

FUEL POVERTY AND HOME HEATING

What is this?

“Fuel poverty” has been defined as the condition when the cost of fuel to adequately heat the home to achieve a satisfactorily warm environment is more than ten percent of a household’s income.¹

Why is it important?

When fuel costs are too high, homes cannot be adequately heated, which can result in household members living less comfortably, with a poorer quality of life and poorer health. The World Health Organisation recommends a minimum indoor temperature for health of 18°C, with up to 20 to 21°C for more vulnerable groups, such as older people and young children.² Prolonged indoor temperatures below 16°C can result in a serious risk to health, including increased risk of respiratory and cardiovascular conditions.



Many houses have insufficient or no insulation as minimum insulation standards were only introduced in building regulations in 1978.³ People who live in warmer homes tend to be healthier, with fewer GP and hospital visits and fewer days away from work due to illness.⁴ Cold, damp houses are associated with an increased rate of asthma and other respiratory illnesses. Much of this is caused by mould, which thrives in damp conditions. In addition to the physical illnesses that can develop from cold and damp housing, there are a number of studies that show significant effects on mental health including an increase in anxiousness and depression.⁵

There are several factors which have exacerbated fuel poverty in New Zealand:

- the poor quality of New Zealand homes in terms of thermal efficiency
- relatively high levels of income inequality and
- an increase in the price of electricity.⁶

Data

Based on 2008 figures, it has been estimated that approximately 25% percent of all households in New Zealand experienced fuel poverty, this equates to approximately 410,000 households. In Christchurch it was estimated that approximately 54,000 households experienced potential fuel poverty, this equates to 40% of the city population.⁷

¹ Lloyd, B. 2006. Fuel poverty in New Zealand. *Social Policy Journal of New Zealand* 27 (March), 144-155.

² World Health Organisation Europe. 2009. *Damp and mould: health risks, prevention, and remedial actions*. Copenhagen: WHO. http://www.euro.who.int/_data/assets/pdf_file/0003/78636/Damp_Mould_Brochure.pdf Accessed 13.09.12.

³ Ministry of Social Development and Energy Efficiency and Conservation Authority. May 2010. *Household Energy Affordability: A Literature Review*. <http://www.eeca.govt.nz/sites/all/files/household-energy-affordability-review-05-10.pdf> Accessed 04.04.13.

⁴ Canterbury District Health Board. 2010. Data Analysis: Warm Families: report prepared for Canterbury District Health Board. Christchurch: Canterbury District Health Board. (Unpublished).

⁵ Anderson, W., White, V., and Finney, A. 2012. “You just have to get by” Coping with incomes and cold homes. http://www.cse.org.uk/downloads/file/you_just_have_to_get_by.pdf Accessed 13.09.12.

⁶ Howden-Chapman, P., Viggers, H., Chapman, R., O’Sullivan, K., Telfar Barnard, L., Lloyd, B. 2012. Tackling cold housing and fuel poverty in New Zealand: A review of policies, research, and health impacts. *Energy Policy* 49, pp. 134-142.

⁷ Ibid.

The most common source of energy for home heating in Christchurch is electricity (over 80 per cent) followed by wood and gas (both at about 30 per cent in 2006).⁸ Households may use more than one form of heating.

Wood fuel tends to be the cheapest form of home heating. The use of wood as a fuel source has declined in recent years in favour of cleaner forms of home heating. However, with the relatively higher cost of electricity along with other economic factors such as lower employment⁹ and salaries not keeping up with inflation, means that more families are likely to have experienced fuel poverty since the 2006 study was published.

Wood as a fuel source is a significant source of air pollution, mostly in the form of particulate in smoke (see section on Air Quality). Use of free wood, particularly from construction and manufacturing off-cuts and demolition debris may contain contaminants, such as lead paint and formaldehyde, which can pollute both indoor and outdoor air.

Impact on inequalities

Poorly heated homes reduce the occupants' comfort and can adversely affect health. An analysis conducted by the World Health Organisation found that children 0 to 17 years of age showed twice the prevalence of respiratory problems in poorly heated homes, while those 65 years of age and older showed increased respiratory problems when living in cold dwellings in winter.¹⁰

More vulnerable members of the population, including those with respiratory illnesses, young children, older persons and those who are economically deprived are at greater risk of experiencing adverse health effects as a consequence of inadequate home heating. Older persons may be more susceptible when compromised health is coupled with being asset rich but income poor. This can affect their ability to maintain or upgrade their homes. In addition the cost of electricity has been rising faster than superannuation resulting in home heating being more unaffordable for some. Alternative heating sources such as wood and pellets may be physically difficult for elderly people to manage and therefore not a practical solution.¹¹

For those on lower incomes, power meters can be used to pre-pay power which can help with budgeting. However the cost of power can be more expensive for users as they are not eligible for prompt-payment and other discounts offered by power companies.¹²

Solutions

Upgrading a home's insulation and fuel-efficient heating can help to reduce the household cost of heating and thus alleviate fuel poverty, improve thermal comfort and reduce respiratory illnesses. Central and local government initiatives have been successful in providing financial incentives and assistance to homeowners to upgrade their home insulation and cleaner forms of home heating.

⁸ Christchurch City Council. 2006. Demographic profile of Christchurch City 2006. <http://resources.ccc.govt.nz/files/2006ChristchurchCity.xls> Accessed 13.09.12.

⁹ Statistics New Zealand. 2012. Household Labour Force Survey: September 2012 quarter. Wellington: Statistics New Zealand. www.stats.govt.nz/browse_for_stats/income-and-work/employment_and_unemployment/HouseholdLabourForceSurvey_HOTPSep12qtr.aspx Accessed 13.09.12.

¹⁰ WHO Regional Office for Europe. 2007. Large analysis and review of European housing and health status (LARES). Copenhagen: World Health Organisation. http://www.euro.who.int/data/assets/pdf_file/0007/107476/lares_result.pdf Accessed 13.09.12.

¹¹ Viggers, H., Howden-Chapman, P., Ingham, T., Chapman, R., Pene, G., Davies, C., Currie, A., Pierse, N., Wilson, H., Zhang, J., Baker, M., Crane, J. 2013. Warm homes for older people: aims and methods of a randomised community-based trial for people with COPD. *BMC Public Health* 2013, 13:176

¹² Consumer NZ. May 2012. Fuel Poverty. <http://www.consumer.org.nz/reports/fuel-poverty/pre-pay-meters> Accessed 04.04.13.

The Warm Up New Zealand: Heat Smart programme publicly funded through the Energy Efficiency and Conservation Authority (EECA) Energywise programme, provides subsidies for installing home insulation to help households achieve warmer homes, this programme is currently funded through until September 2013.¹³ Community Energy Action provides Christchurch residents on lower incomes with free assessments and further subsidies for insulation.

Environment Canterbury's Clean Heat programme, which provided subsidies to replace open fires and inefficient log burners with more efficient and less polluting heating appliances ended in June 2011.¹⁴

EECA, Community Energy Centre, Environment Canterbury, Pegasus Health and CDHB are working together in a joint venture to offer subsidised or free insulation and/or heating to people who have had two or more hospital admissions in one winter for respiratory-related illnesses, cancer or heart disease and other cold-related or impacted conditions. Pegasus Health phones these candidates to see if the house is cold, damp and/or difficult to heat and they are offered an assessment. Homeowners and tenants are both eligible for this scheme. As at March 2013, 2086 patients had been contacted about the Healthy Homes programme as a result insulation has been installed into 212 homes, heating has been installed into 69 homes and 226 households have had a Home Energy Audit conducted. By June 2013, a total of 4,800 people will be contacted to check if they need an assessment.¹⁵

The Warm Homes for Elderly New Zealanders study is currently trialling whether a \$500 electricity voucher given to older people with COPD with the aim of enabling people to keep their houses warm in winter will result in fewer hospital admissions.¹⁶

Connections with other issues

Air Quality, Asthma, Employment, Household Overcrowding, Housing Affordability, Income.

Data limitations

Currently there is no specific data on actual levels of experienced fuel poverty in Christchurch. The national census has been delayed until 2013 when more data should be available.

Impact of the earthquakes

As time passes and these papers are updated the initial sections on the impact of the earthquake are going to be kept as an archive of what we thought the situation was at the time. Updates where possible are provided.

As at April 2013

No significant changes.

As at August 2011

Large scale damage to houses in Christchurch City has created a major focus on home heating. With many chimneys destroyed, householders have the option of replacing woodburners with heatpumps or other approved clean heat systems, including more

¹³ <http://www.energywise.govt.nz/funding-available/insulation-and-clean-heating> Accessed 13.09.12.

¹⁴ <http://ecan.govt.nz/news-and-notice/news/pages/rating-impact-reduced-clean-heat-project-christchurch-ends-270511.aspx> Accessed 13.09.12.

¹⁵ Conversation with Gill Coe, Pegasus Health.

¹⁶ Viggers, H., Howden-Chapman, P., Ingham, T., Chapman, R., Pene, G., Davies, C., Currie, A., Pierse, N., Wilson, H., Zhang, J., Baker, M., Crane, J. 2013. Warm homes for older people: aims and methods of a randomised community-based trial for people with COPD. *BMC Public Health* 2013, 13:176.

efficient woodburners. Houses may also be more difficult to heat due to the cracks and gaps that have appeared from the earthquakes.

Although the Earthquake Commission (EQC) has prioritised the repair of primary heating sources for homes, there is likely to be a significant increase in fuel poverty over the winter of 2013

The need for emergency repairs to heating systems has meant that legislation to prosecute those using polluting older woodburners and open fires has been temporarily relaxed for the winters of 2011 and 2012.¹⁷

Prepared by Environment Canterbury and Community and Public Health.

¹⁷ <http://ecan.govt.nz/advice/your-home/home-heating/Pages/earthquake-damage.aspx>