Power Shift

Healthy and comfortable homes for all Australians

Background paper | September 2018

ENERGY CONSUMERS AUSTRALIA

Consumers call for industry and government to set higher standards for Australian homes

As a community we urgently need policies in place to ensure that all Australians can afford the energy they need to have a healthy and comfortable home.

Energy is an essential service, and integral to delivering the health of people and communities. Any effort to bring down energy bills must include housing as part of the equation.

The poor energy performance of our homes and significant increases in energy costs over the past decade mean that many of us are now living in homes that are damp, too cold in winter and too hot in summer.

Living in these homes, dealing with high electricity bills, and going without the energy we need to live comfortably, can lead to financial stress, poor health and make it harder to work, to get an education or to be a part of the community.

In research commissioned by Energy Consumers Australia, ACIL Allen Consulting outlined the range of impacts of poor energy efficiency, including on health and wellbeing. Respected medical journal *The Lancet* reported that each year more than 6% of deaths in Australia are due to the effects of cold while a further 1% are heat related.[1] When housing costs are taking into account, almost 3 million Australians are estimated to be living in poverty.[2] For those with high housing costs and, in particular, those living in rental properties - who have little control over energy efficiency standards in their home, and less capacity to buy efficient appliances - the risk of high electricity bills or living without the energy they need is even greater.

This is an urgent affordability, health and economic challenge that needs a coordinated, national and ongoing response.

We are therefore calling for

1. Improved energy performance standards for new homes and major renovations
2. Improved energy performance standards for existing homes, including fixed appliances.

This Background Paper has been developed through Power Shift, funded by the Commonwealth Government.

Energy Consumers Australia commissioned ACIL Allen Consulting to collate the following research on the impacts of poor energy efficiency in residential housing. The following draws heavily on the *Multiple Impacts of Household Energy: An Assessment Framework*, a tool for policy-makers to help them understand the full range of benefits associated with best practice energy efficiency measures. That report is available on the Energy Consumers Australia website.

ACIL ALLEN CONSULTING

[1] *Mortality risk attributable to high and low ambient temperature: a multicountry observational study*, www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)62114-0/fulltext. By way of comparison cold related deaths in Sweden were 3.9% of deaths.

[2] ACOSS (Australian Council of Social Services) 2016, *Poverty in Australia 2016*, Canberra, https://www.acoss.org.au/wp-content/uploads/2016/10/Poverty-in-Australia-2016.pdf, page 11

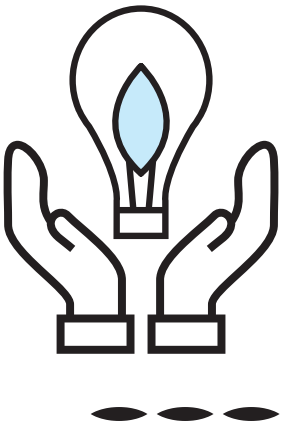
Benefits of improved energy performance

Improving the energy performance of our homes provides a broad range of benefits. Homes that have better energy performance:

- can significantly reduce our energy bills
- are more comfortable to live in — our homes are warmer in winter and cooler in summer, and have less damp and mould
- are positive for our health – including:
  - improved mental health, due to reduced financial stress related to energy bills
  - improved physical health, for instance, decreased respiratory disease, cardiovascular disease, allergies, arthritis and rheumatism
  - fewer deaths during extreme hot and cold weather
- improve the quality of our family life by improving the liveability of our homes
- can have higher resale values
- are more environmentally sustainable.

Improving the energy performance of our homes also benefits the Australian community. More efficient homes will:

- increase the resilience of the electricity grid during times of peak demand, reducing current and future costs
- decrease carbon emissions
- lower healthcare spending
- increase economic growth and employment.



Costs of homes with poor energy performance

Higher energy bills

People living in poor energy performing homes pay higher energy bills or live less comfortably because they refrain from using heating or cooling to avoid paying higher bills.

Improving the efficiency of homes will benefit consumers. For instance, in the ACT, retrofitting a home with insulation, draught proofing and efficient appliances can save about $700 per year and reduce energy use by up to 50%. Installing a solar hot water system can increase this saving to about $1,500 and reduce energy use by about 80% annually.[1] Similar results have been found in Victoria, where households can save about 45% on their energy bills through greater energy efficiency.[2]

Increased mortality

Homes that are too cold or too hot, particularly during hot and cold weather spells, can lead to an increase in mortality.

Cold weather contributes towards 6.5% of all deaths in Australia and hot weather contributes towards a further 0.5% of deaths.[3]

A recent study found that the mortality rate from events similar to the 2009 Melbourne heatwave might be reduced by 90% if all houses with lower energy star ratings are upgraded to a minimum 5.4 star energy rating.[4]

Increased allergies and respiratory diseases

Excess cold and indoor humidity or dampness can generate and aggravate a range of illnesses, including allergies and respiratory diseases such as asthma. In addition, excess dampness can lead to mould growth, which has further negative health impacts.[5]

Exposure of Australian children to damp housing is associated with 7.9% of the total asthma burden in children aged 14 years or under.[6]

Europeans living in damp or mouldy homes are reported to be 40% more likely to have asthma[7]. 21% of the asthma cases reported in the USA are attributable to dampness and mould exposure in the home.[8]

In New Zealand, people living in insulated houses are found to have about half the rates of reporting respiratory symptoms as those living in uninsulated houses, and also have reduced odds of reporting colds or flu. Children living in these houses also have lower odds of reporting asthma symptoms and of missing school due to illness.[9]

Increased public health spending

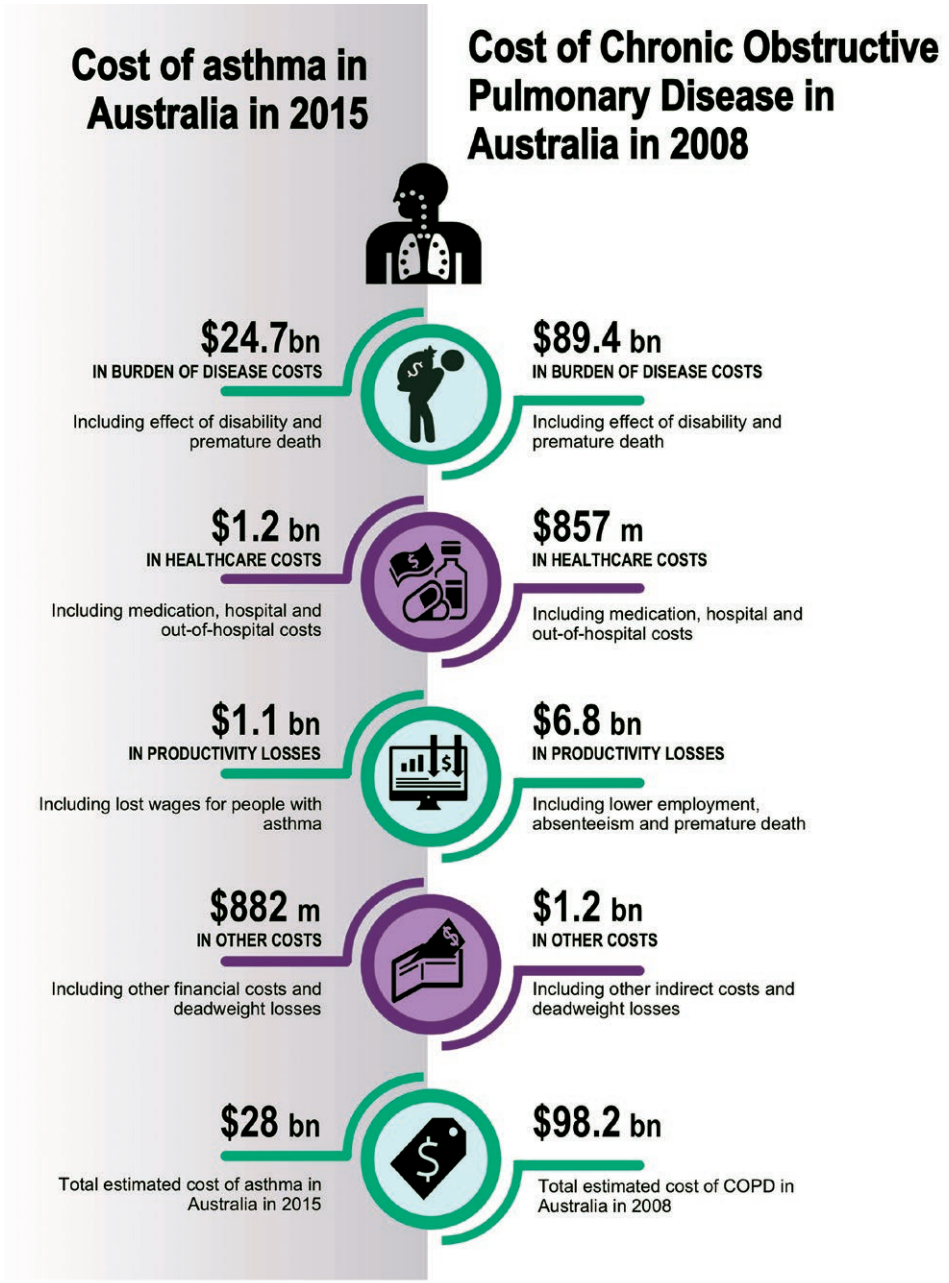
Poor energy performing homes affect not only Australians' health and comfort, but they also have an impact on the economy overall through increases in public health spending.

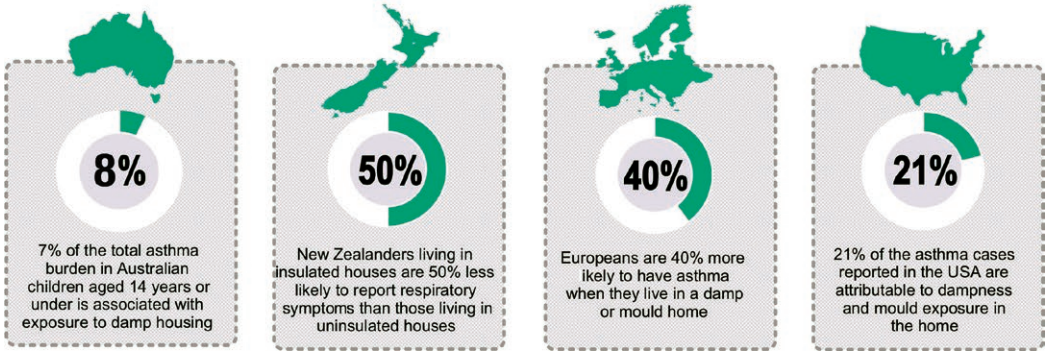
The economic impact of respiratory diseases associated with poor energy performing homes is significant.

The cost of asthma to the Australian community in 2015 was $28 billion, or around $11,740 per person with asthma. Around $1.2 billion of this was a direct cost to the health system, including medication, hospital and out-of-hospital costs. Another $2 billion was productivity costs, other financial costs (such as the costs of respite for informal carers, costs of formal care, special equipment, travel and accommodation costs to access health services, the cost of other government programs, asthma research, and funeral costs) and deadweight losses (the cost of inefficiencies and distortions in the economy as a result of asthma's negative impacts). The biggest component of the cost of asthma was the burden of disease, calculated as $24.7 billion (which includes the effect of disability and premature death).[10]

The cost of Chronic Obstructive Pulmonary Disease (COPD) to the Australian economy in 2008 was $98.2 billion. Of this: $6.8 billion was productivity losses due to lower employment, absenteeism and premature death of Australians with COPD; $0.9 billion was a direct cost to the health system; $0.3 billion was other indirect costs such as aids and home modifications and the bring-forward of funeral costs; and $0.9 billion was deadweight losses from transfers, including welfare payments and forgone taxation. The biggest component of the cost of COPD was the burden of disease, calculated as $89.4 billion (which includes the effect of disability and premature death).[11]

[1] www.environmentcommissioner.act.gov.au/ data/assets/pdf_file/0006/590829/ocse_factsheet_retrofit_050710.pdf
[2] Sustainability Victoria, Victorian Households Energy Report, 2014, page 1.
[3] Antonio Gasparrini, Yuming Guo, Masahiro Hashizume, Eric Lavigne, Antonella Zanobetti, Joel Schwartz, Aurelio Tobias, Shilu Tong, Joacim Rocklöv, Bertil Forsberg, Michela Leone, Manuela De Sario, Michelle L Bell, Yue-Liang Leon Guo, Chang-fu Wu, Haidong Kan, Seung-Muk Yi, Micheline de Sousa Zanotti Stagliorio Coelho, Paulo Hilario Nascimento Saldiva, Yasushi Honda, Ho Kim, Ben Armstrong. Mortality risk attributable to high and low ambient temperature: a multicountry observational study, The Lancet, Vol. 386, July 2015.
[4] Alam, N, Sanjayan J, Zou P X W, Stewart M and J. Wilson (2016), "Modelling the correlation between building energy ratings and heat-related mortality and morbidity", Sustainable Cities and Society, 22:29-39.
[5] ACIL Allen Consulting 2017, Multiple impacts of household energy efficiency: an assessment framework, report prepared for Energy Consumers Australia, October.





[6] Knibbs L.D., Woldeyohannes S., Marks G.B., Cowie C.T. 2018, Damp housing, gas stoves, and the burden of childhood asthma in Australia, Medical Journal of Australia, Apr 16;208(7):299-302.
[7] ECOFYS, Fraunhofer and Copenhagen Economics and Velux 2017, Healthy homes barometer 2017.
[8] Mudarri, D. and Fisk, W.J. 2007, Public health and economic impact of dampness and mold, Indoor Air, 17: 226-235.
[9] Howden-Chapman P, Metheson A, Cran J, Viggers H, et al (2007), "Effect of insulating existing houses on health inequality: cluster randomised study in the community", British Medical Journal, doi:10.1136/bmj.39070.573032.80.
[10] Deloitte Access Economics (DEA) 2015, The Hidden Cost of Asthma, report prepared for the Asthma Australia and National Asthma Council of Australia, November.
[11] Access Economics 2008, Economic Impact of COPD and Cost Effective Solutions, report prepared for the Australian Lung Foundation.

The opportunity

"We are calling on governments to develop a comprehensive, national strategy to improve the energy performance standards of all Australian homes for the benefit of consumers"

Improving the energy performance standard of our homes is an opportunity to benefit consumers and the community through:

- lower energy bills – an increase of one-star equivalent rating in the National Construction Code, would improve all new homes and major renovations and could reduce energy costs by up to $900 annually according to a recent study by the Australian Built Environment Council (ASBEC) and Climateworks Australia [1];
- improved comfort levels - potentially improving health and mortality rates, resulting in economic and social benefits including lower spending on public health[2];
- improved resilience of the electricity system – with fewer blackouts, lower peak demand and at a lower cost according to ASBEC[3]; and
- reduced emissions[4] – according to a 2014 CSIRO study[5].

This is a problem that is getting worse. Another 1 million homes could be built in the next three years, adding to the 10 million existing homes.

Consumers are asking governments and industry together to adopt a clear pathway to improve the energy performance of all Australian homes.

This pathway should start with new measures to support informed consumers and improved compliance with minimum standards from 2020, followed by a step change in the minimum performance standards for new homes and major renovations from 2022 and in each following 3-yearly update of the National Construction Code.

Energy Consumers Australia is calling for action on two fronts.

1. Improve the energy performance standards for new homes & major renovations, including fixed appliances

The current review of the National Construction Code - to be implemented in 2022 – is an opportunity to set higher standards for new homes.[6]

These standards should ensure that the energy needed to maintain a comfortable living environment is significantly less and contributes to Australia's emissions reduction targets.

We ask that the Council of Australian Governments Energy Council (the Energy Council) at its December 2018 meeting agree to:

- from 2020:
  - implement mandatory minimum energy performance standards for rental properties;
  - provide consumers with user-friendly information and tools to understand energy performance "star" ratings, and the potential long-term benefits of energy efficiency, to encourage take-up beyond the minimum performance standard (voluntary disclosure);
  - work with industry to ensure effective compliance with minimum standards through skills training and incentives, and improved mechanisms for dispute resolution and redress;

[1] Built to Perform, August 2018, https://www.asbec.asn.au/research-items/built-perform/. This is achieved through improving air tightness, increasing insultation, requiring double glazed windows, installing adjustable outdoor shading or larger eaves, ceiling fans and increasing the efficiency of air conditioning, lighting and domestic hot water systems.

[2] ACIL Allen Consulting Multiple Impacts of Household Energy Efficiency: An Assessment Framework 2017, report to Energy Consumers Australia, available at http://energyconsumersaustralia.com.au/wp-content/uploads/Multiple-Impacts-of-Energy-Efficiency-An-Assessment-Framework.pdf

[3] Built to Perform, August 2018, https://www.asbec.asn.au/research-items

[4] Australian homes account for around 24 per cent of electricity demand (with households contributing disproportionately to electricity demand during peak periods) and over 11 per cent of Australia's greenhouse gas emissions. Department of the Environment and Energy, Australian National Greenhouse Accounts: National Inventory by Economic Sector, February 2018, page 2

[5] CSIRO, The Evaluation of the 5-Star Energy Efficiency Standard for Residential Buildings, December 2013, page 14

[6] See the Trajectory for low energy homes, http://www.nathers.gov.au/newsletters/issue-5-december-2017/residential-buildings-trajectory

- from 2022
  - improve minimum performance standards for residential buildings, commencing with a significant step change in the energy efficiency requirements in the National Construction Code from 2022, increasing every 3 years;
  - extend the National Construction Code to include minimum performance standards for fixed appliances (a whole-of-building approach); and
  - strengthen the requirements of the National Construction Code to apply to a greater number of major renovations in existing homes.

2. Improve the energy performance standards of existing homes, including fixed appliances

Over 9.5 million homes were built before minimum energy efficiency standards were introduced for residential buildings in 2005. We see value in developing a pathway to improve the energy performance of existing homes, prioritising improvements in rental properties. This should develop in close consultation with consumer groups.

The pathway should include reviewing international experience for schemes that have been effective in improving the energy performance of the stock of existing homes over time, for example *Warmer Homes Scotland* and *Warm Up New Zealand.*

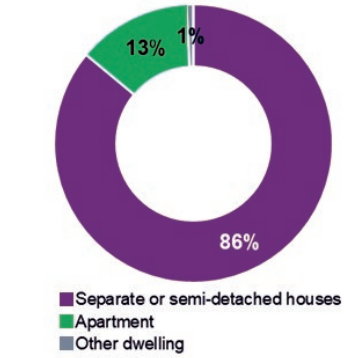
It could ensure that the full range of co-benefits of improved energy efficiency, including health outcomes, are incorporated into any cost-benefit analysis of its recommendations.

From 2021 the package of measures adopted by governments could include consideration of:

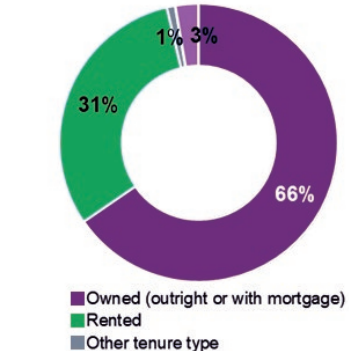
- progressively increasing a mandated minimum energy efficiency performance standard for rental properties:
- introduce mandatory disclosure of energy performance for all buildings when they are sold and leased;
- incentives to landlords to upgrade rental properties, including investigating potential tax mechanisms;
- review mechanisms for tenants to initiate upgrades to their homes or fixed appliances improve their homes, that facilitates landlord support;
- information and incentives for home owners to upgrade their homes; and
- related measures including obligations on energy companies to achieve annual energy efficiency reductions, disclosure and information obligations on real estate companies and lending institutions.

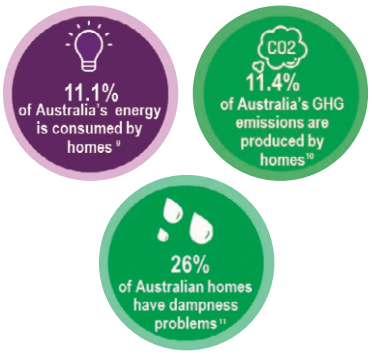
10 million private dwellings in Australia[7]

86% of Australians live in separate or semi-detatched houses

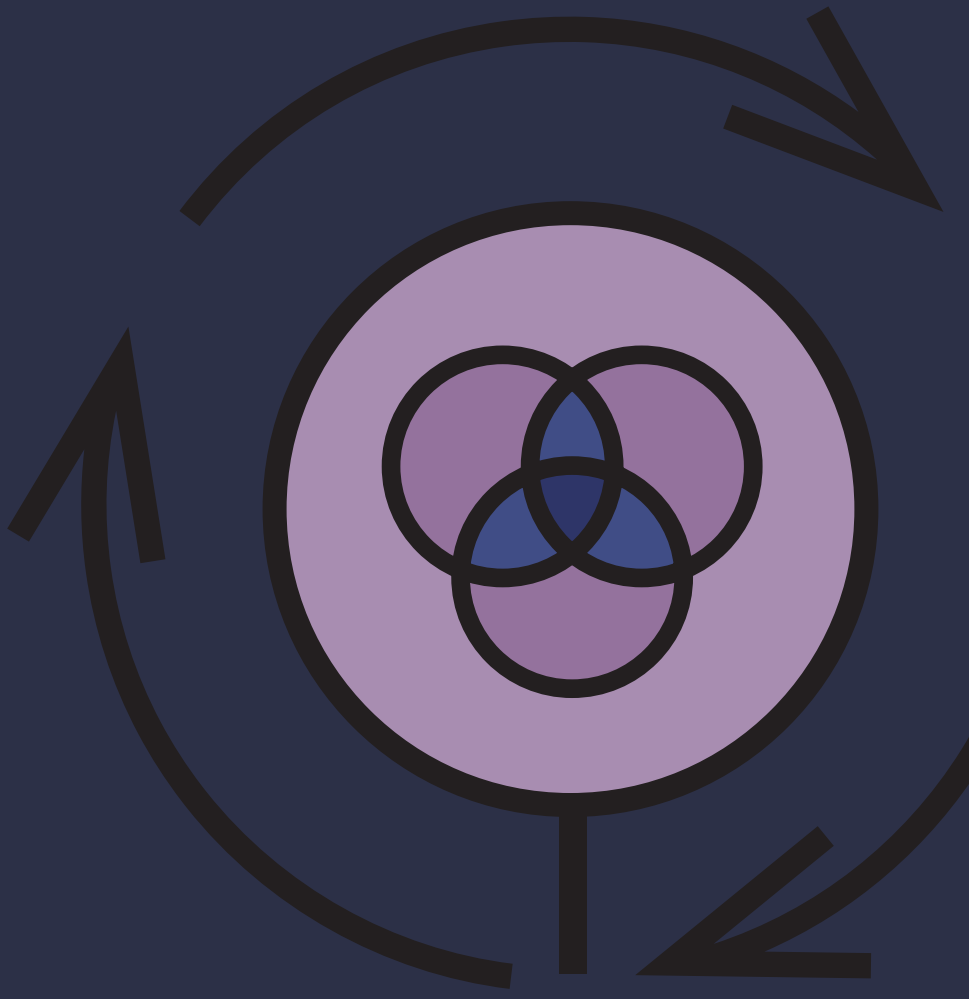


66% of Australians homes are privately owned [8]





[7] Australian Bureau of Statistics 2018, Residential Dwellings: Values, Mean Price and Number by State and Territories, March.
[8] Australian Bureau of Statistics 2017, 2016 Census QuickStats.
[9] Department of Environment and Energy 2017, Australian Energy Update, August.
[10] Department of the Environment and Energy 2018, Australian National Greenhouse Accounts: National Inventory by Economic Sector, February
[11] Knibbs L.D., Woldeyohannes S., Marks G.B., Cowie C.T. 2018, Damp housing, gas stoves, and the burden of childhood asthma in Australia, Medical Journal of Australia, Apr 16;208(7):299-302.



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