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Leading in sustainability

14 February 2024

To whom it may concern,

Thank you for the opportunity to respond to the Climate Change Authority *2024 Issues Paper: Targets, Pathways and Progress*.

Renew is a national, not-for-profit organisation that inspires, enables and advocates for people to live sustainably in their homes and communities. Established in 1980, Renew provides expert, independent advice on sustainable solutions for the home to households, government and industry.

This submission focuses on the built environment sector and the critical opportunity to rapidly decarbonise Australia's homes.

Mature technologies are available now that can be deployed at scale to achieve near-zero emissions from the operation of Australia's homes before 2035.

Energy used in homes constitutes up to 11% of Australia's total greenhouse gas emissions.[1] Unlike in harder-to-abate sectors, zero-carbon new homes and large-scale retrofits of existing homes including electrification can be delivered immediately. Australia will not meet its existing targets nor the more ambitious targets required to align with 1.5 Degree climate scenarios if action is delayed on this immediate opportunity.

Homes have a unique role in meeting the overlapping needs of climate mitigation, climate adaptation, community wellbeing, and social justice. Energy-efficient, all-electric homes deliver a wide range of benefits including lower energy bills, better occupant comfort and health, reduced emissions, and reduced pressure on the energy grid.

While households are increasingly taking steps to drive the shift towards energy efficient homes powered by renewables, consumer choices without government policy will not deliver the transition needed and will ultimately come at a cost to households left paying higher energy prices. Households including low-income households and renters face barriers to retrofits and electrification which must be addressed by government policy in line with decarbonisation targets.

Our community wants government policy action to deliver better home energy performance. Research conducted by SEC Newgate on behalf of Energy Consumers Australia and Renew found that 74% of respondents supported policies to improve home energy efficiency, with only 4% and 6% of respondents expressing opposition for new and existing homes, respectively.[2]

Our recommendations:

1) End new residential gas connections by 2025

[1] Trajectory; figure from 2019
[2] https://renew.org.au/advocacy/new-research-shows-australians-want-more-efficient-housing/

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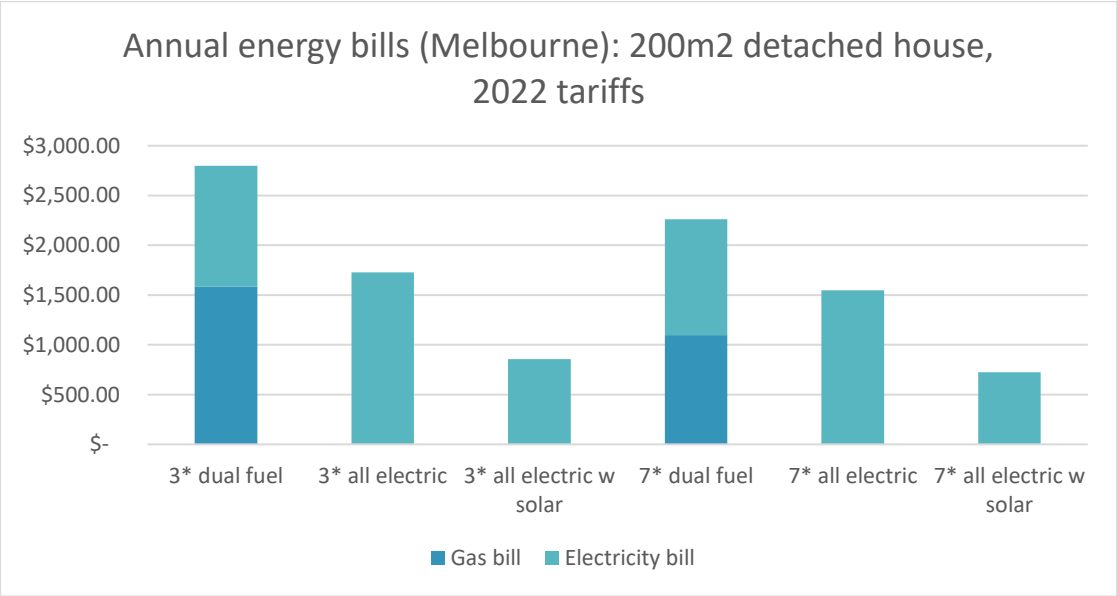
2) Require new homes to meet zero emissions standards under 2028 National Construction Code
3) Full electrification and energy efficiency retrofits of existing homes by 2035
4) Set targets for reduction of embodied emissions
5) Invest in monitoring and data collection
6) Embed climate resilience in built environment sector plan
7) Embed energy efficiency in the electrification agenda
8) Implement minimum energy performance standards for rental homes
9) Ensure best practice energy performance in new social housing and upgrade existing public housing
10) Financial support for retrofits, with priority focus on low-income households
11) Implement mandatory disclosure of energy efficiency ratings at point of sale and lease
12) Resource consumer information and advocacy

Background: the benefits of efficient, all-electric homes

Energy bills

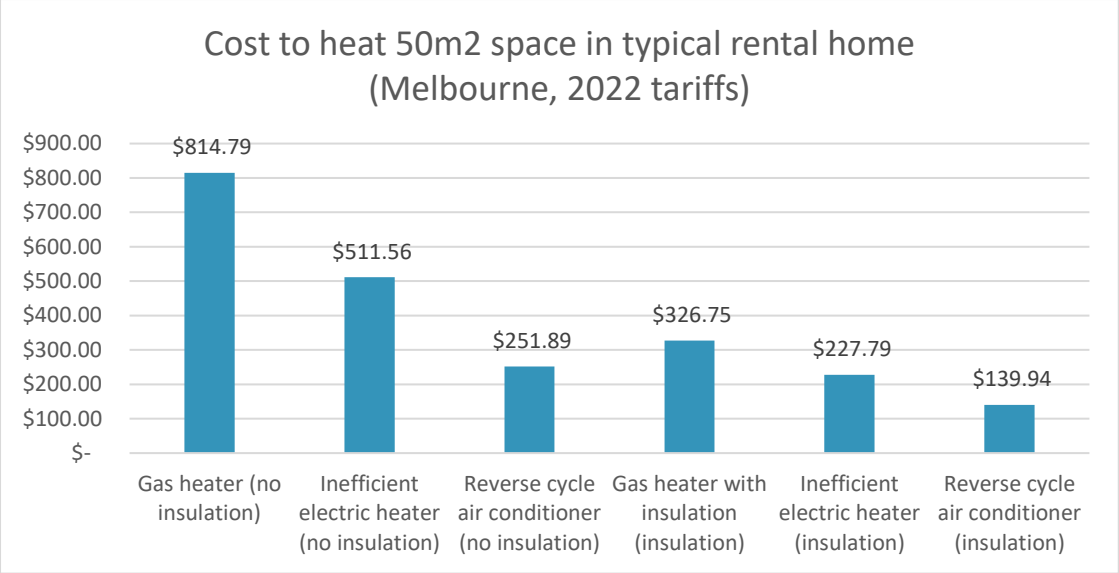
Increasing numbers of Australian households are taking measures to reduce energy use, electrify, and install consumer energy resources such as solar and batteries.

Efficient, all-electric homes save money on energy bills. According to Renew research[3], annual bills in 2022 for a 7-Star all-electric home with solar were 69%-83% less than bills for a 3-Star home with gas appliances and no solar, depending on location. In the below Melbourne example, this equated to a saving of $2,073 for the year.



For a typical rental home, our research found the cost of heating one 50m2 space was likewise reduced for homes with insulation and efficient reverse cycle air conditioners. In Melbourne, annual heating costs were reduced by 83% for homes with insulation and reverse cycle air conditioning, compared to no insulation and a gas heater.

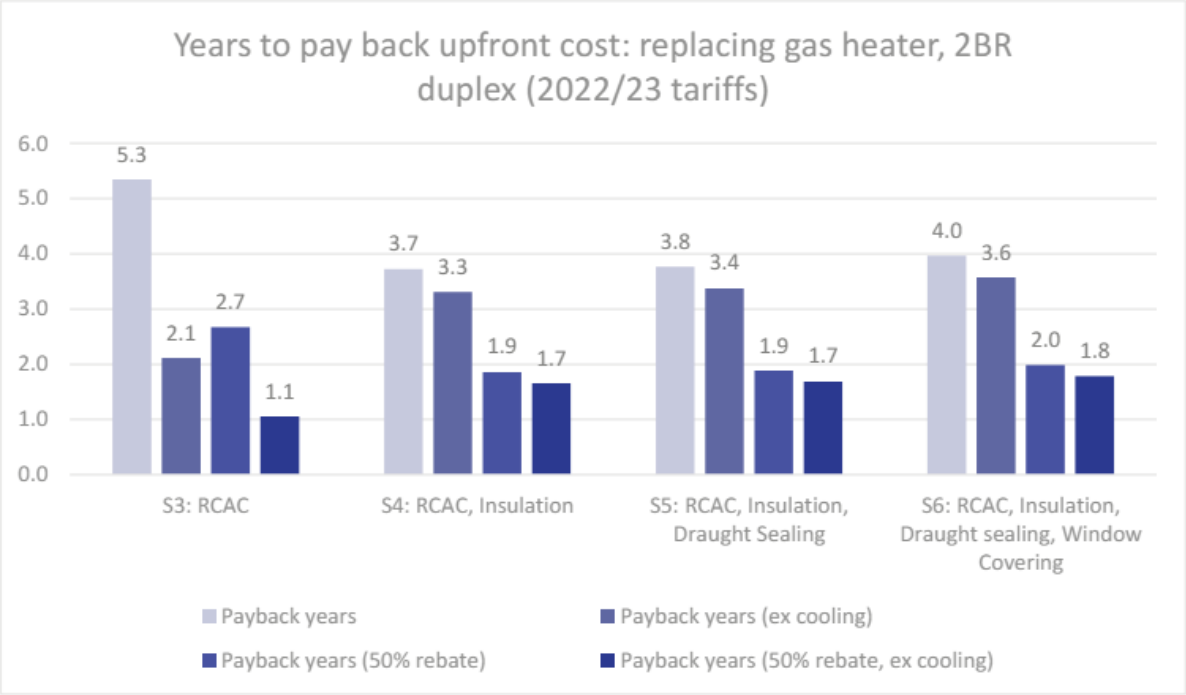
[3] https://renew.org.au/research/limiting-energy-bills-by-getting-off-gas/



The upfront cost of retrofits varies significantly depending on home design, condition, and features to be replaced. Full upgrade packages including solar, electrification and thermal efficiency upgrades have been costed at approximately $20,000-$26,000 in the Climateworks *Climate Ready Homes* project[4]. Simple improvements covering one or more specific features (such as appliance replacement or insulation) are often significantly less in situations where not all features need upgrades.

For simple retrofits such as the replacement of a gas heater and installation of insulation, energy bill savings typically pay back the upfront cost over a period of several years. Renew analysis of Adelaide household scenarios conducted on behalf of SACOSS[5] found that poorly performing homes with inefficient gas heating and no insulation could expect to recoup costs in around 5 years or less, with payback periods further improved if government rebates are in place:

[4] https://www.climateworkscentre.org/resource/climate-ready-homes-building-the-case-for-a-renovation-wave-in-australia/
[5] https://www.sacoss.org.au/efficient-heating-and-cooling-adelaide-homes



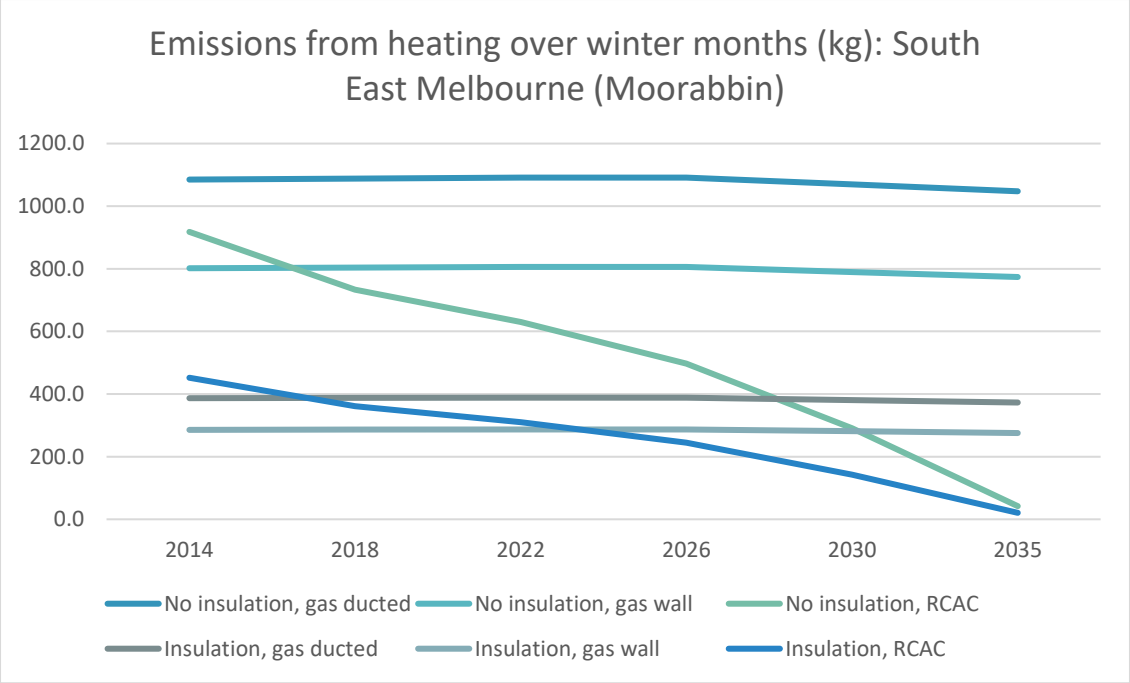
Nonetheless, any upfront costs represent a barrier to many households, particularly those on low incomes. Meanwhile, renters in private rentals and social housing pay energy bills however are dependent on landlords to pay for energy performance upgrades; this 'split incentive problem' is understood to lead to lower energy performance for rental homes. One study found renters pay 8% more in energy bills than owner-occupiers in like-for-like homes due to the impact of poorer energy efficiency.[6]

Households that disconnect from gas and instal efficient electric appliances such as heat pumps reduce their annual energy costs while also avoiding gas connection fees. In a scenario of large-scale transition from gas to all-electric homes, costs for gas networks are expected to increase. A policy response is required to manage a potential death spiral while protecting households and ensuring a rapid transition.

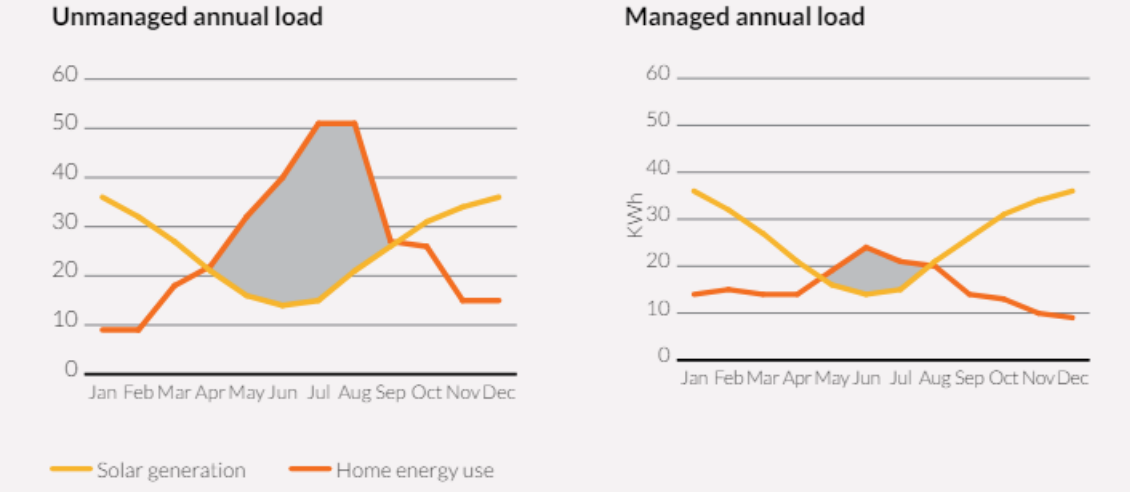
Emissions

Energy-efficient, all-electric homes reduce emissions from household energy consumption. Homes replacing gas with electric appliances directly powered with onsite eliminate Scope 1 emissions. Even where homes are not able to install onsite solar (such as many apartments), electrification is increasingly reducing emissions as the emissions intensity of the electricity grid decreases. Meanwhile, the emissions intensity of gas appliances will remain at similar levels. Renew's analysis of heating in Melbourne rental homes finds that homes with good thermal efficiency through insulation already produce lower emissions; over time, emissions from electric heaters drawing electricity from the grid will decrease. (The below graph assumes no onsite solar, which would further decrease emissions.)

[6] https://ccep.crawford.anu.edu.au/sites/default/files/publication/ccep_crawford_anu_edu_au/2022-05/ccep2202_best_burke.pdf



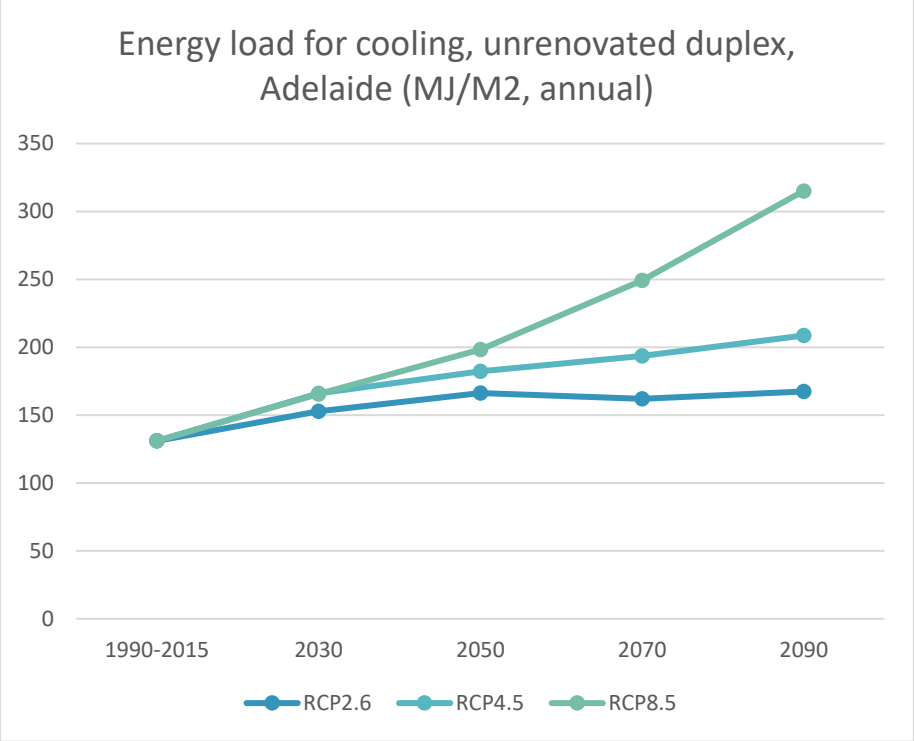
Alongside the direct benefits of electrification in replacing gas combustion with renewable energy, energy efficiency and demand management remain an important element of home energy retrofits. Energy efficiency is a key strategy to reduce energy loads at times where renewables generation is relatively low, such as winter heating loads in southern states or daily evening demand peaks. Retrofitting homes and ensuring energy efficient design for new homes will help minimise grid costs and accelerate a shift to renewables.[7]

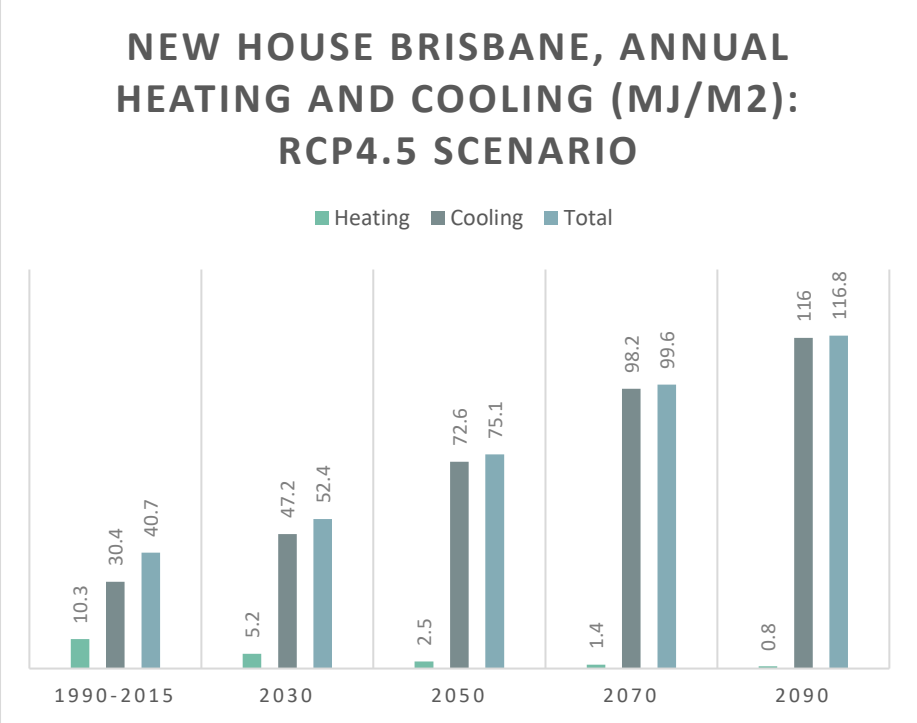


Adaptation and resilience

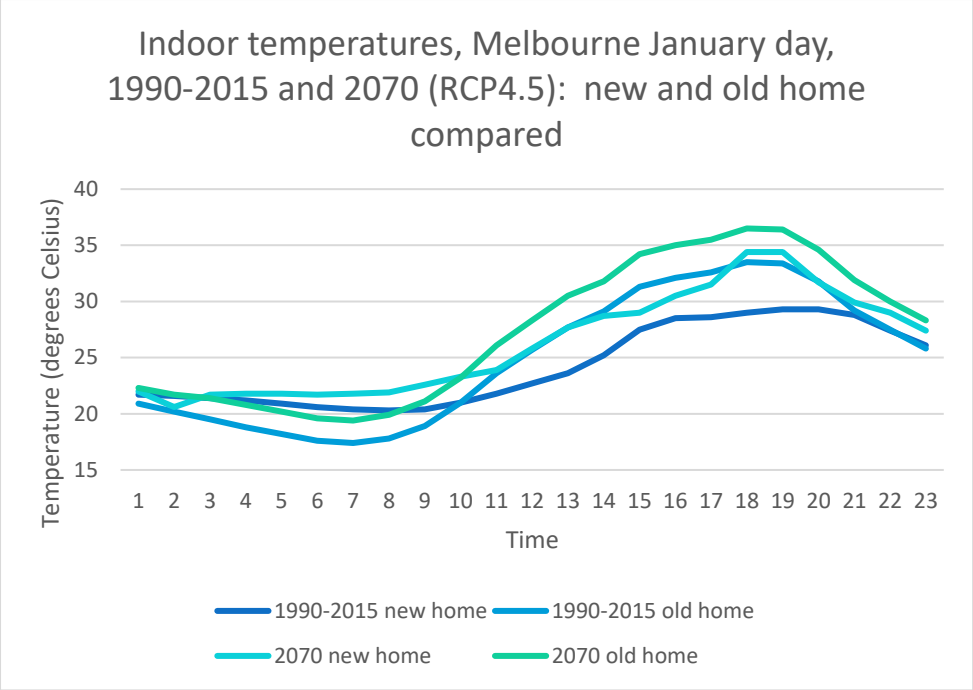
Renew's research[8] finds that home energy retrofits and climate resilient design are expected to play an increasingly critical role in climate adaptation. Our modelling finds that under future climate scenarios energy loads for indoor cooling are projected to rise significantly this century:

[7] Image from Energy Efficiency Council, *Clean Energy, Clean Demand*. https://www.eec.org.au/policy-advocacy/publications/Clean-Energy-Clean-Demand-April-2023
[8] https://renew.org.au/advocacy/future-proofing-australias-homes/

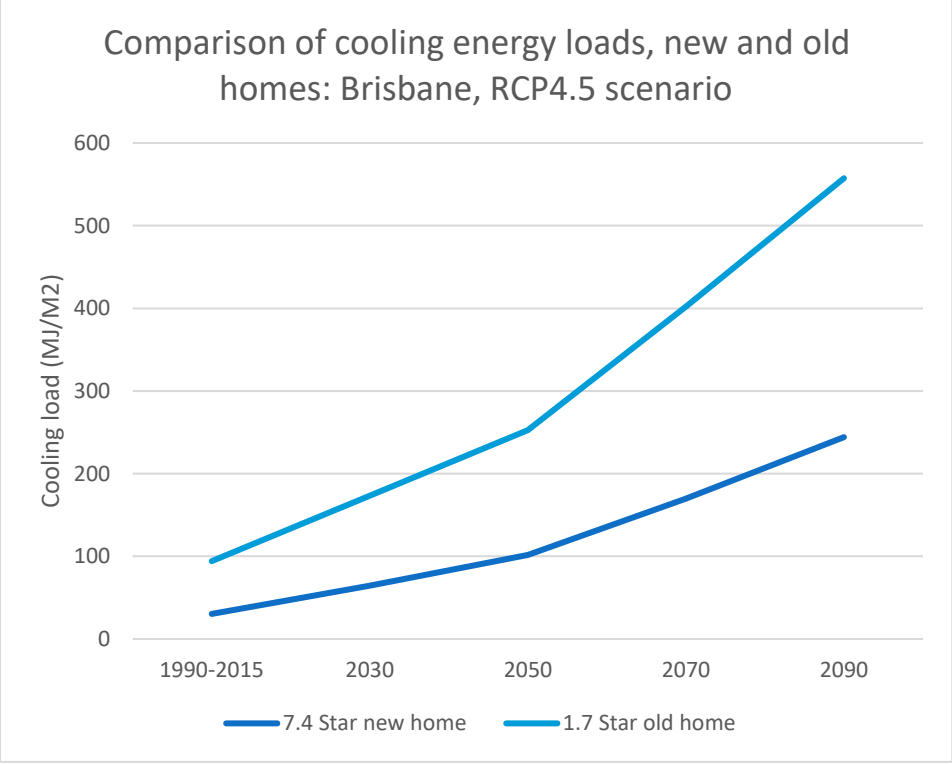




Similarly, poorly designed homes are expected to be increasingly dependent on air conditioning, with indoor temperatures increasingly unsafe in homes not using mechanical cooling. Further research is required on the impacts of this trend on energy system resilience at times of peak demand.



The gap in energy use between efficient and inefficient homes is projected to increase, making home energy retrofits even more important:



Speed of emissions reduction

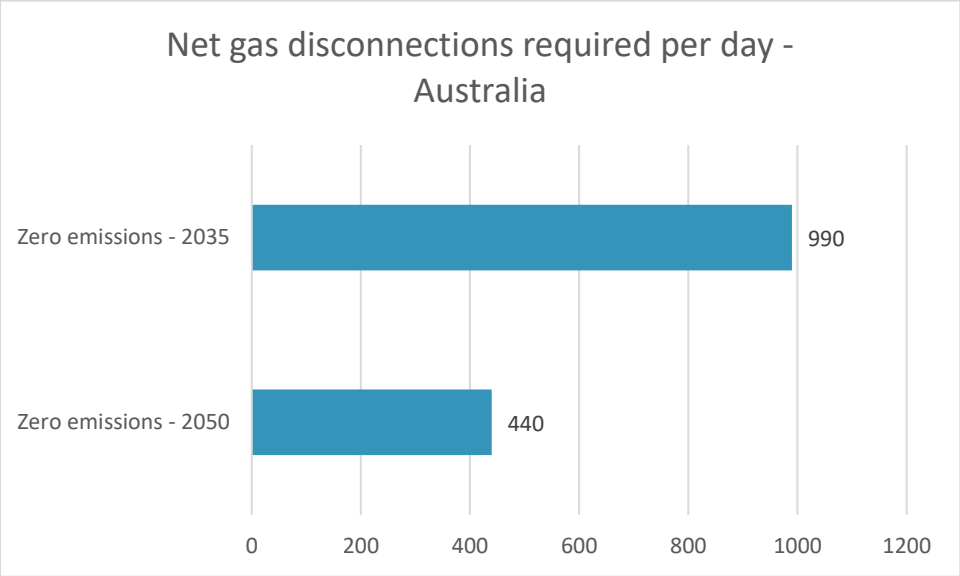
The ready availability of efficient, electric technologies such as heat pumps and induction cooking, alongside existing thermal efficiency measures and renewables, means that the residential and built environment sectors offer immediate emissions reduction opportunities. Decarbonisation scenarios

in line with ambitious targets typically depend on immediate deployment of home retrofits using these existing technologies, prior to decarbonisation of harder-to-abate sectors.[9]

A consumer-driven shift to home electrification is emerging, however government policy measures are needed to ensure that the pace of residential electrification is consistent with emissions reduction targets.

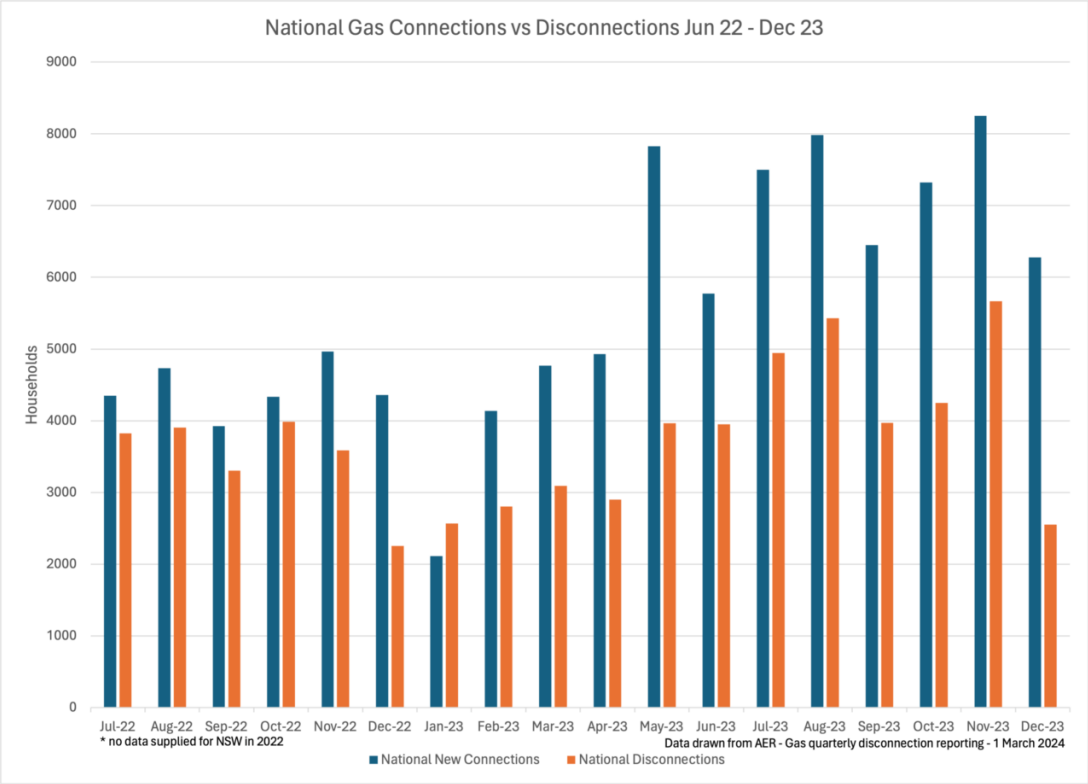
Gas use in homes is simply inconsistent with any meaningful definition of net zero emissions, and targets should be set for the full electrification of Australia's residential sector.

With 4.3 million gas connections currently in place in Australia, achieving full electrification by 2035 equates to a net disconnection rate of 990 homes per day between now and 2035. Even the less ambitious target of full electrification by 2050 requires a net disconnection rate of 440 homes per day.

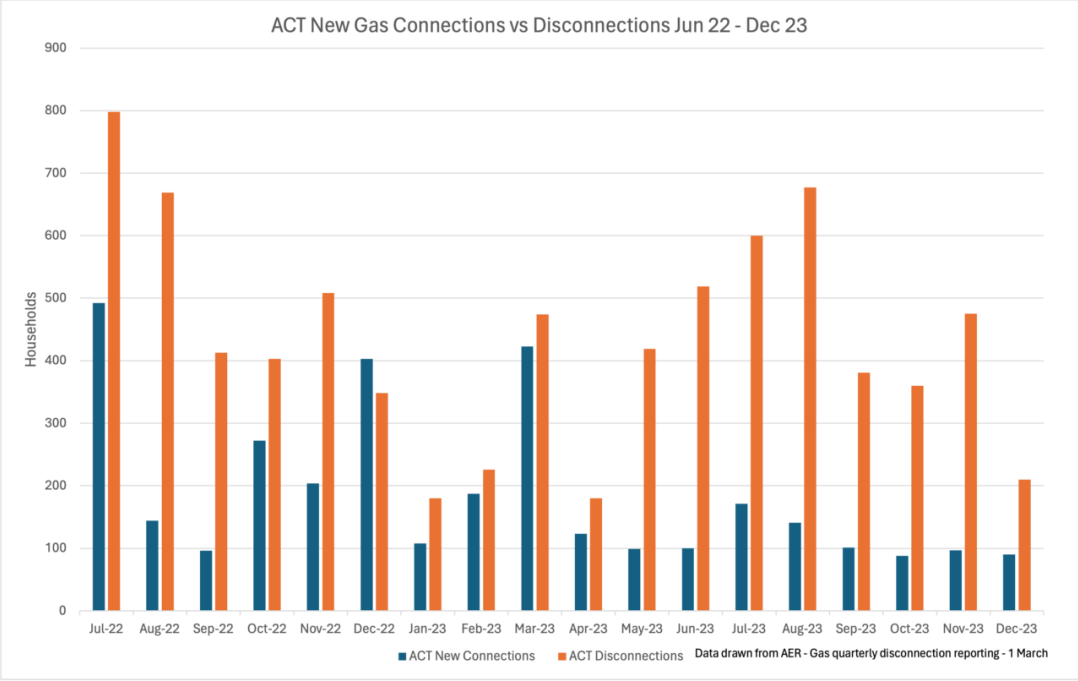


Australia is not currently on track to meet this objective. The latest data from the Australian Energy Regulator[10] (reflecting the period July 2022 – December 2023) demonstrates that more homes are consistently connecting to the gas network than are being disconnected:

[9] See for example: https://www.climateworkscentre.org/resource/decarbonisation-futures-solutions-actions-and-benchmarks-for-a-net-zero-emissions-australia/
[10] https://www.aer.gov.au/documents/aer-gas-quarterly-disconnection-reporting-1-march-2024



An exception to this trend was in the ACT, where policy decisions to end gas connections for new homes alongside incentives for disconnections have led to more disconnections than connections. Similar policies have been enacted in Victoria from 1 January, 2024.



This successful example shows that policy decisions beyond consumer market incentives are viable and required in order to achieve government objectives.

Further measures are required, in particular the complete phase out of new gas appliances as replacements in existing homes. Gas appliances have a typical lifespan of up to 20 years (heaters) or

15 years (hot water), with many replaced after an even longer period. The Victorian Energy Upgrades program applies a conservative assumption of a 15 year lifespan for replaced gas heaters and approximately 15 years for replaced gas hot water systems.[11] Gas appliances installed today – still typical where consumers are commonly advised to replace like-for-like appliances at the end of life – are likely to be in place beyond the necessary timeframe for rapid residential decarbonisation.

Recommendations

Recommendation 1: end new residential gas connections by 2025

We recommend an end to gas connections to new homes by 2025.

Meeting targets consistent with 1.5 degrees warming or Australia's existing commitment of net zero emissions by 2050 is incompatible with continued residential gas use. Electrification coupled with improved efficiency and the growth in renewables offers a clear strategy for the decarbonisation of Australia's residential sector. Households stand to benefit from electrification, with efficient all-electric homes already reducing energy bills.

In this context, connecting new homes to gas will levy the inevitable costs of the energy transition to households and the broader community. Stranded assets of gas appliances and connections will need to be replaced, at higher cost than simply building new homes as all-electric.

Furthermore, current compliance pathways for new homes may create perverse energy performance outcomes in which large rooftop solar is coupled with gas appliances, leading to poor optimisation of distributed energy resources in the electricity grid (such as additional exports at peak times without onsite electricity usage).

Recommendation 2: require new homes to meet zero emissions standards under 2028 National Construction Code

The 2028 National Construction Code update for residential construction offers an opportunity to ensure new homes are built to zero emissions standards. This standard must include all-electric appliances, high thermal efficiency, onsite renewables where feasible, and readiness for onsite energy storage.

This objective must be signposted immediately by government to maximise time available to industry to prepare for required changes.

Recommendation 3: full electrification and energy efficiency retrofits of existing homes by 2035

We recommend a target is set for the full electrification and retrofit of Australia's existing building stock by 2035. The mature technology available to reduce emissions in the residential sector means that this is a key opportunity to achieve significant emissions reductions in line with Australia's commitments.

New gas appliances installed as replacements in existing homes may be expected to have a lifespan of approximately 20 years or longer and are inconsistent with the targets outlined in this submission. Consumers installing gas appliances will be exposed to higher costs in years ahead as the transition from residential gas networks takes place. Immediate policy measures must be taken to require the installation of electric appliances when replacing gas heating, hot water and cooking at end of life.

[11] https://engage.vic.gov.au/veu-water-heating-and-space-heating-cooling-activities-requirements

Recommendation 4: set targets for reduction of embodied emissions (Scope 3)

Embodied emissions in the built environment are more difficult to address than operational emissions. Elements of embodied emissions are associated with processes to manufacture materials such as concrete and steel that must be addressed as part of sectoral plans. Government should set targets for the elimination of embodied emissions consistent with ambitious emissions reductions.

Recommendation 5: invest in monitoring and data collection

Very little information is available on the energy performance of most Australian homes. The vast majority of homes built before the introduction of minimum energy efficiency ratings have never been assessed for energy efficiency; limited data from pilot or community-level projects is often extrapolated to assess the scale of energy efficiency projects. A better understanding of existing energy performance would have clear benefits and provide a baseline for the implementation and monitoring of targets.

The CSIRO collects data on NatHERS certificates issued to new homes and some major renovations in the valuable Australian Housing Database. Maintaining this facility is critical to understanding the performance of Australian homes. However, significant gaps remain in our understanding of the performance of existing homes (particularly those built prior to the AHD and issueing of certificates), as well as whether the homes perform *as built* to the level modelled for NatHERS certification.

The development of the NatHERS In-home certification framework, the National Scorecard tool, energy efficiency disclosure schemes and minimum rental energy efficiency standards (see below) provide an important opportunity to fill this critical gap. A strategy should be developed to ensure that these or other tools are used to evaluate and report on the energy standards of existing homes, including gathering of data on certificate scores as in-home assessments are conducted or other appropriate measures. We note that in developing this strategy full consideration must be given to privacy and confidentiality.

Data should be collected in line with priorities in the National Energy Performance Strategy for a clear, consistent, national ratings framework. Ensuring a consistent framework is important to enable a range of effective policy measures.

Recommendation 6: embed climate resilience in built environment sector plan

A climate adaptation strategy for Australian homes should be resourced.

A key measure to consider is to ensure that ratings tools and related mechanisms should be updated to include future climate projections. Current NatHERS ratings are determined on a climate-specific basis, calculating the energy loads required for heating and cooling per square meter. The climate data used for calculating energy loads was updated with NCC 2022 from 1970-2005 to 1990-2015. This update is welcome. Nonetheless, the use of past climate data rather than predicted future climate data presents a significant risk for the climate resilience of Australian homes.[12]

Further policy development may be required to ensure that ratings tools and regulations adequately consider resilience to extreme weather events such as heatwaves, alongside average annual heating and cooling loads.

Recommendation 7: embed energy efficiency in the electrification agenda

[12] https://renew.org.au/advocacy/future-proofing-australias-homes/

Objectives for household electrification should be fully integrated with energy efficiency. Home retrofit programs or related policies must address both fuel choice and energy efficiency in order to maximise the benefits to households; regulatory or financial measures to consider include ensuring thermal efficiency is part of all electrification retrofits and ensuring high energy efficiency ratings for replacement electric appliances such as heat pumps.

There is a risk that without clear planning, energy efficiency may be deprioritised in electrification projects. This would come at a significant cost to households and result in worse outcomes for emissions mitigation and energy systems optimisation.

Recommendation 8: implement minimum energy performance standards for rental homes

The problem of split incentives leaves renters at serious risk of being left behind in the energy transition, with serious implications both for fairness and for emissions reduction.

Minimum energy efficiency standards for rental homes should be implemented, including the phased replacement of gas appliances. Efficiency standards should be ratcheted up over time in a clearly signposted process.

As a member of the Healthy Homes for Renters alliance, Renew is a signatory to the *Community Sector Blueprint* proposal for a national framework on minimum energy performance standards for rental homes.[13] Full details of implementation considerations and priorities are available in this document.

Recommendation 9: ensure best practice energy performance in new social housing and upgrade existing public housing

Governments must set a target for minimum energy performance levels for all social housing, and commit to retrofit programs. Social housing does not present the same split incentive problem as private rental. Rental providers – governments in the case of public housing, or community housing providers in the case of community housing – are responsible for ensuring social housing meets energy standards. This reduces the barriers to retrofitting homes, and offers a potential opportunity for growing industry capacity for home energy retrofits through government investment. In the case of community housing providers, government funding or other support for retrofits may be appropriate.

A large-scale build of new, best-practice energy efficient and all-electric social housing is an important opportunity to build industry capacity, training and supply chains for best practice residential energy performance, while simultaneously responding to large and growing social housing waiting lists. Jurisdictions should commit to above-minimum standard NatHERS ratings and efficient all-electric appliances in all new social housing.

Recommendation 10: financial support for retrofits, with priority focus on low-income households

Financial or other direct support is required to households to undertake retrofits for energy efficiency and electrification. We recommend that governments develop fully funded programs to incentivise and deliver home retrofits.

Models for incentives and programs include rebate schemes; no-interest loans; direct funding for assessments and retrofit; and tailored programs delivered by third parties such as local councils, community organisations or the private sector.

[13] https://www.healthyhomes.org.au/news/community-sector-blueprint

Programs and financial incentives should prioritise low-income households, who face the highest barriers to improved home energy performance. Tailored approaches are needed to ensure equitable access; consideration should be given to the role of local government, community organisations, and other potential community partners.

Recommendation 11: implement mandatory disclosure of energy efficiency ratings at point of sale and lease

Government should set a target date for the introduction of mandatory disclosure of energy efficiency ratings at the point of lease, and continue to develop the required framework for a consistent national ratings system.

Without a mandatory disclosure system, in practice consumers are simply unable to access clear information about energy performance prior to buying or renting a home.[14] Voluntary ratings disclosure is limited to high-performing homes, limiting its effectiveness as a mechanism for lifting the standard of the majority of the housing market.

The mandatory disclosure framework should be built on a nationally consistent and accessible ratings scheme.

A mandatory disclosure scheme is highly consistent with the introduction of a performance-based minimum standard for the energy performance of rental homes.

Recommendation 12: resource consumer information and advocacy

Trusted community information and advice is important to ensure and maintain social licence for ongoing improvements to Australia's residential energy performance, and should form a key component of government strategy.

Clear and accessible information on energy performance, government programs, ratings, financial support, and industry should be appropriately resourced. A one-stop shop for information, advice and referrals to providers is an important gap that we believe is limiting the uptake of home energy performance improvements. Renew provides independent advice on home energy performance through events, publications and advice services; our experience suggests that for many households finding sources of information or services is challenging, and key construction, renovation or purchase decisions are too often made without clear information on energy performance. Government should consider how to fill this gap and ensure consumer advice is adequately resourced.

Consumer advocacy should be resourced to ensure that consumer needs are built into policies and programs, and that the interests of households are effectively represented in the context of the broader energy transition.

Other matters

Thank you for your consideration of this submission.

Our submission has focused on specific aspects of the consultation paper and policy; lack of comment on other matters does not indicate a Renew position.

[14] https://environmentvictoria.org.au/2020/08/14/home-truths/

Should you require any further information or clarification, please do not hesitate to contact me at rob.mcleod@renew.org.au.

Yours faithfully,

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Policy and Advocacy Manager
Renew