Energy Policy 108 (2017) 369–378

Contents lists available at ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

Identifying policy solutions for improving the energy efficiency of rental properties

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ARTICLE INFO

Keywords:
Barrier
Energy efficiency improvement
Rental properties
Policy solutions

ABSTRACT

World leaders have acknowledged that climate change is one of the biggest challenges we face in the 21st century and have committed to pursuing efforts to limit warming to 1.5 degrees above pre-industrial levels (UNFCCC, 2015). To do this, further efficiencies in energy use are needed across all sectors, many of which still offer considerable potential for improving energy efficiency. Rental properties in particular, have seen very few improvements in energy efficiency due to a range of barriers and market failures including misinformation, split incentives and an uneven power dynamic between renters and landlords. This is important as not only do rental properties account for a significant proportion of housing stock, the high proportion of low income households in rental properties are particularly vulnerable to rising energy prices. This study aimed to identify feasible policy solutions for overcoming the barriers to energy efficiency improvements in rental properties. Renters, landlords and agents were presented with five possible solutions to determine their level of support. Eight key recommendations for overcoming the barriers to energy efficiency improvements in rental properties are provided. These create a foundation for policy makers, councils and businesses to develop and target energy efficiency solutions for rental properties.

1. Introduction

In 2015, 195 world leaders at the Paris Climate Change Conference adopted the Paris Accord which recognised “that climate change represents an urgent and potentially irreversible threat to human societies and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions” (UNFCCC, 2015, p 1). World leaders at the Paris Accord also committed to pursuing efforts to limit warming to within 1.5 degrees of pre-industrial levels (UNFCCC, 2015). The global community therefore faces the ongoing challenge of meeting future energy needs and maintaining current qualities of life, while reducing greenhouse gas (GHG) emissions produced by human activity.

Improving energy efficiency is a key to mitigating climate change (EEC, 2016). However, despite the proven benefits of energy efficiency there is a significant gap in the uptake of energy efficiency improvements, particularly in rental situations (de T'Serclaes and Jollands, 2007). In Australia, rental properties represent 25% of the property market (DSE, 2009). The low uptake of energy efficiency improvements in the private rental sector not only undermines Australia and Victoria's attempts to reduce GHG emissions, it jeopardises equitable access to energy for low income households.

A review of the literature on the barriers to energy efficiency improvements in rental properties, internationally and in Australia, confirms that there are several market failures occurring in the Victorian private rental market. Australian empirical studies reveal that these market failures are exacerbated in Victoria by low vacancy rates, short term rental leases, and a fiscal and regulatory system that preferences landlords. There is a significant gap in the literature however, of empirical research into possible solutions to overcoming the barriers to energy efficiency improvements in rental properties.

This is the first study in Victoria to test solutions to overcoming the barriers to energy efficiency improvements with a sample of landlords, renters and real estate agents. The aim of the study is to identify the most feasible solutions to overcoming the barriers to energy efficiency improvements.

2. Background

2.1. The energy efficiency gap

Despite a slowdown in residential sector energy consumption

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http://dx.doi.org/10.1016/j.enpol.2017.06.009
Received 29 September 2016; Received in revised form 28 March 2017; Accepted 5 June 2017
Available online 10 June 2017
0301-4215/

(BREE, 2014), researchers agree that there is a 'gap' between the potential energy savings offered by energy efficient technology and the savings that are realised (Allcott and Greenstone, and de T'Serclaes and Jollands, 2012, 2007).

The Victorian Department of Sustainability and Environment (DSE) (2009) conducted research into the energy performance of rental properties in Victoria. A combination of home audits and analysis of utility company data indicated that twice as many rental households used electric heating compared to owner occupied, 15–30% of rental properties have poor or no insulation and 52% of rental households report difficulties heating their homes (DSE, 2009). The DSE found that these proportions were all higher than owner occupied dwellings and concluded there is an energy efficiency gap in rental properties in Victoria.

Residential buildings are responsible for 11% of Australia's total energy consumption (BREE, 2014), and nine percent of total GHG emissions (ABS, 2008). Private and public rental properties make up approximately 25% of Victoria's housing stock (DSE, 2009). Barriers to energy efficiency improvements in rental dwellings therefore have a substantial negative impact on Victoria and Australia's attempts to reduce emissions and mitigate climate change. In 2007, de T'Serclaes & Jollands attempted to quantify the amount of energy not saved due to barriers to energy efficiency in rental situations worldwide. They estimated that each year over 3800 PJ of potential savings, equivalent to roughly 85% of Spain's total energy use, were lost (de T'Serclaes and Jollands, 2007).

It is important to acknowledge concern over a possible efficiency 'rebound effect' that could counteract the gains made by energy efficiency measures. The United Nations Department of Economic and Social Affairs (UNESA, 2007) explains the 'rebound effect' as an increase in energy consumption enabled by monetary savings resulting from increased energy efficiency. For example, money saved on household electricity bills could be made available for purchasing more household appliances. According to UNESA, studies have shown that the 'rebound effect' exists, but the scale of it depends on a variety of factors. Greening et al. (2000) conducted a review of all the studies into the 'rebound effect' and concluded it was not significant enough to undermine the importance of energy efficiency to mitigating climate change. The 'rebound effect' therefore does not undermine the significance of this study, but it does highlight the importance of incorporating energy efficiency into all areas of energy production and consumption.

2.2. Energy efficiency and low income renters

The close relationship between lower incomes and higher rates of renting has been a long term trend in Australia (ABS, 2013). However, Stone et al. (2013) and the ABS (2013) found that there has been an increase of long term renters and lone parent households with dependent children in the private rental market over the last two decades. "Overall rates of housing stress [also] increased among private renters from 1981 to 2011" (Stone et al., 2013, p2) with more than 20% of long term renters regularly paying more than half their income on rent (Stone et al., 2013).

Twenty three percent of all private renters in Australia are on government pensions or allowances, and 18% of private renters have no capacity to raise $3000 in an emergency (Stone et al., 2013). The relationship between lower incomes and the private rental market reveals that improving the energy efficiency of rental properties would not only reduce GHG emissions, but could also reduce economic stress for low income households.

Energy costs in Australia have increased significantly in the last decade. The average household electricity bill increased 83% between 2007 and 2013 (Chester, 2013). Approximately 28% of Australian private rental households suffer utility stress (Sullivan, 2007), and "electricity and gas bills [were] the greatest cause of rental arrears (63%) in Victorian low income households" (Chester, 2013, p 7).

The terms 'energy equity' and 'fuel poverty' have been increasingly discussed by many academics in reference to low income households and energy prices. Zipprich et al. (2010, p7) define energy equity as "the consideration of fairness when dealing with energy". Fuel poverty, where households pay more than 10% of their income on energy bills to adequately heat and cool their homes, has been documented in Europe, the UK and New Zealand. Strong correlations were found between fuel poverty and winter mortality (Chester, 2013). According to Zipprich et al. (2010) there is a universally recognised relationship between poverty alleviation and access to energy. There is also increasing recognition of the relationship between energy access and health. A study conducted in New Zealand by Howden-Chapman et al. (2007) on the relationship between adequate heating and health, found quantitative and qualitative evidence that insulating houses reduced the rates of respiratory diseases, days off work, winter colds and flus and asthma wheezing.

As energy prices continue to rise, disparity is occurring between those who can afford to improve the energy efficiency of their property and those who cannot. Paradoxically, those who are most vulnerable to price increases are the people with the least capacity to improve the energy efficiency of their property. Therefore, the concept of energy equity should be a consideration for any proposed solutions aimed at addressing the energy efficiency gap in the private rental market. This may me more challenging in some contexts where cultural commitment to markets is extremely strong.

2.3. What are the barriers to improving energy efficiency in rental properties?

Research has revealed a broad range of factors that act as barriers to energy efficiency improvements both universally and particularly to the Australian and Victorian context. Relevant universal theory and Australian empirical studies are discussed below.

2.3.1. Theoretical perspectives

de T'Serclaes and Jollands (2007) identified a range of market barriers and failures that inhibit energy efficiency improvements. Market barriers are circumstances that discourage entry into a market, while market failures occur when "one or more of the conditions necessary for markets to operate efficiently are not met" (de T'Serclaes and Jollands, 2007, p 24). Fig. 1 separates the obstacles to energy efficiency improvements into market barriers and market failures.

Ungar et al. (2012) name imperfect information as the most

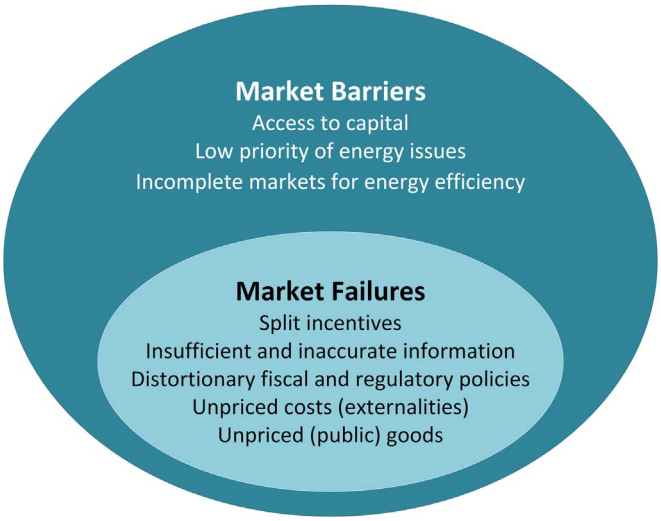

Fig. 1. Market barriers and market failures inhibiting energy efficiency (de T'Serclaes and Jollands, 2007).