

REPORT

ACHIEVING LONG-TERM BEHAVIOUR CHANGE IN ENERGY USAGE

LEARNING THE LESSONS FROM
GREEN STREETS

IPPR

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EXECUTIVE SUMMARY

Energy bills rose by as much as 19 per cent in 2011. This increase was the biggest driver of last year's high inflation and contributed to the squeezed living standards experienced by families across the UK. Energy bills need to come down urgently.

At the same time, greenhouse gas emissions must be tackled. The Climate Change Act 2008 commits the UK government to reduce carbon emissions by 34 per cent by 2020 and by 80 per cent by 2050, against a 1990 baseline.

Renovating homes, with measures like loft and wall insulation, to improve energy efficiency (known as retrofitting) can help to reduce bills and emissions. So too can everyday behaviour that uses less energy, such as turning down thermostats, washing clothes at low temperatures and switching off unnecessary lights.

Green Streets is a programme run by British Gas that has explored how people can be helped to reduce their energy use, with knock-on effects for both bills and emissions.

The first phase of Green Streets was a year-long challenge, which took place in 2008. Groups of residents on eight different streets across the UK competed against one another to see who could save the most energy. IPPR evaluated the challenge and found that significant outcomes were achieved (IPPR 2009), including:

- average energy savings by the groups ranging between 15 and 35 per cent
- average energy savings across all participating households of 25 per cent
- average reductions in carbon emissions across all householders of 23 per cent

Participating households adopted a wide range of behavioural changes and there were unexpected positive outcomes for social cohesion and community spirit as well. If the energy saving achieved was replicated across the UK, we calculated that around £6 billion would be saved from consumers' energy bills annually. Emissions equivalent to 35 million tonnes of carbon dioxide (MtCO₂) would be saved every year – roughly the same as the annual carbon emissions from three or four modern coal-fired power stations.

In 2010, the second phase of Green Streets saw communities take on responsibility for designing and delivering energy projects. Again, some significant outcomes were achieved (Platt et al 2011). IPPR conducted a survey of people living close to the participating communities and of those who knew about their local Green Streets project.

- 30 per cent said that being aware of a Green Streets project had changed their attitudes towards energy efficiency and renewable energy
- 46 per cent of these had been inspired to take action on energy efficiency and renewable energy
- 61 per cent said that they would be more likely to take action in the future.

In each phase of Green Streets, participants were provided with energy-saving measures and received advice and support on energy saving from an energy adviser. A prize was available for the winning group.

This report presents findings from the latest stage of the Green Streets programme. We have revisited participants from the first phase of Green Streets to find out which positive outcomes have persisted. This research brings a new perspective to existing insights from the Green Streets programme by exploring how positive changes to attitudes and behaviour around energy use can be sustained over the long term. As the costs of the transition to low-carbon energy sources increase, consumers will need help to manage

and reduce their bills and it will become increasingly important that effective support is made available to them.

The findings presented here are based on a series of focus groups, carried out by IPPR in November and December 2011, with each group of residents that took part in the first Green Streets challenge. Telephone interviews were carried out with participants who could not attend the focus groups. Around half (33) of the original participants took part. There are limits to the strength of the conclusions that can be drawn from this research because, as with all self-reported evidence, what a person says and what they actually do are not always the same. Nevertheless, the way in which the Green Streets participants describe their own attitudes and behaviour is very informative about the challenges and opportunities for achieving widespread behavioural change over the long term.

Did Green Streets achieve long-term impact?

The participants felt that Green Streets was highly effective at helping them achieve long-term change in how they used and thought about energy use. Overwhelmingly, participants felt they had successfully reduced their energy use during Green Streets and all claimed to have retained many of the changes in behaviour which they had adopted in their time on the programme. However, participants reported taking a more 'relaxed' approach to saving energy once the challenge was completed.

Successful long-term outcomes were most apparent where a behaviour adopted by a participant during Green Streets had become habitual or 'second nature'. For the vast majority of participants, this was the case with switching off appliances and lights when they were not needed. All the participants claimed to take energy efficiency ratings into account when purchasing new appliances.

Changes to behaviour that the participants found more difficult, or were less prepared to maintain, were those that reduced their comfort levels. For example, some participants found ceasing to use a tumble dryer hard to maintain because hanging washing could result in dampness within the home.

Despite these minor drawbacks, many participants believed the positive effect of Green Streets had spread through them to their friends, family and neighbours. This was mainly through word-of-mouth, including when others approached them for advice. Some participants had implemented initiatives in their workplace that aimed to save energy, such as installing energy-saving lightbulbs.

What factors affected the outcomes from Green Streets?

Several features of how Green Streets was designed were instrumental to the long-term outcomes achieved by the challenge:

- Participants received regular updates on how much energy they were using, which enabled them to constantly monitor their performance. This included having their usage compared with that of a 'typical' household and of other participants in the scheme. These comparisons, and the way in which the updates were shared between participants so that each was aware of the others' performance, helped to establish saving energy as a 'social norm'. It was important to some participants that the information in the updates was displayed using charts and diagrams that were easy to understand.

- Highly positive feedback was given regarding the support provided by the energy-saving advisers who mentored households during the project. The advisers both 'enabled', by providing expertise, and 'encouraged' the participants to save energy.
- Digital monitors that display the energy used by a property in real time, which all participants received, were highly effective in encouraging the participants to change their behaviour. They helped to remind participants to reduce the length of time and frequency with which particular appliances were used, as well as motivating participants to switch off lights and appliances when not needed. Views on how effective the monitors were in the long term varied, with some feeling they had no ongoing need to use the monitors once they were clear about the energy use of their home appliances. For others, the monitors had become a part of daily life and were regularly used to check whether appliances or lights had been left on.
- The community and competition aspects of Green Streets were important drivers of reduced energy use. While the incentive of winning a prize for their local community was fairly important for the participants, the desire to want to perform well in the eyes of their neighbours and to 'do their bit' for their team was generally more important. Participants also regularly shared tips and helped one another. Since the end of the challenge, the positive impact on relationships between the participants that occurred during Green Streets had, in general, lessened, mainly because the residents no longer convened at regular meetings as they had done while taking part. Nevertheless, in some communities the participants made a lasting effort to maintain the relationships they had built with their neighbours.
- The final important factor was the duration of the challenge. Participants were consistently reminded and motivated to save energy over the course of a full year, and this was felt to be a key factor in behavioural changes becoming habitual.

Rises in energy prices had encouraged the participants to maintain changes in behaviour. All felt capable of using what they had learnt to manage their energy usage.

In conclusion, Green Streets was successful in encouraging households to save significant amounts of energy. It also instilled long-term changes in the attitudes and behaviour of the participants towards their energy use. A number of the challenge's design features were critical to this being achieved and can help to inform future policy development.

Policy implications and recommendations

People can reduce their bills by installing energy-saving measures and adopting behaviour that uses less energy. This can also reduce carbon emissions. The Green Streets programme has shown that people working together as a community can play a major part in achieving these goals.

Over recent years there has been a proliferation in communities leading projects related to energy use. The Green Streets programme has played an important part in raising the profile and highlighting the needs of this burgeoning 'community energy' sector. Recently, the findings from Green Streets were presented to a newly formed government advisory body, the Community Energy Contact Group¹ (DECC 2011). This group was established at the request of the climate change minister, Greg Barker, who has claimed to be a strong supporter of the community energy sector (House of Commons 2012). The government committed to encouraging community-owned renewable energy schemes in the Coalition agreement.

1 For details, see http://ceo.decc.gov.uk/en/ceol/cms/about_ceih/cecg/cecg.aspx.

Our recommendations focus on the contribution communities can make to energy saving, how finance can be made available for community energy projects, and how individuals can be engaged directly in energy saving.

The role for communities

Most community energy projects are currently focused on renewable energy technologies. Although this is to be welcomed, communities can also play a role in stimulating demand for energy efficiency measures. This could help stimulate demand for the government's flagship energy efficiency policy, the 'green deal'.

Green Streets has shown how competitions can be a big motivator for people to engage in energy saving. The government could launch competitions that engage communities in the green deal, for example by offering a prize to the first street of private homes in the UK to achieve complete installation of solid wall insulation in all dwellings. Communities would benefit from advice on how to engage in the green deal, such as on how to 'group buy' measures and benefit from discounted prices. This could be developed with the Department for Business, Innovation and Skills (BIS) and Cooperatives UK, who are supporting new models of community buying through the 'Buy better together challenge'.² Existing channels of support for communities could be used to deliver this advice.

In December 2011, the government launched the Local Energy Assessment Fund. This was a £10 million short-term grant that enabled communities to explore the potential for energy saving and renewable energy projects in their area. In line with a recommendation in the last Green Streets report (Platt et al 2011), grants were provided to projects that included demonstration installations of solid wall insulation intended to raise awareness and demand for the technology. The challenge of improving the energy efficiency of the UK's 6 million solid-walled properties remains daunting, and the government should seek further opportunities to provide support to community projects that demonstrate solid wall insulation in situ. One specific way in which this could be achieved is through local housing organisations and/or local authorities allowing empty properties to be used for demonstration projects. This could also be an opportunity for local training organisations to train people in the skills required for solid wall insulation or other energy efficiency measures.

- **The government should use the Community Energy Online information resource³ to encourage communities to engage with the green deal. Advice on innovative schemes such as how to 'group buy' measures could be included. Incentives including competitions could be used to encourage communities to become involved.**
- **The government should seek further opportunities to work with communities to raise awareness and stimulate demand for solid wall insulation.**

Unlocking finance for community energy projects

The last Green Streets report identified communities' lack of capital or access to finance with which to purchase measures as a major barrier to community energy projects (ibid). The government has taken steps to overcome this but more could be done.

The main mechanisms for supporting people to purchase renewable technologies are the feed-in tariff (FIT) and renewable heat incentive (RHI). The government has indicated that it may introduce a higher level of subsidy support for communities through these schemes.

2 See <http://discuss.bis.gov.uk/buying/the-buy-better-together-challenge-feb-2012/>.

3 See <http://ceo.decc.gov.uk/>.

We identified the potential to introduce different levels of support for communities in the last Green Streets report (ibid). This will help to ensure that the benefits from these subsidies accrue to individuals and communities while offering the potential to create 'social returns on investment' as communities are improved.

Communities need support to raise capital with which to undertake feasibility studies for renewable installations. The government has announced it will launch the Rural Community Renewable Fund in 2012/13 with £15 million to allocate in loans to communities in rural areas for this purpose. For projects that go ahead, the loans will be repaid from revenue generated by the FIT or RHI. These repayments will then be used to fund additional loans. We welcome this cost-effective scheme and would ideally like to see the support it provides made more widely available.

The government is limited in the financial support it can provide to communities to purchase renewable energy technology. EU state aid regulations restrict the government from providing grants for measures that then benefit from the FIT or RHI. The government may however be able to provide loans for this purpose and this should be explored.

An alternative option is to provide loans using private sector capital that could become available through the forthcoming zero-carbon homes initiative. A report by the Zero Carbon Hub (2011) has proposed a framework of 'allowable solutions' enabling housing developers to offset emissions reductions that are not feasible in new developments by paying money into a fund that would, in the first instance, be used to support community energy projects. As this fund could be managed by a non-governmental body, there may be less risk of contravening state aid rules than if the government were to provide the loans directly. The report estimates that a scheme of this kind may be able to leverage sufficient additional private sector capital to yield up to £1 billion per annum from 2019.

- **The government should closely monitor the Rural Community Renewable Fund. The opportunity to recycle loans means the fund could be highly cost-effective, with far greater support being made available to communities than the nominal sum provided by the government. If demand for loans and the proportion being fully repaid is high then the government should consider increasing its size. This would require additional funding to be provided from general taxation in the short term but over time the fund should be close to revenue-neutral. Support could then be provided to projects not located in rural areas.**
- **The government should explore whether providing loans to communities to purchase renewable technologies that then benefit from the feed-in tariff and renewable heat incentive would contravene EU state aid legislation.**
- **The government should build on the zero-carbon homes 'allowable solutions' framework outlined by the Zero Carbon Hub and introduce a new stream of private capital to fund community projects. Local funds to support community energy projects that are seeded by this capital could be administered by designated social enterprises.**

Engaging individual householders

Green Streets has shown how the provision of advice and information on how to save energy is important in both enabling and encouraging people to take action.

If information on energy saving is provided to people by a trusted expert with good people skills then it can be particularly effective. There is a need to provide this information

through the government's flagship energy efficiency programme, the green deal. If households do not understand how their behaviour could affect their energy use then any expected bill savings could be undermined. As a result, the 'golden rule' that benefits outweigh costs – which is fundamental to the green deal – could be breached.

Green Streets showed how information provided by real-time energy monitors was an effective motivator for change. Similarly, 'smart meters' offer an opportunity to engage people with their energy use. Smart meters can send and receive information about energy usage, payment and tariffs between a consumer and a supplier or third party. In contrast, much existing residential metering technology is a century old. In-home displays can provide smart meter information directly and conveniently to householders.

In our initial evaluation of Green Streets, IPPR recommended that the smart meter roll-out be accelerated (IPPR 2009) – and this has occurred. The government's latest proposals envisage the mass roll-out to be actioned by suppliers from the last quarter of 2014 onwards and effectively to be completed by 2019.

The smart meter roll-out offers a unique opportunity to raise public awareness on how to manage energy use and to engage consumers in this to a far greater extent than before. The government and suppliers will need to work together to ensure householders are prepared for the roll-out and understand why it is occurring and the benefits it can bring them. The consumer campaign leading up to the digital TV switchover is widely perceived to have been a success, and the Department for Energy and Climate Change (DECC) should learn from this as it develops its smart meter deployment plans.

Providing people with information that compares their own energy use with their peers' has also been effective at encouraging behavioural change. The 'Consumer Energy Summit' hosted by David Cameron in late 2011 concluded with agreement from energy suppliers to look at ways to enable consumers to compare their gas and electricity consumption with similar households in their area through a web-based tool.⁴ This is to be welcomed, but because levels of consumer engagement with the energy supply market are very low (Ofgem 2011) it is likely that few people will go to the effort of using this tool. A better approach would be to provide consumers with this information directly on their energy bills.

A final avenue of information provision found to be effective in Green Streets was the efficiency labelling of appliances. However, the ratings of appliances can be confusing for consumers. For example, they are not recalibrated as technology efficiency improves, which means that there are now several levels of efficiency performance above an A rating, such as AA and AAA.

- **The green deal assessment should be used to raise households' awareness of how their behaviour affects energy use. Training in what information to provide and the 'soft' people skills necessary to present it effectively should be a core component of the accreditation scheme for green deal assessors.**
- **The government and suppliers should work together to ensure households are ready for the smart meter roll-out. Lessons can be learned from the successful campaign leading up to the digital TV switchover. The government should use the roll-out as an opportunity for positive public engagement on energy, including how people can manage and reduce their usage.**

4 See http://www.decc.gov.uk/en/content/cms/news/consumer_summi/consumer_summi.aspx

- Government and suppliers should work together to find ways of providing data to consumers that compares their usage with similar households in their area. A web-based tool as proposed would be useful but a better approach would be to include this information on bills. The government should work with suppliers to explore the feasibility and cost implications of such a scheme.
- The UK delegation should strongly advocate ongoing recalibration of the EU energy efficiency grades in line with technological improvements so that an 'A' remains the top rating.

1. INTRODUCTION

Energy bills rose by as much as 19 per cent in 2011. This increase was the biggest driver of last year's high inflation and contributed to the squeezed living standards experienced by families across the UK. Energy bills need to come down urgently.

At the same time, greenhouse gas emissions must be tackled. The Climate Change Act 2008 commits the UK government to reduce carbon emissions by 34 per cent by 2020 and by 80 per cent by 2050, against a 1990 baseline (OPSI 2008). To meet its commitments under the act, the UK will need to reduce the emissions generated from its homes and communities by 29 per cent by 2022 compared with a 2008 baseline (DECC 2008).

Renovating homes, with measures like loft and wall insulation, to improve energy efficiency (known as retrofitting) can help reduce bills and emissions. So too can everyday behaviour that uses less energy, such as turning down thermostats, washing clothes at low temperatures and switching off unnecessary lights.

This paper presents new findings from the Green Streets programme, run by British Gas, that has explored how people can be helped to reduce their energy use, with knock-on effects for both bills and emissions. It will show that Green Streets has had a long-term impact on the attitudes and behaviour of the people who took part and outline the reasons why. Important lessons can be gained from Green Streets, and this report concludes by putting forward a range of policy recommendations.

2. GREEN STREETS

The first phase of Green Streets was a year-long challenge, which took place in 2008. Groups of eight residents on eight different streets across the UK competed against one another to see who could save the most energy. A prize of £50,000 to spend on a community project of the participants' choice was available to the winners.

Each street was given £30,000 worth of energy saving and renewable energy measures. The residents chose how they would invest the money, based on the outcomes of energy assessments and advice from an energy adviser. These measures ranged from small gadgets such as energy-efficient lightbulbs, real-time handheld energy monitors, standby savers and kettles, to boilers, energy efficient appliances and, in some cases, solar panels. The energy adviser worked with the householders throughout the challenge, distributing information and giving advice on how to reduce energy. The householders took part in regular group meetings with their adviser to discuss their progress and find out how this compared with the other competing streets.

IPPR independently assessed the challenge, validating and analysing the energy data, interviewing participants and drawing out policy lessons. In March 2009, the findings were published in a report called *Green Streets: Final report to British Gas* (IPPR 2009). We found that significant outcomes were achieved, including:

- average energy savings by the groups of households ranging between 15 and 35 per cent
- average energy savings across all participating households of 25 per cent
- average reductions in carbon emissions across all householders of 23 per cent.

Participating households adopted a wide range of behavioural changes and there were unexpected positive outcomes for social cohesion and community spirit as well. If the energy saving achieved was replicated across the UK, we calculated that around £6 billion would be saved from consumers' energy bills annually. Emissions equivalent to 35 million tonnes of carbon dioxide (MtCO₂) would be saved every year – roughly the same as the annual carbon emissions from three or four modern coal-fired power stations.

In 2010, the second phase of Green Streets saw communities take on responsibility for designing and delivering energy projects, again as part of a competition to save energy. Of around 600 applicants, 14 community groups were selected to take part. Again, significant outcomes were achieved (Platt et al 2011). Substantial energy savings resulted from the installation of energy efficiency and renewable microgeneration measures into homes and community buildings, while the most striking outcome was how people's attitudes to energy use changed as a result of the projects. IPPR conducted a survey of people living close to the participating communities and of those who knew about their local Green Streets project:

- 30 per cent said that being aware of a Green Streets project had changed their attitudes towards energy efficiency and renewable energy;
- 46 per cent of these had been inspired to take action on energy efficiency and renewable energy;
- 61 per cent said that they would be more likely to take action in the future.

This report presents findings from the latest stage of the Green Streets programme. We have revisited participants from the first phase of Green Streets – the street versus street challenge – to find out which positive outcomes have persisted.

3. RESEARCH AIMS AND METHODOLOGY

This research brings a new perspective to existing insights from the Green Streets programme by exploring how positive changes to attitudes and behaviour around energy use can be sustained over the long term. As the costs of the transition to low-carbon energy sources increase, consumers will need help to manage and reduce their bills and it will become increasingly important that effective support is made available to them.

The findings presented here are based on a series of focus groups, carried out by IPPR in November and December 2011, with each group of households that took part in the first Green Streets challenge. Telephone interviews were carried out with participants who could not attend the focus groups. Around half (33) of the original participants took part. A discussion guide was used – see the appendix for a reproduction. The focus groups and interviews were transcribed and then analysed for themes. Quotes that illustrate these themes are presented throughout this report.

There are limits to the strength of the conclusions that can be drawn from this research because, as with all self-reported evidence, what a person says and what they actually do are not always the same. Nevertheless, the way in which the Green Streets participants describe their own attitudes and behaviour is very informative about the challenges and opportunities for achieving widespread behavioural change over the long term.

4. DID GREEN STREETS ACHIEVE LONG-TERM IMPACT?

Participants reported that they had reduced their energy usage during Green Streets and all claimed to have retained many of the changes in behaviour which they had adopted in their time on the programme, in addition to a raised level of awareness on how they used energy.

4.1 Perspectives on overall energy use

Many of the participants reported using significantly less energy than they had prior to taking part in Green Streets but slightly more than during their time on the challenge. As two participants explained:

‘It wised us all up [but] whether we’ve continued it to the nth degree, I don’t know.’

Male, Cardiff

‘Ours has slipped back slightly, not to the levels they were before Green Streets but we’ve just not been as ultra-careful as we were during that year.’

Male, Leeds

For some, the behavioural lessons of the challenge were seen to be long-lasting:

‘As a project it was very motivating and I still carry it on.’

Male, Plymouth

‘We still do, we all do ... before you used to waste it but you don’t anymore.’

Female, Plymouth

‘It’s slightly unconscious around the behaviour change.’

Male, London

The participants reported taking a more relaxed approach to saving energy once they were no longer involved in Green Streets. Participants wanted to increase their ‘comfort’ levels, particularly in relation to heating, lighting and drying clothes, once the challenge had ended. Some also reported how demands from other aspects of their lives meant they reduced the amount of effort they put into energy saving:

‘I was a lot better at being conscientious that year, but when you’ve got a young child in the house you’d be like “I’m knackered”.’

Male, London

‘Life and time gets in the way, especially when we’re working a lot it’s hard to give it the attention always.’

Male, Leeds

Other factors including changes in personal circumstance, such as caring for a relative, and the cold winters experienced since Green Streets also affected energy usage:

‘The last two winters have both been a lot colder so we used more and more [energy].’

Male, Leeds

All participants were aware that the cost of energy had increased significantly since Green Streets and for some this had led them to limit their usage. One participant explained how they were able to draw on the lessons they had learnt through Green Streets to achieve this:

‘[Recently] we haven’t been as careful by any means as we were during [that] year, but we have taken a few steps back and reverted to some of the practices that we used because the cost was going up so much.’

Female, Leeds

4.2 The sustainability of adopted behaviours

A range of changes in behaviour adopted by participants during the Green Streets challenge were discussed throughout the workshops. These included closing doors, restricting or completely stopping tumble-drying clothes, cooking in batches and freezing meals, leaving the windows closed when drying clothes indoors, wearing extra clothes and turning down the heating thermostat, reducing the amount of time heating is used, turning off lights when not in use, and unplugging chargers and other electrical equipment.

Some of the behaviours adopted during Green Streets had been sustained better than others. For example, the vast majority of participants reported that switching off appliances and lights when they were not needed had become ‘second nature’ as a result of Green Streets and was a behaviour they had continued:

‘That’s one thing I didn’t think I would keep up with – the lights – but now you automatically turn the thing off.’

Female, Leeds

‘[My usage] is definitely down because nothing is left on standby – this is a massive one, the standby.’

Female, Cardiff

One participant explained how Green Streets had changed his approach to cooking:

‘I plan my meals, so if I’m doing something in the oven I would never just put a pie in the oven and the veg on top. If I’m having something in the oven – chips, pie, tomatoes – I will put everything in the oven.’

Male, Manchester

Smaller adaptations that were perceived to have no negative impact on a participant’s standard of living were believed to be easier to maintain than those which required more extensive adaptation. For example, turning lights off when not needed was seen to have no downside and to be highly sustainable. On the other hand, ceasing to use a tumble dryer was perceived to have some negative consequences during the winter, because it could result in dampness within the home – as a result, it was seen as harder to sustain. Overall, many participants were not willing to continue to sacrifice their comfort levels to save energy once the Green Streets challenge had ended. This suggests that where there are obvious ‘costs’ to a change in behaviour, it is less likely it will be maintained.

A common feeling was that some participants, in particular on the more successful projects, had taken up very ‘extreme’ or ‘far-fetched’ approaches to energy saving during the challenge that were unsustainable in the longer term, such as using the barbeque for

everyday cooking or camping in the garden. Participants in the London-based project – who came last in the competition – were keen to express how they had adopted more modest behaviours that they felt would be sustainable in the longer term:

‘We did make changes in that we learnt to turn lights off and with the heating ... we made little changes, things that you should be doing ... We were doing things normally, but some of the other cities were doing things they weren’t able to keep up after the project.’

Female, London

This echoes analysis from the original Green Streets evaluation which highlighted that some participants felt that some changes in behaviour, such as eating by candlelight, were going ‘too far’ (IPPR 2009: 22).

In general, participants retained from Green Streets a very high awareness of how their behaviour was related to energy use. While all maintained some behaviour that saved energy, there was resistance to maintaining behaviour that was detrimental to quality of life. Green Streets achieved positive impacts but also shows that getting people to make far-reaching changes in behaviour presents a serious challenge.

4.3 Purchasing behaviour since Green Streets and future plans

The vast majority of participants reported changes to the way they selected appliances as a result of the knowledge they gained through Green Streets. For households that had needed to replace a larger household item, such as a dishwasher or fridge, they all took into account the energy rating of the product, selecting AAA-rated products only:

‘We had to buy a tumble dryer ... we went for the most efficient one we could get, and just as a result of this scheme really ... one of the first things you look at is energy rating. It sticks in my mind.’

Male, Leeds

‘I would definitely look for the energy rating.’

Female, London

Those who had yet to need to replace any appliances also felt that they would base their decision on the energy rating of appliances.

A smaller number of people reported that they already looked at the energy rating for new products prior to their involvement in Green Streets:

‘I didn’t change – I always bought the A-rating anyway.’

Male, London

Workshop participants were asked whether they had any intention to introduce new energy-saving measures, gadgets or any other adaptations for the future. Overall, the majority of participants felt that they had already introduced all the measures that are available to them in terms of cost and the adaptability of their homes; many felt that it was their behaviour which would have the most impact on their energy usage now. Some felt there was limited scope for improvement:

‘We’re fully maxed out, I think.’

Male, London

Only a few participants put forward examples of how they would like to increase their energy efficiency. For example, one participant said that they would like to increase their use of energy-saving lightbulbs:

‘I’d like to explore ... the lightbulbs a bit more [to see] if you can get ones now that deliver a suitable light.’

Male, London

The age and type of housing was identified as a key factor holding people back from making significant improvements to the overall energy efficiency of their homes. For example, solar panels were mentioned as being only suitable for some houses, depending on the size of the roof and the direction it faces. Despite this, a few participants said that they would like to look into getting solar panels.

4.4 Impact of Green Streets on people beyond the participants

Many participants felt that Green Streets had had far-reaching effects beyond their own households:

‘I do think we’ve managed to pass it on.’

Female, Manchester

Many spoke of how their children and their schools had become engaged in the competition, with children taking the project seriously and passing on some of its lessons to their friends and school peers. Some had also gone on to be involved in Generation Green, a similar energy-saving initiative led by British Gas, in their schools.

The impact on friends and family was also recognised by those involved; a few participants described how they had tried to persuade them to take up different behaviours. Participants spoke of family members coming to them for advice on how they could increase their energy efficiency and that they had taken up their advice in some cases:

‘My friends have bought an [energy monitor]⁵ and they still use it all the time.’

Male, Manchester

Finally, Green Streets was also seen to have impact on workplace behaviour, with one participant, who was responsible for arranging property contracts, feeling that the project had encouraged him to consider the energy efficiency of these properties. A similar effect was also reported by another participant who had arranged for his work building to use energy-efficient lightbulbs:

‘It’s made me very conscious at work as well – the energy rating of the buildings.’

Male, Leeds

Our analysis shows that Green Streets has had a long-lasting impact on the attitude and behaviour of participants around energy usage. Participants reported that they had often not maintained the level of change that they had adopted during the challenge, particularly where this involved sacrificing comfort levels. In the very best cases, however, energy-saving behaviour had become habitual.

We now explore how certain key features of Green Streets were important to the outcomes that were achieved, by drawing on insights from behavioural psychology.

⁵ Energy monitors are discussed in detail in section 5.2 below.

5. WHAT FACTORS AFFECTED THE OUTCOMES OF THE GREEN STREETS CHALLENGE?

Behaviour change is a complex phenomenon (see for example Jackson 2005). Two useful models for helping us to understand the outcomes achieved by Green Streets in this respect are the framework for pro-environmental behaviour change developed by Defra (Defra 2008) and the concept of ‘nudge’ (Thaler and Sunstein 2008).

Defra’s framework suggests four types of intervention to induce behavioural change: **encourage** (through financial rewards and penalties), **enable** (through providing information and other means), **engage** (motivating people through a variety of communication channels) and **exemplify** (government at all levels leading by example). This framework was used to understand the impact of Green Streets in the original evaluation report (IPPR 2009).

The concept of ‘nudge’, which has emerged from the field of behavioural economics, has gained popularity within policymaking circles, in particular with the Coalition government. In the past, theories on behaviour change were ruled by rational choice theory – that an individual’s decisions are based on a preference for the option that would maximise their benefit and minimise their cost. This is grounded on the assumption that individuals have perfect information on the options available to them at all times and are equipped with the cognitive skills to weigh up those options. Behavioural economics has since emerged as an alternative way of understanding the decision-making process, drawing on a range of insights about the psychology of human behaviour.

Behavioural psychology research has highlighted the importance of ‘social norms’ – where people base their own actions on the actions of others (see for example Ormerod 1998) – and of ‘key influencers’, individuals who are viewed as ‘experts’ on an issue (see for example Halpern 2004). Another insight concerns the importance of building an individual’s sense of self-efficacy, that is, their perception that their decision to behave in a particular way can produce positive outcomes. This can best be done through participative decision-making methods rather than by dictating outcomes. Finally, the way in which decisions are ‘framed’ has been found to be important, with people tending to be more adverse to losing something than to gaining something of the same value.

Thaler and Sunstein’s work (2008) has been instrumental in efforts to apply lessons from behavioural economics to the policy sphere. They suggest a number of different ‘nudges’, or subtle influences, that policymakers can use to stimulate behaviour change. This includes making the desired behaviour change the default option, in the recognition that an individual is more likely to stick with the status quo than make the effort to change; giving feedback to people that enables them to compare their actions against a reference point; and providing incentives to encourage people to adopt a certain behaviour.

In this chapter we examine key features of the Green Streets programme – information provision, real-time energy monitors, expert guidance, community collaboration and competition, and the duration of the challenge – with the benefit of insights from the field of behavioural psychology. We also consider the significance of the participants’ attitudes to climate change and rising energy bills to the outcomes achieved.

5.1 Information provision

For some participants it was particularly important to have a visual representation of their energy use. One participant felt that he struggled to conceptualise his energy consumption and so having a bar chart or other graphic representation to keep him updated on what he used was important:

'I don't physically feel when I put the oven on that I am using the world's resources, but I do [feel it] ... if I don't recycle the packaging because physically you see when you put the bin bags out every week. They don't go "this is the amount of carbon you've used and here it is dumped in your back garden" – if you knew or physically understood what that was it would help your behaviour ... I think because you had the bar charts, last year versus this year and how you are performing – for me that was really useful as a readout to see how much I was spending.'

Male, London

Participants also said that being provided with information with which they could compare their energy usage with a typical household was important in helping them to adapt their behaviour. The performance of all participants was shared among the group and this worked as a significant motivator. As all of the participants were simultaneously engaged, Green Streets created a 'social norm' around energy saving. This meant that adopted changes were made more socially acceptable while at the same time creating a strong incentive for participants not to perform badly. The following two quotes describe the type of information the participants wanted to see and what they found useful:

'What does the average three-bedroom terrace house use? What is the average bill? So where do I fit?'

Male, London

'It was really good because we did the monthly readings and got the bar charts. You could see where you were in relation to the other people in the street and others involved.'

Female, London

The importance of having a visual 'cue' to support particular behaviour (see Jackson 2005), the power of comparative information, and the importance of perceptions of 'social norms' have all been highlighted in the behavioural economics literature.

5.2 Real-time energy monitors

Digital monitors that display the energy used by a property in real time, which all participants received, were discussed in the workshops in very positive terms. They were reported as having been highly effective in encouraging the participants to reduce their energy use, achieving reductions in the length of time and the frequency with which particular appliances were used as well as motivating participants to switch off lights when not in use and appliances when on standby. One participant said:

'I did notice if you were slack for a period of time or if it was a particularly cold snap you would notice it a lot on the visual display ... I got very boring – you would notice if I was ironing a shirt and my wife was drying her hair I would be like "oh my god we better stop doing this soon"!'

Male, London

Views on the long-term effectiveness of the monitors varied. Some participants felt they had no ongoing need to use the monitors because their energy-saving behaviour had become habitual. These participants spoke of being confident that they knew exactly how

much energy appliances in their homes used and felt they no longer needed the monitor display to recognise when they were using energy:

‘I just stopped using it: it’s only telling me what I use and I already know what I use – I know when I put the oven on it will go up.’

Male, Manchester

‘We took it off after we did up the kitchen and we’ve not plugged it back in because fundamentally we’d got into the habit anyway.’

Male, London

Other participants still found the monitor to be very useful in maintaining their awareness of their energy use at home. For some, the monitor was placed in a prominent position and was referred to regularly to check whether appliances or lights had been left on:

‘Because I’ve got the [energy monitor] hanging around it tells you how much electricity its gobbling – I know during the day it is at 0.6, so I know if it goes over that then something is on that shouldn’t be.’

Female, Leeds

Whatever the participants’ view on their long-term usefulness, all participants felt that energy monitors could make a significant difference to the way people use energy:

‘If every household was given a simple monitor it would make more difference than anything, because every household would be able to see ... that’s one thing out of everything that we’ve been given.’

Female, Cardiff

The energy monitors successfully ‘engaged’ the participants in energy saving. They increased the participants’ awareness of how much energy they used in general, which motivated them to act, and also provided a constant visual reminder, which helped them to manage their energy use.

5.3 Expert guidance

Overwhelmingly positive feedback was given regarding the support provided by the energy savings advisers who mentored households throughout the challenge. In each workshop, examples were given about how their expert had helped them to improve their efficiency. Some spoke of it being a learning process for all involved, that ideas were shared between groups and that expert guidance was an important part of this process:

‘He tells you what you could do and then it’s up to us to take it on board and do it.’

Female, Plymouth

‘We came up with ideas [together] – [the adviser] asking for ideas and then adding their own, communicating together on it, and coming up with the best ideas we could think of.’

Male, Plymouth

Participants in London were less positive about the role of their adviser.⁶ They felt the need for expert guidance was lessened once specific techniques and changes to behaviour had been learnt:

‘From the outset you got a pretty good sense of what was needed and it was really just down to you to amend your behaviour.’

Male, London

All of these comments suggest that the role of the adviser was important at the beginning and gave people the information they needed to succeed. The advisers fulfilled Defra’s framework criteria of being both ‘enabling’ and ‘encouraging’. They also played the role of ‘key influencer’ on participants and took a participative approach, building the participants’ self-efficacy.

5.4 Community collaboration and competition

The competitive element of the Green Streets challenge emerged as critical in motivating participants to change their behaviour. The incentive of being able to win a prize for their local community was fairly important for the participants, but even greater was the desire to perform well. A common theme throughout the workshops was that participants felt motivated to restrict their energy use so that they did not let their neighbours down:

‘The concept of not letting down your fellow neighbours probably motivated you more than trying to outperform some street up in Manchester.’

Male, London

‘[If you were involved as an individual] you wouldn’t have felt under pressure to not let the team down so you might have slipped a bit.’

Male, Leeds

‘You used to feel guilty if you turned the heating on in the morning.’

Female, Cardiff

‘It was working as a team: you would look at figures a month in arrears – you didn’t want to be the worst.’

Male, Leeds

Engaging with the challenge as a team was very important. Participants provided many examples of team members sharing support and ideas:

‘In the beginning we all supported each other, you needed encouragement from each other, you bounced ideas off each other – I don’t think I would have done it [by myself].’

Female, Manchester

When asked about whether entering the competition as an individual would have made any difference, the vast majority felt that they would not have done as well and that the experience would not have been the same without peers to provide encouragement.

6 British Gas staff who were involved in the project suggested this was because the energy adviser for the London residents gave the participants less attention than occurred on other streets, ostensibly because he lived a long distance away from the street and so had to travel a long way to visit this group of participants.

Indeed, an unexpected finding of the first evaluation of Green Streets was that a strong sense of community developed between participants. This finding was reiterated in our recent workshops, which included discussions on how relationships between participants improved and the community benefited as a result of the challenge:

‘We knew we were all in one street. We made new friends.’

Female, Plymouth

On some streets, the improved relationships persisted – for example, one group meets annually for a summer barbeque. On other streets, the relationships were not seen to be as strong as they had been during the project and indeed many participants saw our workshops as a good opportunity for a reunion.

The social aspect of Green Streets was clearly vital to its success, which appears to bring two theories from behavioural psychology into play: the power of group identity and the theory of ‘self-discrepancy’. Group identity has been found to have a strong influence on the way people feel about other group members and other outside groups, and ultimately increases commitment to the cause of their own group. Self-discrepancy theory explains that negative emotions can result from acting in a way that is seen to be different from what others expect of us. This means that committing to something publicly increases an individual’s likelihood of ‘following through’ because of the negative emotions that would stem from not doing so (Higgins 1987).

While Green Streets did have long-lasting effects on the behaviour and attitudes of participants, for many their ongoing engagement with energy saving had reduced since the end of the challenge. The influence of the competition was crucial here – once the desire to perform well in the competition alongside their neighbours was lost the participants had less motivation to maintain changes in their behaviour.

An unexpected but important finding from the original Green Streets evaluation was that the challenge had increased the interaction between people in the communities involved and had a positive impact on community spirit and neighbourliness. While the relationships between participants were less close by the time of the second evaluation, it was nevertheless clear that working together as a community was fundamental to their high levels of engagement with the challenge.

5.5 The duration of Green Streets

A final factor that was important to the success of Green Streets but which was not revealed by the first evaluation was its duration. The length of the challenge was repeatedly referred to by participants as important in having ingrained energy efficiency behaviour. The challenge lasted for a full year, and throughout this time participants monitored their energy use and were motivated to engage in energy saving. It is because of this that many participants felt energy-saving behaviour such as switching off the lights had become ‘second nature’:

‘The competition made it stick in your mind ... If you watch a TV programme about energy efficiency it’s not going to stick in your mind and people might do it for [just] a little bit, but I think the fact we did it for a year enforced it in your mind. It is ingrained.’

Male, Leeds

One key insight from behavioural economics is that habits are extremely important in dictating our decisions. When something becomes habit, it requires ‘very little or no cognitive effort’ (NEF 2011: 5). By repeating certain actions frequently, they become ingrained in our psyche. This means that changing daily actions and choices that impact on energy use is very challenging. Some psychologists theorise that to do this you need to bring these unconscious decisions to the conscious mind, encourage a change and then attempt to make the new behaviour into an unconscious habit by repetition (Jackson 2005). The experience of Green Streets suggests not only that is repetition of an action or behaviour necessary in order for it to become habitual but that this repetition must occur over a significant period of time to take effect. That Green Streets was successful in causing some participants to develop energy-efficient habits is a notable achievement.

5.6 The attitudes of participants to climate change and energy bills

So far this chapter has identified aspects of how Green Streets was designed that were influential in achieving outcomes. We now look at how factors not directly related to Green Streets, specifically the participants’ attitudes towards climate change and the cost of energy, affected their motivation to change their behaviour. These provide an important context for understanding the participants’ upkeep of energy saving behaviour since the end of Green Streets.

The attitudes of the Green Streets participants to climate change were very mixed. Several felt it was an important issue facing the world and something that everyone could play a role in addressing. Others were concerned about the depletion of non-renewable resources and felt that this was an important reason for people to limit the amount of energy they used. A particular concern of participants, raised in all of the workshops, was the impact climate change and depleting resources would have on future generations:

‘It’s not going to affect us in our life time but in 100, 200 years’ time it will be a nightmare.’

Male, Plymouth

‘You’re talking about sea-level rises in the next 50 years.’

Male, London

‘I find it amazing how many people do not consider how much energy they’re using ... People are so careless with things they take for granted that probably our grandchildren won’t have.’

Female, Leeds

‘It raised awareness and made you more conscious of the issues, the wastage you would have in your own house just through not turning your light off and not turning standby off.’

Male, Cardiff

‘It’s for the future generations ... my children.’

Male, Plymouth

Sceptical views on the science of climate change were also voiced in all of the workshops by a minority of participants; others expressed feelings of being powerless to stop climate change. Nevertheless, these individuals were still motivated to reduce their energy use due to concerns about the depletion of resources and the financial savings they could

make, showing that a lack of concern about climate change specifically is not a barrier to reducing energy use and emissions:

'I'm not an advocate of saving energy for the environment, I don't massively believe that what I do changes it that much – but at the same time I know that what we use to power our houses is coming from a finite resource that is clearly running out. So I hate to see it from that point of view – people wasting things.'

Male, Leeds

'You've got to convert it into a personal financial benefit ... you can't do it on the basis of "look it's all about looking after the planet". What I do is completely irrelevant – there are 7 billion people on this planet and it's going to be down to what the Chinese do quite frankly.'

Male, London

Indeed, across the board the financial benefits participants could gain from saving energy were significant motivators to reduce energy use. Recent rises in the cost of energy in particular were seen as major motivating factors, with some participants revealing their worries about high energy bills:

'I am dreading the bills.'

Female, Cardiff

For others it was the combination of high bills with the economic downturn that was the most significant motivation to reduce their energy usage:

'I notice it far more when you look at your bills ... that's probably more of a motivator than anything else.'

Male, London

'If you haven't got the money to spend then you've got to save, haven't you?'

Female, Plymouth

'Green Streets coincided with the economic downturn, so as well as seeing it as an environmental thing it became a financial thing as well.'

Male, Leeds

While saving money was a key motivator for participants, some observed how rising energy prices threatened to remove some or all of the savings that they were hoping to make. Also, there was a division here between London and other locations. Participants in the London workshop reported that they had been less motivated to make significant changes to their behaviour because they perceived the potential cost savings, as well as the competition prize, to be more valuable to participants from other areas:

'I suspect the demographic does have an effect – if you're in a tiny terrace house up north and ... the energy saving itself is relatively more valuable to you and certainly the potential prizes for the community itself may be more valuable to you, possibly there were groups of people that were willing to endure more hardship than us.'

Male, London

Overall, we found that the financial savings available from energy saving were a consistent motivator for the participants to alter their energy use. Less consistent was the concern participants had for climate change or for the sustainability of resources. These findings can inform debates in the climate change community about whether behaviour change initiatives should appeal to ‘materialistic’ factors, such as cost saving. Critics of this approach point to the risk of a ‘rebound’ effect: if someone adopts a low-carbon behaviour to save money then they might spend that money elsewhere in a way that leads to greater emissions (for instance, where someone saves money off their energy bills by installing loft insulation and spends the money they have saved on an overseas flight).

An alternative approach is to encourage people to adopt a world-view that prioritises values such as conserving resources and protecting nature above more materialistic concerns, in the hope that this will lead them to adopt more sustainable behaviour. However, research has found that this approach can leave people feeling patronised and resistant to the perceived judgment that their choice of lifestyle is somehow ‘wrong’ (Platt and Retallack 2009). The findings from Green Streets show that the cost savings from energy efficiency are a motivating factor for some participants, but not all. In particular, for those on higher incomes, who are likely to be less responsive to such approaches, attitudinal approaches may prove more effective.

5.7 Summary

In summary, there are several features in the design of Green Streets that stand out as important in encouraging energy efficient behaviour. They include:

- the visual and comparative information provided to participants on their energy use, including through real-time energy monitors
- the help participants received from an energy expert
- the fact that participants were engaged in a competition as a community
- the long-term nature of the challenge.

For many participants, the length of the challenge and the continual reminder it provided for participants to save energy was particularly important in ingraining energy-saving behaviour as habit.

6. CONCLUSION: POLICY IMPLICATIONS AND RECOMMENDATIONS

People can reduce their bills by installing energy-saving measures and adopting behaviour that uses less energy. This can also reduce carbon emissions. The Green Streets programme has shown that people working together as a community can play a major part in achieving these goals and that well-designed initiatives can support communities to do this.

Over recent years there has been a proliferation in communities leading projects related to energy use. The Green Streets programme has played an important part in raising the profile and highlighting the needs of this burgeoning 'community energy' sector. Recently, the findings from Green Streets were presented to a newly formed government advisory body, the Community Energy Contact Group⁷ (DECC 2011). This group was established at the request of the climate change minister, Greg Barker, who has claimed to be a strong supporter of the community energy sector (House of Commons 2012). The government committed to encouraging community-owned renewable energy schemes in the Coalition agreement.

Our recommendations focus on the contribution communities can make to energy saving, how finance can be made available for community energy projects, and how individuals can be engaged directly in energy saving.

The role for communities

Most community energy projects are currently focused on renewable energy technologies. Although this is to be welcomed, communities can also play a role in stimulating demand for energy efficiency measures. This could help stimulate demand for the government's flagship energy efficiency policy, the 'green deal'.

Green Streets has shown how competitions can be a big motivator for people to engage in energy saving. The government could launch competitions that engage communities in the green deal, for example by offering a prize to the first street of private homes in the UK to achieve complete installations of solid wall insulation in all dwellings. Communities would benefit from advice on how to engage in the green deal, such as on how to 'group buy' measures and benefit from discounted prices. This could be developed with the Department for Business, Innovation and Skills (BIS) and Cooperatives UK, who are supporting new models of community buying through the 'Buy better together challenge'.⁸ Existing channels of support for communities could be used to deliver this advice.

In December 2011, the government launched the Local Energy Assessment Fund. This was a £10 million short-term grant that enabled communities to explore the potential for energy saving and renewable energy projects in their area. In line with a recommendation in the last Green Streets report (Platt et al 2011), grants were provided to projects that included demonstration installations of solid wall insulation intended to raise awareness and demand for the technology. The challenge of improving the energy efficiency of the UK's 6 million solid-walled properties remains daunting, and the government should seek further opportunities to provide support to community projects that demonstrate solid wall insulation in situ. One specific way in which this could be achieved is through local housing organisations and/or local authorities allowing empty properties to be used for demonstration projects. This could also be an opportunity for local training organisations to train people in the skills required for solid wall insulation or other energy efficiency measures.

7 For details, see http://ceol.decc.gov.uk/en/ceol/cms/about_ceih/cecg/cecg.aspx

8 See <http://discuss.bis.gov.uk/buying/the-buy-better-together-challenge-feb-2012/>

- **The government should use the Community Energy Online information resource to encourage communities to engage with the green deal. Advice on innovative schemes such as how to ‘group buy’ measures could be included. Incentives including competitions could be used to encourage communities to become involved.**
- **The government should seek further opportunities to work with communities to raise awareness and stimulate demand for solid wall insulation.**

Unlocking finance for community energy projects

The last Green Streets report identified communities’ lack of capital or access to finance with which to purchase measures as a major barrier to community energy projects (ibid). The government has taken steps to overcome this barrier but more can be done.

The main mechanisms for supporting people to purchase renewable technologies are the feed-in tariff (FIT) and renewable heat incentive (RHI). The government has indicated that it may introduce a higher level of subsidy support for communities through these schemes. We identified the potential to introduce different levels of support for communities in the last Green Streets report (ibid). This will help to ensure that the benefits from these subsidies accrue to individuals and communities while offering the potential to create ‘social returns on investment’ as communities are improved.

Communities need support to raise capital with which to undertake feasibility studies for renewable installations. The government has announced it will launch the Rural Community Renewable Fund in 2012/13 with £15 million to allocate in loans to communities in rural areas for this purpose. For projects that go ahead, the loans will be repaid from revenue generated by the FIT or RHI. These repayments will then be used to fund additional loans. We welcome this cost-effective scheme and would ideally like to see the support it provides made more widely available.

The government is limited in the financial support it can provide to communities to purchase renewable energy technology. EU state aid regulations restrict the government from providing grants for measures that then benefit from the FIT or RHI. The government may however be able to provide loans for this purpose and this should be explored.

An alternative option is to provide loans using private sector capital that could become available through the forthcoming zero-carbon homes initiative. A report by the Zero Carbon Hub (2011) has proposed a framework of allowable solutions enabling housing developers to offset emissions reductions that are not feasible in new developments by paying money into a fund that would, in the first instance, be used to support community energy projects. As this fund could be managed by a non-governmental body there may be less risk of contravening state aid rules than if the government were to provide the loans directly. The report estimates that a scheme of this kind may be able to leverage sufficient additional private sector capital to yield up to £1 billion per annum from 2019.

- **The government should closely monitor the Rural Community Renewable Fund. The opportunity to recycle loans means the fund could be highly cost-effective with far greater support being made available to communities than the nominal sum provided by the government. If demand for loans and the proportion being fully repaid is high then the government should consider increasing its size. This would require additional funding to be provided from general taxation in the**

short term but over time the fund should be close to revenue-neutral. Support could then be provided to projects not located in rural areas.

- The government should explore whether providing loans to communities to purchase renewable technologies that then benefit from the feed-in tariff and renewable heat incentive would contravene EU state aid legislation.
- The government should build on the zero-carbon homes 'allowable solutions' framework outlined by the Zero Carbon Hub and introduce a new stream of private capital to fund community projects. Local funds to support community energy projects that are seeded by this capital could be administered by designated social enterprises.

Engaging individual householders

Green Streets has shown how the provision of advice and information on how to save energy is important in both enabling and encouraging people to take action.

If information on energy saving is provided to people by a trusted expert with good people skills then it can be particularly effective. There is a need to provide this information through the government's flagship energy efficiency programme, the green deal. If households do not understand how their behaviour could affect their energy use then any expected bill savings could be undermined. As a result the 'golden rule' that benefits will outweigh costs – which is fundamental to the green deal – could be breached.

Green Streets showed how information provided by real time energy monitors was an effective motivator for change. Similarly, 'smart meters' offer an opportunity to engage people with their energy use. Smart meters can send and receive information about energy usage, payment and tariffs between a consumer and a supplier or third party. In contrast, much existing residential metering technology is a century old. In-home displays can show smart-meter information directly and conveniently to householders.

In our initial evaluation of Green Streets, IPPR recommended that the smart meter roll-out be accelerated (IPPR 2009) – and this has occurred. The government's latest proposals envisage the mass roll-out to be actioned by suppliers from the last quarter of 2014 and effectively to be completed by 2019.

The smart meter roll-out offers a unique opportunity to raise public awareness on how to manage energy use and to engage consumers in this to a far greater extent than before. The government and suppliers will need to work together to ensure householders are prepared for the roll-out and understand why it is occurring and the benefits it can bring them. The consumer campaign leading up to the digital TV switchover is widely perceived to have been a success and the Department for Energy and Climate Change (DECC) should learn from this as it develops its smart meter deployment plans.

Providing people with information that compares their own energy use with their peers' has also been effective at encouraging behavioural change. The 'Consumer Energy Summit' hosted by David Cameron in late 2011 concluded with agreement from the energy suppliers to look at ways to enable consumers to compare their gas and electricity consumption with similar households in their area through a web-based tool.⁹ This is to be welcomed, but because levels of consumer engagement with the energy supply market are very low (Ofgem 2011) it is likely that few people will go to the effort of using this tool.

⁹ See http://www.decc.gov.uk/en/content/cms/news/consumer_summi/consumer_summi.aspx

A better approach would be to provide consumers with this information directly on their energy bills.

A final avenue of information provision found to be effective in Green Streets was the efficiency labelling of appliances. However, the ratings of appliances can be confusing for consumers. For example, they are not recalibrated as technology efficiency improves, which means that there are now several levels of efficiency performance above an A rating, such as AA and AAA.

- **The green deal assessment should be used to raise households' awareness of how their behaviour affects energy use. Training in what information to provide and the 'soft' people skills necessary to present it effectively should be a core component of the accreditation scheme for green deal assessers.**
- **The government and suppliers should work together to ensure households are ready for the smart meter roll-out. Lessons can be learned from the successful campaign leading up to the digital TV switchover. The government should use the roll-out as an opportunity for positive public engagement on energy, including how people can manage and reduce their usage.**
- **Government and suppliers should work together to find ways of providing data to consumers that compares their usage with similar households in their area. A web-based tool as proposed would be useful but a better approach would be to include this information on bills. The government should work with suppliers to explore the feasibility and cost implications of such a scheme.**
- **The UK delegation should strongly advocate ongoing recalibration of the EU energy efficiency grades in line with technological improvements so that an 'A' remains the top rating.**

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APPENDIX

FOCUS GROUP AND INTERVIEW DISCUSSION GUIDE

TIME

0.00 My name is x, I am from IPPR, permission to record the group, etc ...

You may all remember each other but in case you don't let's kick off by everyone going round the groups and introducing themselves, also say which number of the street you live at and who you live there with.

Participants introduce themselves.

As you will be aware we have been asked by British Gas to revisit all of the participants from Green Streets and to gather your views on the competition looking back and also to ask you a few questions about the way you use and think about energy now.

Some of you may now not be living in the same property you were in when you took part in Green Streets. Some of the questions may be slightly less relevant for you than for other people, but we're still very interested to hear your views and in particular to hear if your experience in Green Streets has influenced how you live in your new home.

- ? Who is still living in the same property?
- ? We have asked you all to bring your meter readings – do we have them all?
- ? Have there been any major changes to your family or property that might have had a big impact on your energy use since Green Streets that we should be aware of? (For example changes in the number of people in the household; new appliances that have been bought; not motivated to or thinking about it much since Green Streets ended.)
- ? Leaving aside the impacts of these big changes, do you think your energy usage is likely to have gone up or down since Green Streets? Why?

(Leave for a broad discussion with little prompting, to get them warmed up.)

Let's now begin by discussing some of the aspects of Green Streets in detail.

0.20 Measures

You all had some measures installed in your homes, ranging from smaller things like kettles, standby savers and electricity monitors, to larger things like boilers, insulation and in some cases solar panels. [NB: One person on each street got a solar panel.]

- ? Are you still using the smaller measures you received?
Prompt:
 - If they have stopped using any and why?
 - If they have had to replace any have they done so with low energy options?
- ? The electricity monitors were described in the previous interviews as being useful in helping people to reduce their energy use. Do you still use these? Why/why not?
Prompt thoroughly here.

- ? How have you found living with the bigger measures like insulation and having a new boiler?
Prompt:
 - Do you still notice the benefit?
 - Have you encountered any problems with the measure?
- ? Have you bought any other new energy related measures since Green Streets?
Prompt:
 - *eg solar panels, further insulation*
- ? Have you bought any electrical or gas appliances for your home since Green Streets and did you consider the energy use of the product in the purchase?
- ? Are you planning to introduce any measures in the future?
- ? Are you aware of any government policies supporting energy saving? Are you planning to take up any of them?

0.40 Behaviour

Many people adopted new behaviours during Green Streets.

- ? What changes in behaviour do you recall adopting if any?
- ? Have you managed to sustain any behaviours you adopted during Green Streets? Which ones and why?
- ? Are there any that have not sustained? Which ones and why?
- ? Is there anything that might have helped you to sustain these habits?
- ? Do you feel like you still know ways you can change your behaviour to reduce or limit your energy use should you want to? (Has information that was learnt during Green Streets stuck?)
- ? How important was having an expert to give you advice and information?
- ? How important was having an expert to work with you throughout the Green Streets project?

1.00 Competition and community

- ? Looking back, how significant was the fact you were taking part in a competition as a motivator to reduce your energy use?

In the first interviews we found a surprising outcome of Green Streets was that people valued the extra interaction they had with their neighbours and the new relationships they built.

- ? Have these relationships been sustained? If so, in what way? If not, why not?
- ? Looking back, how important do you think the fact you were taking part in Green Streets with your neighbours was to your engagement in the competition?

- ? Do you think the experience would have been different if you had taken part as an individual household? In what ways?

Finally we will look at the way you tend to think about energy use now, how this relates to Green Streets and some wider aspects.

1.20 ATTITUDES AND OVERALL

- ? Would you say Green Streets was successful in encouraging and enabling you to reduce your energy use over the long term?
- ? If so, what were the key factors behind this success?
- ? If not, what were the key barriers to this success?
- ? Do you think people need to reduce their energy use, and if so why?
- ? How important do you think home energy use is in stopping climate change?
- ? Have your views on climate change changed at all since Green Streets?
- ? Do you think the present economic situation has affected the way you think about or use energy?
- ? What do you think about the rises that are occurring to energy bills?
- ? What do you think about the fact that around 10 per cent of your electricity bill gets paid on policies to reduce carbon emissions?

Thanks and wrap up.