Bridging the gap: energy efficiency improvements for rental properties

Koel Wrigley and Robert H. Crawford
The University of Melbourne, Melbourne, Australia
koel.wrigley@gmail.com, rhcr@unimelb.edu.au

Abstract: World leaders have acknowledged that climate change is one of the biggest challenges we face in the 21st century and have committed to limit warming to within two degrees Celsius. To do this, energy efficiency needs to be improved across all sectors. However, researchers have identified that there is a large gap between what is occurring and what can be done in regards to energy efficiency. Rental properties, in particular, have seen very few improvements in energy efficiency due to a range of barriers including misinformation, split incentives and an uneven power dynamic between renters and landlords. This is important because not only do rental properties account for 25 percent of the Australian housing stock, the high proportion of low income households in rental properties are particularly vulnerable to rising energy prices. This research aimed to identify feasible solutions for overcoming the barriers to energy efficiency improvements in rental properties in Victoria, Australia.

Keywords: Energy efficiency; rental properties; barriers; solutions.

1. Introduction

In 2009, 114 world leaders at the Copenhagen Climate Change Conference created the Copenhagen Accord which recognised “climate change [as] one of the greatest challenges of our time” (UNFCCC, 2014, p 1). The Copenhagen Accord also stated that “to prevent dangerous anthropogenic interference with the climate system the scientific view is that the increase in global temperature should be below two degrees Celsius” (UNFCCC, 2014, p. 1). 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 key to mitigating climate change. 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 percent of the property market. The low uptake of energy efficiency improvements in the private rental sector not only undermines Australia’s attempts to reduce GHG emissions, it jeopardises equitable access to energy for low income households.
Previous studies on the barriers to energy efficiency improvements in rental properties confirm that there are several market failures occurring in the private rental market. Empirical studies reveal that these market failures are exacerbated by low vacancy rates, short term rental leases, and a fiscal and regulatory system that preferences landlords. There is also a significant gap in the literature of empirical research into possible solutions to overcoming these barriers.

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

2. Background

Despite a slowdown in residential sector energy consumption (BREE, 2014), researchers agree that there is a gap between the potential energy savings offered by energy efficient technology and the savings realised (Allcott and Greenstone, 2012 and de T’Serclaes and Jollands, 2007). In 2007, de T’Serclaes and 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 3,800 PJ of potential savings, equivalent to roughly 85 percent of Spain’s total energy use, were lost (de T’Serclaes and Jollands, 2007).

Energy costs have increased significantly in the last decade. The average household electricity bill in Australia increased 83 percent between 2007 and 2013 (Chester, 2013). Gas prices have already risen 66 percent since 2008, and are predicted to increase up to 24 percent more by the end of 2015 (Redrup, 2014). Approximately 28 percent of Australian private rental households suffer utility stress (Sullivan, 2007), and “electricity and gas bills [are] the greatest cause of rental arrears (63 percent) in Victorian low income households” (Chester, 2013, p. 7). 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. 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.

2.1. Current barriers to energy efficiency improvements in rental properties

There is a broad range of factors that act as barriers to energy efficiency improvements, universally and particularly in the Australian context. De T’Serclaes and Jollands (2007) identify 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).

Ungar et al. (2012) name imperfect information as the most prominent barrier to energy efficiency improvements. Examples of imperfect information include limited knowledge of the energy performance of different equipment, unpriced health and environmental costs of fuel types, energy savings being difficult to measure, uncertain future energy prices and that specific energy uses are not quantified in utility bills. De T’Serclaes and Jollands (2007) categorise imperfect information as a market failure because consumers do not have enough information to make the most rational choice.

Burfurd et al. (2012) point out that most of the literature on barriers to energy efficiency in rental properties focuses on the split-incentives between landlords and renters. Williams (2008) and de
T'Serclaes and Jollands (2007) agree that the split incentives between landlord and renter are a classic example of the Principle Agent (PA) problem. De T'serclaes and Jollands (2007, p. 27) define PA problems as “potential difficulties that arise when two parties engaged in a contract have different goals and different levels of information”. According to this theory, the result is adverse selection and moral hazard, for example, a renter choosing a property with poor thermal performance (adverse selection), and a landlord acting opportunistically by purchasing the cheapest appliances that cost the renters more to run (moral hazard) (de T'Serclaes and Jollands, 2007). Sorrell et al. (2004) criticise the PA theory as reductionist and argue it does not hold true in complex world scenarios. The following Australian studies support the existence of split incentives but also expose a range of externalities which exacerbate the market failure.

Dillon et al. (2010, p. 8) in their evaluation report found “most, if not all, renters displayed some degree of anxiety about the relationship with their property managers or landlord”. This mistrust results in misinformation about the energy performance and thermal comfort of rental properties, and can therefore be classified as a market failure (de T'Serclaes and Jollands, 2007).

Further investigation into the causes of this fear reveals another market failure: distortionary fiscal and regulatory policies. According to Sullivan (2007), renters in Victoria experience limited security of tenure, with short term rental leases and limited rights to make changes to properties. The Victorian Residential Tenancies Act requires renters to ‘make good’ properties at the end of their lease. This means even willing renters are discouraged from improving properties themselves, or asking for permission to engage in energy efficiency programmes offered by external parties (Dillon et al., 2010).

Fear of eviction is fuelled by very low vacancy rates in many Australian cities, particularly inner Melbourne where the vacancy rate is under one percent (DSE, 2009). According to Williams (2008), “vacancy rates can have a critical impact on the balance of power between renters and landlord and therefore upon the renters’ ability to demand energy efficiency” (Williams, 2008, p. 17). Low vacancy rates of under five percent exacerbate the split incentive problem as owners are under little pressure to improve rental properties and renters know that if they demand improvements they can be easily replaced. Sullivan (2007) points out that the current tax system in Australia also provides greater assistance to established home owners and investors than to renters, exacerbating the power dynamic.

There is a large pool of funding available in Australia to support energy efficiency activities in households according to Dillon et al. (2010). Riedy et al. (2004) and Chester (2013) agree however that existing rebates, grants and other schemes are complicated and time consuming which has inhibited their uptake. Johnson and Sullivan (2012) found that a lack of capital is a substantial barrier to renters engaging in such schemes. Low income households were much more likely to engage in free energy efficiency schemes than those that required financial contribution.

Previous studies suggest possible policies or scenarios that could overcome the barriers to energy efficiency improvements in rental properties. However, there is a lack of evidence-based studies into what solutions would improve the energy efficiency of rental properties in Victoria and be supported by landlords, renters and agents. This research aimed to fill this gap and contribute to the shift towards a more equitable, informed and successful energy efficient market for rental properties.

---

1 Make good refers to ensuring the rental property is in the same condition as when it was leased. This means under the Tenancy Act residents do not have the rights to make permanent energy efficiency improvements.
3. Research Method

In order to identify the most feasible solutions to overcoming the barriers to energy efficiency improvements in Victorian rental properties, five possible solutions were tested with a sample of landlords, renters and real estate agents.

Recognising the difficulties of sourcing solutions from a population with insufficient knowledge of energy markets and efficiency, it was decided to instead test several solutions that have been suggested by experts or trialled in other countries (participants were however always given the opportunity to put forward their own suggestions). Given their complex nature, the solutions (Table 1) were presented as scenarios that illustrate the intended effect and interaction between stakeholders, rather than the exact policy, law or contract that would be implemented.

<table>
<thead>
<tr>
<th>Solution</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amending the Residential Tenancies Act to allow renters greater rights to improve rental properties.</td>
<td>Tenants Union of Vic., (Dillon et al., 2010), (Strempel et al., 2010)</td>
</tr>
<tr>
<td>2</td>
<td>Classifying energy efficiency improvements as repairs in the rental properties tax classifications so landlords can tax offset the entire cost of the improvement in the same financial year.</td>
<td>Moreland Energy Foundation, (Williams, 2008)</td>
</tr>
<tr>
<td>3</td>
<td>A residential ‘Green Lease’- Landlords recouping the cost of energy efficiency improvements by increasing the rent for a fixed period e.g. 80% of the cost the renter saves.</td>
<td>(Williams, 2008), (Blundell, 2013)</td>
</tr>
<tr>
<td>4</td>
<td>Pay as you save system - no upfront costs for the improvement and the contract can be transferred to new renters or owners.</td>
<td>(Williams, 2008), (GEMenergy, 2014)</td>
</tr>
<tr>
<td>5</td>
<td>Mandatory minimum energy efficiency standards for rental properties.</td>
<td>(Riedy et al., 2004), (Dillon et al., 2010), (Strempel et al., 2010)</td>
</tr>
</tbody>
</table>

A mixed-method research approach was used to gauge the reactions, attitudes and support of landlords, renters and real estate agents towards the suggested solutions. The key challenge to engaging landlords and renters is that they are geographically dispersed. Web surveys were considered the most effective tool for engaging both landlords and renters under these conditions.

Although landlords and renters are the core stakeholders in energy efficiency improvements for rental properties, real estate agents manage two thirds of rental properties in Australia (DSE, 2009) and therefore play a critical role in the rental market. Semi-structured interviews (30 mins.) were conducted with five agents, providing a triangulated view of the perceptions and viability of the solutions.

3.1. Data Collection

A snowball sampling technique was adopted to disseminate the survey. Individuals and groups were contacted via social media, email and phone, and asked to support the research by sharing the survey with supporters, friends and family. Attempts were made to bridge geographical and political divides such as contacting all 79 Victorian councils, 125 Victorian State Members of Parliament (MPs) and 29 Victorian Federal MPs. All responses were collected by the online survey program eSurv.org. Agents were approached by phoning and emailing real estate agencies.
3.2. Data Analysis

The research approach required both quantitative and qualitative analysis. The quantitative responses to the scenario questions, which were answered along a Likert Scale, were split up into landlords and renters. For the sake of comparison the numbers were converted into proportions of each stakeholder group. The proportions were then represented as a diverging stacked bar chart.

The qualitative comments and agent interview transcripts were analysed using thematic coding. The codes were inductive codes; codes derived from the comments provided. Inductive coding was chosen because as far as the authors know, there is no previous empirical research investigating the particular solutions being tested in this study, and therefore responses cannot be predetermined. The codes were kept consistent across all the questions and stakeholders so that responses and/or attitudes that were not only common to each scenario but across the research, could be identified.

3.3. Limitations

There were some limitations to this study, including a small sample of landlords, a bias towards respondents with a greater concern for reducing GHG emissions, and a limited geographical scope. Everything was done to avoid and reduce the effect of these limitations but factors including time restrictions and limited monetary resources restricted the capacity for this research to reach a larger number of people.

4. Results

Altogether 230 people responded to the survey - 194 renters and 36 landlords, which is considered a representative sample using the Cochran Equation (Israel, 1992), of the estimated $1.25 - 1.5^2$ million landlords and renters in Victoria. This section presents the findings of the 230 survey responses and five interviews with agents. Respondents provided 365 qualitative comments throughout the survey.

4.1. The main motivations and barriers for energy efficiency improvements

Cost and lack of rights were the two most common barriers identified from the survey. This is supported by the findings of the previous studies discussed in the background. However, the qualitative information revealed for many respondents it was not the cost alone that was the barrier, but the lack of assurance that renters would see return for their investment due to short insecure leases. This is a distortionary regulatory policy and therefore a market failure (de T’Serclaes and Jollands, 2007).

There were a lot of contradicting comments on the question of what improvements renters can and can’t make to a rental property. The agents interviewed were adamant that renters could make any changes they wanted with permission from the landlord, and landlords believed they should be asked before potential improvements are made. In contrast, renters not only indicated that agents and landlords had discouraged them from making improvements, but 82 percent of the renters who had

---

2 The 2011 there were 515,586 rented dwellings in Victoria (ABS, 2013), with publicly rented dwellings representing approximately a quarter of these. For an average household size of 2.6 people (ABS, 2013) the total number of renters in Victoria can be estimated at just over 1 million. Assuming that each landlord owns 1-2 properties (ATO National data indicates 70% of landlords own just one investment property (Collyer, 2011)) the total number of renters and landlords in Victoria can be estimated at 1.25-1.5 million.
made improvements made them without permission from the landlord. This misinformation and mistrust aligns with the Principle Agent Theory, whereby two parties in a contract have different goals and different levels of information (de T’Serclaes and Jollands, 2007), more commonly described as split incentives. The presence of this market failure creates a case for more education and awareness about what energy efficiency improvements can be made to rental properties.

In addition to barriers, the study also asked what the main motivations were for landlords and renters who made energy efficiency improvements. The most consistent motivations cited were a desire to reduce gas, water and electricity bills, conserve water and reduce GHG emissions, and to improve the heating, cooling and comfort of the property. Other common motivators cited were that energy efficiency improvements are a smart investment and it made the respondent feel good. Landlords listed government schemes as motivators more often, which is unsurprising given they are eligible for more schemes than renters.

The finding that renters and landlords are motivated by multiple factors is evidence that any promotion of energy efficiency improvements (technology, schemes or policy), should always provide information on the broad range of benefits associated with the improvement.

4.2. Responses and reactions to the proposed solutions from landlords, renters and agents

Figure 1 presents the responses to the question for each solution relating to the level of support. The quantitative responses in this figure were analysed along with the qualitative responses to each solution, which ranged from 24 to 57 comments per solution.
No consensus emerged in the literature as to what constitutes an adequate level of support for a policy or financial solution. A nuanced approach was applied to the analysis of levels of support for the solutions that considered the qualitative responses, took into account the number of unsure answers and placed a high value on the proportion of respondents who outright disagreed. Of the five solutions put forward two of them were clearly supported by all three stakeholders:

- Solution 2 - Classifying energy efficiency improvements as repairs in the rental properties tax classifications so landlords can tax offset the entire cost of the improvement.
- Solution 5 - Mandatory minimum energy efficiency standards for rental properties.

Solution 2 had the greatest level of support - over 90 percent from both landlords and renters, less than 7 percent unsure and only one renter who disagreed with the solution. Agents were also convinced that the solution would be effective, with no negative repercussions for the renter. The only concern expressed in the qualitative data was whether the single incentive was enough to encourage landlords to make energy efficiency improvements, suggesting that Solution 2 would work well with Solution 5.

Solution 5, a mandatory energy efficiency standard, was the next most supported – by over 90 percent of renters and over 70 percent of landlords. A total of 10 percent of landlords did not support the solution and 19 percent were unsure. However, the number of landlords who strongly disagreed reduced if the mandatory standard was combined with other solutions, such as tax offsetting energy efficiency improvements (Solution 2). Agents agreed that this solution could be effective and provided some additional ideas for financial incentives. The biggest concern raised in the comments was whether a minimum energy efficiency standard would result in rent increases unfairly disadvantaging low income renters. If this solution was to be implemented, the qualitative responses suggest a lead time of less than five years, phasing in the minimum standard and putting in place protective mechanisms against unfair rent increases.

Solutions 1 and 3 were not sufficiently supported by all stakeholders. More than 15 percent of respondents disagreed with the solutions, a high number of respondents were unsure, and there was little support from agents as well as strong consistent negative reactions in the comments.

Solution 4, a pay as you save system for improvements where renters use energy savings to pay off the loan, received a reasonable degree of support. Over 58 percent of landlords and renters agreed that the solution could result in increased energy efficiency improvements and no more than 13 percent disagreed. However, there was a high number of respondents unsure about the solution and there were mixed reactions in the comments and from agents.

Finally, landlords, renters and agents all agreed that there is a need for greater government involvement, in both setting standards for energy efficiency in rental properties and rewarding energy efficiency improvements.

5. Discussion and conclusion

This section discusses how the proposed solutions to overcoming the barriers to energy efficiency improvements in rental properties would be implemented and what additional barriers might arise.

\[3\text{ Solution 3, a residential green lease, was least supported despite them being widely used in commercial rentals. This suggests a greater perceived power imbalance between stakeholders in residential than commercial properties.}\]
The implementation of Solution 2, tax offsetting the entire cost of energy efficiency improvements, would require a change to national tax law, the Income Tax Assessment Act 1997 (ATO, 2015). This could happen through either a tax amendment bill which would need to be passed through both Federal Houses of Parliament or via a Public Ruling by the Commissioner of Taxation (Scolaro, 2006). Currently, the most significant national policy in regards to energy efficiency in residential properties is the Council of Australian Governments National Strategy on Energy Efficiency (COAG, 2008). Despite all the states and territories signing the Strategy, many of the agreed measures and policies have not come to fruition (e.g. a mandatory disclosure of energy and water performance for all residential properties and a phase out of electric hot water systems). Given the current lack of political will for national energy efficiency policy, Solution 2 is ambitious, but the likelihood of the change occurring would increase with national public support. This makes the case for further testing of Solution 2 with a wider Australian audience.

If Solution 5, a mandatory energy efficiency standard, were to be implemented it would also increase the likelihood of Solution 2 being implemented (ATO, 2015). Currently anything classed as repairs are entirely deductible against a landlords income in the same financial year. Expenditure required to make a property satisfy regulatory requirements falls into the repairs classification (ATO, 2015).

Rental standards are managed by state governments therefore to implement Solution 5 a bill would be required to pass through the Victorian Parliament. However, there are currently no minimum standards for rental properties, energy efficiency or otherwise, and an attempt by the Australian Greens Party in 2013 to pass minimum requirements failed to pass through the parliament (Greens, 2014). The support for this solution by all the stakeholders in this study presents a case for the implementation of a minimum energy efficiency standard to be revisited by policy makers.

A consistent theme that arose throughout this study was that renters could not afford rent increases to cover the cost of energy efficiency improvements. This fear is not unfounded. An annual study conducted by Anglicare Australia found that in Victoria less than one percent of advertised rental properties in 2015 were affordable for low income families (Anglicare, 2015). Rental affordability must be considered in the implementation of any of the solutions discussed. Support for Solution 2 and Solution 5, will rapidly decline if they result in significant rent increases.

Finally, another consistent theme that arose was the desire from renters for longer rental leases which in turn would encourage renters to invest in more energy efficiency improvements. In Victoria the maximum lease contract is 12 months, and irrespective of the length of time a renter has been in a property a landlord is only required to give 90 days’ notice for eviction or less in some circumstances (Hulse et al., 2010). This is not the standard internationally. Ireland, Denmark, The Netherlands, Sweden and Germany all offer either multi-year or unlimited rental leases, and have much tighter restrictions on eviction of renters (Hulse et al., 2010). Anecdotal evidence from this study suggests that longer more secure rental leases would result in greater uptake of energy efficiency improvements.

5.1. Key recommendations

Below is a series of key recommendations for solutions to overcome the barriers to improving the energy efficiency of rental properties. This study confirms the findings of de T’Serclaes in his review of existing policy responses to the financial barriers of energy efficiency, that “capital availability is not the

---

4 Rental housing is classified as unaffordable if rent payments are more than 30% of the households total income per month (Anglicare, 2015).
most important tool in overcoming energy efficiency’s financial barrier. Instead, the solution lies in carefully designed policy packages, and strong political will.” (de T’Serclaes, 2007, p. 6). Victoria and Australia will see a greater uptake of energy efficiency improvements in rental properties with a multi-faceted approach.

**Solutions that could be readily implemented:**

- Increased education and awareness of what changes renters can make to rental properties.
- Increased promotion of the VEET scheme, aimed at landlords and renters.
- Informing renters of the ability to negotiate energy efficiency improvements when agents or landlords request a rent increase.
- Ensure communication and promotion of energy efficiency improvements advertise their multiple benefits, including: financial savings, comfort, smart investment, the feel good factor, reduced emissions and conservation of resources.

**Solutions that require legislative change:**

- Making a change to the Tax Assessment Act 1997 to include energy efficiency improvements under repairs to a rental property, so that the full cost of the repair is tax deductible.
- Minimum energy efficiency standards for rental properties. A phased in approach, combined with financial incentives for landlords to get their property to standard, is recommended.
- Provide the opportunity for longer rental leases with greater security from eviction.

This study provides an important foundation for building a more effective and equitable energy efficiency market for the rental sector. With further research, consultation and communication with landlords, renters and agents, the solutions identified as supported in this study have a greater chance of gaining broader acceptance and being implemented. It is recommended that for future research more landlords and real estate agents be engaged from rural areas, information on different locations be recorded and further attempts at overcoming the sustainability bias be made. Altogether the results and recommendations from this study provide direction for community, business and political leaders to create a well-designed package of solutions for improving the energy efficiency of rental properties in Victoria.

**References**


Chester, L. (2013) *The impacts and consequences for low-income Australian households of rising energy prices*, Department of Political Economy, University of Sydney, Sydney, Australia.


Sullivan, D. (2007) *Climate change: addressing the needs of low-income households in the private rental market*, Brotherhood of St Lawrence, Melbourne.


