed by measures focused on gas networks alone. For example, it seems that network costs are not very sensitive to levels of gas sales once infrastructure has been designed and installed.

Network tariff structures comprise only one element of retail consumer bills and prices. Indeed, bills are affected by many factors that cannot be adequately addressed by present institutional structures. If the interests of consumers are the focus, as stated in NEM Objectives, then the impacts on energy bills, not prices, for key groups of consumers now, and in the future, should be the key test.

In this submission, I discuss how the interpretation of the Gas Objective shapes decisions related to design of reference tariffs, and what gas network pricing structures should achieve.

The Gas Objective - now and in future and its implications for AER decision-making

The present Gas Objective states:

> *…to promote efficient investment in, and efficient operation and use of, natural gas services for the long-term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.*

This begs many questions:

- What are the long-term interests of consumers? Given both climate change and retail energy costs, it is clear that the long-term interests of residential gas consumers are to 'get off gas'.
    - Regardless of future hydrogen or biomethane pricing, gas will not be able to compete with emerging high efficiency, flexible electric technologies using renewable electricity in the residential (and most commercial) energy markets. The gas fixed charges that must be added to electricity fixed charges and gas unit prices, given relative end-use efficiencies, will not compete with incremental use of high efficiency electric appliances on price or carbon emissions in coming decades.
    - Australian climate commitments are based on a cumulative carbon budget, so the faster we cut emissions, the more easily we will meet our commitments. Waiting for future options incurs a carbon cost and undermines our ability to meet our targets at least cost.
    - Small consumers are disproportionately impacted by high fixed gas charges and high unit prices for small levels of consumption, while tenants are often impacted by the poor thermal performance of their homes, which increase gas consumption if that is their source of heat.
    - While transition issues related to switching from gas can be significant, the long-term benefits of switching to high efficiency electric options, especially if combined with on-site PV and demand management, are widely accepted, and meet the Objective, which is focused on 'long-term' benefits. The costs and impacts, and discount rates applied to analysis matter: for example, a high discount rate reduces the significance of long-term benefits of consumer investments. When the Australian government is applying a $75/tonne of CO2 to its *Safeguards Mechanism* should a similar carbon price be applied to decisions in the energy market to reflect long term benefit? As shown in the recent debate over changes from 6 to 7-star requirements in the National Construction Code, choices on these factors can make a big difference: the initial NCC Consultation Regulatory Impact Statement estimated a benefit-cost ratio of 0.35 (when 1 is break-even) and recommended rejection of the change. After active community input, the CBR was significantly increased and a list of 'factors not quantified' added, leading building ministers to approve the change.
- What is meant by 'efficient investment, operation and use'? Is it economically efficient to invest in assets that risk becoming 'stranded' or maintaining gas distribution systems when consumers would benefit from going off gas, while expecting consumers to pay?
    - It is not clear that optimising the economics of investment in network infrastructure will necessarily lead to lower retail prices or overall consumer benefit, or net societal benefit. Optimising network costs may drive higher consumer costs in other aspects of the delivery of energy services.
    - It can be argued that historical network investment has not been optimally efficient, as alternatives to 'poles, wires and pipes' have received limited consideration in many decisions. Even now, limitations to market participation for demand

management and response, often due to retailer behaviour and inappropriate policies and market rules as well as network operator decisions, abound. For example, gas network operators know which residential consumers contribute most to winter peak demand and increasing concerns about winter gas delivery shortfalls. Where parts of the gas network are stressed, they could help high consumers in those areas to avoid the costs of upgrading capacity.

- In a context of transition away from gas, how can extension of gas networks and replacements or upgrades to existing gas networks be more economically efficient in the long term for small retail gas consumers than assisting them to transition away from gas?
- A recent move by a gas network operator to offer incentives for installation of gas appliances (see Cash for gas: Networks offer rebates, cash bonuses to keep home fossils burning | RenewEconomy) seems inconsistent with the principle of economic efficiency as well as the principle of 'long term consumer benefit', given that these products will increase lifetime carbon emissions and expose the occupants to higher energy costs.
- In the present debate about the cost and allocation of costs of 'abolishment' of retail gas connections, there has been no discussion of alternative options to individual disconnection that would optimise 'economic efficiency' in what could be a $4 billion national activity. Research and trials of alternatives are needed to determine what 'efficient abolishment' looks like, so that network operators are not 'over-compensated' for costs incurred and network operators have an incentive to innovate. The approach outlined below combined with provision of (possibly subsidised) LPG to remaining committed gas users could dramatically reduce abolishment costs while also reducing damage to roads from individual disconnection works. For example, planned approaches that encourage all households served by a gas supply that could be isolated by a single abolishment measure to switch within a given time period, so that a single disconnection could be implemented at the main supply, instead of multiple disconnections, or other innovative solutions, could be implemented. Where is the well-funded research program that explores options and mechanisms to encourage consumer action? In Victoria, the views of EnergySafe Victoria which are solely driven by its perceptions of safety at any cost and relying on existing practices, have distorted debate. It is puzzling that ESV reports around 3,000 gas leaks annually due to damage to pipes, and has not developed effective preventive strategies. It is not clear how much various 'abolishment' options might reduce or increase this number of damage events or risk of gas leakage: this issue should be factored into research on the costs and benefits of innovative abolishment techniques.
- 'Postage Stamp' pricing of electricity network charges is a serious barrier to the economics of community batteries and the fair pricing of rooftop solar exports to the grid, and hence to low carbon, more equitable alternatives to gas. Governments are introducing many incentives for households to shift from gas, which could be redesigned to facilitate 'grouped' disconnection. The cost and range of non-gas options available to gas consumers will have significant influence on their decisions and hence the impacts on gas networks.

AER's consultation paper describes present moves to change the National Energy Objectives to emphasise compliance with state, territory and national climate policies. These are becoming

progressively more aggressive in terms of both scale and timing of emission reductions. This creates an increasing risk for gas network operators as the timing and scale of reduction in gas use seems likely to be brought forward.

Reference Tariff Objectives

It is beyond the capacity of most consumers, including me, to evaluate the detailed strengths and weaknesses of the options discussed in the consultation paper. However, given that the National Energy Objectives focus on several key issues, it is possible for consumers to provide guidance to AER regarding criteria and weightings that should be applied to its analysis and reporting, along with outcomes that should be achieved to meet societal objectives and energy market objectives, as interpreted by consumers – who the NEM is intended to benefit.

In the present context, it seems that the design of a reference tariff should facilitate improved social equity and justice in the short to long term, while actively managing gas-related costs for a potentially rapidly declining number of consumers connected to gas networks and a decline in gas consumption per consumer. Given the high cost of health care and the link between maintaining healthy temperatures and air quality in homes, it should be factored into reference tariff design.

Sensitivity studies should be used to help design mechanisms that will cope with unexpected rates of change. Research must be conducted to identify, estimate and manage costs of 'efficient' methods of connection abolishment consistent with likely climate targets.

Uncertainties in future retail gas demand

Historically, network tariffs and charges have been based on estimates of future gas consumption and associated infrastructure requirements. This has not worked well, as gas network operators have fairly consistently captured more revenue than targets – see Figure 1 in AER's consultation paper. This approach simply will not work in a disrupted, uncertain future.

Any forecasts of future demand for small retail gas consumers and associated revenue for gas network operators, retailers and gas producers are very uncertain. Several factors are at work, including volatile climate policies, impacts of international events on gas prices and risk of winter supply shortfalls. In particular, voluntary consumer action can occur far faster than policy or regulatory action: rapid adoption of smart phones is an example of such change. Policy makers need to keep this in mind, and design flexible models that can adapt to disruptive change.

Increasing concerns about shortfalls in winter gas supply for southern states are very important – as shown in the graph below. Both direct gas use and demand for gas-fired electricity in southern states dramatically increase in winter, and demand is very spiky. This shows it is heating of inefficient buildings by inefficient heating equipment that is driving supply shortfalls and investment in gas (and electricity) supply infrastructure. There is increasing likelihood that governments will act to accelerate upgrading of building thermal performance and heating equipment, as illustrated by the ACT government's recent initiatives.

Recent increases and volatility in gas prices have shifted consumer perceptions about gas as a low-cost option. Most businesses and households prefer a 'reasonable, stable' energy price so they can plan and run their businesses or households. Energy is, in most cases, a relatively small proportion of their costs, so they do not see value in spending a lot of time dealing with it. However, concerns about climate change are increasing, while media are focusing more on the impacts of gas use on climate, indoor air quality, fracking and undersea seismic blasting. Perceptions of gas as a clean energy solution are also being undermined by adoption of rooftop solar and improving high efficiency electric solutions.

Since most customers of gas network operators are retail customers, future gas demand will largely depend on the choices made by households and small businesses, whose main exposure to the energy market is through energy retailers and the tariffs they offer. AER's paper notes that network charges are only 22 to 25% of Victorian gas bills.

This is a rapidly changing space. While past surveys have shown strong preferences towards gas for some activities, incentives, regulatory changes and technology changes are all driving a shift away from gas. For example, a modern reverse cycle air conditioner not only provides economical heating and cooling in a climate that is heating up, but also offers 'air purification' services, which are of increased importance since the emergence of COVID and mould issues.

Emerging winter gas shortfalls (and higher prices)

Main drivers of peak winter gas demand:

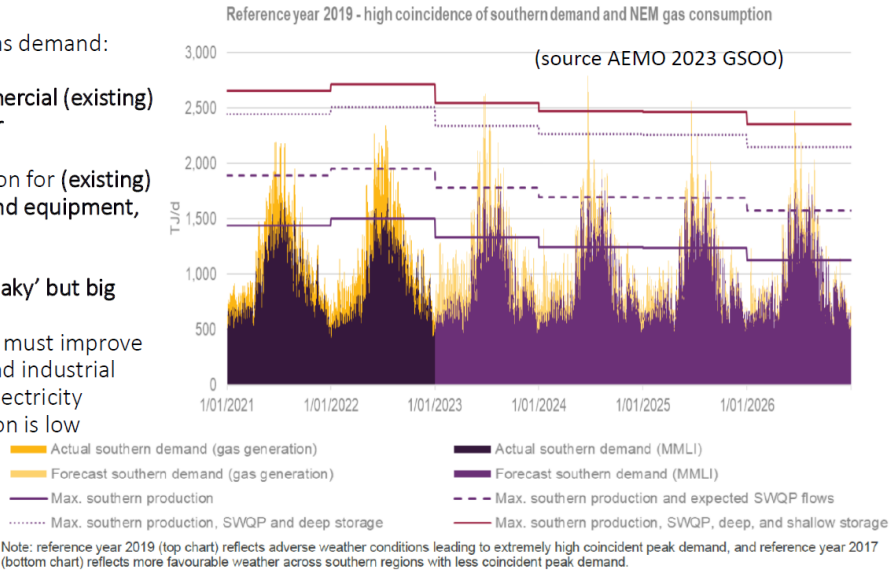
- Gas for **household and commercial (existing) building heating and hot water**

- Gas fired electricity generation for **(existing) building heating, appliances and equipment, industry**

- Gas use in **industry is less 'peaky' but big**

As we shift from fossil gas, we must improve building thermal, appliance and industrial efficiency to manage winter electricity demand, when solar generation is low

Figure 4 Actual and forecast daily southern gas demand showing seasonality, peakiness, southern production, and total system capacity available to meet southern demand using existing and committed projects for the *Orchestrated Step Change (1.8°C)* scenario, under favourable and extreme weather (TJ)



Note: reference year 2019 (top chart) reflects adverse weather conditions leading to extremely high coincident peak demand, and reference year 2017 (bottom chart) reflects more favourable weather across southern regions with less coincident peak demand.

There is also surprisingly large potential for gas connected homes to reduce their gas consumption significantly without disconnecting from gas. Possibilities include:

- According to the 2021 Residential Baseline Study, in NEM states over 1.2 million homes have ducted air conditioners and 9.4 million non-ducted units are installed, with some homes owning multiple units). At present, few of these households with gas heating use their reverse cycle air conditioners for heating (see posts on myefficientelectrichome facebook page) because most of them were installed to provide cooling. So there is substantial scope to reduce gas use for heating in many homes without any investment. Personal efficient electric heating options such as electric throw-rugs, heating pads and electric boots are also being adopted as people try to limit rising energy costs and seek improved comfort.
- For cooking, many existing gas-connected homes already have electric ovens. Most homes have or can afford to buy microwave ovens, air fryers, plug-in induction hotplates and other plug-in electric cooking devices that could be used more. Some community groups and councils are now offering loans of plug-in induction cooktops to encourage adoption.
- For space heating, ducted central heating is now widespread. This is often inefficient due to ducting faults (one study found 15 to 50% losses from ducting), poor zoning and localised high heat losses. A 1990s Gas & Fuel Corporation study showed that clip-on deflectors on heating outlets could cut gas use by 20% by avoiding high temperatures next to walls and windows and reducing impact on the insulating still air film next to windows.

- For hot water, most modern dishwashers and clothes washers now heat their own water, while water-efficient showers are mandated in new homes. So demand for centrally sourced hot water has been declining. In response to this trend, the National Construction Code has recently adjusted its default hot water usage down from around 200 litres per day to 125 litres. Gas instantaneous HWS units are gaining market share: for hot water usage under around 200 litres/day, these are significantly more efficient than traditional gas storage HWS units at lower daily usage, as a 5-star storage unit typically consumes over 5 GJ/year of gas for standby losses, regardless of hot water usage.

There is also very substantial potential for existing gas heated homes to upgrade thermal performance. State and territory governments are offering incentives and beginning to introduce minimum standards for rental properties. As shown in the graph below, substantial numbers of residential gas consumers have winter gas bills more than double the typical cost. These could be targeted for upgrades by gas network operators, retailers and/or governments.

7-star residential building regulations being introduced soon lead to much more energy efficient building performance: for Melbourne a 7-star home must achieve 62 megajoules per square metre thermal energy for heating and cooling, compared with a 'typical' existing 2-star home that rates 290 MJ/m2 - a 79% reduction.

Leading builders are working with groups such as the Green Building Council of Australia to market high efficiency all-electric homes with rooftop solar and, increasingly, storage batteries. Some energy retailers and other service providers are promoting Virtual Power Plants and demand management solutions that involve electric appliances.

There is rapidly increasing interest in efficient electric space heating, with many sources of information. A reflection of the rising interest was the response to my September 2022 article on heat pumps (see https://theconversation.com/heat-pumps-can-cut-your-energy-costs-by-up-to-90-its-not-magic-just-a-smart-use-of-the-laws-of-physics-185711) which has attracted over 340,000 readers, two-thirds of them from Australia.

The Table below shows the stock of air conditioners in NEM homes (Residential Baseline Study 2021): in most states it is likely that the vast majority of these appliances are reverse cycle, as there is typically a zero or small purchase cost premium.

thousands	ducted	non-ducted
NSW	590.8	2644.2
ACT	29.6	124.5
SA	162.1	711.5
Qld	219.1	3365.2
Tas	8	187.6
Vic	209.3	2412.8
TOTAL	1218.9	9445.8

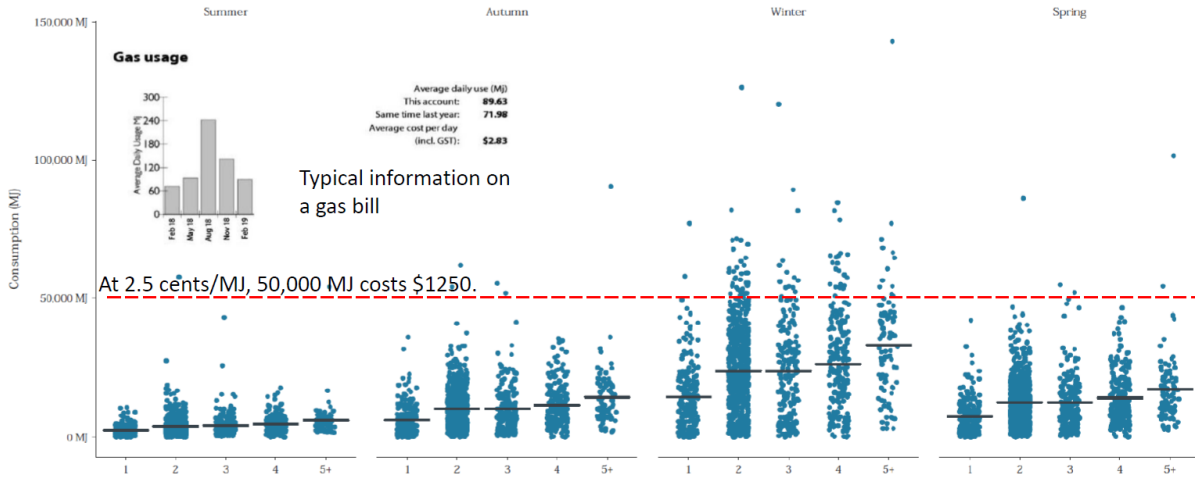
An effective education campaign could significantly accelerate substitution of gas use for space heating by existing RCACs.

The distribution of residential gas bills, shown below based on a survey for Victoria, shows that a small proportion of gas consumers use a disproportionate share of total residential gas, especially in

winter. Fairly old surveys by the Victorian Department of Housing and Community Services suggested that around 30% of high gas consumers were low income households.

Given increasing concerns about winter gas supply, it seems logical that governments will target these high gas consumers to upgrade building performance and switch to heat pumps for space heating.

Figure 34: Victoria: seasonal gas consumption and benchmarks



Source: Frontier Economics **Residential Energy Consumption Benchmarks (2020)** – report for Australian Energy Regulator

Source: Frontier Economics

NOTE most Victorians billed 8 weeks (60 days), not quarterly (90 days) as shown on this graph
Fixed supply charge adds $250+ to annual cost

The commercial sector and large apartment buildings also provide substantial scope for reduction in gas consumption. Many central gas ring main space and water heating systems are astoundingly inefficient because of poor insulation and oversized boilers that provide relatively small amounts of useful heat. Two case studies (by Pitt & Sherry and Ark Resources) of large apartment buildings in Sydney and Melbourne showed that water heating comprised over 40% of overall building energy use.

Gas cooking in commercial kitchens is also inefficient: often burners run continuously so chefs can quickly heat food. Kitchen temperatures are high, potentially driving staff turnover. High exhaust fan airflows that remove conditioned air from the building add to energy costs and noise. Increasing numbers of high profile chefs are shifting to electric cooking and encouraging others to follow.

The Green Building Council and NABERS team are sending strong messages to building designers, building services engineers, building owners and developers that 'all-electric' with renewable electricity is the path forward.

A key problem is that monitoring of gas use is very limited, so the remarkable scale of gas waste is not well documented. It should be economically efficient for network operators to fund improved monitoring and diagnostics, at least for high gas consumers, since they claim that their distribution costs are relatively independent of the level of consumption.

Issues to which AER 'must have regard' in making decisions, including climate

AER works within narrowly defined constraints that were set some time ago, and reflect the politics, knowledge and priorities of past times and technologies. This makes it difficult for AER to respond to the revolutions and crises that are emerging.

The issues it is required to consider include, among other things:

- ‘efficient’ tariff structures – see my earlier discussion of this issue
- Desirability of consistency – a good idea but consistent poor performing outcomes are not desirable
- Risk shares – emphasis seems to be on the ‘entitlement’ of network operators to make guaranteed profits from any decision, regardless of its contribution to net societal benefit. Risks to consumers regarding costs, health and safety are important.
- Any other relevant factors – which in this case, AER considers to be compliance with national, state and territory climate policies. If this is genuinely pursued it would drive very different outcomes from those delivered by past energy market objectives, rules and practices. It seems likely that parliament will change the NEM Objectives to focus more on climate and environmental issues as well as broadening the focus across a wider range of energy sources and services. It is quite clear that changes in the gas sector impact on electricity, and vice versa. Changes on the demand side are not really addressed in energy markets because the wording of the Objectives refers to ‘price’ not consumer cost or bills. Since energy efficiency measures often do not directly impact on prices, they are largely ignored in energy market analysis. Yet uncertainty in future demand is a major risk factor for investors in energy supply while it is often cost-effective, as shown by numerous international studies, such as the International Energy Agency’s work.

In the consultation paper, there is a significant focus on the implied rights of network operators to maintain profitable existing business models based on forecast gas demand, including minimising risk of lower-than-expected revenue. This criterion should be challenged. How many businesses across our economy and in regulated areas are guaranteed a profit? And how does the obligation of AER to ensure future profits (sorry, ‘reasonable returns on investment’) at the expense of consumers impact on consumers?

The AER paper shows that gas network operators have consistently exceeded target revenues (see Fig 1 from the AER paper). My impression (which may be wrong) is that, under the existing regulatory model, they keep these ‘bonus’ profits, though the existence of high profits may exert some downward pressure on future prices. AER should seek evidence that this has actually occurred after previous periods of high profits. AER must allow network operators to recover costs of ‘efficient’ actions, but it is not clear how these are defined, or the extent to which network operators are expected to explore innovative ways of improving efficiency. The interactions between network activities and other elements of the energy supply and demand system can also have very significant implications for consumer benefit.

Declining Block Network Tariffs

As I have noted earlier, consumer perceptions in relation to energy are driven by retail pricing structures, not network tariff structures. These can be very different. Particularly in recent times when gas and electricity retail prices have spiked, consumer concern about retail pricing structures and potential increases in gas retail prices (for both fixed charges and unit charges) have become a focus of attention.

The pragmatic reality is that retailers play a much bigger role in shaping the levels of fixed charges and unit charges and overall energy bills. For example, the Climate Council (see below) has recently compared state by state retail gas prices, and found that Victorians pay (and could avoid) much higher retail fixed charges than consumers in other states. Network charges are a small proportion of Victorian fixed charges: according to one network representative on a public webinar, they are

only about 30 cents per day. AER's consultation paper notes that network charges comprise only 22 to 25% of gas bills in Victoria and ACT. Given that Victoria has a high density and number of retail gas consumers, it is puzzling that retail fixed charges there are so high.

Source: https://www.climatecouncil.org.au/wp-content/uploads/2023/04/CC_MVSA0353-CC-Report-Two-for-One-Home-Energy-Efficiency_V5.2-FA-Screen-Single.pdf

	Adelaide	Brisbane	Canberra	Hobart	Melbourne	Perth	Sydney	National average
Yearly gas bill for heating, cooking and hot water *before* any upgrades	**$3,159**	**$1,794**	**$3,406**	**$3,546**	**$2,349**	**$2,054**	**$1,866**	**$2,596**
Savings made shifting from gas appliances to electrical								
✓ Switching from instant gas hot water heating to a high efficiency electric heat pump saves you...	$448	$689	$359	$465	$431	$202	$464	$437
✓ Switching from standing gas heating to electric reverse cycle air conditioning saves you...	$271	$183	$604	$587	$493	$36	$191	$338
✓ Switching from a gas cooker to an induction stovetop and electric oven saves you...	$15	$107	$20	$43	$51	*	$14	$31
✓ Removing daily gas supply fees saves you...	$215	$254	$252	$215	$326	$98	$229	$227

There are many ways of defining 'declining block' tariffs, as outlined in the AER consultation paper. As noted earlier, this is a complicated area. Depending on the actual approach taken, different 'declining block' models will have different impacts on different groups of consumers.

For these reasons, it is important to define what the desired impacts on key groups should be, and for AER and network operators to work out how those outcomes can be best achieved.

The key issues for consumers relate to the outcomes of design of reference tariffs. Does the method of calculating reference tariffs deliver:

- Equity and reduction in disconnections due to unpaid bills now and in a future where gas retail prices may increase due to disruptive change
- Encouragement of energy efficiency improvement instead of increased gas use,
- Incentives for network operators to improve efficiency, especially regarding 'abolishment' strategies and achievement of urgent carbon emission reduction
- Discouragement of network investment in projects at risk of becoming 'stranded' assets or heavily dependent on future revenue in a context of declining numbers of consumers and amount of gas used per consumer?

Looking to the future

Already most retail gas is sold by retailers who also sell electricity. Electricity network operators are establishing 'ring-fenced' subsidiaries that operate beyond the regulated network space. For example, Mondo has partnered with Total Renewable Yackandandah to provide billing and other services for their behind-the meter community battery.

Some gas network operators also own electricity network assets.

According to AER's consultation paper (p.11), a change of wording from 'consumers of natural gas' to 'consumers of energy' is under consideration in the revision of the NEM Objectives.

Increasing numbers of plumbers are being certified to carry out basic electrical work.

There is an increasing focus on demand-side activities and associated supply chains that respond to government incentives (eg VEU and ESS) and implement a range of energy efficiency and demand management measures that impact on demand for energy and consumer decision-making across energy sources.

Demand for electricity is being increasingly influenced by decisions to reduce gas consumption and avoid or abolish gas connections, with major implications for consumer costs for those who remain connected to gas – many of whom may be renters or vulnerable households. The electricity demand profile driven by a shift from gas, especially gas space heating, has significant implications for electricity pricing and supply security.

On this basis, there is an increasingly strong case to consider energy pricing and funding of future changes across gas and electricity, and to incorporate consideration of relevant demand side action as well. For example, a household that shifts from gas space heating to electricity will add much less cost to electricity network infrastructure if the home is thermally efficient and they install a high efficiency electric product. They will also be able to buy smaller, cheaper reverse cycle air conditioners and potentially avoid or reduce the need for wiring upgrades while gaining access to cooling and air purification services.

The management of abolishment of gas connections provides an opportunity to address a number of potential problems through spreading costs across gas and electricity consumers as well as broadening the actions associated with the transition from gas. In particular, it creates scope to spread costs from the declining numbers of remaining gas consumers, many of whom may be vulnerable or rental households, to a much larger number of consumers. It also creates an incentive for the electricity sector and governments to focus on minimising the impact of more electric heating on additional peak winter electricity demand and associated costs and energy security issues.

Conclusion

While the focus of AER's consultation paper is on development of Reference Tariff design and public concerns about declining block network tariffs, the paper presents a valuable discussion of a number of contextual issues that it can consider in its deliberations. This submission explores how a number of issues potentially impact on design of reference tariffs, and shows that a narrow focus on gas networks will create future problems for regulators and impact on consumers. In this submission, the issue of declining block tariffs is approached by framing the key outcomes that tariff design should achieve. It is AER's responsibility to demonstrate that whatever structure it proposes will meet those criteria.