

# Submission to Essential Services Commission on Energy Retail Code of Practice Review

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I agree for this submission to be published.

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## Key Points

- I have extensive experience in development and delivery of resources for householders on energy and decarbonisation
- Multiple information resources are needed for different market participants
- Separation of electricity and gas retailing regulation and consumer information is outdated: they should be consistent
- Tariff structures should be revised to limit high daily and demand charges and tariff design explored so they provide positive incentives, not price penalties
- Billing methods and design need revision to improve consumer engagement
- Retailers must be incentivised and required to assist consumers with high bills and those in energy poverty
- There is a need for credible, independent information provision. Energy saving actions must have higher visibility in billing and on websites. Energy retailers should pay a levy to fund operation of a service that provides advice, including research to optimise community and consumer utilisation of energy management information
- Rules are needed to address use of secondary meters, in response to AEMC’s recent rule change that allows their use for financial transactions with third parties

- Abolishment of gas connections should be streamlined, and research conducted to reduce the costs, complexity and disruption involved
- Maximum energy values used to set prices for bulk hot water should be revised to reflect improving efficiency, particularly increasing use of central heat pump HWS units and higher standards of insulation
- Retailers should provide much more detailed data on energy use by individual consumers, to identify and assist high consumers and those suffering energy poverty, and to support policy and program development. Government should set enforceable targets for each retailer to sell less energy to residential consumers
- Existing residential efficiency rating tools are not well-suited to provision of information to existing householders with high bills, or households with summer comfort and peak consumption issues
- Given the low daytime prices due to high variable renewable electricity generation, retailers could be encouraged to offer lower prices in sunny weather

It may be useful for the ESC to review the content and findings of the 2017 review of Victorian energy retailing at [https://www.energy.vic.gov.au/\\_data/assets/pdf\\_file/0031/673951/Thwaites-Review-Final-Report.pdf](https://www.energy.vic.gov.au/_data/assets/pdf_file/0031/673951/Thwaites-Review-Final-Report.pdf)

## Introduction

I appreciate the opportunity to contribute to this review. I have worked in the energy sector for over 40 years, including developing and operating significant energy consumer programs. I managed Melbourne's Energy Information Centre and associated services such as an information caravan that toured rural and regional areas in the early 1980s. I developed the software and training for Victoria's world-leading Home Energy Advisory Service, which ran for 10 years and conducted assessments of over 90,000 homes of vulnerable households with high bills, with significant retrofitting activity. I have also written several household advisory resources including *Energy Decisionmaker* booklet which was distributed to most Victorian households then published in updated form for many years. I also developed the EPA Victoria *Australian Greenhouse Calculator*, which was widely used for education and consumer empowerment. I continue to provide lectures and talks on home energy issues.

The present situation with retailers requires significant improvement.

## Overarching issues

Energy is seen as an 'essential service' but actually it is affordable and sustainable provision of services that rely on energy that matter. Energy is a 'derived need' based on available technologies and perceptions of need. Multiple modes of engagement are needed that focus on different households, different energy consuming activities, service providers, utility staff, educators and policy makers.

The separation of electricity and gas retailing regulation and consumer information is outdated.

Tariff structures with high fixed charges are problematic. Design of time-variable pricing models and demand charges are complex and require more consideration of consumer perceptions and behaviours.

Most residential and SME consumers are not very numerate, energy is a small proportion of their total input costs, and they often see it as an unavoidable cost. This means many pay little

attention to energy issues – but when they get a high quarterly bill in winter, it can create cashflow problems and build on mistrust of the energy sector, energy policy makers and governments.

Vulnerable households and renters often face high bills: The Victorian Department of Human Services used to conduct regular surveys of household energy use. My recollection is that they found that around 30% of households with high bills were on low incomes. Tenants are also likely to be a significant proportion of households with high bills. Energy poverty, where people minimise energy use because of fear of high bills or disconnection, is difficult to identify, but has serious health and welfare cost implications. We need to develop smarter ways of identifying it.

Recent changes in energy market rules will allow introduction of ‘secondary meters’ that can be used for financial transactions with third parties. Retail regulation needs to adapt to manage their use.

Most of the focus of the Consultation Document is on social justice, family violence and related issues. These are very important, and I agree with most proposed changes. In my limited time, I will focus more on broader engagement and other issues in response to selected Questions.

## Questions 11 to 28 – Assistance and information on energy efficiency, billing, etc

The Consultation Paper highlights a number of issues with billing design, the Energy Compare website and lack of information regarding ‘abolishment’ of gas connections. These require strong action – but informed by engagement with consumers and careful design and testing of changes. For issues such as abolishment, the retailer is the obvious contact point for most consumers, but systems must be streamlined and consumer protection ensured.

It also proposes provision of information on types of gas provided. While distribution of hydrogen blends now seems unlikely, such information may be useful for consumers, as options such as tempered LPG, bottled LPG, biogas and biomethane may be supplied.

Bill benchmarking is an important form of information, but the present approaches seem to be poorly understood by most consumers and lack consistency.

A key challenge is to make the benefits of energy saving measures more visible. When energy prices are rising, for consumers who just focus on the bill cost, energy savings are masked by the price increase: this undermines recognition of the value of saving energy. For example, when a consumer’s energy consumption compared with the previous year’s equivalent billing period is lower, maybe it could be noted on the bill that, if they had not reduced their consumption, their bill would have been \$xx higher?

It may be appropriate to provide key highlights on bills, including flagging to households when their bills seem unusually high relative to past bills and relevant benchmarks, or anomalies appear.

A QR code or web link could provide access to more detailed information. Possibly this additional information could be added to the EWV site to increase its profile.

Retailers typically provide ‘energy saving’ information on their websites, much of which is useful. But many consumers perceive retailers to be conflicted about helping people to save

energy and cut bills, as their core business relates to selling energy. Often this information does not relate to individual circumstances or prioritise actions.

An alternative or additional approach would be to require retailers to contribute funds to run a comprehensive and independent information service. In the past, Victorian governments have run such services, as outlined in my introductory comments. The Victorian government, mainly through Energy Victoria, also ran an energy festival in Moomba and displays at home exhibitions and community events, mobile information units and promotional and educational activities.

Retailers could also continue to offer their own services.

The popularity of the *My Efficient Electric Home* Facebook page, with over 100,000 subscribers, shows there is a hunger for informed, personalised independent advice. This is run by volunteers, so it has very limited capability to synthesise and analyse its use to optimise information content and resolve conflicting advice. Financial support to enhance quality and utilise insights could be a cost-effective option. Funding could be via a levy on retailers.

Multiple modes of engagement are needed that focus on different households, different energy consuming activities, service providers, utility staff, educators and policy makers. Multiple languages and rural and regional areas should be addressed. For example the Home Energy Advisory Service had brochures in 9 languages and some advisers were multi-lingual.

Government incentive schemes offered through the Victorian Energy Upgrade scheme and Solar Victoria are valuable. But independent personalised assistance is an important element of adoption for many households. Businesses that offer these incentives do not necessarily provide unbiased advice.

Extension of the government's Environmental Upgrades Finance Scheme to residential rental properties could help to overcome the 'landlord-tenant' market failure, and complement the proposed Rental Standards.

Timely, correct information presented clearly, with user-friendly support services is critically important.

The concern expressed about the cost of changing billing formats fails to outline how much it might cost compared with other factors such as retailer advertising budgets and customer turnover, which would put this cost into perspective.

The AER's Better Bills guideline seems to have significant limitations, for example it does not require provision of comparative information data so consumers can put their bills into context.

### Question 37: Abolishment of connections

Abolishment of energy connections should be streamlined: retailers are the logical contact point. The rule that the cost of abolishment should be a flat \$220 has helped to stabilise the situation, but this may be temporary: research is needed to develop long term solutions, including consideration of street-level or neighbourhood coordinated abolishment.

The present approach to abolishment seems unduly disruptive, including damage to roads, due to removal of pipes. Research is needed to develop cheaper but effective and safe alternative solutions such as isolation at a single point near the property boundary. In areas where neighbourhood abolishment is likely within a reasonable time, it should be possible to seal pipes in ways that are safe for an interim period.

## Questions 39-40 Embedded networks

It seems appropriate that consumers on embedded networks should pay no more than the Default energy prices, as proposed.

## Question 48 Bulk Hot Water Formulas

The values used at present for bulk hot water formulas are certainly outdated. Gas has a fixed value of 0.49724 MJ/litre and electricity 89 kWh/kilolitre.

For electricity, the present value seems to be based on a relatively low efficiency of around 60%. The default energy value should factor in use of a central Heat Pump for water heating, as well as a reasonable standard of pipe insulation and possibly a reasonable allowance for use of rooftop solar to reduce purchased energy – this could be documented separately to allow for varying areas of roofspace available.

For gas, the present value seems to be based on an overall system efficiency of around 38%, which is a low efficiency. Gas HWS efficiency and pipe insulation have improved.

The energy value depends on a number of variables, including HWS standby loss, effectiveness of pipe insulation and distribution pipe diameter, length of distribution pipe per apartment, temperature of water in distribution system and average daily hot water consumption per apartment. The length of pipe from the distribution system to the outlets in the apartments adds 'dead water' losses depending on number of draw-offs and insulation.

It would be appropriate to adjust the gas values for higher efficiency of modern gas HWS units and higher level of pipe insulation. Some gas units use electricity for fans and pumps.

For electric units, the very high efficiency of heat pump HWS units (typically around 350% compared with close to 100% for a resistive electric HWS) as well as improved pipe insulation should be applied.

Below I present some approximate calculations and estimates of suitable updated values. I have ignored circulation pumping electricity, which can be significant.

<b>gas</b>	Modern			Existing (approx.)	
for 40mm pipe				for 40mm pipe	
standby	25	MJ/day		standby	50 MJ/day
pipe length/appt	7			pipe length/appt	7
30mm ins W/m	13			10mm ins W/m	23
eff	0.8			eff	0.7
no appts	20			no appts	20
Tdiff	45			Tdiff	50
Cp	0.0042	MJ/L		Cp	0.0042 MJ/L
daily L	125			daily L	125
H2O htg 45C/L	0.189	MJ/L		H2O htg 45C/L	0.21 MJ/L
pipe loss/day/appt	7.86	MJ/L		pipe loss/day/appt	13.91 MJ/L
tot en @100%	32.74	MJ/day/appt		tot en @100%	42.66 MJ/day/appt
gas/appt	40.92	MJ/day		gas/appt	60.94 MJ/day
MJ/L	0.33			MJ/L	0.49

<b>electric</b>						
for 40mm pipe				for 40mm pipe		
standby kWh/day	7.5	kWh/day		standby kWh/day	7.5	kWh/day
standby MJ/day	27	MJ/day		standby MJ/day	27	MJ/day
pipe length/appt	7			pipe length/appt	7	
30mm ins W/m	13			30mm ins W/m	23	
eff	1			eff	1	
no appts	20			no appts	20	
Tdiff	45			Tdiff	45	
Cp	0.0042	MJ/L		Cp	0.0042	MJ/L
daily L	125			daily L	125	
H2O htg 45C/L	0.189	MJ/L		H2O htg 45C/L	0.189	MJ/L
pipe loss/day/appt	7.86	MJ/L		pipe loss/day/appt	13.91	MJ/L
tot en @100%	32.84	MJ/day		tot en @100%	38.89	MJ/day
elect/appt	32.84	MJ/day		elect/appt	38.89	MJ/day
MJ/L	0.26			MJ/L	0.31	
kWh/kL	73.0			kWh/kL	86.4	
COP	3.5			COP	3.5	
HP kWh/kL	20.8			HP kWh/kL	24.7	

I would be happy to provide the Excel spreadsheet I used to calculate these values.

## Question 49: Other issues

### Requirement for retailers to identify and assist high consumers and victims of fuel poverty

Energy retailers (both gas and electricity) should be required to actively identify high and unusually low residential consumers, and to offer assistance for them to reduce their bills. Households with high bills face unnecessary costs, while those with very low bills may face fuel poverty and associated health and amenity impacts.

Retailers should be required to publicly report annually to government and community on the extent and effectiveness of this activity. Government should facilitate use of incentive schemes and financing mechanisms such as the Victorian Environmental Upgrade Finance mechanism for low interest, long term finance of upgrades.

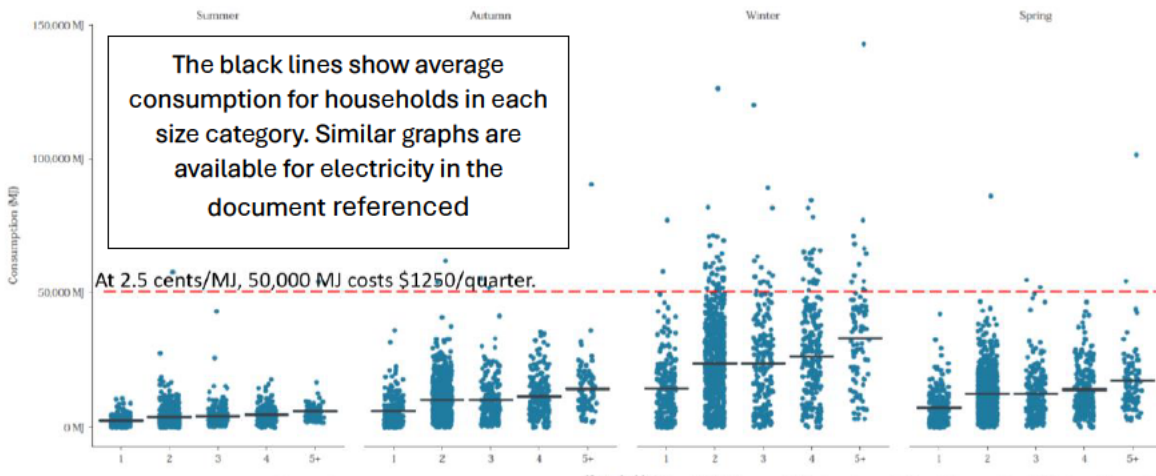
Retailers should also be required to publicly report de-identified data on a Local Government Area basis the individual energy bills and consumption of households. This could be similar to the AER survey shown below, but with indicative bill cost information attached. Ideally an individual consumer would be able to access a graph like this with their own consumption clearly shown, so they could see their ranking.

Government should set each retailer targets for reduction of overall gas use per residential customer with penalties for failure to meet them and incentives to outperform them.



# How much energy are you using? GAS

Figure 34: Victoria: seasonal gas consumption and benchmarks

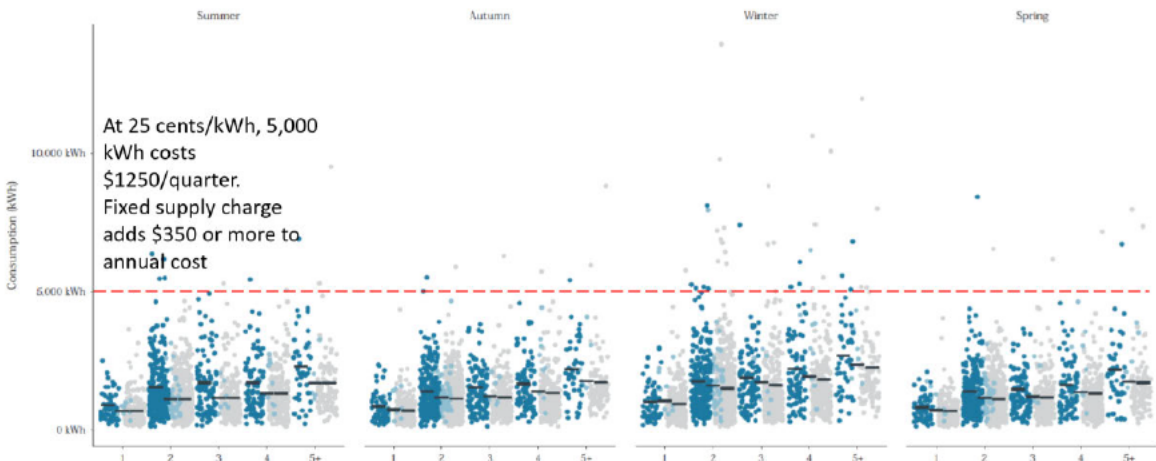


Source: Frontier Economics Residential Energy Consumption Benchmarks (2020) – report for Australian Energy Regulator  
Source: Frontier Economics

Household size: 1, 2, 3, 4, 5+  
State: VIC  
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

# How much energy are you using? ELECTRICITY

Figure 28: Climate Zone 6: seasonal consumption and benchmarks



Grey dots show Metropolitan Melbourne data. Many Melbourne homes have gas appliances as well as electricity  
Source: Frontier Economics

Household size: 1, 2, 3, 4, 5+  
State: NSW, SA, VIC  
Source: Source: Frontier Economics Residential Energy Consumption Benchmarks (2020) – report for Australian Energy Regulator

## Issues with residential energy rating tools

The present residential energy efficiency rating tool has some important limitations.

The tool only covers fixed appliances and equipment. To be credible to clients in existing homes, it should address the activities that contribute to their overall energy bills, with a visible reconciliation between billing history and the assessment outcome. This approach was taken in Victoria's Home Energy Advisory Service with significant success. As building thermal efficiency improves, and for apartments, plug-in appliances are becoming increasingly significant contributors to bills. This approach would also highlight the significance of fixed daily charges.

My understanding, which may be wrong, is that assessors do not necessarily look in the roof or walls to check actual insulation levels and condition. If so, this is a serious problem, as insulation has often been moved or poorly installed. Trials should be carried out to see to what extent thermal imaging could be used to avoid the need for assessors to physically access roofs and walls. Where homes have recessed downlights, there are often large gaps – modern LEDs are fire safe, so they should be installed and air leaks and insulation gaps addressed.

An issue with the NatHERS rating tools seems to be that the significance of summer thermal performance is understated.