GOVERNMENT/REGULATIONS < >

Here’s our chance to relieve energy poverty through post COVID stimulus

BY SARA WILKINSON, CAROLINE PORTO VALENTE & ALAN MORRIS; UNIVERSITY OF TECHNOLOGY SYDNEY < HTTPS://WWW.THEFIFTHESTATE.COM.AU/AUTHOR/SARA-WILKINSON-CAROLINE-PORTO-VALENTE-UNIVERSITY-OF-TECHNOLOGY-SYDNEY/> / 17 SEPTEMBER 2020

A shocking number of Australians experience energy poverty and its only expected to get worse post-Covid as people spend more time at home. But there's tried and tested tactics to alleviate energy poverty and boost the economy at the same time.

Australia faces three major, growing challenges in the energy sector; reducing greenhouse gas emissions; increasing energy security and reliability, particularly during peak demand and extreme weather events such as heatwaves and ensuring affordable energy services for vulnerable households in a poorly regulated market.

The affordability issue underlies energy poverty, an emerging concern resulting from high energy prices, low incomes, and poor housing energy efficiency.

Energy poverty – characterised by the inability to pay energy bills, restricted energy consumption to the detriment of health and wellbeing, and having relatively low income so spending a high proportion of it on energy – is a problem for millions of people across the world, including in Australia.

This is not likely to change – the impact of climate change, temperature extremes and post-COVID trends of spending more time at home is increasing household energy expenditure as we speak.

In addition, most of Australia's existing housing stock is old and was constructed prior to the introduction of the first national housing minimum energy efficiency requirements in 2005.

How bad is energy poverty and who is most affected?

Around **one in four < https://library.bsl.org.au/jspui/bitstream/1/7906/1/AzpitarteJohnsonSullivan_Fuel_poverty_household_income_energy_spending_2015.pdf>** Australian households are suffering from energy poverty and over the last decade the proportion of Australian individuals and families suffering from energy poverty has increased substantially.

The main reason for this growth is the increase in energy prices far exceeding wage increases and the consumer price index (CPI).

For example, in 2017, electricity prices increased by 12 per cent, which was six times the average **pay rate rise < https://www.smh.com.au/business/the-economy/electricity-prices-jump-12-per-cent-six-times-the-average-pay-rise-20180131-p4yz4k.html>** . A **2017 survey < https://www.afr.com/politics/australian-households-pay-highest-power-prices-in-world-20170804-gxp58a>** comparing Australia's retail electricity prices to countries in the EU and the US found that South Australia had the most expensive retail electricity prices in the world. NSW had the fourth highest, Queensland the fifth and Victoria the sixth highest. Electricity prices in South Australia were almost three times higher than prices in the US.

Energy poverty can have **serious consequences < https://energyconsumersaustralia.worldsecuresystems.com/grants/508/AP-508-Impacts-Consequences-Low-Income-Households-Rising-Energy-Bills.pdf>** . In order to cope with the price of energy, households tend to cut back **use of their heaters in winter < https://www.sciencedirect.com/science/article/pii/S0360132319300472>** and airconditioning in summer.

In the context of climate change and the rising number of extreme weather events, this can have **serious adverse health impacts < https://www.climatecouncil.org.au/uploads/b6cd8665c633434e8d02910eee3ca87c.pdf>** . Another negative consequence is that low-income households cut down on their **cooking and eating of nutritional food < https://www.ncoss.org.au/wp-content/uploads/2017/06/Cost-of-Living-Report-16-06-2017-FINAL.pdf>** to save on energy usage.

It can also intensify loneliness as people limit their social activities to be able to pay their energy bill.

The impacts of energy poverty on the population are varied.

Some groups are **particularly vulnerable < https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5486270/pdf/ijerph-14-00584.pdf>** . Older people, people with a disability and or chronic health conditions, and low income households with children are hit particularly hard by energy poverty.

Particularly cold or warm homes can exacerbate existing cardiovascular and respiratory conditions. Mental health can also be affected.

How does it manifest in our homes?

Household energy useis highly dependent on building characteristics, climate, appliances and system characteristics, tenure type, and occupant behaviour, which can be related to social and economic conditions. However, in the typical Australian home, energy consumption according to end-use source is approximately two thirds (63 per cent) heating and cooling and water heating and both are directly associated with the climate. The remaining third is attributed to appliances, lighting and cooking.

Australia has been a very slow adopter of energy efficiency improvements. That's because national housing minimum standards were only required from 2003 onwards whereas most advanced economies introduced their minimum standards (which are higher than ours) from the mid 1980s.

Furthermore, these minimum energy efficiency requirements have not changed since 2010. Currently, new developments and major renovations have to meet a minimum 6-star NatHERS (Nationwide House Energy Rating Scheme) rating – the maximum is 10 star (see Table 1).

The energy efficiency of Australia's housing stock is very poor, with the average Aussie home 1.8 stars. Table 1 shows the annual average electricity costs per square metre for different star ratings. It shows that a Canberra 2 star property electricity costs \$24.82 /m^2 pa, whereas a 10 star home costs 13 cents/m^2 pa.

With the average floor size of an Australian home 186.3 square metres, the annual electricity costs of a 2 star home would be around \$4624 higher than the electricity costs of a 10-star home.

Artificial Energy Load and Costs per Star Rating

Location	Climate Zone	0.5 ☆			2 ☆			6 ☆			10 ☆		
		MJ/m2. annum	*KWh/m2. annum*	*Eletricity costs in AU$ per m2.annum*	*MJ/m2. annum*	*KWh/m2. annum*	*Eletricity costs in AU$ per m2.annum*	*MJ/m2. annum*	*KWh/m2. annum*	*Eletricity costs in AU$ per m2.annum*	*MJ/m2. annum*	*KWh/m2. annum*	*Eletricity costs in AU$ per m2.annum*
Adelaide	16	584	162.22	$ 61.03	325	90.28	$ 33.96	96	26.67	$ 10.03	3	0.83	$ 0.31
Brisbane	10	245	68.06	$ 16.02	139	38.61	$ 9.09	43	11.94	$ 2.81	10	2.78	$ 0.65
Canberra	24	957	265.83	$ 73.26	547	151.94	$ 41.88	165	45.83	$ 12.63	2	0.56	$ 0.15
Melbourne	21	676	187.78	$ 43.70	384	106.67	$ 24.82	114	31.67	$ 7.37	2	0.56	$ 0.13
Sydney	17	286	79.44	$ 21.89	148	41.11	$ 11.33	39	10.83	$ 2.99	6	1.67	$ 0.46

Table 1 – Electricity Costs by Star Rating in Australian Cities.

(Horne et al., 2005; Berry and Marker, 2015; Noble and Martinelli, 2009; Sustainability Victoria, 2014; Willand, Maller and Ridley, 2019).]

What remedies are there?

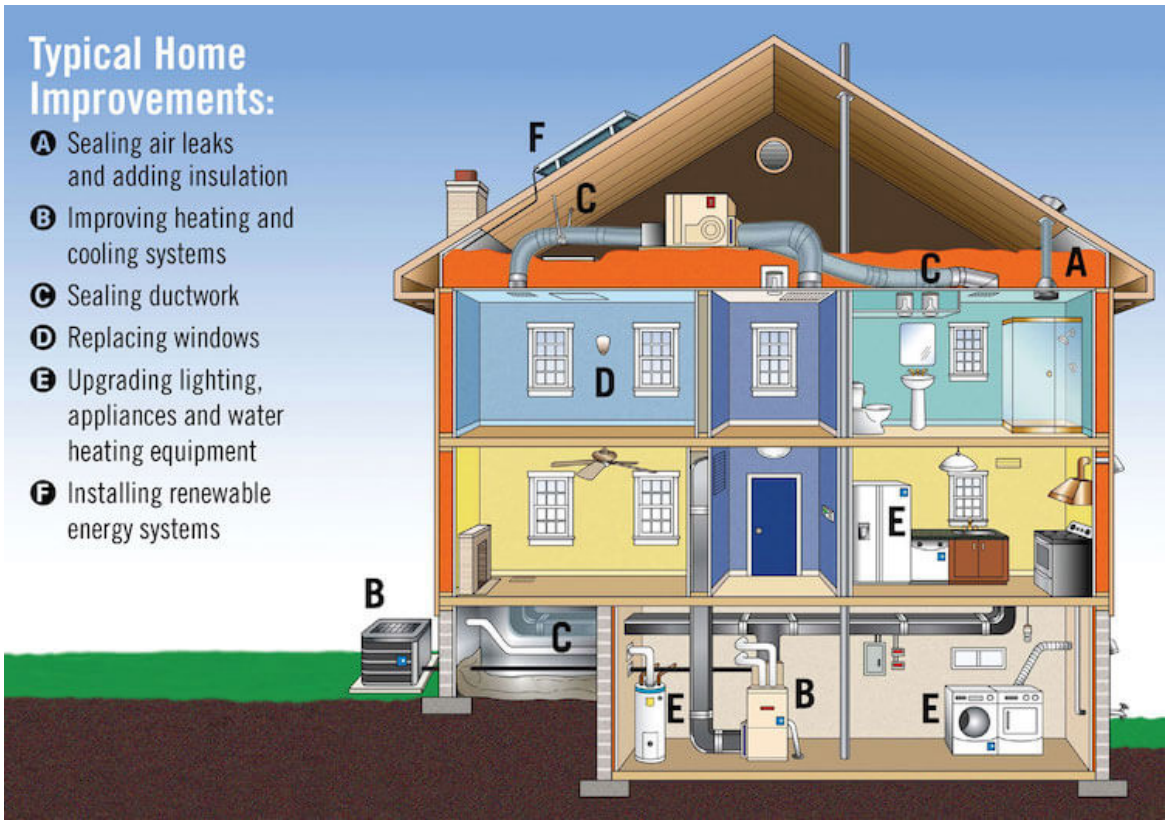

Figure 2 – energy efficient retrofit measures.

This figure illustrates the simple measures we can take to reduce energy use. The following list describes those measures:

- A – sealing air leaks and adding insulation
- B – improving heating and cooling systems
- C – sealing ductwork
- D – replacing windows with secondary or double glazed units
- E – upgrading lighting, appliances and water heating equipment
- F – installing renewable energy systems

As you can see, the measures range from low cost (sealing air leaks and installing roof insulation) to high cost (replacing windows). Homeowners should look at costs of the measures and payback periods (that is, how much energy / money do they save).

Clearly there is low hanging fruit, so to speak, such as insulation and sealing leaks, which should top the "to do" list. Housing tenure is an important factor. Energy efficiency interventions are much more straightforward and likely in the owner occupier sector than in the private rental sector.

The more expensive measures may require a loan but should translate into higher capital value as well as lower operating costs.

The main barrier to adoption in the rented sector is that it requires a landlord to initiate the work. In this sector, we experience the "split incentive" – where the person who pays for the measures does not directly and immediately benefit from it. The landlord pays and the tenant receives lowers bills.

Of course, the landlord may also get a higher rent or reduced vacancy rates, and when they come to sell a higher sale price. If landlords are informed, they may implement energy efficiency.

Energy efficient retrofit programs to boost the post COVID economy

So we have a stock of poorly performing residential buildings, leaking greenhouse gas and money.

Surely we can improve performance, lower our energy bills, reduce our carbon footprint and stimulate the economy. But how do we do it?

It requires government to establish a well thought out program to subsidise energy retrofits, say with insulation, allowing homeowners and landlords to get work done and start benefitting from lower energy bills.

Jobs are created in quoting for and installing the insulation. This increase in disposable income for households and installers is ploughed back into the economy in other sectors such as retail and hospitality, travel and tourism.

The costs of energy poverty on the health system are reduced. It is not rocket science and it is not new. We have had schemes (such as Pink Batts) in the past, and internationally other countries have used such programs to stimulate their economies and concurrently reduced energy poverty.

Other initiatives can be set up to encourage retrofitting secondary and double glazing and the installation of renewables. All these measures will lower our per capita carbon footprints.

Having defined energy poverty, it's a shock to learn how many Australians are experiencing it. It is a depressing to realise that energy poverty will get even worse as a result of the economic situation and COVID. This is exacerbated by large swaths of the housing stock that is not energy efficient.

It does not have to be this way – there are several measures that can be taken.

Moreover, if we are really smart, we can use stimulus packages for energy efficiency to invigorate economic activity post COVID, lower greenhouse gas emissions, lower energy bills, and most importantly, eliminate energy poverty.

Sara Wilkinson is professor of sustainable property at the Faculty of Design Architecture and Building (School of Built Environment) at the University of Technology Sydney. Caroline Porto Valente & Alan Morris. Alan Morris is a professor at the university's Institute for Public Policy and Governance. Caroline Porto Valente is a PhD student at UTS.

Spinifex is an opinion column open to all our readers. We require 700+ words on issues related to sustainability especially in the built environment and in business. For a more detailed brief please send an email to editorial@thefifthestate.com.au < mailto:editorial@thefifthestate.com.au>

Related

< https://www.thefifthestate.com.au/columns/spinifex/heres-our-chance-to-relieve-energy-poverty-urgently-end-2/> Why energy poverty is something we have to urgently end < https://www.thefifthestate.com.au/columns/spinifex/heres-our-chance-to-relieve-energy-poverty-urgently-end-2/>

< https://www.thefifthestate.com.au/innovation/construction/the-other-99-retrofitting-is-the-key-to-putting-more-australians-into-eco-homes/> The other 99%: retrofitting is the key to putting more Australians into eco-homes < https://www.thefifthestate.com.au/innovation/construction/the-other-99-retrofitting-is-the-key-to-putting-more-australians-into-eco-homes/>

< https://www.thefifthestate.com.au/columns/spinifex/energy-housing-to-get-an-efficiency-boost-with-cefc-finance/> Community housing gets an efficiency boost with CEFC finance < https://www.thefifthestate.com.au/innovation/construction/energy-housing-to-get-an-efficiency-boost-with-cefc-finance/>

Share

Leave a comment

Your email address will not be published. Required fields are marked *

Comment

Name *

Email *

Website

Save my name, email, and website in this browser for the next time I comment.

Post Comment