

To whom it may concern,

Thank you for the opportunity to give feedback to the National Adaptation Plan issues paper.

Renew is a national not-for-profit organisation providing independent sustainability advice to households and representing the needs of households in the energy transition.

This short submission is in response to section 4.2 of the issues paper, Infrastructure and built environment system. A lack of comment on other aspects of the issues paper does not indicate an opinion.

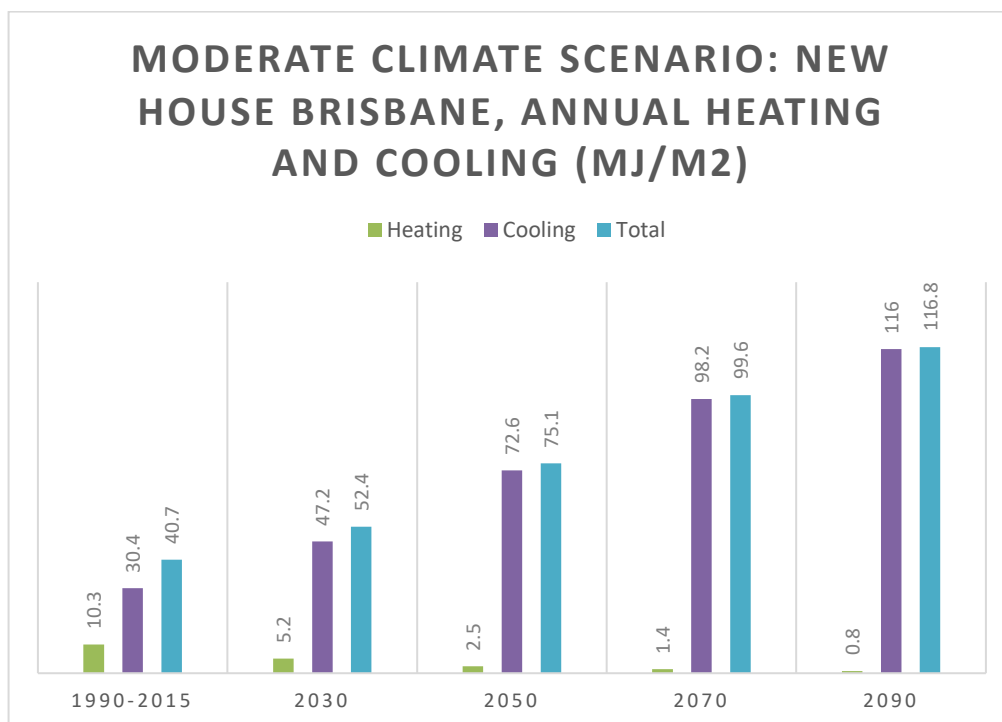
The impacts of a changing climate on home energy usage and resilience

Recent research conducted by Renew and Sweltering Cities has found that a changing climate is expected to significantly impact on home energy usage for heating and cooling, while furthermore increasing exposure to high indoor temperatures.

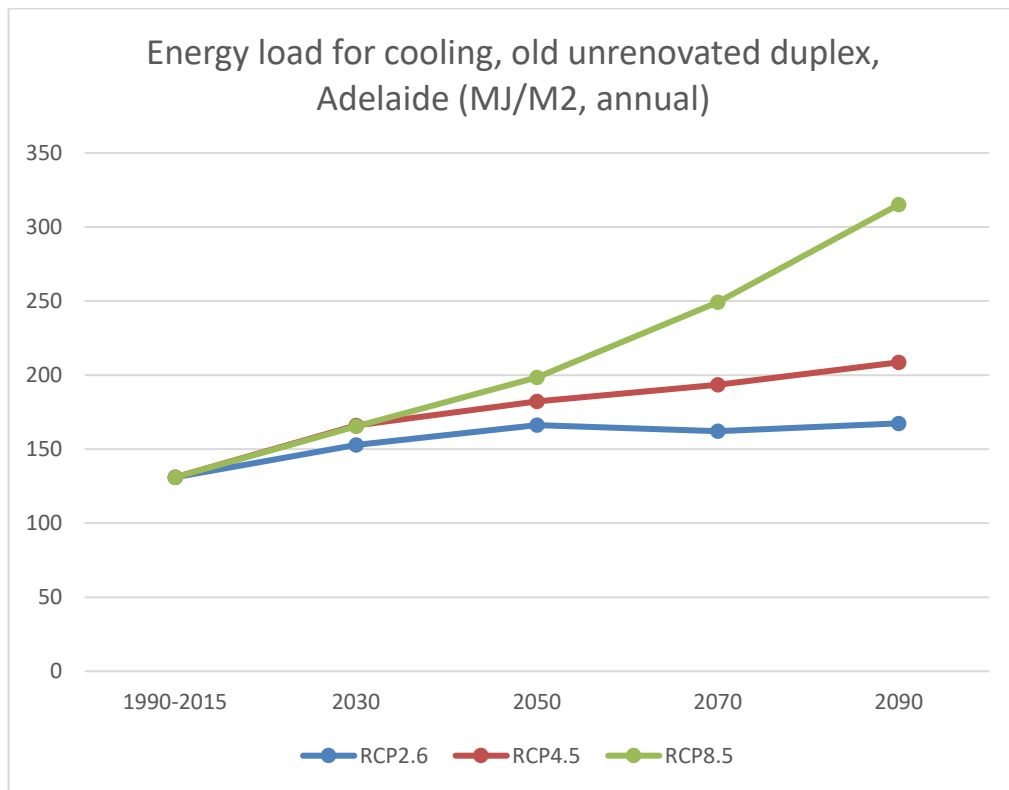
Climate data used to calculate NatHERS energy ratings is drawn from the period 1990-2015. The use of historical climate data to generate a *Typical Meteorological Year* would generally be considered best practice, however the impacts of climate change mean that this data is not fit for purpose. Homes are being built for a 1990s climate rather than a 2050s climate.

Our analysis applies predictive CSIRO climate data to eight case study homes in Melbourne, Brisbane, Adelaide, and Cairns. **The analysis has been provided as a supporting document to this submission.**

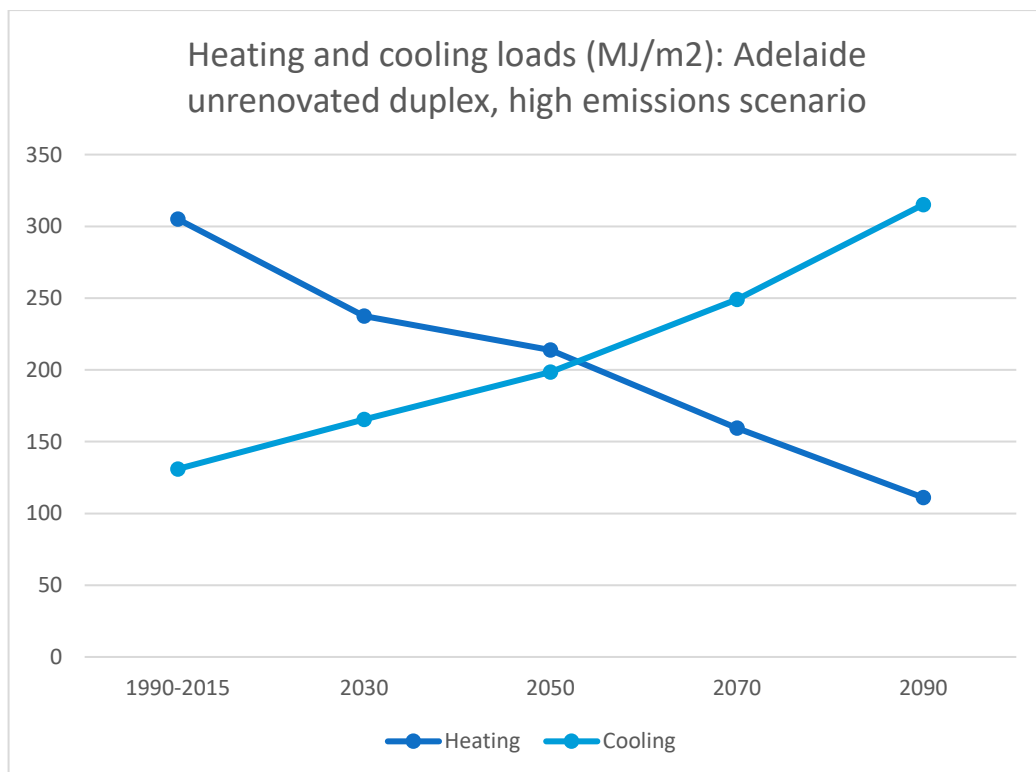
Key findings include that energy loads for cooling are projected to increase significantly even under moderate climate conditions:



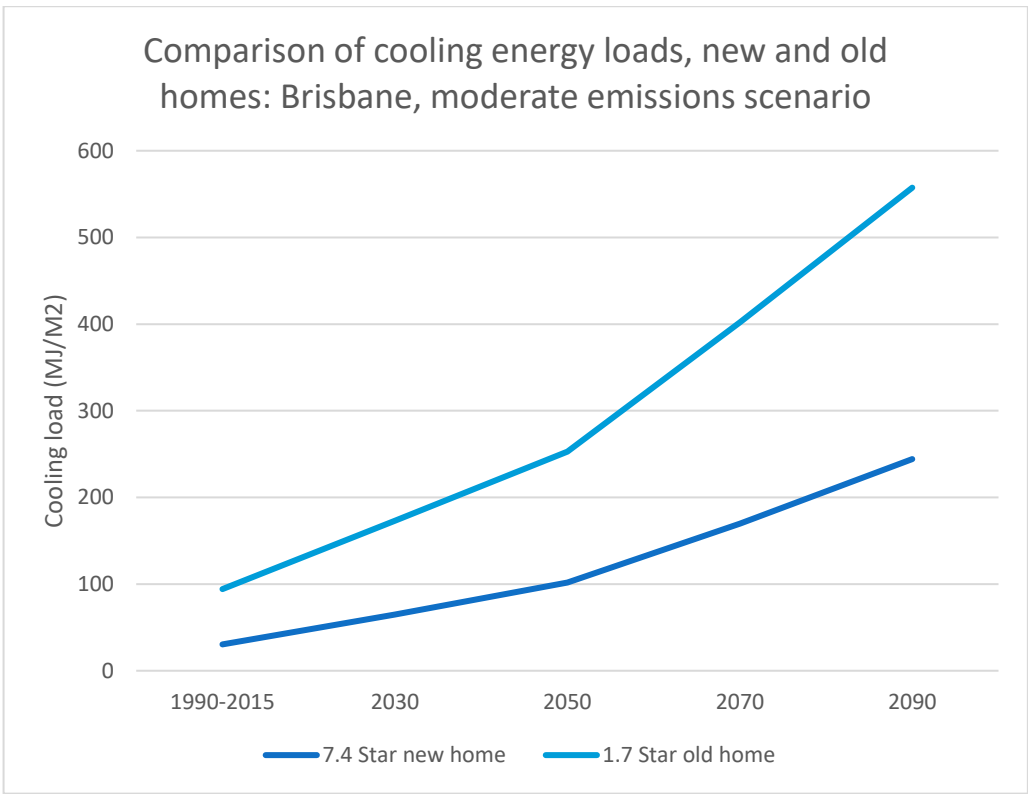
The level of global emissions mitigation and resultant climate change impacts are projected to impact home cooling energy loads:



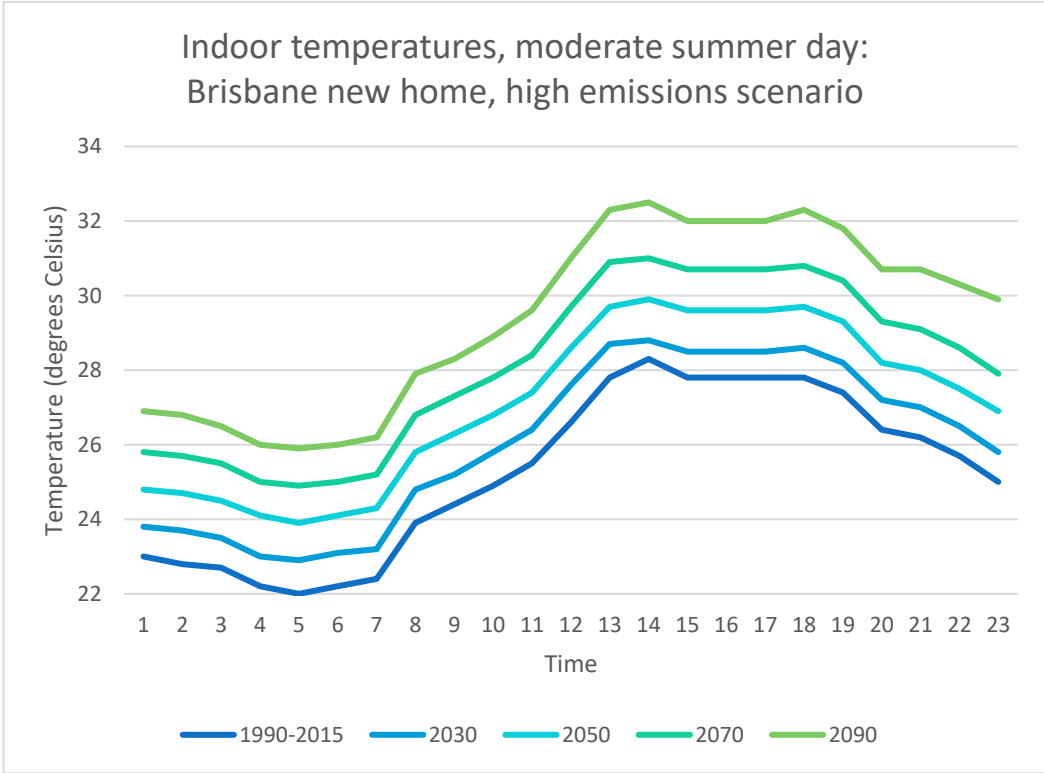
In some locations, a heating-dominated climate is projected to transition to a cooling-dominated climate this century under a severe (RCP 8.5) climate change scenario:



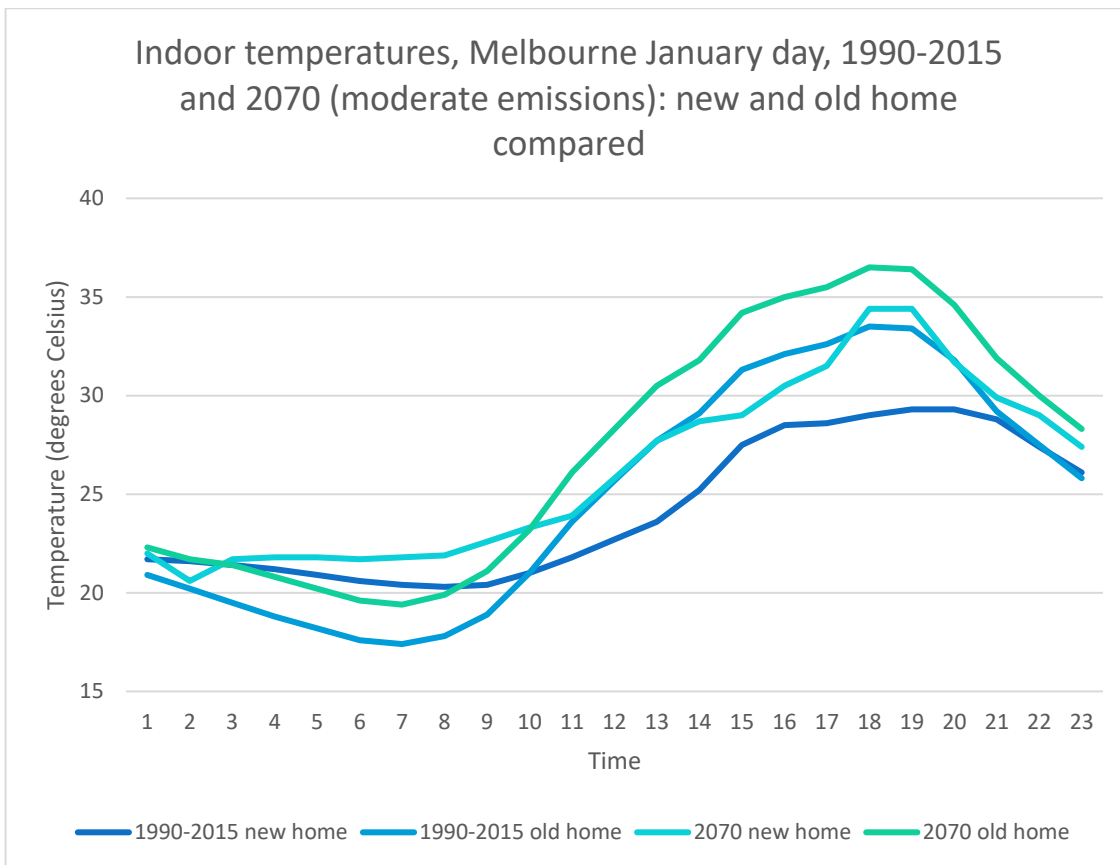
Improved thermal efficiency of homes (through measures like insulation, glazing, shading, draught sealing) reduces the projected increase in cooling loads:



Indoor temperatures for homes not using mechanical cooling are projected to increase, potentially making some homes unfit for safe habitation without the use of air conditioning:



Even a home built to a high 7-Star NatHERS rating in 2024 will experience summer indoor temperatures in 2070 as high as a poorly performing 1.1-Star uninsulated home did in the 1990-2015 period:



The above analysis is developed on the basis of *Typical Meteorological Year* methodology, and does not take into account the risk of extreme heat events.

There are significant implications from the impacts of climate change on home energy use and design for occupant health and for energy demand, particularly at peak times where increasing cooling loads will place additional pressure on energy networks. We believe it is critical that adaptation strategies plan for these outcomes.

Recommendations

We strongly urge action to embed the future climate resilience of homes into the National Construction Code, energy ratings, and relevant built environment planning mechanisms across jurisdictions.

A key measure needed is to embed predictive future climate data in energy ratings frameworks. Alongside annual average energy use, ratings tools should be developed to assess resilience under extreme conditions such as heatwaves.

The National Construction Code should adopt a performance requirement for new homes of future climate resilience based on projected climate scenarios.

We furthermore urge an ambitious strategy to accelerate and expand home energy retrofits, with a particular focus on households facing existing barriers such as renters and low-income households.

Other issues

As the recipient of the 2023 Gill Owen Scholarship from Energy Consumers Australia, I travelled to Spain to research responses to heatwaves following the historic extreme heat conditions and energy system challenges experienced in 2022-23. Further to this submission and the attached analysis referred to above, the

report of this research is available at: <https://renew.org.au/research/extreme-heat-resilience-lessons-from-spain-for-australia/>

Recommendations highlighted in this report include:

- Australia's National Adaptation Plan must address the risk of increasingly extreme heat events;
- Australia should adopt a system of naming heatwaves;
- the needs of vulnerable communities and households should be at the centre of Australia's heatwave response;
- Australia should extend policies to improve the resilience and energy efficiency of homes;
- Australia's response should not depend solely on air conditioning;
- and Australia should measure and assess the resilience of cities and communities to extreme heat.

Thank you for your consideration of this submission. Please do not hesitate to contact me at rob.mcleod@renew.org.au should you wish to discuss any matter referred to. I would welcome any opportunity to provide further information or to engage with the consultation process.

Yours faithfully,



Rob McLeod

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Renew