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To whom it may concern,

Climateworks Centre submission on Minimum Standards for Rental Properties and Rooming Houses

Climateworks Centre welcomes the opportunity to respond to the Victorian Government's Regulatory Impact Statement for the Residential Tenancies and Residential Tenancies (Rooming House Standards) Amendment (Minimum Energy Efficiency and Safety Standards) Regulations 2024. Climateworks bridges the gap between research and climate action, operating as an independent not-for-profit within Monash University. Climateworks develops specialist knowledge to accelerate emissions reduction, in line with the global 1.5°C temperature goal, across Australia, Southeast Asia and the Pacific.

Climateworks has engaged with the Victorian Government on many occasions, including through submissions to Victoria's emissions reduction target for 2035, the inquiry into renewable energy in Victoria, Infrastructure Victoria's 30-year strategy, and the review of the Domestic Building Contracts Act. Through its research, Climateworks has also recommended the introduction of minimum energy efficiency standards for rentals (Climateworks Centre 2023) and minimum standards for buildings aligned with the long-term goal of net zero emissions (ClimateWorks Australia 2016).

Climateworks welcomes the Victorian Government's commitment to improve the residential building sector's energy performance through this Regulatory Impact Statement (RIS) and the Gas Substitution Roadmap. Improving the energy efficiency of rental properties and rooming houses is particularly important given occupants include vulnerable people facing disadvantage and members of society at risk of missing out on the health and wellbeing benefits and cost savings that better home energy efficiency can provide. With the population of renters increasing, introducing minimum standards would be a positive step towards Victoria's net zero targets, healthier homes and lower bills for Victorian residents.

These standards are essential and are a win for the climate and renters. We see an opportunity for the Victorian Government to deliver even greater benefits by streamlining some aspects of the

regulations and making them inclusive for a higher number of rental properties. Our preferred options in response to the RIS and suggested improvements are outlined below.

Submission summary

Climateworks recommends the regulations be passed and suggests the following amendments:

- Include provisions to mandate a minimum level ceiling insulation of at least R4 in rental properties that currently have ceiling insulation below R2.
- Include a time frame for all rental properties to meet minimum standards for ceiling insulation and draught proofing. Draught proofing measures should explicitly ensure adequate moisture control.
- Include a requirement that all fixed heating systems be switched to an electric system by a specific date regardless of the remaining technical life of the gas heating system. The date could allow for supply chain considerations and give the market time to prepare for the switchover.
- Include a mandate to switch gas cooktops to induction at the end of their life, where feasible.
- Include a requirement for real estate agents to check that minimum rental standards are met and incorporated into apps such as realestate.com. Once established, Rental Dispute Resolution Victoria could be the responsible body for enforcement, removing pressure from Consumer Affairs Victoria and the Victorian Civil and Administrative Tribunal.
- Include financing and funding measures for social and community housing providers to upgrade their rental stock per the regulations.

Climateworks' Renovation Pathways program is the evidence base underpinning our response

Climateworks' Renovation Pathways program has demonstrated the economic benefits and emissions reduction impacts of thermal upgrade packages and switching gas appliances to electric equivalents. We modelled the costs and benefits of thermal upgrade packages for low-performance homes (see Appendix). Recognising that many homes have some but inadequate insulation, our modelling assumes ceiling insulation of R0.25 and finds significant benefits available to Victorians from better thermal shell performance. These results form the evidence base for our recommendations. Using CSIRO data, our analysis is based on research by RMIT and Race for 2030 (Rajagopalan et al. 2023) and includes results specific to Victoria's climate zones.

There are significant benefits to upgrading typical rentals (i.e. homes with insulation of R0.25, gas space conditioning and poor airtightness (Climateworks Centre 2023). Our analysis indicated that upgrading ceiling insulation from R0.25 to R3 resulted in annual emissions savings of 2.4 tCO2e for detached houses, 0.5 tCO2e for apartments and 1.3 tCO2e for townhouses when undertaken alongside draught sealing and a switch from gas space conditioning to an efficient electric heat pump, (Figure 3, Appendix). The upgrade packages are detailed in Figure 1 and Figure 2 in the Appendix.

We analysed Victoria's housing stock and calculated the economic costs and benefits for houses based on their construction material (called 'archetypes'). We found that thermal upgrades, including ceiling insulation, are responsible for most energy savings for all but three of the 16 building archetypes. Those three archetypes relate only to apartments (see archetypes A1, A2 and A5 in Figure 4). We therefore commend the Victorian Government on including thermal upgrade measures.

When upgrades are undertaken in conjunction with appliance electrification, our analysis indicates they have a positive benefit-cost ratio (BCR) for all dwelling types (Figure 5), and occupants could save between $800 and $2,600 on annual energy bills, based on 2023 gas and electricity prices (Figure 6).

Ensuring rental properties without insulation have adequate ceiling insulation is a great start. The regulations should require properties with ceiling insulation below R2.0 to be topped up so more people can benefit.

Recommendations:

- Preferred ceiling insulation option: Option 2B (improve ceiling insulation in rental properties with no and low levels of insulation to R4.0)
- Include provisions to mandate a minimum level ceiling insulation of R4 in rental properties with ceiling insulation below R2.

Climateworks welcomes the Victorian Government's proposal to mandate a minimum level of ceiling insulation for rental properties that do not currently have any insulation. Introducing adequate ceiling insulation is an effective way to improve energy efficiency and reduce emissions while improving occupant comfort and reducing energy bills.

While this is a step in the right direction, it misses an opportunity to ensure renters in homes with inadequate insulation (i.e. partially insulated or less than R2.0) are not left out in the cold. An assessment of the number of rentals with less than R2.0 insulation is urgently needed to ensure the insulation level chosen does not have unintended consequences, such as a high number of exempted rentals.

Noting the RIS indicated that improving ceiling insulation to R4.0 (option 2B) had positive BCRs and net present value (NPV) results, Climateworks' preference is to amend the regulations to ensure rental properties with insulation R2.0 or below are required to meet minimum standards of at least R4.0 for properties with limited ceiling voids (e.g. homes with cathedral ceilings fixed to sloping roofs, and concrete deck flat roofs). We fully support R5.0 insulation, including top-ups, for all properties with ample roof voids beneath pitched roofs. Please also note our recommendation for wet spaces (bathrooms and laundries) to have an extraction fan vented directly to the external environment is also linked to the aim of reduce the degradation of insulation caused by condensed water. Extraction fans should be upgraded if they vent via the roof void. Standards should be accompanied by a clear signal that if higher levels of insulation can be installed, it will be more cost-effective for property owners to install them than to make further additions later.

Given that our suggested amendment to option 2B would apply to more homes than the currently proposed option, a phased approach could be taken to ease supply chain pressures. From our Renovation Pathways research, detached homes (with framed roofs) and north-facing top-floor apartments should be prioritised, as these homes are often the worst performing and would benefit most from ceiling insulation.

Sustainability Victoria estimated that 43.3 per cent of houses studied through their household retrofit trials would have benefited from a ceiling insulation top-up because they were insulated to R2 or less (Sustainability Victoria 2019). Guidance released by the Insulation Council of Australia and New Zealand advises that home energy efficiency is likely to benefit from a ceiling insulation top-up if the insulation is under R2.0, below the level of the ceiling joist, or if there is substantial variation in the thickness of insulation (ICANZ 2024).

Climateworks welcomes the mandate that insulation be installed only by an accredited insulation installer following a pre-installation electrical safety check by a licensed electrician. This is key to ensuring that rental providers, renters and workers are protected and that social licence for the increased standards is maintained. The Victorian Government's renewable homes construction training (Solar Victoria 2024) and $11 million training and workforce development package for plumbers and electricians (Solar Victoria 2023) are important measures to ensure electricians and construction workers have the necessary skills and knowledge to undertake work meeting the standards. Further policies should also encourage insulation accreditations and aim to attract additional workers.

Draught sealing is a low-cost, high-benefit measure. The regulations should adopt a high standard while accounting for moisture control.

Recommendations:

- Preferred draught sealing option: Option 3 (high levels of draught sealing)
- Draught proofing measures should explicitly ensure adequate moisture control.

The proposal to include mandatory standards for draught sealing is another positive step. Draught sealing measures are some of the cheapest and most effective ways to improve home energy efficiency (Tidemann et al. 2023). It is also key to getting the most benefit from electric heat pumps without inadvertently losing energy through gaps (Lowes et al. 2020). With this in mind, Climateworks believes there is an opportunity for the Department of Energy, Environment and Climate Action (DEECA) and the Department of Government Services (DGS) to provide even greater benefits for Victorian renters by adopting option 3 (high) for the draught sealing minimum standards. As per the RIS, option 3 (high) has a positive NPV (13 years) of $94.11 million and a BCR of 1.23. This is comparable to option 2 (medium) and will provide $47.42 million in additional benefits compared to option 2 (medium).

The draught sealing standards must also ensure that homes have sufficient moisture control measures to avoid mould and health issues. We recommend the standards include requiring each bathroom to have either an exhaust fan vented to the outside environment or an openable window. Either option should have performance requirements comparable to the National Construction Code 2022. The requirement for ducted ventilation is in line with World Health Organisation (WHO) guidelines. The guidelines recommend maintaining moisture levels between 30 and 50 per cent, which is best controlled via an extraction fan ducted to the external environment (WHO 1988).

Climateworks strongly agrees with introducing requirements for electric-only heating and cooling.

Recommendation:

- Preferred heating and cooling option: Option 4 (electric-only heating and cooling)
- Include a requirement that all fixed heating systems be switched to electric systems by a specific date regardless of the remaining technical life of the gas heating system. The date could allow for supply chain considerations and give the market time to prepare for the switchover.

Climateworks welcomes and supports the proposed increase in minimum standards for heating, the introduction of minimum standards for cooling and the requirement for electric appliances. Switching Victoria's buildings away from gas is an important part of cost-effectively meeting Victoria's emissions reduction targets. Ensuring that all rental properties have heating and cooling is vital for occupant health, particularly in the depths of winter and the middle of summer. Noting the supply chain issues highlighted in the RIS for 3-star heaters, Climateworks agrees with the preferred option in the RIS (option 4). However, we suggest that the regulations be strengthened in future iterations by mandating 3-star heaters once supply chains are readied, noting that option 3 provided a higher NPV over 20 years than option 4. To help develop supply chains, the Victorian Government could signal that minimum standards will be improved over time while offering assistance for property owners to upgrade their systems through the Victorian Energy Upgrades program.

We strongly recommend that the regulations set a date for the complete phaseout of gas heating systems in rental properties. Ideally, this could align with expected timelines for all rental properties to meet ceiling insulation and draught sealing standards. Our analysis shows that in Victoria, the largest potential emissions reductions in poorly performing homes are from upgrades to the thermal shell along with a switch from gas space conditioning to an electric heat pump. Our economy-wide modelling presented in *Climateworks Centre decarbonisation scenarios 2023* also indicates that by 2050, gas plays no role in the residential buildings sector in both the well-below-2ºC and 1.5ºC scenarios (Climateworks Centre 2024). Climateworks can provide further technical information if this

is of assistance.[1]

Switching gas hot water systems to electric resistance systems and heat pumps is an important action towards getting homes off gas

Recommendation:

- Preferred hot water option: Option 4 (electric-only hot water systems)

Climateworks welcomes the proposal to introduce minimum standards for hot water systems. Climateworks agrees with DEECA and DGS's preferred option in the RIS, option 4. This outcome is consistent with Climateworks' analysis, which demonstrates the important contribution that switching from gas to electric hot water systems can make to emissions reductions, energy savings and bill savings (see Appendix). This option is also consistent with *Victoria's Gas Substitution Roadmap*. Climateworks agrees with the increased minimum standard for shower heads, noting the positive NPV and BCR listed in the RIS.

Minimum standards should phase out gas cooktops

Recommendation:

- Include a mandate to switch gas cooktops to induction at the end of their life, where feasible.

Climateworks recommends the minimum standards include a phaseout of gas cooktops and replacement with induction cooktops for all rental properties and rooming houses. Climateworks' research shows that electrifying cooktops and hot water systems can reduce emissions by 0.57 tCO2e per home in Victoria and reduce energy consumption by 3.6MHw annually per dwelling. Switching from gas to electric cooking can also result in bill savings between $800 and $2600, based on 2023 gas and electricity prices, when thermal upgrade measures are also taken (see Appendix).

Switching to induction cooktops has health benefits for renters. Air pollution from gas cooking is associated with a 42 per cent increase in the likelihood of children developing asthma (Lin et al. 2013), while over 12 per cent of Australia's total childhood asthma burden can be attributed to pollutants from gas stoves (Knibbs et al. 2018).

To account for upfront replacement costs, supply chain considerations and possible need for switchboard upgrades or wiring for some homes, the minimum standards could require that gas cooktops are replaced with induction cooktops at the end of life or by a set date where technically feasible.

The regulations should ensure that no renters are left behind

Recommendation:

- Include a timeframe for all rental properties to meet minimum standards for ceiling insulation and draught proofing. Draught proofing measures should explicitly ensure adequate moisture control.
- Include funding measures from the Victorian Government for social and community housing providers to upgrade their rental stock per the regulations.

In addition to our recommendations relating to ceiling insulation, draught sealing and appliance switchover, the regulations should also be amended to ensure that there are no unintended inequities due to the mandate. If the minimum standards are only triggered at the time of a new lease, there is a risk that tenants on lengthy or periodic (e.g. month-to-month) leases will miss out on benefits unless they move to a new property. To that end, Climateworks recommends that the regulations set an ambitious date for all rental properties to meet the minimum standards for ceiling insulation and draught sealing, regardless of tenure contract type, ownership or management arrangements such as

[1] For more information, see *Climateworks Centre decarbonisation scenarios 2023 AusTIMES modelling assumptions and methodology* report (Climateworks Centre 2023b)

corporate bodies and strata titles. Homes with gas space conditioning switched to an electric heat pump may risk incurring higher running costs if insulation and draught sealing are not undertaken prior to the appliance switchover. A ceiling insulation top-up is key and a low-cost measure that can reduce bills and increase comfort and health outcomes (Owen & Wade 2022).

Monitoring and enforcing the regulations is key to their success.

Recommendation:

- We recommend that real estate agents be required to check that minimum rental standards are met and incorporated into apps such as realestate.com. Once established, Rental Dispute Resolution Victoria could be the responsible body for enforcement, removing pressure from Consumer Affairs Victoria and the Victorian Civil and Administrative Tribunal.

Additional monitoring and enforcement will ensure that the regulations provide the most successful outcome for Victorian renters and rooming house residents. Climateworks recommends that compliance with the regulations is undertaken proactively. Assessments could be done by real estate agents before tenants move into a rental property or through compliance checks for rental properties under an existing lease (e.g. during routine inspections). Compliance certifications could then be noted in apps such as realestate.com or via email once the rental provider rectifies any issues. This approach can have several benefits. Firstly, it will reduce the burden of enforcement on Consumer Affairs Victoria and the Victorian Civil and Administrative Tribunal, where case numbers and dispute resolution wait times have been high (VCAT 2023). Secondly, this will encourage enforcement by reducing the onus on tenants. Research has shown that many tenants are reluctant to request home maintenance for fear of eviction or rent increases (National Shelter 2018). As the regulations stand, there is a likelihood that some tenants will miss out on benefits to not ‘rock the boat’ with rental providers if they need to rely on chasing up repairs from property providers.

In the longer term, compliance should be through whole-of-home energy assessments such as the Residential Efficiency Scorecard. Scorecard assessments should be required when property providers cannot demonstrate compliance with all minimum requirements.

Thank you for taking the time to consider our submission. If you would like to explore our responses in more detail, we welcome the opportunity to brief your team on our submission and our Victorian-specific data from Renovation Pathways. Technical details and Australia-wide results can be found in our *Climate-ready homes* report. Our next release of data for residential buildings is expected in August 2024 and will include specific data findings for Victoria.

Yours sincerely,

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Appendix: Climateworks' Renovation Pathways modelling for Victoria

Figure 1: Thermal upgrade packages applied to low-performing homes in Climateworks' Renovation Pathways modelling.

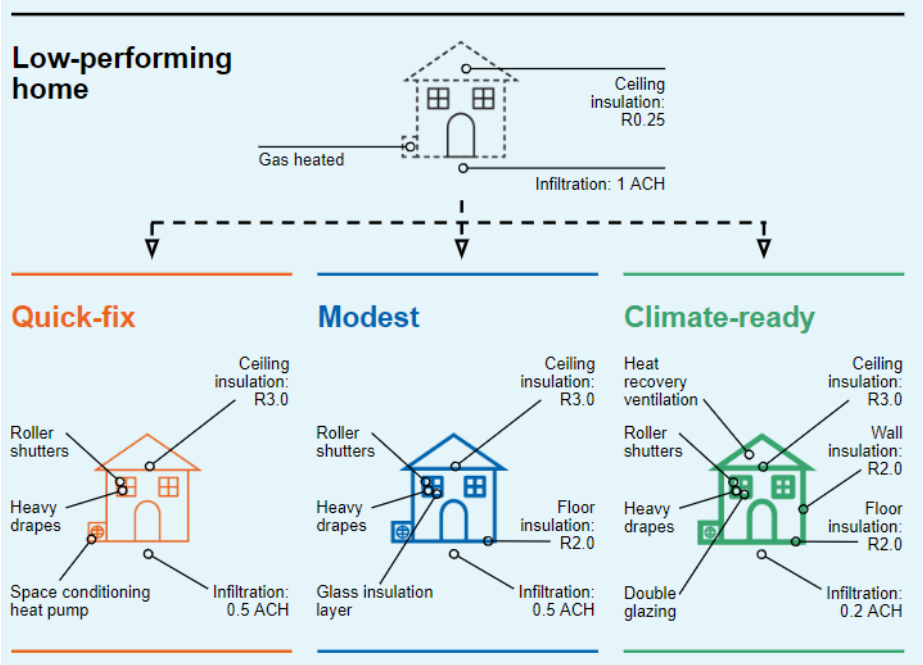

Figure 2: Full suite of packages applied to low-performing homes in Climateworks' Renovation Pathways modelling, including thermal upgrades, electrification of hot water and cooking appliances, and rooftop solar for the remaining energy use.

ENERGY PERFORMANCE UPGRADE BUNDLES			ELECTRIFICATION	ROOFTOP SOLAR
Quick-fix	Insulation	Ceiling R3.0	Efficient electric hot water heating and cooking	Maximum roof area for solar required to match level of electricity use
	Infiltration/ draughts (walls, floor, ceiling)	0.5 ACH		
	Curtains	Heavy drapes		
	Window shades	Roller shutters		
	Thermal appliance – heating & cooling	Efficient electric heat pump		
Modest	Insulation	Ceiling R3.0, Floor R2.0	Efficient electric hot water heating and cooking	Medium roof area for solar required
	Infiltration/ draughts (walls, floor, ceiling)	0.5 ACH		
	Curtains	Heavy drapes		
	Window shade	Roller shutters		
	Window system	Additional layer of glass or film		
	Thermal appliance – heating & cooling	Efficient electric heat pump		
Climate-ready	Insulation	Ceiling R3.0, Floor R2.0, Wall R2.0	Efficient electric hot water heating and cooking	Minimum roof area for solar required
	Infiltration/ draughts (walls, floor, ceiling)	0.2 ACH		
	Curtain	Heavy drapes		
	Window shades	Roller shutters		
	Window system	Efficient double glazing		
	Thermal appliances – heating & cooling and heat recovery ventilation (HRV)	Efficient electric heat pump with HRV Efficient 85% heat recovery		

Figure 3: Average annual emissions reductions per low-performing home after thermal upgrades (including electrification of space conditioning) and electrification of all gas appliances (hot water, cooking) in Victoria.

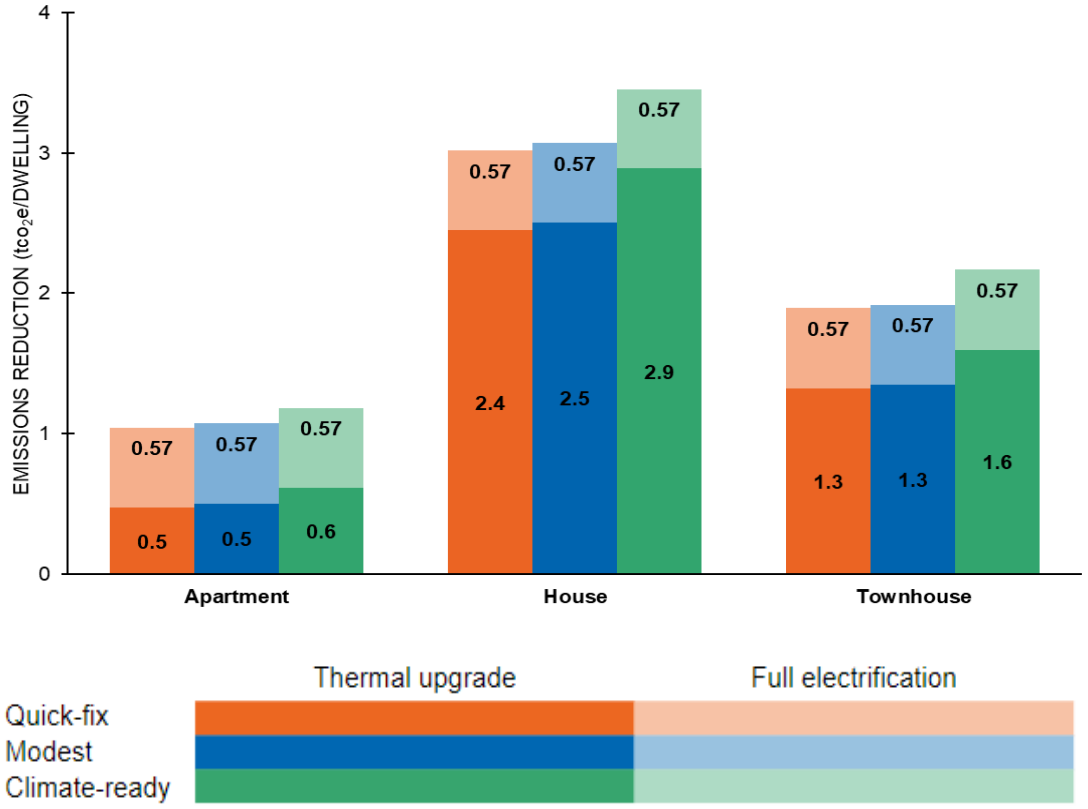

Figure 4: Average energy savings for low-performing homes after quick fix thermal upgrade (including electrification of space conditioning) and electrification of all gas appliances (hot water, cooking) in Victoria, per archetype.

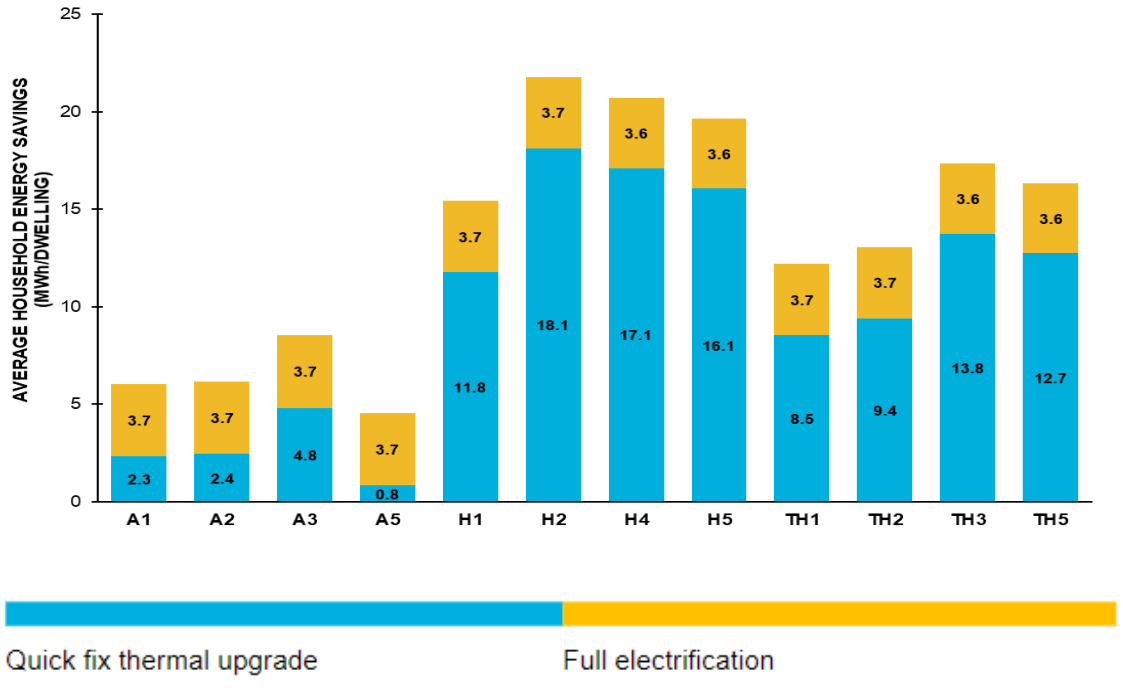

Figure 5: Private benefit-cost ratio per low-performing home after combined thermal upgrade (including electrification of space conditioning) and electrification of all gas appliances (hot water, cooking) in Victoria.

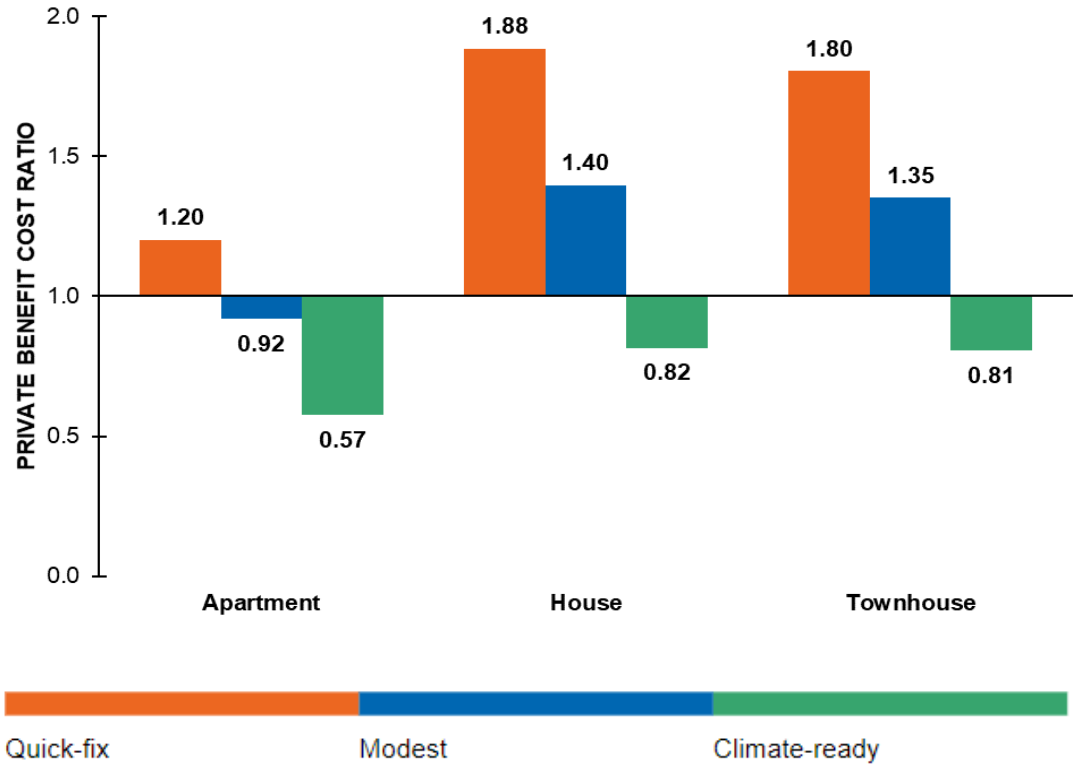

Figure 6: Average annual bill savings per low-performing home after combined thermal upgrade (including electrification of space conditioning) and electrification of all gas appliances (hot water, cooking) in Victoria. Figures based on 2023 Victorian gas and electricity prices.