



Residential Tenancy Act Amendments and Regulation Impact Statement Consultation

**Submission by the Gas Appliance Manufacturers Association of
Australia**

15 July 2024

Table of Contents

1. Executive Summary

2. Comments on Amendments and RIS

2.1 Introduction

2.1.1 About GAMAA

2.1.2 Purpose and scope of the submission

2.1.3 Policy development process

2.1.4 Other submissions

2.2 A poorly defined problem tested against an inadequate set of solutions

2.2.1 Poor analysis overstates the problem

2.2.2 Proposed solutions fail to address the problem

2.2.3 The objectives and metrics lead to outcomes inconsistent with tenant welfare

2.3 Comments on Amendments (standards and exclusions)

2.4 Comments on RIS

2.4.1 Methodological flaws

2.4.2 Basic errors in benefit and cost calculation

2.4.3 Failure to properly assess distributional impacts

2.4.4 Failure to properly assess impacts on Victorian businesses

2.5 GAMAA's proposal leads to universal benefits .

Executive Summary

The Gas Appliance Manufacturers Association of Australia (GAMAA) welcomes the opportunity to provide comment on the proposed Amendments and associated Regulatory Impact Statement (RIS) for new minimum energy efficiency and safety standards of rental properties and rooming houses.

This submission outlines our serious concerns about the impact of the proposed Amendments and deficiencies in the RIS. It offers a constructive way forward that delivers better amenity and lower costs for Victorian tenants, while also supporting cost-effective decarbonisation outcomes.

GAMAA supports the objective of improving thermal efficiency, safety and health outcomes for tenants. However, given the cost-of-living pressures currently being faced by Victorians, particularly renters, it is vital that these laudable goals are achieved without imposing net costs on renters or damaging the rental market.

Our greatest concern is that the current amendments proposed in the RIS failed to capture the real financial impacts it would likely have on a sizeable number of tenants and property providers and the likely reduction in availability of properties.

Cost to rental homeowners forced to replace gas water and space heating systems:

- Research from Frontier Economics, which gathered costs from appliance suppliers and installers, projects the cost of replacing all gas appliances in a Class 1 building, typically a 3-to-5-bedroom freestanding rental home that have gas ducted heating with equivalent electrical appliances (that is, on a like for like basis) would typically cost around **\$28,000 and as much as \$38,000**.
- Up to **\$15,000** of cost are associated with the **forced electrical upgrades** - consistently under-estimated in the RIS. Most of these costs are mandated under electrical safety regulations, yet cannot be counted under the proposed regulatory exclusion test.
- The **new standard's additional or marginal cost** could result in up to \$27,000 additional costs – **12 times higher** than average of marginal cost \$2,151 (\$1,790+\$361) reported in the RIS.

Cost to tenants in those dwellings:

- In tight rental market, the above cost will be passed on to renters by homes owners. This could see a **rental increase by up to \$3,399 per year**, in comparison to the estimated \$502 per year energy saving stipulated by the RIS.
- Annual rental increases would be more than **double** this if rental providers adopt the same **five-year payback period** as used by the Victorian Government in its own property upgrade guidelines – given rental providers have a higher cost of capital than risk tolerant governments.
- **Reduction in rental homes** available due to unbearable upfront cost to owners or **reduction in comfort** where ducted systems are replaced with single room heating/cooling options to minimise cost and meet minimum standards.

These will not be isolated or extreme outcomes – for example Frontier Economics estimate that there may be up to **281,000 dwellings in the Victorian rental market** that are equipped with ducted gas heating suggesting that the potential for widespread net costs is sizable.

Sections 2.2 to 2.4 of the submission highlight critical deficiencies and errors in the supporting RIS which render it unreliable as a tool for decision making and questions whether it meets regulatory requirements.

- In our view, the starting assumption of widespread poor thermal heating and cooling efficiency in the rental market has not been properly tested. In fact, the evidence used in the RIS shows that poor to low outcomes exist in only around 29 per cent of rental properties.
- The RIS and Amendments then impose a one-size-fits-all regulatory approach rather than a better tailored set of options that would more cost-efficiently improve the lives of tenants in this section of the market.
- Other key deficiencies include an overestimation of running costs and hot water savings for all hot water technologies by at least 30% based on misrepresentative assumptions of hot water consumption, and around \$330 million for emissions, as well as widespread cost underestimates.

It is evident to GAMAA that errors and biases in options, method and data are consistently skewed to produce outcomes in alignment with government's anti-natural gas agenda – so much so that it resembles the old magician's trick of always forcing selection of the preferred option.

In our view the real beneficiary of this proposal would be foreign providers and importers of electrical appliances rather than workers in the Victorian manufacturing sector, leading to poorer outcomes for Victorian renters.

Finally, GAMAA notes that most of these costs and flow-on impacts can be avoided through a common-sense inclusion of a standard for high efficiency gas water and space heating.

To that end GAMAA's submission recommends that the RIS be recast using real-world cost data supplied by equipment providers and installers, and which:

1. Includes standard options for high efficiency gas water heating, space heating and cooling appliances which would be available where replacement and conversion costs for like-for-like electrical appliances are demonstrably not cost-effective against projected running cost savings.
2. Provides comparative information products to empower more informed consumer choice.
3. Allows for like-for-like high efficiency gas - or electrical - replacement in situations where tenants and property providers agree on such replacement. The key in all situations is to ensure cost-effective high efficiency options are available.

This common-sense approach puts tenant welfare to fore and would deliver on the three headline objectives of improved tenant health, wellbeing, comfort and safety, lower energy bills while also delivering sustained and additional emissions reductions and supporting the energy transition and decarbonisation of the rental sector.

As the Government's own Homes Victoria rental market reporting shows, the market in Victoria is under serious pressure. Adding punitive costs onto property providers will only flow through and cause additional hardship for the tenants the measure is trying to support.

Issue	Recommendation
Framing of policy problem and solutions	<p><i>That the policy problem be reassessed using contemporary appliance penetration data sets and the framework be redesigned around a set of comprehensive complimentary policy measures that address market failures, and which can be tested for cost-effectiveness against tenant and rental market welfare and emission saving objectives</i></p>
Amendments	<p><i>The proposed amendments (and RIS options) relating to water heating and space heating/cooling should be reframed around a two-fold approach:</i></p> <ol style="list-style-type: none"> <i>1. That where cost-effective (taking into account <u>all</u> relevant costs) systems with lower running costs for tenants be preferred, with suitable minimum standards applied to guide like for like replacement.</i> <i>2. Where conversion costs are not cost effective and/or impose significant disruption to tenant livability, and/or where tenants express a preference to replace existing gas appliances with like-for-like, the replacement (gas) appliances should be of high efficiency (high energy star rating).</i> <p><i>This should be supported a revised 'fair and reasonable' provisions which clearly set out exclusions and cost test thresholds for electrical conversion (taking into account the full cost) and safety/amenity considerations as well as better comparative information for rental providers and tenants on cost and performance of replacement options.</i></p> <p><i>To avoid the selection and installation of appliances that fail to meet the minimum energy performance rating requirements in the climate zones in which they will be installed and used, amend the regulations to specify the (Victorian) climate zones corresponding to the minimum rating values (for heating: 2 Stars for non-ducted and HSPF=3.2 for ducted).</i></p>
RIS - Framing	<p><i>That the RIS be redone to assess overall and distributional impacts for property owners and tenants correcting for the identified deficiencies.</i></p> <p><i>This should be supported and informed by more accurate and transparent data and information obtained through engagement of industry and other groups in the design stage</i></p>
RIS - Methodology	<p><i>That RIS methodology be recast with the following changes, that</i></p> <ul style="list-style-type: none"> <i>• Assessment of options also include testing against a set of representative property types (size, age, structure and appliances) to ensure proposed approaches do not place unfair costs or loss of amenity (or reduced property availability) on tenants in those groups.</i> <i>• A consistent approach to option selection be adopted which places tenant welfare as the priority with cost-effective achievement of other social-environmental objectives nested within this.</i> <i>• All viable replacement options, notably high-efficiency gas, be tested for cost effectiveness in like-for-like replacement situations.</i> <i>• Gas boosted solar is an allowable appliance technology under option for hot water heating.</i>
Cost and benefit assessment	<p><i>That benefit and cost estimates be reworked using more granular breakdown of conversions costs for dwelling and appliance classes and updated data and assumptions, including Australian carbon abatement values.</i></p> <p><i>This should be done so to not just assess aggregate and average cost-benefit by also providing cost-benefit for representative case studies, drawing on industry input and expertise from an early stage to avoid masking the very real distributional range of costs.</i></p>
Impact on renters and rental market	<p><i>That marginal cost and benefit estimates are revised using updated cost and benefit results and robustly tested against representative case studies to avoid inequitable cost or amenity outcomes for tenants and/or a reduction in properties available for rental.</i></p> <p><i>Assumptions on pass through and rental market dynamics should be revised and tested with relevant industry experts.</i></p>
Impact on business	<p><i>Options should be reconsidered to properly take into account cumulative impacts on Victorian manufacturers and workers, and to avoid shifting benefits to lower quality appliance importers</i></p>



2. Comments on Amendments and RIS

2.1 Introduction

On 3 June 2024 the Department of Government Services released an Exposure Draft Residential Tenancies and Residential Tenancies (Rooming House Standards) Amendment (Minimum Energy Efficiency and Safety Standards) Regulations (the Amendments) and a supporting Minimum energy efficiency and safety standards for rental homes – Regulatory Impact Statement prepared by Deloitte Economics for the Department of Energy, Environment and Climate Action. Public comments were invited with a closing date of 30 June 2024.

On 19th June 2024 the Department agreed to GAMAA's request for a two-week extension to 15 July 2024.

We welcome the opportunity to provide comments on the proposed amendments and associated Regulatory Impact Statement (RIS) and acknowledge with appreciation the extension granted. This has significantly assisted in being able to draw on our members' deep expertise in the comments and suggested improvements to the proposed measures.

2.1.1 About GAMAA

By way of background, the Gas Appliance Manufacturer's Association Australia (GAMAA) was formed in 1957 and is the peak industry body representing the interests of Australian manufacturers and suppliers of domestic and commercial gas heating, hot water and cooking appliances and components.

Our 37 member companies employ a combined total of 4,000 workers in Australia. The vast majority of the 18 million domestic gas products enjoyed by Australian consumers are supplied by GAMAA members, with significant local design and manufacturing content.

Our primary activity is to work with our members, government agencies, political representatives and other industry stakeholders to develop and implement workable, equitable and practical initiatives, standards and regulations that result in better economic, social and environmental outcomes and address the unique role of gas domestic and commercial gas products in Australian homes, businesses and buildings in the economy wide transition to net zero.

More information and contact information on GAMAA is available at <https://gamaa.asn.au/>

2.1.2 Purpose and scope of the submission

GAMAA's submission is intended to provide a sense check on the methodology, data and assumptions used to underpin the analysis as well as a practical testing of the likely impacts of the proposed amendments.

GAMAA has explicitly adopted an evidence-based and constructive approach with a two-fold focus: to ensure that cost, amenity and overall safety and liveability outcomes for tenants are improved, and that any harmful spill-over impacts on rental markets and supply chain businesses are properly identified and avoided.

In doing this we have tested the proposals against the primary objectives of the Residential Tenancy Act, and the requirements and guidelines for policy and RIS development to ensure that

decisions are soundly based and working towards the best interest of tenants and the rental market.¹

Unless otherwise indicated GAMAA's comments relate to the water and space heating/cooling aspects of the RIS and proposed Amendments.

Finally, where alternate values to those in the RIS have been presented GAMAA has cited its source and method of calculation. Where possible we have used the same approach as used in the RIS unless it was felt that it was incorrect. GAMAA would be pleased to further discuss our approach and data.

2.1.3 Policy development process

GAMAA notes that it has not been possible to validate many of the results reported in the RIS due to the lack of transparency in data and method. We have also found significant errors which we believe undermine the integrity of its findings and render it unreliable for decision making (see Section 2.2 and onwards).

Indeed, we believe that its deficiencies are so fundamental that it is questionable whether the RIS meets requirements as set out in section 12H(1) of the *Subordinate Legislation Act 1994* and the *Victorian Guide to Regulation*.

We note that many of these shortcomings should, and would, have been avoided through earlier engagement with industry experts who hold real world knowledge and data that would have informed a more robust and accurate analysis.

2.1.4 Other submissions

GAMAA supports the following other submissions

- Australian Gas Infrastructure Group - AGIG
- Australian Pipelines and Gas Association - APGA
- Australian Water Heater Forum - AWHF

2.2 A poorly defined problem tested against an inadequate set of solutions.

In GAMAA's view the RIS (in terms of water heating and space heating/cooling) is based on flawed and largely untested assumptions to which a limited and inadequate set of solutions are tested using wrongly prioritised objectives and metrics.

This leads to the selection of options which actually work against the objectives of the Residential Tenancy Act for what would be a substantial number of renters in the Victorian market.

This section examines the flawed framing of the problem and solution set while later sections focus on the proposed amendments and RIS methodology and analysis.

2.2.1 Poor analysis overstates the problem.

Section 2 of the RIS outlines the key characteristics of the Victorian rental market and the policy problems that are to be addressed by this measure.

It highlights the following issues:

- A significant volume of Victoria's rental building stock lacks basic thermal performance and appliance efficiency measures.
- The rental relationship hinders efficiency and safety upgrades.
- There are adverse financial impacts associated with inefficient properties and appliances.
- Homes with inefficient thermal control have adverse health and societal impacts.
- Homes with inefficient thermal control and appliances have adverse impacts on the environment.
- Loose hanging blind cords can pose serious safety issues.

¹ Section 12H(1) of the *Subordinate Legislation Act 1994* and the *Victorian Guide to Regulation*.

- Rooming houses with inefficient thermal performance and appliances can pose financial burdens and health risks to residents.

In doing so it notes that many, if not all, of these problems arise from a set of market failures, including split incentives, information asymmetry and externalities – which perversely affect the behaviours of both rental providers and renters. The strong implication is that these are pervasive across the rental stock.

GAMAA acknowledges that these are well known policy issues but considers that the RIS has failed to produce convincing evidence of widespread market failure in heating and cooling of the rental stock to the extent that a universally mandated approach can be the only effective solution.

We note that the RIS uses evidence from the 2019 Victorian Residential Efficiency Scorecard, noting 75 per cent of properties had low or very low thermal performance. However, the same study suggests only 29 per cent of properties included low or very low efficiency heating, meaning 70 per cent of properties used a higher efficiency heater.²

This suggests that the more significant issues are largely focussed on narrow segment of the rental market. However, no attempt has been made to examine this, or why this might be the case. While there is likely to be a range of reasons, high up-front cost of provision is likely to be the dominant factor. This may then relate to age or other dwelling characteristics.

These are critical factors that should have been included in the analysis and in developing the most efficient and effective set of options.

2.2.2 Proposed solutions fail to address the problem.

The assumption of widespread market failure, combined with the flawed proposition that all three objectives must be achieved in the rental sector solely through the application of new minimum energy efficiency standards, leads to the RIS dismissing out of hand other policy measures this wrongly portrays these measures as alternative rather than complementary.

As is well understood the use of mandated standards is a blunt, inflexible approach that can apply uneven, unforeseen and quite high costs where individual circumstances may vary significantly – as is the case in residential housing stock.

Other less heavy-handed interventions including financial incentives are ruled out up front based on the logistical and administrative burden of organising upgrades and lost rent, amongst other things. Importantly these costs to rental providers will equally apply to the mandated option, but the administrative cost is limited to one hour. This seems very inconsistent and does not justify the focus of the RIS on mandates.

Finally, the mandating of minimum standards by themselves do not address the key market failures of split incentives, information asymmetry or power imbalance as shown in the following sections. This is likely to result in a trade-off between high cost or amenity reducing choices that ultimately flow onto tenants.

This is a missed opportunity.

For this reason, the RIS should compare alternative interventions, including non-regulatory options³. Where mandated measures are proposed they should be nested within a comprehensive package tailored to cost effectively address the identified policy problem.

2.2.3 The objectives and metrics lead to outcomes inconsistent with tenant welfare.

Noting that the objective of the Residential Tenancy Act is “to ensure that renters are provided with safe and habitable living arrangements, enhance the functioning of the rental market and more generally, ensure that the regulated elements of residential tenancies reflect current community expectations” the RIS defines three objectives:

- improve renter health, wellbeing, comfort and safety.

² Deloitte Access Economics (2024) Rental Standards RIS, p. 14

³ Better Regulation Victoria, Victorian Guide to Regulation, A handbook for policy-makers in Victoria, p30

- reduce renter energy bills.
- reduce greenhouse gas emissions and support the energy transition and decarbonisation of the rental sector.

Given the urgent cost-of-living pressures faced by Victorian households, many of whom the RIS rightly points are increasingly renters, it is vital that this is achieved with minimum cost to those households, and with the least impact on the rental market in line with the objectives of the Act.

This strongly suggests that primacy in the RIS should be given to the first two objectives with the third being sensibly nested within tenant and rental market welfare using a test for cost-effective abatement.

Unfortunately, this is not the case and the option selection framework employed in the RIS appears to give additional weighting to maximizing overall savings and societal benefits, notably emission reduction and decarbonization.⁴

In addition, GAMAA notes that the second objective (and metric) is too narrowly framed and leads in a sizeable number of circumstances to the perverse outcome of tenants receive lower energy bills but at the expense of larger rental increases. Clearly the right metric must be to lower overall costs for tenants.

As our analysis shows this occurs at the expense of individual renter welfare and costs for a significant section of the rental market (see section 2.4.3).

Recommendation

That the policy problem be reassessed using contemporary appliance penetration data sets and framework be redesigned around a set of comprehensive complimentary policy measures that address market failures, and which can be tested for cost-effectiveness against tenant and rental market welfare and emission saving objectives.

2.3 Comments on Amendments (standards and exclusions).

GAMAA has critical concerns over the structure scope and wording of the proposed amendments (standards and exclusions) for water heating and space heating/cooling, which would be likely to result in quite perverse and negative outcome for a sizable number of tenants (trading off cost against amenity). Much of the wording is open to interpretation, subjective and may result in unnecessary legal disputes between rental providers and renters.

Under the current formulation rental providers would be required to replace gas water heaters and gas space heating with an electrical heat pump appliance unless the cost of doing so exceeds an unspecified average, excluding the cost of electrical upgrades – which can be up close to one third of the total cost. Where replacement cost does exceed the threshold, the rental provider is excluded from either conversion or having to install a high efficiency gas upgrade. Thus, they miss the chance for cost-effective energy and emission savings given the relatively small additional capital cost between five or six star and lower star rated gas appliances.

This misses a clear opportunity for which no rationale is given (except presumably a pre-existing bias against new gas appliances).

We explain in Section 2.4.2 how the RIS has significantly underestimated both total and marginal appliance and electrical upgrade costs for a range of gas replacement scenarios in both freestanding houses and units by as much as \$20,760 for a Class 1 building, a 3–5-bedroom house with ducted gas)— see Appendix D. We note that around one third of the upgrade costs in this case study relate to electrical safety and wiring requirements mandated by government, and so cannot be mitigated (or counted in exclusion test) if forced to convert (see case studies in Attachment C).

However, if the new standards apply there is no requirement for like-for like replacement and a multi room ducted gas system can be replaced by a single room electrical unit without regard to

⁴ Deloitte Access Economics (2024) Rental Standards RIS p.23.

the poorer amenity and adverse health outcomes this would provide tenants, unless they provide their own portable heating in other rooms, which would then impose either higher capital or running costs (not included in RIS calculations) on to the renter.

It is not clear why the RIS adopts this approach as it either fails those tenants in gas equipped dwellings who face either much higher rents or poorer heating outcomes or, where exclusions apply, it fails to provide a cost-effective higher efficiency and running cost benefit.

Paradoxically, both situations are likely to overlap heavily with in the low end of the rental market in which poor to low appliance efficiency appliances are concentrated.

Similarly, GAMAA is concerned that the same approach taken in the proposed standards for water heating may lead to outcomes that reduce amenity or increase cost. A very plausible scenario is an apartment (Class 2) with an existing gas instantaneous water heater recessed into one of the balcony walls. The proposal would require this to be replaced with an electric heat pump water heater on the balcony which raises concerns regarding weight (for which the balcony may not have been structurally designed), loss of usable space, aesthetics and noise.

The proposed exclusions should provide for these circumstances.

We also note that the definitions for 'energy efficient' appliances do not specify the applicable climate zones where the minimum specified energy ratings are to apply for heat pump air-conditioners (heating and cooling).

These climate zones are embedded in the applicable Federal Acts, Regulations and Determinations for the various types of appliances. For a given Heat pump air conditioner, energy performance rating (in the form of a Star Rating, or Seasonal Performance Factor), will vary according to the climate zone where it is installed, typically achieving higher energy performance ratings in warmer climates compared to colder climates.

As an example, for heat pump air conditioners (heating/cooling) most of Victoria is classified as a 'cold' climate zone. To avoid selection of appliances that do not meet the minimum 'energy efficiency' levels specified it is critical that the applicable (Victorian) climate zones are specified. This is discussed further in Appendix E.

GAMAA also notes with concern that the approach proposed in the Amendments also differs from the RIS and could result in a confusing (and penalizing) inconsistency with other housing regulations such as the National Construction Code which provides a technology and fuel neutral approach to complying with a household emission standard. Those building in good faith to one code may now be required to incur serious replacement cost by this new measure.

Finally, GAMAA notes that the amendments do not address split incentives or power/information imbalances. We suggest that provision should be made that allows tenants to be informed, consulted and express preferences on replacement options. This is not to transfer responsibility, cost or decision making to tenants – but it does seem reasonable to provide them the opportunity for input to replacement choices.

Recommendation

The proposed amendments (and RIS options) relating to water heating and space heating/cooling be reframed around a two-fold approach:

- 1. That where cost-effective (accounting for all relevant costs) systems with lower running costs for tenants be preferred, with suitable minimum standards applied to guide like for like replacement.*
- 2. Where conversion costs are not cost effective and/or impose significant disruption to tenant livability, and/or where tenants express a preference to replace existing gas appliances with like-for-like, the replacement (gas) appliances should be of high efficiency (high energy star rating).*

This should be supported by a revised 'fair and reasonable' provisions which clearly set out exclusions and cost test thresholds for electrical conversion (considering the full cost) and

safety/amenity considerations as well as better comparative information for rental providers and tenants on cost and performance of replacement options.

To avoid the selection and installation of appliances that fail to meet the minimum energy performance rating requirements in the climate zones in which they will be installed and used, amend the regulations to specify the (Victorian) climate zones corresponding to the minimum rating values (for heating, 2 Stars for non-ducted and HSPF=3.2 for ducted).

2.4 Comments on RIS

The objective of a RIS is to identify and test policy options designed to achieve specified objectives, and to select those that most cost-effectively do so. It should have regard to overall and distributional impacts as well as any other consequential impacts that may arise.

Its usefulness as a decision-making tool is critically dependent on its comprehensiveness, accuracy and robustness.

Importantly, the ultimate reliability of a RIS comes from the testing of a sufficiently representative suite of options which offer viable alternatives, and the accurate valuation of both associated costs and benefits.

In GAMAA's view the RIS has failed to capture all reasonable options and badly miscalculated both costs and benefits, in some cases by an order of magnitude. The results are therefore unreliable and, in some cases, meaningless against real world situations.

In summary the key issues are:

- Three key methodological flaws:
 - The design and application of the Cost-Benefit methodology only assesses aggregate and single-point average impact and fails to consider distributional impacts on different types of dwelling and appliance stock, masking quite significant and detrimental cost and amenity outcomes for a sizable range of tenants.
 - The basis for preferred option selection is inconsistent and appears to prioritise maximisation of societal benefits decarbonisation (emissions and reduction of mains gas use) at the expense of tenant welfare or cost-effectiveness.⁵
 - The proposed option sets do not test other cost-effective alternatives, notably high efficiency gas, and the circumstances in which this approach could significantly reduce cost while improving tenant welfare – this forces one-size-fits-all outcome across a disparate rental stock potentially imposing significant detrimental outcomes for property owners and tenants forced to convert from gas to electric. It is also unclear how RIS options relate to proposed amendments and exclusions which appear different in application – for example the RIS has not tested the impact of exclusions in assessing the spread of costs and benefits or the lack of a requirement for like-for-like which could see system downgrades.
- Basic errors in costs and benefit calculations:
- Other key deficiencies include an overestimation of key benefits (running costs and hot water) for all hot water technologies are overestimated by at least 30% based on hot water consumption assumptions that are misrepresentative and \$330 million for emissions as well as widespread cost underestimates.
 - Benefits have been significantly overestimated, particularly running costs and hot water savings for all hot water technologies, by at least 30% and emission values by around 24% or \$330 million. Again, GAMAA notes that the exclusion test in the

⁵ Deloitte Access Economics (2024) Rental Standards RIS p.23.

Amendments may in fact knock out dwellings for where benefits under this methodology are greatest with the RIS overstating likely real-world savings.

- Product costs for gas appliances are typically overestimated whilst their electric (heat pump) replacements typically underestimated. The cost of electric switchboard and supply upgrades associated with conversion to electric (heat pump) appliances are ignored or unrealistically low in the RIS and are excluded in the exposure draft regulations. The RIS also fails to cost the removal of choice for consumers (tenants and rental providers) who prefer gas in various applications.
- The superficial and dismissive treatment of critical distributional impacts:
 - Failure to properly assess distributional (pass-through) and other impacts on tenants and rental markets which in a significant number of cases will dramatically exceed benefits. Either rents increase or properties will leave the market, but this ignored.
 - Failure to assess impacts on Victorian businesses, particularly gas appliance and gas infrastructure businesses and erosion of the market base for distributed renewable gas markets. The RIS ignores the incremental negative impact on investability in these markets from serial market policy wedges.
- Failure to properly consult in design and assessment phases and lack of transparency has generated substandard data and analysis.

Each of these is explored in more detail in following sections.

In our view, these deficiencies are so fundamental and serious that they must call into question whether it can be considered compliant against the regulatory requirements pertaining to the RIS process.

Finally, when these errors, which all bias the results to electrical conversion, are considered in totality it is difficult not to conclude that the approach taken has been deliberately configured to support the government's pre-preferred anti-gas options in all cases.

Recommendation

That the RIS be redone to assess overall and distributional impacts for property owners and tenants correcting for the identified deficiencies.

This should be supported and informed by more accurate and transparent data and information obtained through engagement with industry and other groups during the design stage.

2.4.1. Methodological flaws

GAMAA has already noted that the absence of complimentary options to address information and cost asymmetries means that market failures which drive sub-standard outcomes for tenants in some circumstances will persist even with application of new mandatory standards. This will make application of standards less effective and, taken together with constraints in design, drive high-cost/lower amenity choices by property providers or an exit from the property market.

Other flaws in the approach include:

Use of aggregate and single point average values which do not robustly test distributional outcomes and mask a wide variation in real-world impacts.

Cost-Benefit Analysis is useful and a widely recognised tool for policy analysis. However, it is not without its limitations, particularly where over reliance is placed on aggregate Net Present Value (NPV).

For example, when appropriately constructed NPV can indicate that a particular option may result in an overall better (or worse) outcome, but it does not speak to the distribution of impacts i.e. who may be better or worse or off from any flow-on impacts either upstream or downstream from the change or investment.

In situations involving a wide number of actors and where costs and benefits will fall differently or where there are concerns over affordability or cost of living pressures these considerations become critical.

In this regard, the RIS uses an aggregate cost assessment of costs and benefits as the sole basis for decision making without proper consideration of distributional ranges and impacts. It then reduces or averages these estimates to report net positive marginal benefits for a single “representative dwelling” (Table 10.2). It makes a clearly misleading claim that all tenants will be better off without any attempt to test the robustness of this conclusion.

Assuming the correct calculation of cost and benefits, this approach might be valid if dwellings were of a similarly uniform type so that costs and benefits are more or less evenly spread. However, this is clearly not the case, and the analysis should present results for the various type of dwellings (1 or 2 bedroom units and apartments through to large houses) as well as conversion needs (electric vs electric, gas vs electric and gas vs gas).

The RIS also assumes 100% compliance where this will not be the case. Similarly, this also assumes that all replacement decisions are as a result of these measures, whereas in reality many higher efficiency replacements would occur in the absence of this measure where the cost differential is not large. The effect of both assumptions will be to overstate the impact of the measure.

As GAMAA’s case studies and cost information in Section 2.4.2. and 2.4.3 and Appendix D show, the results in terms of net marginal costs are substantially different (up to \$20,760 different from the base case) and are clearly more acute for larger and/or older dwellings that require significant electrical remediation. The failure to assess the robustness of conclusions is a major and fatal deficiency in the RIS.

Option selection is inconsistent and prioritises decarbonisation (emissions and mains gas reduction) maximisation at the expense of tenant welfare or cost-effectiveness.

As noted in previous sections the Residential Tenancy Act has as its primary objectives the improvement of tenant welfare and rental markets. The government has added a third objective of decarbonation and chosen the value of emissions savings as a proxy. These are then added to energy cost savings and assessed health values in an equally weighted way to derive total and net cost and benefit.

The RIS then presents both Net Present Value (overall social gain or loss) and Benefit-Cost Ratio (social ‘bang for the buck’) and states on page iii that ‘NPV was the leading decision-making tool’ but then applies this inconsistently in the option selection process.

Only for draught sealing and hot water is the preferred option the one with the highest NPV. For ceiling insulation, the option with the lowest NPV and BCR was chosen while for space heating and cooling in residential properties, the option with the 2nd highest NPV (and BCR) was chosen.

In fact, the text confirms that in fact that “...prioritisation was given to options which provide greater societal benefits, even if those options come at a higher cost.”⁶

This results in tenant welfare and economic efficiency being subordinate to emissions savings as the primary driver policy.

GAMAA notes that while the Residential Tenancy Act provides for “*the regulated elements of residential tenancies reflect current community expectations*” it is difficult to envisage that the community would value emissions abatement more highly than higher rental costs.

This selection bias is so blatant that it raises the question why the government has undertaken a RIS if it is simply going to select the option that best suits its agenda.

⁶ Deloitte Access Economics (2024) Rental Standards RIS p.23.

Failure to consider all viable cost-effective options that might improve effectiveness and avoid cost.

As noted above, the usefulness of CBA depends on the comprehensive testing of viable cost-effective options.

However, the Government has excluded high efficiency gas replacement for space heating from the options and analysis.

The rationale for this action is unclear, and the RIS only cites options have been developed to ensure consistency with the Government's Gas Substitution Road Map (Road Map).

GAMAA notes that the Road Map clearly rules out forced gas replacement with the Minister's own foreword to the Gas Substitution Roadmap Consultation paper stating (our **emphasis**):

“These changes are all about providing greater choice – there are no penalties for people who continue to use gas, just advice, options and support for those who want to make the change. Because we know households and businesses make these decisions every day as they build or renovate homes or replace old appliances.”⁷

And on page 16 it notes:

“For many households and businesses this will be a big change, and the Government won't be forcing people to make the switch before they are ready. But with such clear benefits for many consumers, we can start the transition by encouraging and assisting those that want to reduce their dependence on gas.”⁸

In addition, the Road Map and its 2023 Update emphasise the policy objective of supporting electrification where this reduces costs for households, this should be for overall costs and not just running costs.

GAMAA is supportive of the commitments and the broad policy objective of lowering costs for households but notes that the proposed policy for rental properties takes the exact opposite approach.

It reduces choice and forces change whether it is desired or not. Tenants have no say in outcomes, and a significant number are likely to be worse off when all costs are considered.

Much of this additional cost is related to the cost of electrical upgrades and would be largely avoided if replacement with high efficiency gas appliances was an option, noting that the additional cost of a 6 star gas heater is typically only several hundred dollars more than a lower star unit.

To this end GAMAA draws attention to analysis by Sustainability Victoria which shows that gas boosted solar water heating has significantly lower running costs and 10-year carbon emissions compared to all other water heating technologies including heat pumps and solar electric boosted, with a capital cost only marginally higher than the latter.

It therefore delivers on all objectives of the regulations better than any of the other technologies. It is therefore perplexing that it has been excluded under preferred option 4. We can only conclude that this is based on anti-gas sentiment rather than the facts.

Another example of where this measures conflicts with government commitments occurs where recently built dwellings equipped with gas appliances are placed on the rental market. These dwellings will have been built and approved under the 2019 or 2022 National Construction Code (NCC) which takes a technology and fuel neutral approach to meeting emissions standards. The 2022 NCC is allows tradeoffs such as the installation of solar PV matched with gas heating within an overall emissions budget.

⁷ Gas Substitution Road Map p.3.

⁸ Gas Substitution Road Map p.16..

An owner, who built in good faith under a code adopted by the Victorian Government, will now potentially face significant unforeseen costs at end of life through no fault of their own.

This is directly at odds with the assurance provided above by the Minister.

Finally, GAMAA notes and supports the exclusion of LPG systems from the scope of the new standards, noting that this was based on limited data, particularly for regions.

Noting that natural (mains) gas appliance data is also limited and that the RIS has almost no accurate cost data it is curious why LPG appliances were also not excluded. This suggests a rationale of convenience or a policy intent to explicitly target natural gas demand reduction.

Recommendation

That RIS methodology be recast with the following changes:

- *That assessment of options also include testing against a set of representative property types (size, age, structure and appliances) to ensure proposed approaches do not place unfair costs or loss of amenity (or reduced property availability) on tenants in those groups.*
- *That a consistent approach to option selection be adopted which places tenant welfare as the priority with cost-effective achievement of other social-environmental objectives nested within this.*
- *That all viable replacement options, notably high-efficiency gas, be tested for cost effectiveness in like-for-like replacement situations.*
- *That gas boosted solar is included as an allowable appliance technology under the options for water heating.*

2.4.2 Basic errors in benefit and cost calculation

Both the benefit and cost calculations in the RIS are fundamentally inaccurate and as such are unfit to guide decision making.

Benefits are over-estimated.

GAMAA also notes that it is impossible to assess the accuracy of assumptions in relation to appliances and this undermines confidence in assessed benefits. In particular, the discussion on benefit stream and life of appliance calculation is confusing.

On one reading it suggest that the energy and emissions saving from appliance benefits are matched to the year of installation plus the life of the appliance with the last measured installation occurring in the final year of regulation sunset (2030). This would provide a curve of benefits that tail off after 2042 years. This would be methodologically correct.

However, it can also be read that a benefit stream was simply calculated over 20 years which would overstate the benefits relative to actual appliance life.

GAMAA believes it likely to be the former as the latter would introduce a serious lack of integrity to RIS.

The RIS adopts an inconsistent approach to the life of appliances, and it is not clear which lifespans are used in the analysis. As our analysis in Appendix B shows, there can be large differences in appliance life. This may be more acute where heat pump air conditioners are required to perform both cooling and heating which will reduce their effective life.

These issues should be clarified.

Beyond this, for water heating, the RIS overestimates the hot water consumption, energy use, costs and cost savings (details in appendix F).

The inputs and method behind the annual energy consumption for water heaters in Table A.4 of Appendix A of the RIS have not been provided. Nevertheless, from our reverse calculations using the values in Table A.4 of Appendix A in the RIS, it appears that the RIS assumes an average daily hot water consumption of 145 litres per dwelling. We note that a fixed amount of hot water consumption per day (10 litres) plus a variable amount of consumption of 40 litres per occupant per day has been adopted in the [National Construction Code \(NCC\) 2022](#) for housing energy efficiency requirements (p. 73). Victoria mandated these requirements from 1 May 2024. Assuming the RIS is consistent with the NCC 2022 approach, this yields a RIS average of 3.4 persons per household (i.e. $145L - \text{fixed } 10L = 135 \text{ Litres} \div 40L \text{ per person} = 3.4 \text{ persons per household}$). This is significantly higher than the national average of 2.5 persons per household according to the [Australian Bureau of Statistics](#), which would result in an average hot water consumption of 110 litres per dwelling ($10L + (2.5 \times 40) = 110L$), instead of 145 litres. Accordingly, the RIS appears to overestimate the average hot water consumption per dwelling by more than 30%, which results in a corresponding overestimate of average energy use for hot water, costs across all water heating technologies, and cost savings from the appliance replacement measures recommended in the RIS.

The RIS also underestimates the marginal costs for water heating (details Appendix G). Table 10.2 (Marginal cost per dwelling of preferred options in 2025) in the RIS (p. 67) states a per-property (average) marginal cost of \$361 per dwelling for the technologies recommended in the RIS (being heat pump and solar electric water heaters). Once again, the inputs and method behind this figure have not been provided in the RIS. Our calculations reveal a per-property (average) marginal cost of \$932. Note that our calculations are conservative as they exclude any electrical upgrade costs that may be necessary. The large difference between the RIS figure of \$361 and the AWHF figure of \$932 suggests that further analysis of marginal costs is warranted.

Secondly, the value of emission savings appears to have been overstated using global CO₂ abatement costs for the sixth IPCC assessment report (starting at \$110 per tonne) rather than Australian relevant abatement values.

Again, this is an area where the RIS lacks transparency in carbon values and emission factors for appliances (as well as assumption on running times). However, it does state that the IPCC values were used to 2030 although it is unclear what was used after this. It seems reasonable to assume an extrapolation from 2030 values.

There are a range of more relevant Australian carbon values including the price of Australian Carbon Credit Units or ACCUs (currently trading around \$33 per tonne of CO₂) through to the Value of Emission Reduction or VER adopted by the Ministerial Council on Energy (of which the Victorian Energy Minister is a member). The VER is now used by the Australian Energy Market Bodies for planning purposes and is around currently \$66. It is worth noting that the VER value is a formula that is based on ACCU and IPCC values.

Calculations using the VER rather than the IPCC global value results in emission savings that are 24% or \$330 million lower. If this recalculation was done using the ACCU spot price (with a 10% annual escalator) the overestimate would be even more substantial.

A further overstatement of benefit for space heating and cooling relates to the RIS's inconsistent approach to estimating running costs – water heating costs assume that water efficiency upgrade to shower heads is triggered prior to appliance replacement and have been factored into running cost savings.

However, a different approach is taken to the estimation of running costs for space heating and cooling which does not include thermal efficiency measures such as insulation or draught prevention measures which in most cases will occur prior to appliance replacement.

While the sensitivity analysis in Section 10.5.2 looks at these interactions and shows the preferred option is still net beneficial. But it is not clear that the preferred options identified in isolation would still be the preferred option if these initiatives are combined.

The RIS also adopts a 4% discount rate in calculating the present value of future benefit (and cost). This is unduly low (below the RBA cash rate) and was adopted by the Victorian Government at a point where the cash rate was significantly lower than today or its future expected value. It should be around 7%, particularly as much of the benefit and cost relates to private not public value.

The net effect of this assumption is clearly to overvalue long dated benefit streams relative to the shorter cost streams. Ideally there would be sensitivity analysis on a spread of discount rates to ensure robustness of results.

Finally, a similar likely overstatement occurs due to the assumption of 100% compliance. This effectively assumes that every replaced appliance is due to the proposed new standards. This patently ignores the evidence presented earlier that many rental providers make positive choices for themselves, and tenants and it is unreasonable to suggest that replacement choice is only driven by regulatory requirement. This should be tested through sensitivity analysis.

Costs have been grossly underestimated for gas to electric appliance replacement.

There are two key areas where costs used to assess policy options have been underestimated – replacement and conversion (electrical upgrade).

GAMAA has compared RIS replacement and electrical conversion costs for water heating and space heating and cooling appliances with those developed by Frontier Economics and our contemporary industry data.¹⁰ These are outlined in Appendix A.

In both cases the RIS costs are unexplainably inaccurate compared to industry held data.

For example, the RIS values a ducted heat pump (2-star cooling and 1.5-star heating) and hot water system installed replacement cost of \$19,437 whereas the Frontier analysis shows a typical installed replacement cost of \$28,267 ranging up to \$38,583.

There is also a difference in estimates for electrical upgrade (switch board and supply) cost with Frontier estimating a range \$2,500 to \$15,000 compared to the RIS single point estimate of \$4,700. As shown in Appendix C this could be substantially higher in older homes which require a total rewire due to safety and electrical code requirements with costs up \$55,000. This example has not been included in GAMAA ranges estimates above so as to not unreasonably skew typical cost estimates.

These underestimates are critical as the proposed exclusion test in the new regulatory standard inexplicably prohibits electrical supply upgrade costs being considered. It also begs the question why these costs are included in the RIS but excluded in the regulations?

No rationale for this has been provided but it could reasonably be inferred they have been disallowed to capture more dwellings under the new the standards.

This major difference in cost estimates dramatically increases the likely spread of marginal cost associated with the proposed changes, potentially by several orders of magnitude for some rental providers with consequential impacts for tenants – this is addressed further in Section 2.4.3.

GAMAA also notes that compliance and enforcement costs do not appear to be included in the RIS but are an important part of a best practice RIS assessment.¹¹ An ambitious compliance rate of 100% is assumed, despite no allowance for compliance and enforcement costs, along with opaque exclusions in the exposure draft regulations.

¹⁰ Frontier Economics *Cost of switching from gas to electric appliances in the home*, June 2022.

¹¹ *Better Regulation Victoria, Victorian Guide to Regulation, A handbook for policy-makers in Victoria*, p43

Finally, the pattern again appears to be one of overestimating gas replacement and conversion while underestimating electric costs.

Recommendation

That benefit and cost estimates be reworked using more granular breakdown of conversions costs for dwelling and appliance classes and updated data and assumptions, including Australian carbon abatement values.

This should be done to not just assess aggregate cost-benefit but also by also providing cost-benefit for representative case studies, drawing on industry input and expertise from an early stage.

2.4.3 Failure to properly assess distributional impacts on tenants and the rental market

The superficial analysis, and out-of-hand dismissal, of distributional impacts in Section 10 of the RIS is its most significant deficiency and ignores the very serious inequities that will arise for a sizeable number of tenants and rental providers.

Table 10.2 presents single point averaged marginal costs (and benefits) per dwelling and across appliance/fuel types which are so simplistic given the significant variation in rental and appliance stock that they are inaccurate, misleading and meaningless.

For example, the average marginal cost for hot water replacement in the RIS is \$361 while for heating and cooling it is \$1,790 for combined total of \$2,151. A bargain!

Clearly in reality cost impacts will vary hugely across the sector based on size, age and structure, electrical supply, wiring and appliances and this is shown by GAMAA estimates of a range between -\$1,080 (based on replacing gas ducted heating with single room electric heat pump, that is, non like-for-like, up to \$27,000 (based on replacing gas ducted heating with like for like electric ducted heat pump) with typical costs for the latter of around \$18,000.

Marginal costs may be up to four and half times higher than energy savings.

To illustrate how this fails to robustly fails the net benefit proposition for property and tenants in all cases as claimed in the RIS, it is a simple matter of comparing the RIS estimated annual energy savings (\$502 per annum over 12 years = \$6,024) compared to GAMAA's typical and high range marginal cost estimates. This shows costs may be 3 to 4.5 times larger than benefits for a Class 1 freestanding home with ducted gas heating and gas hot water.

This is likely to apply to a sizeable number of rental properties.

GAMAA is not claiming this will be universal and clearly there will be circumstances where it is cost effective to convert.

However, it is likely that a sizeable proportion of gas equipped homes and units/apartments will be exposed to high costs. While the information provided in the RIS does not allow accurate assessment of how many properties may be impacted, the number will not be insignificant. Frontier Economics estimated that around 40% of properties are fitted with ducted gas heating.

While the RIS assumes that around 49% of rental homes have some form of gas heating (ducted or space) – which equates to 345,245 out of 704,500 properties, it would be reasonable to assume the Frontier estimate for gas ducted penetration can approximately translate to the rental market. This means up to 281,000 dwellings could be exposed to significantly high costs and that the potential for retrograde outcomes for tenants in those properties is high.

Additional costs will be passed through to tenants, or properties may be removed from the rental market.

The RIS also fails to maturely assess impacts on rental markets or tenants. Perhaps this is explained by the RIS finding of net benefit in all circumstances. However, it is clearly based on an inadequate, and somewhat lazy analysis which appears to rely heavily on evidence drawn from a media article.

The RIS waves away cost pass-through to tenants with a confusing and contradictory discussion. Whilst it acknowledges the possibility of cost pass through it then dismisses this impact suggesting any rental increases would be absorbed or offset by running cost savings and not affect the rental market.

But this is not convincingly demonstrated and relies on a report which assessed a small historical change to residential standards in 2022 which found increased costs did not impact rental availability. This is a flawed comparison because the cost impacts considered were relatively small and much more evenly distributed across dwelling types.

GAMAA's assessment show the cost pass to a range of tenants could be far in excess of derived energy savings in the RIS (around \$500 per year)., For example a \$27,000 cost impost (as per the marginal cost above) could see rent increases of around \$64 per week or \$3,399 per year over the life of the appliance (12 years).¹² Even if net marginal costs were more modest at around \$10,000 this would still result in rental increase of \$1,200 – over double the assessed energy saving benefit.

It is worth noting that annual rental increases would be more than double this again if rental providers were to adopt the same five-year payback period as used by the Victorian Government in its own property upgrade guidelines – a not unreasonable assumption given rental providers have a higher cost of capital than risk tolerant governments.¹³

Alternatively, property providers may elect to take the property off the rental market altogether.

In a tight rental market, there can be no question that additional costs will be passed on to tenants or reduce the availability of rental properties. Alternatively, cost pressures may see rental providers elect to replace a multiroom ducted system with a single room system - none of these outcomes work to the benefit of the tenant.

While it may not be possible to quantify the value of impact there can be doubt it will be wholly negative. This will be made worse as the RIS also fails to consider the cumulative impact of government policy interventions in the Victorian property and rental markets which are already having a significant impact.

The submission by Mr Anthony Edwards, an experienced property investor and rental market manager, clearly demonstrates that rental providers typically have low cash reserves to manage running costs (\$2,000-\$3,000) and how the impact of recent policy imposts have damaged Victoria's rental market.¹⁴ This is also shown a recent report by Homes Victoria showing the number of available rental properties is down by 10,000 in the last 3 months and 15,600 in the last 12 months¹⁵. The proposed new standards will clearly compound those pressures.

¹² Payments based on \$27,000 for 12 years at 7% interest.

¹³ <https://www.dtf.vic.gov.au/funds-programs-and-policies/greener-government-buildings>

¹⁴ Mr Anthony Edwards, *Submission to Residential Tenancies and Residential Tenancies (Rooming House Standards) Amendments (Minimum Energy Efficiency and Safety Standards) Regulations 2024*.

¹⁵ <https://www.dffh.vic.gov.au/publications/rental-report-march-quarter-2024>

This is again confirmed in the submission from the Real Estate Institute of Victoria which noted that:

“In effect, the proposed standards, if implemented within their intended timeline, will force RRP’s to appreciably raise rents to cover costs in an already constricted market. Additionally, it is likely to cause a sizeable cohort of current RRP’s to sell their investment properties due to the incurred financial burden, an outcome that will further destabilise an already volatile rental market.”¹⁶

GAMAA also fully endorses the analysis and conclusions on this issue provided by AGIG in its submission which provides additional data and insight into this critical impact.

It would be naive to think otherwise and contrary to the fundamental principles of a competitive market economy.

There is no competitive market in which the imposition of significant new costs on suppliers does not increase price and/or reduce supply. The rental market is no different.

Recommendation

That marginal cost and benefit estimates are revised using updated cost and benefit results and robustly tested against representative case studies to avoid inequitable cost or amenity outcomes for tenants and/or a reduction in properties available for rental.

Assumptions on pass-through and rental market dynamics should be revised and tested with relevant industry experts.

2.4.4 Failure to properly assess impacts on Victorian businesses

Similar to our comments on the distributional impacts above, GAMAA notes that the RIS is wholly deficient in its treatment of business impacts, and somewhat disingenuously assessing (and dismissing) the impact of these measures in isolation ignoring the cumulative impact of successive gas policy changes, including the continued ratcheting of phase out.

The Government has made clear that this measure is one policy consideration within a suite of longer and broader set of measures in rental and gas markets. As we know financiers, investors and business owners make continual judgements which include cumulative impacts on the business environment.

The Victorian gas manufacturing industry has already been significantly impacted by government decision on gas with several operations having announced closure or relocation with over 300 jobs being lost to the State and as many likely to go in the next year. Many others are reviewing their manufacturing operations, and these proposals will compound pressures already faced and accelerate job losses.

Taken in the context of the potential for further anti-gas measures this will further erode skills and capability in Victorian appliance manufacturing – skills that will be needed to support the clean energy transition.

As property owners seek to minimise costs it is also likely that main beneficiary of this policy will be suppliers of cheaper and less reliable electric imports, predominately from China rather than Australian manufacturers. This is the experience currently observable in the heat pump water heater market which is overstimulated as a result of government policy interventions.

The continued drive to disconnect the residential and small business markets from gas will also have a deleterious impact on the viability of nascent renewable gas markets – this stand in total contrast to the government’s policy objective of promoting a viable transition in its gas substitution roadmap.

¹⁶ Real Estate Institute of Victoria, Submission to Residential Tenancies and Residential Tenancies (Rooming House Standards) Amendments (Minimum Energy Efficiency and Safety Standards) Regulations 2024, p4

While it is difficult to quantify these impacts, particularly the ‘thin edge of the wedge’ aspects it does not mean they should be dismissed. GAMAA believes that an alternative approach (see Section 2.4.5. below) would address most of the more significant concerns while still delivering on the main objectives of the proposals.

Recommendation

Options should be reconsidered to properly account for cumulative impacts on Victorian manufacturers and workers and to avoid shifting benefits to lower quality appliance importers.

2.5 GAMAA’s proposal leads to universal benefits for everyone

Taking into account the strong potential for serious retrograde impacts on tenants and rental markets from the current proposed amendments, GAMAA is suggesting a modified approach that delivers on the three headline objectives of improved renter health, wellbeing, comfort and safety, lower renter energy bills and delivering emissions reductions and supporting the energy transition and decarbonisation of the rental sector.

By providing for a new high efficiency gas appliance standard in situations where conversion costs are not cost effective (or where tenants express preference for gas appliances), rather than simply excluding them from the new standards, it will improve overall emission outcomes and energy savings and avoid imposing higher overall costs on those the measures are trying to help.

It can do this without imposing significant additional costs on rental providers or tenants across all replacement scenarios or adding to pressures on Victorian manufacturers and their workers.

Nesting the new approach to standards inside a more comprehensive policy package will also support tenants and rental providers in making cost-effective choices that best suit their collective circumstances.

Simply put this is a win-win common sense approach that generates lower cost outcomes for all.

GAMAA supports better outcomes for renters, rental providers and society at large, through technology and fuel agnostic policies that deliver demonstrated cost-effective net benefit as well as better information and empowerment measures to support choice.

However, inefficient mandated capital expenditure will only drive rental prices even higher and/or reduce property availability, putting further strain on families during a cost-of-living crisis and increasing the risk of homelessness.

APPENDICES

- A. Comments on RIS Attachment A appliance costs and key parameters
- B. Breakdown of appliance lifetimes
- C. Breakdown of possible electrical upgrade costs
- D. Total and marginal cost estimates for representative case studies and RIS base case
- E. Energy Efficient Fixed Heaters and the requirement for climate zone specification
- F. Water Heating Energy Use Calculations
- G. Water heating marginal costs

Appendix A

Comments on RIS Attachment A- Modelling Parameters

	RIS Value	GAMAA Value	GAMAA Comments:
Table A.1 Key parameters for modelling			
End of life of existing appliance			Not defined. To avoid disputes, suggest words to the effect of: <i>'No longer in good working order and when a repair of that product is no longer economical in the opinion of the owner of the appliance (i.e. the rental provider) based on competent advice from an attending service technician for the appliance in question'</i>
Market penetration of appliances - Electric heating	51%		At odds with findings in Frontier Economics report titled 'Cost of switching from gas to electric appliances in the home' (24 June 2022) which states that In Victoria 40% of homes have ducted gas heating and 31% non-ducted gas heating, total of 71%.
Market penetration of appliances - Gas heating	49%		
Table A.4 key modeling parameters for hot water systems and shower heads			
Proportion of dwellings practical to upgrade	Not specified		Not specified, unlike heating and cooling. Many apartments and townhouses in Victoria have a gas continuous flow water heater located on a balcony or under a similarly covered space, typically recessed into one of the external walls and, therefore, taking up no floor space whatsoever. In many cases, the building's balcony will not have been designed to cater for the space and weight of a heat pump, which has a storage tank (let alone the potential noise and aesthetic impacts to occupants).
Proportion of rental properties requiring removal of gas systems	Not specified		Not specified, unlike heating and cooling.
Assumed appliance lifespan	12-14 Years		The RIS states various values between 12 and 14 years. The RIS does not confirm which value used for analysis purposes.
Hot water system appliance and installation costs:			GAMAA value supply & install pricing below from www.samedayhotwaterservice.com.au
Class 1			
Mains gas instant ≥ 6 star	\$ 3,235	\$ 1,455	RIS assumed cost too high for the most common gas instant water heaters in the market which are rated at 6.0 stars (non condensing). The (mandatory) Australian Standard for gas appliances caps gas appliance star rating at 6.0 Stars. Condensing water heaters are available which achieve > 6 star (such as 7 star 'equivalent') but these are much more expensive and uncommon. GAMAA cost is supply & install of popular 26 litre model.
Mains gas storage ≤ 4 Star	\$ 2,003	\$ 1,680	RIS assumed cost too high. GAMAA cost is for supply & install of 170 litre capacity.
Mains gas storage ≥ 5 Star	\$ 2,409	\$ 1,930	RIS assumed cost too high. GAMAA cost is for supply & install of 265 litre capacity.
Electric off peak storage	\$ 2,197	\$ 1,700	RIS assumed cost too high. GAMAA cost is for supply and install of 315 litre capacity twin element.
Heat Pump	\$ 4,518	\$ 3,400	RIS assumed cost too high. GAMAA cost is for supply and install of locally manufactured 265 litre capacity.
Cost of capping gas pipeline	\$ 300		The gas pipeline to a dwelling can't be capped until all gas appliances removed. Energy.vic.gov.au factsheet states cost for capping gas supply to a house is \$350.

Comments on RIS Attachment A – Modelling Parameters, continued

	RIS Value	GAMAA Value	GAMAA Comments:
Cost of switchboard (meter-box) upgrades	Not stated	Up to \$5,000	These costs can be substantial but are not considered part of the cost of installation in the RIS & exposure draft regulations. Potential upgrade costs for HPWHs not stated in RIS, unlike climate heating & cooling. Some HPWHs have a supply cord & 3 pin plug. These require connection to a GPO that is RCD protected. If no RCD protection this needs to be installed at the meter box at time of upgrade (AS 3000-2018 Wiring Rules requirement). Other HPWHs require hardwiring to a dedicated circuit with RCD and isolating switch at meter box. If isolating switch and/or RCD are not installed this needs to be done at time of upgrade. The above costs can range from \$1200-\$3000. If asbestos behind meter-box (old homes) that requires removal and adds approx. \$2000. So total costs range \$1200-\$5000.
Cost of removal/disposal of existing water heater	Not stated		There is a cost associated with removal and disposal of water heaters. Almost all water heaters are classified as electronic waste (E-waste) and therefore need to be disposed of in accordance with local regulations which comes at a cost. These costs seem to have been ignored in the RIS analysis.
Proportion of properties requiring capping of gas appliances	100%		Should be corrected to state that statutory requirement to require capping of <u>gas supply</u> to gas appliances permanently removed.
Annual gas consumption (MJ/year)			
Class 1			
Mains gas instant \geq 6.0 stars	13,633	10,342	The RIS combines all appliances with Star Ratings of 6.0 and above. This is misguided as by far the most common appliances have a rating of 6.0 Stars and are non condensing. GAMAA value based on an average of 2.5 persons per dwelling and a daily hot water consumption of 40 litres per person, plus 10 litres per dwelling. See Appendix on 'Water heater energy calculations'.
Mains gas storage \leq 4 Star	18,959	14,383	See comment for gas instant
Mains gas storage \geq 5 Star	17,056	12,939	See comment for gas instant
Electric off peak storage	12,470	13,802	See comment for gas instant

Table A.5 Key modelling parameters for heating and cooling in rental properties

Proportion of dwellings practical to upgrade - Class 1	90%		Rationale for this number not stated.
Proportion of dwellings practical to upgrade, non ducted, Class 2	90%		Rationale for this number not stated.
Proportion of dwellings practical to upgrade, non pre-existing, Class 2	40%		Rationale for this number not stated.
Major household appliance CPI	Not stated	6.50%	This is stated for hot water, not stated for heating and cooling. Value assumed in RIS for heating and cooling not known.
Assumed lifespan of heating and cooling	12-15 years		The RIS states various contradictory values between 12 and 15 years and does not confirm which value used for analysis purposes but seems to be 12 years. Life span of heat pumps reduced when used in heating mode, given heating energy use 7 to 10 times greater than for cooling, reflecting the increase in operating hours in heating mode compared to cooling mode only.

Comments on RIS Attachment A Modelling Parameters, continued

	RIS Value	GAMAA Value	GAMAA Comments:
Cost of appliances			Not stated whether this includes cost of installation, as per water heating. GAMAA values for supply and install below from https://wholesaleaircon.com.au/ or Frontier Economics.
Class 1			
Ducted heat pump (cooling 2 star, heating 1.5 star)	\$ 9,120	\$14,300 - \$17,500	RIS value far too low, based on assumption this comprises only cost of appliance and install [excluding cost of removal of gas appliance, electricals, gas supply capping & remedial costs (patching up holes, plaster, paint)]. From Frontier Economics report titled 'Cost of switching from gas to electric appliances in the home' (24 June 2022) appliance & install costs range \$14,300-\$17,500.
Cost of removing gas appliances			
Class 1			
Ducted gas	\$799		Quotes as the source Frontier Economics, but Frontier Economics report titled 'Cost of switching from gas to electric appliances in the home' (24 June 2022) does not contain this value.
Room gas	\$132		Quotes as the source Frontier Economics, but Frontier Economics report titled 'Cost of switching from gas to electric appliances in the home' (24 June 2022) does not contain this value.
Evaporative cooler	Not stated		
Proportion of rental properties requiring removal of gas systems	20%		Meaning and origin of 20% not clear. All gas (heating) systems no longer used because of replacement with heat pump should be removed, so this should be 100%.
Cost of capping gas appliances	\$ 300		See comment for hot water systems.
Proportion of rental properties requiring capping of gas appliances where a gas appliance discontinued	20%		Meaning and basis of 20% not clear. Not stated for hot water systems. Where a gas appliance is discontinued it should be removed and the <u>gas supply</u> to appliances capped off. Capping off is a regulatory requirement and applies to 100% of installations.
Cost of switchboard upgrades	\$ 1,200	Up to \$5,000	See comments for water heaters.
Cost of supply upgrades	\$ 3,500	\$4,500-\$10,000	RIS quotes Frontier Economics for the RIS value. The Frontier Report titled 'Cost of switching from gas to electric appliances in the home' (24 June 2022) does not state a cost of \$3,500. Frontier references Kenner Electrics (https://www.kennerelectrics.com.au/residential/supply-upgrades-melbourne) and a cost range of between \$2100 to \$10,000. Current costs from Kenner Electrics state that capacity upgrade to a home to a 63A single phase <u>overhead</u> supply typically costs between \$4500-\$7000. In some cases, the capacity upgrade necessitates conversion to an <u>underground</u> supply which will cost \$7000-\$10000. Hence the GAMAA range is \$4,500-\$10,000.
Proportion of rental properties requiring switchboard and supply upgrades	19%		Rationale for 19% not stated. Properties upgraded to ducted heat pump heating and cooling are likely to require both switchboard and supply upgrades.

Comments on RIS Attachment A – Modelling Parameters, continued

	RIS Value	GAMAA Value	GAMAA Comments:
Annual electricity usage - <u>cooling</u> (KWh)			
Class 1			
Room heat pump (Cooling 3 star)	82		RIS contains no details as to how this value was arrived at. It quotes Energy Efficient Strategies as the source without any further detail as to which report and how it can be accessed by the public.
Ducted heat pump (Cooling 2 star)	414		RIS contains no details as to how this value was arrived at. It quotes Energy Efficient Strategies as the source without any further detail as to which report and how it can be accessed by the public.
Annual electricity usage - <u>heating</u> (KWh)			
Class 1			
Room heat pump (Heating 2 star)	928		RIS contains no details as to how this value was arrived at. It quotes Energy Efficient Strategies as the source without any further detail as to which report and how it can be accessed by the public. Energy used for heating between 7 and 11 times greater than for cooling, reflecting a far greater number of hours in operation in heating mode compared to cooling only. For heat pumps replacing gas heaters and therefore used in heating mode as well as cooling mode this will almost certainly cause a significant reduction in appliance life to below the 12-15 years as assumed in the RIS.
Ducted heat pump (Heating 1.5 star)	2915		
Annual gas usage (gas heaters) MJ/year	Not stated		Electricity consumption of gas heaters is stated but not gas consumption. GAMAA cross-check confirmed the stated electricity consumptions are unlikely to have been mistaken for gas consumption. So the RIS contains no information on the assumed gas consumptions.
Ducted gas heater (MJ/year)		28,792	Reverse calculated by GAMAA from the RIS values for heat pumps
Room gas heater (MJ/year)		8,947	Reverse calculated by GAMAA from the RIS values for heat pumps

Appendix B

Breakdown of sample appliance lifetimes

The table below shows typical electrical heat pump and gas appliance warranties from a major supplier of both product classes. As you can see, typical gas 'major parts' warranties are around double that of electric heat pumps, which is an indication that heat pumps have lower lifetimes and likely higher maintenance costs.

Source: Rinnai Australia Pty Ltd

Product	Major parts warranty (years)	Labour warranty (years)
<i>Gas instant water heater</i>	10-12	3
<i>Gas storage water heater</i>	8 – 10	1
<i>Electric resistive storage water heater</i>	10 -12	3
<i>Electric heat pump storage water heater</i>	5 – 7	3
<i>Gas heaters (space and ducted)</i>	10	3 – 5
<i>Electric heat pump heating/cooling (space and ducted)</i>	5	5

Appendix C

Breakdown of possible electrical upgrade costs

A common scenario is a 1950'/1960's House with 6mm² or even less (5mm²) mains with a 40Amp main switch.

The Gas Storage Hot Water System fails and needs to be replaced with a Heat Pump in line with the Proposed RIS.

AS/NZS 3000:2018 requires the electrician to provide a dedicate circuit for the Electric Hot Water system with a diversity factor of 100%.

This means in a best-case scenario, a heat pump Hot Water system requires 10Amps from a maximum demand perspective.

As the existing main switch is limited to 40Amps for lights power and anything else within the property, the owner has no choice but to upgrade the power to the house to install any additional electrical appliances.

1. Upgrade supply cable from the street to the meter to 16mm², this cost will vary based on:
 - a. Whether an overhead line connection is possible.
 - i. from the nearest pole, without protruding over the neighbouring property by more than a meter, and
 - ii. Does not cross the dwellings driveway, minimum cost is \$5,000.
 - b. If an underground connection is required, with a conduct run.
 - i. under more recent changes, it can no longer be positioned or cross a driveway, which will increase the length of the run and will cost between \$20,000 - \$35,000 to the owner.
2. Switchboard Upgrade, to incorporate RCD's (Cost \$2500 - \$3000)
3. Rewiring the entire home, due to the wiring and earthing system won't function with RCD's (\$7,000 – \$15,000)
4. If Asbestos is found during the rewiring the home and behind switchboard (\$2,000 minimum charge) Website reference: <https://www.service.com.au/articles/general/how-much-does-asbestos-removal-cost>

Potential total cost range : low:\$5,000+2500+7,000 = \$14,500

High: \$35,000 + 3000 +15000 + 2000 = \$55,000

Appendix D

Total and marginal cost estimates for representative case studies and RIS base case

3-5 bedroom freestanding family home with Central gas (ducted) heating & central evaporative cooling & gas hot water			
Annual running cost savings	No insulation	R5.0	
Annual running cost savings switching to heat pump climate heating, cooling & hot water	\$ 483	\$ 357	
Total replacement costs - RIS costings			
Base case - replace central gas (ducted) heating & central evaporative cooling & gas hot water service	\$ 12,029		
Like for Like replacement case - Replace central gas (ducted) with ducted climate heat pump & gas hot water with heat pump	\$ 18,319		
Reduced amenity replacement case - replace central gas (ducted) with <u>single room</u> climate heat pump & gas hot water with hot water heat pump	\$ 8,180		
Total replacement costs - Frontier Economics			
Base case - replace central gas (ducted) heating & central evaporative cooling & gas hot water service	\$ 8,324	10,108	11,533
Like for Like replacement case - Replace central gas (ducted) with ducted climate heat pump & gas hot water with heat pump	\$ 23,508	28,267	\$ 38,583
Reduced amenity replacement case - replace central gas (ducted) with <u>single room</u> climate heat pump & gas hot water with hot water heat pump	\$ 8,077	\$ 9,027	\$10,493
Marginal costs & comparisons			
Marginal cost Base case to like for like heat pump - Frontier	\$ 15,184	18,159	\$ 27,050
Marginal cost Base case to single room heat pump - Frontier	-\$ 247	-\$,081	-\$ 1,040
Marginal cost Base case to like for like heat pump - RIS		\$ 6,290	
Marginal cost Base case to single room heat pump - RIS		-\$3,849	
Marginal cost difference, base case to like for like heat pump - Frontier minus RIS	\$ 8,894	11,869	\$ 20,760
Marginal cost difference, base case to single room heat pump - Frontier minus RIS	\$ 3,602	\$ 2,768	\$ 2,809

Total and marginal cost estimates for representative case studies and RIS base case, continued

2 bedroom unit/townhouse/apartment with single room heating/cooling & gas hot water			
Annual running cost savings	No insulation	R5.0	
Annual running cost savings switching to heat pump climate heating, cooling & hot water	\$243	\$175	
Total Replacement costs - RIS costings			
Base case (replace gas room heater and heat pump cooler with same, replace gas hot water with heat pump)	\$6,723		
Like for Like replacement - Replace gas heater with climate heat pump (heating/cooling), replace gas hot water with heat pump	\$7,513		
Total Replacement costs - Frontier Economics			
	Low	Typical	High
Base case (replace gas room heater and heat pump cooler with same, replace gas hot water with heat pump)	\$7,261	\$8,355	\$10,165
Like for Like replacement - Replace gas heater with climate heat pump (heating/cooling), replace gas hot water with heat pump	\$8,093	\$9,060	\$10,476
Marginal costs & comparisons			
	Low	Typical	High
Marginal cost Base case to like for like heat pump - Frontier	\$832	\$705	\$311
Marginal cost Base case to like for like heat pump - RIS		\$790	
Marginal cost difference, base case to like for like heat pump - Frontier minus RIS	\$42	-\$85	-\$479

Appendix E - Energy Efficient Fixed Heaters and the requirement for climate zone specification

GAMAA is concerned that the proposed regulations do not specify climate zone for heat pump heaters and coolers.

Energy efficient fixed heater:

Non ducted: 2 Star or above heating rating in the energy rating system prescribed in regulation (23)(1)(ba) for non-ducted air conditioners or heat pumps.

Ducted: Total Heating Seasonal Performance Factor (HSPF) of 3.2 or higher in the energy rating system prescribed in regulation (23)(1)(bb) for ducted systems.

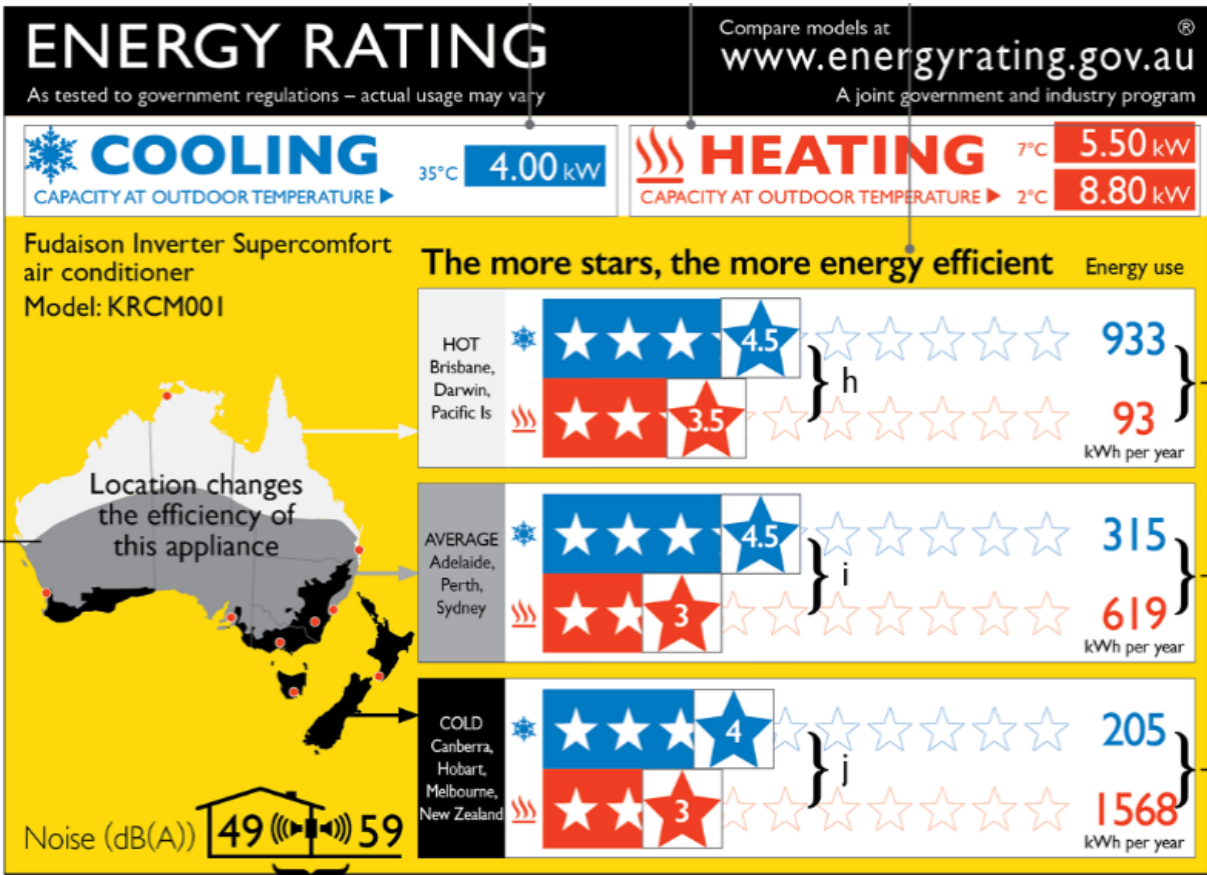
Regulation 23 in the Residential Tenancies Regulations 2021 is titled 'Efficiency rating systems' and states the following:

(1)(b) For the energy efficiency of a non-ducted air conditioner or heat pump, the Minimum Energy Performance Standards within the meaning of the Greenhouse and Energy Minimum Standards Act 2012 of the Commonwealth and as determined and tested in accordance with AS/NZS 3823.2, "Performance of electrical appliances—Air conditioners and heat pumps Part 2: Energy labelling and minimum energy performance standards (MEPS) requirements", as published from time to time and AS/NZS 3823.1.1, "Performance of electrical appliances—Airconditioners and heat pumps Part 1.1: Non-ducted airconditioners and heat pumps—Testing and rating for performance", as published from time to time;

The scope of AS/NZS 3823.2 conveys that the standard specifies the energy labelling requirements for single-phase non-ducted air conditioners of the vapour compression type and the MEPS requirements for single-phase and three-phase air conditioners of the vapour compression type up to a rated total cooling capacity of 65 kW.

This highlights the following shortcomings in the exposure draft regulations:

1. There are no clauses 23(1)(ba) and 23(1)(bb) in the Residential Tenancies Regulations 2021. It could be that the intent is to replace existing 23(1)(b) with (23)(1)(ba) and (23)(1)(bb) for non-ducted and ducted systems respectively post RIS process but this has not been made clear.
2. The text in existing clause (23)(1)(b) is written to apply to non-ducted systems only, even though the scope of referenced standard AS3823.2 applies to both non-ducted and other types of systems (including ducted). It could be that the intent is for future amendment to cover ducted systems as per item (a) but again this has not been made clear.
3. The efficiency rating system referred to is the Greenhouse and Energy Minimum Standards Act 2012 (commonly referred to as the GEMS Act). The GEMS Act is for the purpose of assigning appliance energy performance ratings and corresponding labels. Importantly, the energy performance ratings are specific to defined climate zones. For a given appliance the energy performance rating will vary according to the climate zone where it is installed, typically achieving lower rated values in colder climates compared to warmer climates. The minimum rating values (2 Stars for non-ducted and HSPF=3.2 for ducted) do not specify the climate zones they corresponding to. For Victoria, the applicable climate zone will be either 'cold' or 'average' as shown on the Zoned Energy Rating Label (ZERL) as shown below:



We note that this shortcoming does not exist for energy efficient water heaters. The exposure draft regulations define an 'Energy efficient water heater' as one that achieves 'The minimum small-scale technology certificates (STCs) specified in Table B2D2a in Part B2 of the Plumbing Code of Australia (PCA)'. The PCA states a requirement that the STCs are to apply for the installation zone.

Appendix F

WATER HEATER ENERGY USE CALCULATIONS

Annual gas consumption (MJ/year) - all Class 1	AGA AEC typical value MJ/year	AGA Heat loss or start-up capacity MJ/year	AGA Heat loss KWh/day	AGA Energy into water MJ/year	AGA Daily HW cons. (litres @ 45degC rise)	RIS Value (MJ/year)	RIS daily HW cons. (litres @ 45degC rise)
Mains gas instant 6.0 star**	18,657	4893		13,764	200	13,633	146
Mains gas storage ≤ 4 Star	22,811	9047		13,764	200	18,959	144
Mains gas storage ≥ 5 Star	20,775	7011		13,764	200	17,056	146
Solar gas boost						4,654	

**RIS combines 6.0 star and above which is not accurate.

Annual electricity consumption (MJ/year) - Class 1	Heat loss MJ/year	Heat loss KWh/day	Energy into water MJ/year	Total Energy Cons. (MJ/year)	Daily HW cons. (litres @ 45degC rise)	Rated Delivery Capacity (Litres)	GAMAA comments
Electric off peak storage (RIS)	2491	1.90	9,979	12,470	145	100	Too small
Electric off peak storage (GAMAA)	3824	2.91	9,979	13,802	145	315	
Solar electric boost RIS				3,678			
Solar electric boost GAMAA				4,417	assumes 68% solar saving compared to electric off-peak		
Heat Pump RIS				4,334			
Heat Pump GAMAA				4,417	assumes 68% solar saving compared to electric off-peak		

Summary: Hot water energy consumptions corrected to ABS average of 2.5 persons per household calculated from values in above tables		
	GAMAA	RIS
NCC 2022 fixed amount (litres/day)	10	
NCC 2022 per person amount (litres/day)	40	
ABS Average no. of persons per dwelling	2.5	
Average hot water consumption (litres/day)	110	145
Mains gas instant 6.0 star (MJ/year)	10342	13633
Heat Pump (MJ/year)	3351	4334