



Delivering energy efficiency and carbon reduction schemes in England: Lessons from Green Deal Pioneer Places



Robert D. Marchand, S.C. Lenny Koh*, Jonathan C. Morris

Centre for Energy, Environment and Sustainability, The University of Sheffield, United Kingdom

HIGHLIGHTS

- Resident awareness and understanding of the Green Deal is low.
- Green Deal assessment costs and loan interest rates are biggest barriers to uptake.
- Funding energy improvements via a charge on electricity bill welcomed by residents.
- Saving money rather than increasing warmth main motivator for scheme involvement.
- Insights from this work should be used to inform future emission reduction schemes.

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ABSTRACT

Against a background of growing international and national carbon reduction legislation, the UK government introduced the “Green Deal” to deliver a significant increase in housing energy efficiency and reduction in carbon emissions. This paper reflects on one English local authority’s experience delivering a programme intended to foster local interest in the Green Deal. Drawing on social surveys and pre and post Green Deal intervention interviews with five demonstrator homes (households that applied to receive a Green Deal package fully funded by the scheme, providing a test bed for the Green Deal recruitment and installation process), this paper shows that awareness and understanding of the Green Deal scheme is low. There is opposition to the cost of finance offered but a strong interest in improving household warmth and for funding improvements through payments added to the electricity bill. Demonstrator home residents perceived Green Deals had improved the warmth and quality of their home, but saving money was the primary motivator for their involvement, not increasing warmth. Whilst Green Deal has not delivered the level of success that was hoped, much can be learned from the scheme to improve future energy efficiency schemes that will be necessary to deliver emission reduction commitments.

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1. Introduction

As part of a wider international effort to reduce global CO₂ emissions the UK Government is committed to an 80% reduction in CO₂ emissions by 2050 relative to 1990 levels (Climate Change Act, 2008). In addition, the UK is bound by the EU 20-20-20 targets which require a 20% reduction in EU Greenhouse Gas (GHG) emissions, 20% of EU energy consumption to be produced from renewable resources, and a 20% improvement in the EU’s energy efficiency, all by 2020.

25% of the UK’s total CO₂ emissions are accounted for by the

residential sector (DECC, 2014a) making it a key area to target for carbon emission reductions through reducing energy consumption (Utley and Shorrocks, 2008). The domestic sector has historically been ignored by UK legislature when compared to regulations and incentives applied to the industrial sector (Scott et al., 2014), however the increasing evidence base surrounding the environmental impact of the UK’s housing stock in terms of carbon emissions and energy consumption intensity is the key driving force behind increased awareness for the need of implementing residential energy and CO₂ reduction policies

Having gone fully live on 28th January 2013 the Green Deal is the Government’s “flagship piece of legislation, which will deliver energy efficiency to homes and buildings across the land” (Hough and White, 2014). By March 2014, Ed Davey, Secretary of State for Energy and Climate Change admitted that “the story so far has

* Corresponding author.

E-mail addresses: rmarchand1@sheffield.ac.uk (R.D. Marchand), s.c.l.koh@sheffield.ac.uk (S.C.L. Koh), j.c.morris@sheffield.ac.uk (J.C. Morris).

been, let's face it, disappointing" (Vaughan, 2014). By March 2015, 26 months after the programme's launch, 501,906 Green Deal assessments had been lodged but only 5964 Green Deal Plans were considered 'live', that is to say "all the measures have been installed in the property, the information required to disclose the Plan to future bill payers has been attached to the Plan and the energy supplier has all the information required to bill Green Deal charges." (DECC, 2015, p18).

Coinciding with the launch of the Green Deal, the UK Government developed a local authority competition in 2012 supporting three funding streams around the themes of energy; Fuel Poverty fund, Green Deal Pioneer places (GDPP) fund, and 'Cheaper Energy Together': Collective Switching Fund (DECC, 2012a).

Barnsley Metropolitan Borough Council (BMBC) (a local authority in the north of England) brought together a partnership of organisations in late 2012 to bid for funding through the Department for Energy and Climate Change's (DECC) Local Authority Fund. Specifically the consortium sought to receive funding from the GDPP fund which supported "ambitious approaches to kick starting Green Deal activity in both the domestic and non-domestic sectors" (DECC, 2012a, p2). BMBC built a consortium that included: a local regeneration company as installation partners, a community organisation, and a university as monitoring and evaluation partners. BMBC was ultimately successful in securing funding with a programme focussing on three main components:

1. Promotion of the Green Deal and encouraging consumer uptake.
2. Delivery of demonstrator homes and installation of Green Deals.
3. Monitoring and Evaluation.

The scheme aimed to deliver 250 Green Deal assessments, with 75 households signing up to a Green Deal package of interventions as well as five demonstrator homes installed with a package of interventions. Reflecting the poor conversion from assessments lodged to "live plans" nationally, despite 96 enquiries to the scheme, no households in Barnsley agreed to a Green Deal assessment or the installation of a Green Deal package. Against this background, this paper reports on the experiences, development opportunities and practical outcomes from the programme in Barnsley as part of the GDPP Fund. The scheme provided a good test bed for the Green Deal and delivered many points of learning, developing insights that can contribute to enhancing future energy efficient retrofitting schemes.

2. Literature review

2.1. Energy efficiency in the English housing stock

The English housing stock is relatively old in comparison with many other European countries with 41% of housing built before 1945 (Maliene and Malys, 2009). It is only since 1965 that thermal considerations were included in building regulations for housing in the UK, yet 56.4% of English homes were built prior to the introduction of these regulations (DCLG, 2014), and insulation was only required within the building fabric from 1974 (Boardman, 1991). A focus on damp reduction, space and air movement up until 1974, rather than warmth has had a significant impact upon the current English housing stock which can be seen as "one of the oldest and least efficient housing stocks in Europe" (Boardman et al., 2005, p. 38).

Central heating was installed in only 16% of UK homes in 1964, but had risen to 88% of homes by 1996 (Rudge, 2012). This increase in the prevalence of central heating and a climate driven prolonged heating period from October to April (Hulme et al., 2013) has led to energy consumption from space heating rising from 57%

of total energy consumption in 1970 to 65% in 2013, while total domestic energy consumption has also risen from 36.9 million tonnes of oil equivalent (mtoe) in 1970 to 43.8 mtoe in 2013 (DECC, 2014d). With the right building regulations and design policies, it is possible to reduce the length and intensity of this heating period and therefore reduce energy consumption and carbon emission outputs. There is scope to retrofit existing housing stock to make deep cuts in CO₂ emissions but this is not a trivial task. Solutions for reducing CO₂ emissions from the housing stock must account for the variety in age, size, quality, composition, function, and social value of the physical buildings, as well as the different needs, expectations, and budgets of home owners and occupiers (Dowson et al., 2012).

Domestic fuel consumption is strongly related to the size and composition of the household, as well as the type and structure of the property itself (Baker and Rylatt, 2008; Gough, 2013). Whilst the UK appears to be performing strongly in meeting its carbon reduction and GHG targets overall, trends in domestic energy consumption and GHG emissions have been erratic since 2009. Although consumption is below the peak consumption levels of 2004 and is now broadly on a downward trend, there has been an overall increase in domestic energy consumption over the period 1970–2012 of 16%, as well as an increase in levels of fuel poverty (Palmer and Cooper, 2014; Guertler, 2012). This is despite energy consumption in individual homes falling since 1970, which has been cancelled out by demographic and social trends towards lower household occupancy rates and a greater absolute number of houses.

If the UK is to continue to meet its legally binding targets, energy efficient retrofit of the housing stock will be essential. Improving thermal standards of new housing alone is insufficient with roughly 85% of the current housing stock projected to still exist in 2050 (Palmer et al. 2006). Failure to adequately insulate and upgrade the thermal quality of the UK housing stock could present a major stumbling block in meeting the 2020 and 2050 targets. Pertinent to policy implementation is the fact that energy efficiency measures can be introduced as a measure to reduce energy consumption within the home (and therefore carbon emissions), to save money, or to improve the thermal comfort of the home (Blackhurst et al., 2011). These types of policy therefore can be used as a method to reduce levels of fuel poverty¹ as well as Greenhouse Gas emissions.

Since 2004 the number of households living in fuel poverty has increased as rises in energy prices have outstripped growth in income and household energy efficiency levels (Seyfang, 2010; Guertler, 2012; Petrova et al., 2013). The implications of poor quality housing are a significant contributor to fuel poverty and are strongly linked with increased public health issues including the prevalence of asthma amongst children, respiratory illness, and mental health issues (Liddell and Morris, 2010). Housing can be seen as a critical part of healthy communities, both in terms of physical health and in terms of the psychological and social attitudes towards particular areas (Maliene and Malys, 2009; Brown et al., 2014). In addition, large scale energy efficiency retrofitting schemes can, if successful have the potential to help develop the local economy with jobs, education, new product opportunities and reduction in local energy consumption (Genovesi et al., 2013; Killip, 2013). Therefore there is much environmental, economic, and social justification for improving the UK's housing stock

¹ Fuel poverty is a phenomenon where households are unable to afford the energy costs required to heat their homes to suitable internal temperatures. This is usually defined as spending 10% of household income on energy costs. The 2011 Hills Review redefined this so that households are in fuel poverty if their fuel bills are above the national median and their remaining income is below the official poverty line (DECC, 2013).

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