

Submission to ESC Gas distribution system code of practice review

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This submission addresses several of the questions in the consultation paper as well as some fundamental issues. It also flags some issues that ESC may consider to be beyond the scope of this process. However, these should be considered in this process or complementary processes if effective policies and mechanisms that meet the National Energy Objective intent of delivering long-term benefit to consumers.

Broad issues

Calculation of network charges based on expected future revenue from gas consumption
Regardless of whether consumers may ‘abolish’ their gas connections, future revenue from gas consumption is likely to decline significantly due to factors outlined below. If this was factored into ESC price-setting, it would lead to ongoing increases in charges, which would likely drive a ‘death spiral’, while creating increasing equity challenges.

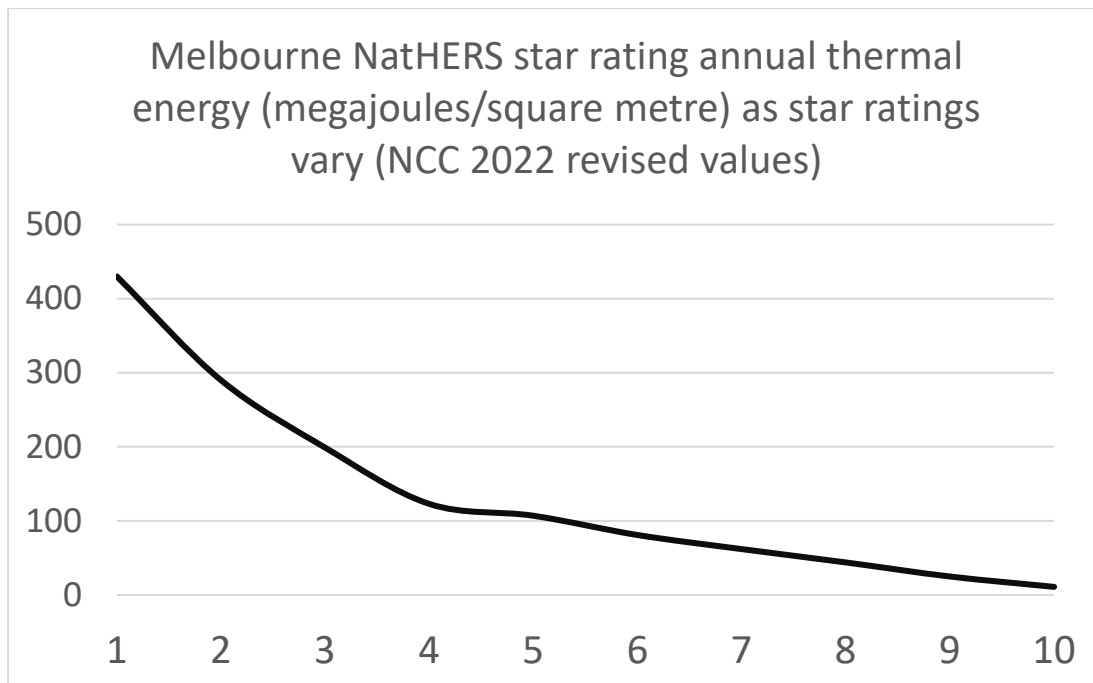
Factors at work include:

- More thermally efficient new homes: as shown in Figure 1, new 7 star homes have much lower (79%) thermal energy requirement than typical 2 star existing homes. There are increasing pressures to upgrade performance of existing homes to deal with climate change, energy costs, winter gas supply constraints and equity issues.
- Rational government policy would focus attention to assist high consuming households and businesses (especially in winter) to reduce waste of gas and reduce the risk of winter supply

shortfalls. It seems likely that the highest 5% of household gas consumers use around 15% of gas, and retailers know who they are.

- Hot water efficiency and appliances that heat their own water are reducing demand for centrally sourced hot water, as reflected in the 2022 National Construction Code which has reduced assumed daily hot water use from 200 to 125 litres per day.
- Scope to improve efficiency of gas ducted heating systems and partially replace usage with higher use of existing reverse cycle air conditioners for heating
- Trend from storage gas HWS to instant gas and heat pumps. For many households, instant gas units save significant amounts of gas because they avoid standby losses of 15 MJ/day or more.
- Increasing use of electric benchtop cooking appliances and electric ovens.
- Transition away from use of gas in the residential and commercial sectors.

Figure 1. Thermal energy consumption of Melbourne homes as star rating changes.

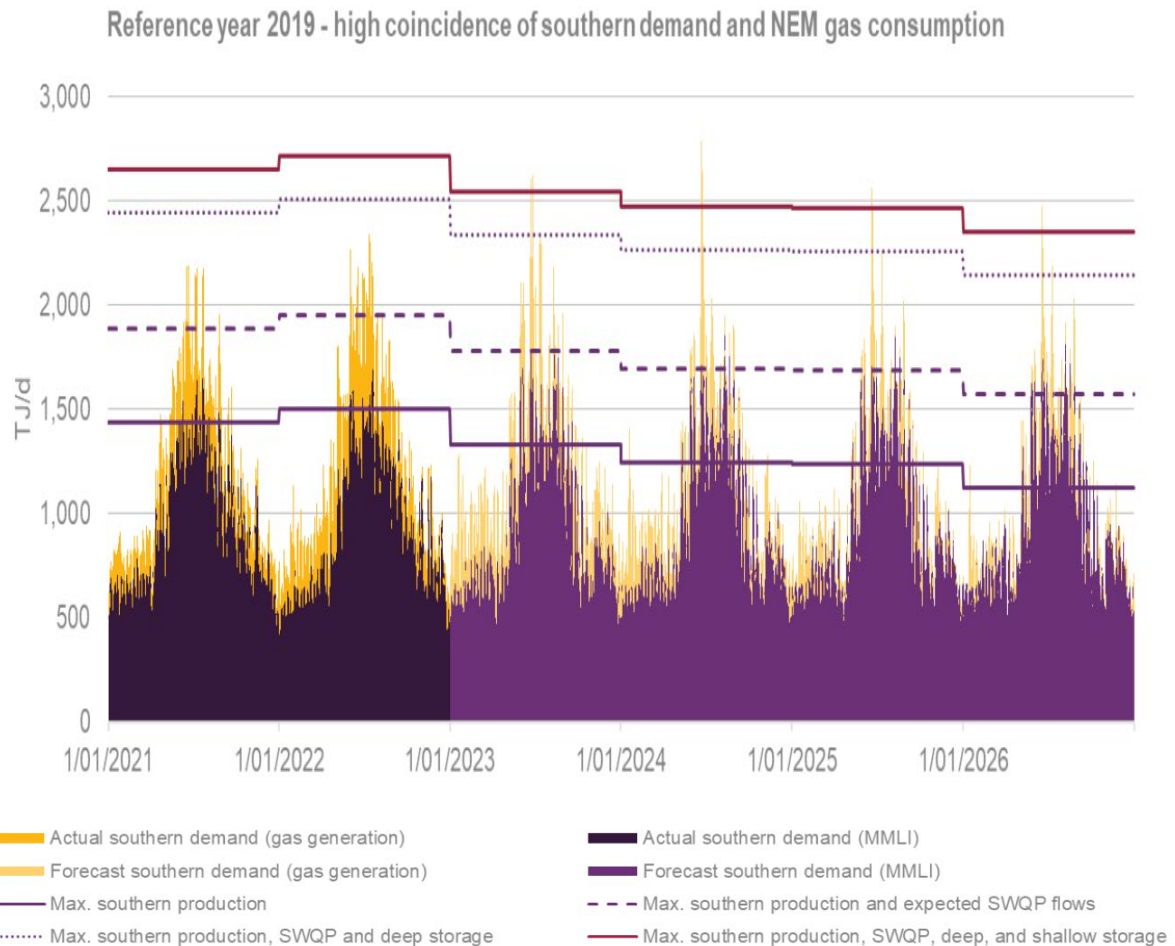


Retail gas tariff structures

It seems that Victorian gas retailers charge high fixed daily charges relative to other states, as shown in Table 1 from a recent Climate Council report. They also seem to apply 'declining block' tariffs. These shift risk onto consumers while discouraging efforts to improve efficiency of gas utilisation or shift from gas. This seems to contradict the reality that high winter consumption drives investment in gas supply infrastructure – see Figure 2. Retail prices should not apply declining block tariffs, and costs associated with a need to supply higher cost LNG or gas transported over long distances from higher cost sources in winter should be charged on winter bills. The Gas & Fuel Corporation used to apply increasing block tariffs to reflect higher winter costs.

Figure 2. AEMO data on southern Australian gas demand. Victorian demand profile is even more extreme in winter. This shows high winter demand is the driver of risk of supply shortfalls and additional costs to upgrade supply capacity.

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.

In a recent ESC consultation session, a representative of a network operator suggested that its contribution to fixed daily gas charges was around 30 cents per day, only about a third of the retail charge. Concerns among social justice groups that declining numbers of gas consumers could impact on fixed charges seem to justify review of retailer practices to reduce fixed charges.

Retailers also seem to offer ‘free connection’ to new consumers. This is a subsidy based on potentially invalid assumptions about the potential to recover this cost from long term future consumption charges. It should be a transparent payment at time of connection.

Table 1. Much larger savings from avoiding fixed daily gas charges in Victoria than in other states.

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

Table 1: Calculated annual savings on energy bills for 1.5-Star homes that are upgraded.

	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	- ⁸	\$14	\$31
✓ Removing daily gas supply fees saves you...	\$215	\$254	\$252	\$215	\$326	\$98	\$229	\$227
Total bill savings from electrifying	\$948	\$1,233	\$1,236	\$1,311	\$1,301	\$336	\$898	\$1,033
Savings from thermal efficiency upgrades⁹								

Acceptance of Energy Safe Victoria position regarding disconnection of gas pipes at the mains connection

While safety is a major issue, this raises the question of how ESV has framed its thinking on this issue. I understand that ESV already deals with around 3000 cases of puncturing gas pipes annually. This suggests there is already a case for development and implementation of strategies to educate, penalise, enhance awareness and other measures to reduce risk of gas leakage resulting from damage to pipes. It is not obvious that connection abolition in a carefully designed program would increase this risk.

Widespread individual abolishment would cost around \$2 billion dollars in Victoria. Creative strategies that lead to street or neighbourhood isolation after limited periods of time during which pipes were sealed at the meter (maybe with appropriate signage or other means of alerting people working near pipes) at the meter and removing meters could dramatically reduce costs. Where some consumers prefer to continue to use gas, they could be switched to LPG. Development of strategies to close off pipes cheaply near the mains connection may also be feasible.

It is astounding that only an expensive individual abolishment option has been proposed.

Climate response

The Victorian government has strong emission reduction targets. Beyond that, it is important to recognise that climate change is driven by *cumulative* emissions, not annual emissions. So switching from gas to renewables today achieves seven years' worth of abatement by 2030. Continuing to use

gas for an assumed 20-year life of a gas connection involves substantial cumulative carbon emissions that climate science tells us must not occur. Australia's international commitment to emission reduction is actually based on cumulative emissions, not just annual emissions.

The recently introduced Safeguards Mechanism for major emitters specifies a price cap of \$75 per tonne of emissions. Surely all future use of gas should factor in a similar price to policy decisions that allow emissions above a reference level of emissions from efficient electric options.

The fact that the level of methane leakage behind the meter is not known is a significant issue: we need data ASAP.

The extremely high short-term impact of methane leakage (around 85 times that of CO₂) means that methane leakage should be accurately documented and the 20 year Global Warming Potential value applied to estimation of costs.

Metering and monitoring

We know very little about how and when gas is used, as most gas meters are 'dumb' – in contrast to all retail electricity meters in Victoria. It is increasingly important to have access to real time gas consumption data. Network operators should be required to install gas meters that provide real time data or can be easily adapted to do so.

Real time data is essential for identification of gas waste and leaks. It is also important when making decisions about the capacity of alternative electric technologies. Heat pumps have a much higher marginal cost for higher capacity than gas appliances, so correct sizing is important for the economics of transition to electricity.

Management of transition from gas

ESC should develop and apply scenarios for transition away from gas. These must be used to explore and develop cost-effective options. These should include policy options such as spreading gas transition costs across all gas and electricity consumers instead of the declining numbers of gas consumers. State government controls legislation of electricity and gas distribution and retailing, so it has the capacity to introduce such a measure.

These scenarios could also explore practicalities and costs of various abolishment strategies such as neighbourhood abolishment. They could also factor in issues such as cost of damage to roads from abolishment works, carbon prices and equity considerations.

Delay in residential gas phase-out to allow for potential use of hydrogen

There is a clear consensus among researchers globally that distribution of hydrogen to households is a very low priority and will not compete with efficient electric appliances and thermally efficient buildings supplied by renewable electricity. If large urban consumers use hydrogen in future it is not certain that centralised supply would out-compete on-site generation of hydrogen from renewable electricity.

As noted earlier, delaying emission reduction impacts on cumulative emissions, which drive climate change.

Responses to selected questions

Question 1 - Overall, do you support the scope of our proposed review of the code?

No. It is too narrow and short-sighted. Its scope does not support likely policy developments and the Victorian Government's Gas Substitution Roadmap.

Question 2 - Are the proposed criteria in our assessment framework appropriate?

The NEM objective focuses on 'price'. This is inappropriate as it is consumer cost or bills (including environmental impacts and equity) that matter. While ESC may consider consideration of overall consumer and societal costs as beyond its formal brief, it is an obvious and appropriate approach.

Question 3 - Do you consider the current connections framework for gas retail customers appropriate? Why or why not?

The present framework clearly does not respond to the reality and future likelihood of ongoing increases in stringency of carbon emission limits. It seems likely to increase consumer and societal costs.

Charging individual consumers at the time of disconnection is a clear deterrent to transition from gas, and is inconsistent with provision of free connections because future revenue from gas sales is uncertain, to say the least. New connections could be charged a fee to allow for future abolishment or costs could be socialised across all gas and electricity consumers.

Question 4 - What options should we consider when reviewing the connections framework for gas retail customers?

A range of rapid transition paths should be evaluated.

Question 6 - Are there other options to introducing equivalent obligations proposed for the National Energy Retail Rules that we should consider?

The Victorian government controls legislation covering retailers and network operators. It has already introduced a number of measures that differ from other jurisdictions, such as the Victorian Energy Upgrades retailer obligation scheme. Alternatives based on criteria outlined in this submission should therefore be considered.

Question 13 - Are any clarifications needed in relation to disconnection and reconnection obligations?

A wider range of options should be considered. Individual consumers should not pay for abolishments.

Question 16 - What factors should we account for when considering our role in the framework for setting unaccounted for gas benchmarks in Victoria?

All unaccounted-for gas leakage should be charged to network operators at a specified carbon price using the 20 year Global Warming Potential value for methane.

Question 20 - Are there any other issues we should consider as part of this review?

See earlier sections of this submission.