Legislative Council Environment and Planning Committee
Submitted online

24 April 2024

Re: Inquiry into Climate Resilience in Victoria

The Energy Efficiency Council (EEC) welcomes the opportunity to comment on the Inquiry into Climate Resilience in Victoria.

The EEC is Australia's peak body for energy management, electrification, and decarbonisation with a membership of businesses, universities and governments working to guide Australia on the path to an efficient, prosperous net zero economy.

Ensuring the built environment is resilient to the future impacts of climate change is imperative to the health, wellbeing, and prosperity of Victorians. Energy efficiency has a key role to play in building this resilience – as outlined below.

Energy efficiency is critical for the health and wellbeing of Victorians in a warming climate.

In addition to emissions reductions and cost savings, energy efficiency delivers more comfortable, healthier homes. Energy efficient technologies like insulation and double-glazed windows boost the thermal performance of homes, keeping them warmer in winter and cooler in summer, which contributes to improved comfort and health outcomes for occupants by ensuring air temperatures are maintained in a healthy range.

If global temperatures continue to increase, in the 2050s Victoria may experience double the number of very hot days, as well as longer fire seasons with double the number of high fire danger days.[1] As the Victorian climate becomes warmer and drier, the thermal performance of homes will become increasingly important to the health of Victorians.

The Victorian Healthy Homes Program demonstrated this effectively in vulnerable households. The households subject to the program received modest energy performance upgrades, with a priority focus on energy efficiency and warmth.[2] Analysis indicated that these relatively minor upgrades had wide-ranging benefits, including healthcare savings of almost $900 per person over the winter period. In fact, for every $1 saved in energy, more than $10 was saved in healthcare.[3] Programs in New Zealand[4] and the UK[5] have shown similar results and demonstrate a clear link between thermal performance, energy efficiency, and many areas of health.

The average star-rating of a Victorian home is just 1.8 stars,[6] whereas the current standard for new builds is significantly higher, at 7 stars.[7]

[1] DEECA, Victoria's changing climate.
[2] Sustainability Victoria, The Viictorian Healthy Homes Program Research findings, 2022.
[3] Ibid.
[4] Grimes et al., Cost Benefit Analysis of the Warm Up New Zealand: Heat Smart Programme Ministry of Economic Development, 2012.
[5] Gilbertson et al., 'Home is where the hearth is: Grant recipients' views of England's Home Energy Efficiency Scheme (Warm Front)', *Social Science & Medicine vol. 4 issue 4*, 2006, pp. 946-956.
[6] Sustainability Victoria, Energy Efficiency Upgrade Potential of Existing Victorian Houses, 2015.
[7] Department of Energy, Environment and Climate Action, 7-star-energy-efficiency-building-standards.

Despite the wide quality gap between newer builds and much of Victoria's existing housing stock, there are very few policy drivers in place to stimulate meaningful improvement in the quality and climate resilience of existing Victorian homes.

Victoria's poorest performing housing stock offers the biggest opportunity for improvement. For example, it is possible to take a Melbourne home from a 1 to 4 star NatHERS home energy rating[8] through insulation alone, and deliver an energy reduction of about 65 per cent.[9] This can have a material impact on the long-term health and comfort of the occupants, while taking pressure of the energy system during times of peak demand.

Victorian homes are vulnerable to the impacts of climate change, and the energy ratings we use to design them are not yet responding to the threat.[10] Newly built, thermally efficient homes are still expected to outperform older homes in resilience to heat, however climate change will put this resilience under pressure. Recent modelling found that by 2070, a 7-Star home built in 2024 will face similar indoor temperatures during hot summer conditions as a 1.1-Star uninsulated home does today.[11] Meanwhile, if left unrenovated, that 1.1-Star home will face even more extreme indoor temperatures.[12] This is an important consideration for Victoria when planning for the climate resilience of the built environment now and into the future.

It is imperative to ensure policy and regulatory settings support climate resilience in the worst performing homes and buildings and reach the most vulnerable Victorians, who are disproportionately impacted by poor quality housing.

In support of the above, the EEC encourages the Victorian government to:

- Introduce minimum energy efficiency standards that ensure that adequate insulation, as well as other efficient appliances, are in place in rental properties;
- Implement mandatory disclosure of energy efficiency ratings at the point of sale of property;
- Work with relevant stakeholders to undertake comprehensive insulation retrofits to all social housing, including public and community housing, by 2030; and
- Implement programs and incentives that increase the uptake of efficient, electric appliances as well as thermal performance upgrades.

Improving energy performance boosts the climate resilience of the energy system.

Buildings with a high standard of energy efficiency and thermal performance place the lowest demands on the grid by reducing the volume of energy needed to run them, particularly during weather extremes. Improving the energy performance of the built environment therefore makes a significant contribution to strengthening the climate resilience of the electricity grid by reducing demand at times of significant grid stress.

Energy demand from the residential sector, particularly space heating, is the most mis-aligned with the periods of supply of low-cost renewable energy (principally solar PV), so efforts to reduce heating and cooling load through improving the thermal performance of buildings – combined with smart technologies to shift the times energy is consumed – can have a significant impact on reducing

[8] NatHERS, Home Energy Ratings.
[9] Sustainability House, Residential improvements project: cost-effective energy efficiency improvements for a sample of new apartments, and existing houses and apartments in Australia, (2013), Pure Electric, What does the home energy star (NatHERS) rating system actually mean in terms of home heating?, (2019).
[10] Renew, Building for a changing climate, 2024.
[11] Ibid.
[12] Ibid.

the amount of new supply infrastructure (such as storage) required to cover Victoria's residential energy demand. This has the added benefit of reducing costs: As efficient buildings reduce the amount of energy our networks need to supply, the size – and cost – of the entire system can be lowered[13].

Victoria's ambitious renewable energy and storage targets will be a major step towards improving the resilience of the electricity grid, particularly due to its current reliance on ageing, increasingly unreliable fossil fuel assets that are water and emissions intensive. However, given challenges to deploying large-scale renewable generation such as offshore wind and transmission infrastructure,[14] the Victorian Government would be prudent to invest in the demand side as a matter of priority, to both bolster the resilience of the grid and hasten the transition away from fossil fuels.

There are broader opportunities for strengthening climate resilience in the built environment beyond buildings themselves.

Smart urban planning that applies passive design principles offers an opportunity for the built environment to support both energy efficiency and climate resilience. Good examples of passive design include shading devices, and increased canopy cover in cities to decrease radiative heat in public spaces and buildings. This reduces energy use while mitigating the urban heat island effect.[15]

Successfully adapting to climate change also requires thinking holistically about the ways in which systems intersect, and proactively seeking opportunities to address multiple problems at once.

For example, with increasing probability of drought events in the future, saving water where possible is essential to helping boost the adaptive capacity for Victorians, and the energy system they rely on. Measures to address water scarcity can have positive impacts for energy system reliability (particularly where thermal and hydropower is used).[16] Minimising leaks and utilising water efficient appliances also helps to improve both water and energy efficiency by reducing the energy needed to pump and heat water.[17]

The EEC would welcome the opportunity to discuss these matters in more detail. Should you wish to speak further, please contact Rachael Wilkinson on [redacted] or at [redacted].

Sincerely,

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Energy Efficiency Council

[13] EEC and ANZ, Putting energy efficiency to work, 2023.
[14] ABC News, Federal government formally declares Southern Ocean offshore wind zone, 2024.
[15] NSW Government, *AdaptNSW – Climate change impacts on urban heat*, 2024.
[16] IEA, *Introduction to the water-energy nexus*, 2020.
[17] DCCEEW, *Water efficiency*, 2024.