<u>Using behavioural insights to</u> make green living policy work



By Rebekah Phillips and Sylvia Rowley

Green Alliance

Green Alliance is an influential, independent organisation working to bring environmental priorities into the political mainstream. We work collaboratively with the three main parties, government, the third sector, business and others to ensure that political leaders deliver ambitious solutions to global environmental issues.

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Bringing it Home project

This report is part of a broader project on greener living in the home. Research footage, a final film and a shorter report are available from the Green Alliance website: www.green-alliance.org.uk/greenliving

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Executive summary

This report is about how government could help us to live more sustainably through a better understanding of human behaviour.

We have focused on resource use in the home: the energy and water we use, and the waste we create and dispose of, because these are sources of some significant environmental pressures. The home is also important to us as social beings; it helps to give us identity, and is the place where we form long-standing behaviours and habits.

The coalition government has voiced a strong commitment to environmental issues. It has promised to govern for the long term, to go "further and faster than ever" to tackle climate change, and to green the economic recovery. It also inherited a range of targets and commitments which oblige it to make progress on issues such as climate change and waste.

The UK's need and commitment to address environmental issues, and the collective environmental impact of individual actions, means that the government has to have a clear plan to encourage and enable us to live greener lives.

The government has expressed a keen interest in using insights from the behavioural sciences to inform its policy. It is particularly enthusiastic about the concept of Nudge, outlined by Professor Richard Thaler and Professor Cass Sunstein¹. But is has yet to fully combine its interest in human behaviour with its environmental ambitions, to create policies to help the British public live more sustainably.

The report begins by exploring the current state of affairs. How green are our households? As well as looking at national data we drew on insights from in-depth research with six households across the UK, reflecting a variety of circumstances and lifestyles. Researchers filmed the householders going about their daily lives at home (at the time they were unaware of what the research was about) and we subsequently interviewed them about their behaviours associated with energy, water and waste. We were curious to know the extent to which they are affected by competing pressures and signals, and whether existing policy helps or hinders them in making good environmental choices.

Our research revealed a marked difference between action on energy, water and waste. Recycling appears to have become reasonably normal across all of the households, and there is a broad awareness of the need for energy saving, though we found relatively low levels of action. But the households had almost no knowledge of the need to save water, and were confused about how this could be done.

We also looked at existing policies on energy, water and waste in the home on a national level and found that, in many areas, there is still a huge gap between government aspirations and what policies are delivering in reality. Our analysis, drawing on a wealth of academic studies, as well as our research, suggests that this gap can only be narrowed through using a better understanding of human behaviour to devise policy. Behavioural insights from Nudge and elsewhere can be used to improve the whole range of policy tools acting on people in their homes, including regulation, fiscal penalties and incentives, as well as to create innovative interventions. Government will also need to address the structure of markets and our physical environment, to transform the landscape within which people are making their choices.

The government already has a good model to build on in the '4Es' model for behaviour change developed by the Department for Environment Food and Rural Affairs (Defra). This highlights the importance of integrated policy that encourages, enables and engages people, and exemplifies the changes being pursued. It now needs to be implemented in a far more thorough way.

The heterogeneity of individuals and groups within society, both in terms of context and motivations, means that there will be different reactions to any one policy. This suggests that an array of interventions is required, over both the short and long term, to embed behaviour change comprehensively across society. No single policy is likely to achieve change on its own. The development of the government's localism agenda has much to offer. Behaviour change measures often work best when implemented at a local level, but only if the national framework within which they are operating is supportive. If local funding, new initiatives and civil society leadership are directed at environmental outcomes, there will be new opportunities to engage householders.

Below, we present our three major principles for government to follow in order to improve policy on greener living. We also set out more detailed recommendations for policy practitioners, based on our research, at the end of this report.

Better policy for greener living

1. Set out the vision

For a change strategy to succeed, the target audience needs to believe in it and understand how they fit into the plan. The perceived benefits of action to protect and improve the environment are not always evident at an individual or local level. The onus is on government to provide a clear vision and bold leadership.

A lesson from the behavioural sciences is that people will take action if they see others also doing so and feel a sense of fairness. Policy will be most effective if people believe that national government has a credible vision and a plan to support their own efforts. They also need to see the government putting in corresponding effort, and receive benefits from doing the 'right' thing.

2. Transform the 'choice architecture'

The magnitude of the environmental challenge and, specifically, the imperative to tackle climate change within a relatively short timescale, requires a step change in how we manage resources in our homes. The structures within which we operate need to change to ensure this can be achieved. Otherwise incremental improvements in the environmental performance of products and services, and efforts to nudge us in the right direction, will be drowned out by increasing consumption. Systemic problems need a systemic approach, rethinking the markets within which people are making their choices about their use of energy, waste and water, and the products and services available to them. These changes will not come about without clear leadership from government.

The effectiveness of recycling policy has demonstrated the importance of structural change. Changing the structure within which businesses and local authorities operated through the landfill tax and firm targets has resulted in the uptake of recycling across the country, amongst different sectors of society and values groups. It has led to the introduction of new infrastructure, behaviours and social norms, which have contributed to meeting ambitious targets.

3. Apply behavioural insights for smarter policy

A more sophisticated understanding of how people behave enables the development of more intelligent, more effective policy. Nudge will be helpful in encouraging pro-environmental action but it will be insufficient on its own. Without a reappraisal of existing approaches and the application of behavioural insights to a broad set of policies, government will not be able to reach its stated ambitions within the necessary timescale.

Policies aimed at driving greener living should be re-examined through the lens of behavioural science. The aim of such policy measures should be to use the best of the evidence base to encourage desirable behaviours and to discourage undesirable ones. While the nudge approach has something to offer this process, it cannot replace policy which helps to create new choices or makes damaging behaviour difficult or impossible to pursue.

Successful initiatives are likely to need all the policy tools available; a mix of well-designed information, incentives, regulation, services and nudges to encourage the desired actions and outcomes. <u>4</u>

1. Introduction



This report is about us all. It is about the lifestyles we lead at home, and why we lead them.

Its focus is resource use in the home: the energy and water we use, and the waste we create and dispose of. We have concentrated on the home because it is the source of some significant environmental pressures. The home is also important to us as social beings; it helps to give us identity and is the place where we form long-standing behaviours.

The government's ability to deliver against ambitious environmental targets depends on affecting the habits and decisions that individuals make in their homes every single day. Choices as mundane as whether we have a shower or a bath, whether we adjust our heating controls and whether we compost our food waste will, together, help to determine whether we will make the transition to a low carbon, more resource efficient society. As will bigger decisions about how we improve our homes and whether we allocate vital household income to fund measures such as a new boiler.

Of course, people have wider environmental impacts from their activities beyond the home, such as travel and tourism. There are also indirect environmental impacts from our home lives, such as the emissions embedded in the products we use. These considerations are beyond the scope of this report, but many of the observations and recommendations we make are applicable to broader consumption behaviours: in the workplace, on the go and on holiday.

Real households

Many of the conclusions of this report have been informed by observing the actions, attitudes and behaviours of six households from across the UK. We commissioned a video researcher to spend two days filming each household in their home in January 2010, and conducted subsequent interviews with them to explore why they behaved in certain ways. It's important to note that the families were unaware that their environmental choices were under scrutiny during the time they spent with the video researcher, as we did not want to influence their behaviour.

We were interested in the decisions they make with regard to energy use, water use and waste at home. We looked at whether the environmental option is the harder or the more expensive option, and whether there were pressures for them to adopt the lessenvironmentally friendly way of doing things. We explored the extent to which good intentions are undermined by competing pressures and signals and whether the existing policy framework aided or hindered them in their environmental choices.

Their stories are our stories. The reasons why they do not routinely save energy are the same reasons why millions of people across the country leave their lights on during the day and do not turn down their heating as it gets warmer. The reasons why they don't recycle their food waste are echoed in many homes, as we put food waste into the bin after a meal.

Strong leadership from government

Over the past ten years, several seminal reports have been published on how to drive proenvironmental behaviour change.

Reports such as the Sustainable Development Commission's I will if you will² and Defra's Framework for pro-environmental behaviour³ show the scale of transformation needed to ensure that sustainable choices become the norm.

Ultimately, all sectors must take responsibility for change. Business and citizens have an important role to play⁴, but it is widely acknowledged that change will be impossible without strong leadership and investment from government, providing strategic insight, setting the overall direction of travel and enabling and supporting other players to take a full and effective role. For, ultimately, it is government which sets the framework for action by other parties, shaping the context - the 'choice architecture' - within which we lead our lives. It is also government that has the final responsibility for delivering on some challenging statutory targets in the areas of energy and waste, and it is government that will be under fire if these targets are not met.

The previous government had some laudable plans, particularly in home energy management. But apart from a few notable areas, such as encouraging recycling, they failed to drive effective changes in the way we live our lives. Pro-environmental behaviour change, particularly within the confines of our homes, was consistently thought to be too difficult, when there was no clear target or driver to force more concerted government action.

Happily, the current government has shown more high-level commitment to trying to understand and influence people's behaviour in relation to the environment. And there is a growing interest in what behavioural sciences can offer policy makers as both an alternative and an enhancement to traditional policy tools. This has been reinforced in the energy arena by a growing body of evidence indicating that a significant proportion of emissions reductions in the energy sector has to come from individual action⁵.

Our examination of this challenge breaks down into three broad areas; first, the ambitions, commitments and targets that the government has to reach; second, the realities of how we behave and whether, as a consequence, we are on course to meet those targets; and third, existing policy and how much of our knowledge about people, explored so richly through behavioural research, is translated into effective policy design to help shape our behaviour.

We then look at government's focus on behavioural economics and whether this response will enable it to meet its targets. Finally, we recommend how government could improve its current policies by building on Defra's '4Es' framework; arguing that we need a comprehensive and reinforcing policy suite to enable individual action based on the best evidence. We show how this framework might be applied to a particular area by looking at energy efficiency.

Behaviour change as an outcome

'Behaviour change' is a convenient and widelyused term for an extraordinarily complex issue. As Defra states in its 2010 paper, Understanding and influencing behaviours⁶, it is not just about change, it is also about consolidating and reinforcing the 'good' (towards a desired direction and sustained over time) as well as addressing the 'bad'.

In popular discourse, the term 'behaviour change' is often used to describe something much more specific, referring to the kinds of measures popularised by Professors Thaler and Sunstein in their book Nudge⁷. This is where the framing, design and presentation of choices are altered to try to help individuals make better decisions. An example of this might be changing the position of salad in a canteen to encourage healthy eating.

However, in this report we see behaviour change as an outcome, not an intervention in itself. Behavioural insights can be used to analyse and improve a wide range of existing policies, as well as to create innovative new ones.

2. Real lives



In 2010, we commissioned ethnographic video researchers from the company Everyday Lives to spend time in six households around the country, filming them as they went about their daily lives. The householders were unaware of the purpose of the filming as we did not want to influence their behaviour. The result was 12 days of film footage, providing a rich and detailed insight into their lifestyles at home (this film footage can be seen in five short films available from the Green Alliance website www.green-alliance.org.uk).

These video diaries were followed up with interviews with each household, in which householders explained why they behaved the way they did.

Our six households were selected with a number of factors in mind; we wanted a mix of ages, household sizes, a balance of owners and renters, and homes based in both urban and rural locations.

These households are, of course, not a representative sample of households across the UK. But their choices and actions give some useful insights into broader patterns of behaviour.



Our six households

Household 1: The Nichols family 1

Names: James and Vicky Age bracket: 31 - 40. Two children aged nine and 12. Household size: four Occupation: waste management/cleaner Household income: £40,000 - £50,000 Accommodation: terraced house Ownership status: own home, ex-council property Location: Wallsend, Newcastle upon Tyne



James and Vicky have two children, one in their early teens and the other at primary school. The Nichols are very close, and say that family is very important to them, especially their children and their children's futures. They enjoy home comforts like spending time together, watching TV and playing on computer games. Work is also important, especially for James.

The Nichols consider themselves to be quite environmentally aware, and Vicky especially says that she has always tried to 'do her bit'. But they tend to make choices based on money rather than on the environmental impact of what they do or buy. They seem to be influenced predominantly by what they see on TV, hear on the radio and read on the internet.

"Hello. We're James and Vicky, I'm 33, Vicky is 32, Vicky works part-time, I work full-time. We've lived in this house for nine years now. We're married, we've got two children: a boy who's 12 and a girl who's nine. That's about it really. I work for a waste management company. I've been there since 2003, so six years I've been there, and Vicky just finished college. She currently works as a cleaner."

Household 2: The Owen household

Names: Robert and Jeannie Age bracket: 51 - 60 Household size: two Occupation: both retired Household income: £10,000 - £20,000 Accommodation: cottage, grade 2 listed building Ownership status: owner occupiers Location: Blo Norton, near Diss, Norfolk



The Owens live in rural Norfolk. They enjoy spending time with each other and their family, being outdoors, eating healthy and natural food, growing vegetables in their garden, and looking after their cats. They both have hobbies, with Jeannie enjoying creative writing and reading, and Robert enjoying carpentry and making music.

They say that being green is part of their identity, and they try to make more of an effort than just doing their bit. In fact, they view a number of their environmental habits as being common sense, rather than as being a hassle. They say that money has to be considered in decision making as they are both retired and so have to do things on a budget, but the environment is also important.

"We've been in this house 11 years. We've got 8 children between us...all grown up and left home. I'm a retired carpenter. But I'm a full time student doing a degree in popular music, at college in Norwich. I'm in my final year, looking forward to finishing it." - **Robert**

"And I'm retired, retired a couple of years ago. Got a small redundancy from City College in Norwich [where] I was a tutor. I've got 4 of my own children, all grown up. But I'm very very hands-on with my grand-children, that's a very important part of my life. We've been married for 15 yrs."- Jeannie

Household 3: The Ward family

Names: William and Wendy Age bracket: 41-50. Two teenage children Household size: four Occupation: marine electrician/school cook and cleaner Household income: £30,000 - £40,000 Accommodation: detached bungalow Ownership status: owner occupiers Location: Sway, New Forest, Hampshire



The Ward family have a relatively comfortable lifestyle. They live in a detached bungalow in the quiet village of Sway in the New Forest, and enjoy home comforts such as spending time as a family, keeping pets, home-cooked food, watching TV and working on motorbike projects in the garage. William and Wendy have two teenage children living at home.

The Ward family think of themselves as being quite aware of environmental issues in the home, but don't really see this as the major factor affecting the choices they make.

"Well I'm Wendy, I'm a school cook for a living and school cleaner. I have two children; Amy who's 14 and a handful, and Gerard who's just turned 16, doing his own thing, very odd, but yes good fun."

"I'm Bill, I'm a marine electrician working on yachts. We're in Sway, in the New Forest, in Hampshire; very fortunate to live here, it's a very nice area."

Household 4: Michael Pepper

 Name: Michael Pepper

 Age: 29

 Household size: one

 Occupation: account management

 Household income: £20,000 - £30,000

 Accommodation: flat in purpose-built block (five years old)

 Ownership status: part-owner

 Location: Slough



Michael has quite a routine lifestyle, and sees himself as a creature of habit. He lives in a purpose-built rented flat in Slough, and describes his current lifestyle as generally work orientated. He likes to keep a tidy flat and spends his spare time catching up with his friends, on his laptop or watching television programmes.

Michael does not consider himself to be very aware of environmental issues and says that he wouldn't know what he personally could do to stop climate change. He believes that his own environmental impact is not very big and that he is doing his part by keeping his energy consumption low. He was brought up to believe that he shouldn't be wasteful, and says that some of his behaviours stem from this upbringing, for example, switching off lights and turning plugs off at the wall. He lives on a budget and is motivated to save money where possible, so this often influences his decision making.

"Hello. I'm Michael, I'm 29. I'm single. I live in Slough in a purpose-built flat. I've lived here for round about four and a half years, possibly a bit more. I have one sister who lives 13 miles down the road in Warfield, she's married with a child and I have my dad living round the corner in Eaton, so he's also about a two minute ride in a car. I work in account management in a currency brokers."

Household 5: Latoya Peters

 Name: Latoya Peters

 Age: 25

 Household size: four

 Occupation: full-time student, also works part-time

 Household income: less than £10,000

 Accommodation: terraced house

 Ownership status: rented student house, with three other girls

 Location: Reading, Berkshire



Latoya is a student, based in Reading. She lives with three other students in a shared house near the city centre, which they rent from a private landlord. Latoya leads a busy life, studying for her course, working in a local gambling shop, and socialising with her friends. She also enjoys watching TV with her housemates and spending time on her laptop.

Latoya does not place environmental issues high on her list of priorities. She does consider herself to be a bit green, as she and her housemates recycle, and says that she would like to be greener. However, she says she wouldn't base decisions on environmental factors. Latoya finds the green agenda quite depressing and says it doesn't really fit with her lifestyle.

"Hi, my name is Latoya. I'm 25 years old, and I'm studying special effects at Thames Valley University. It's a three year course. I live in a four-bedroom rented house in Reading, with three other students. We're all girls. I'm in my final year at uni, so I'm having to study pretty hard, but I also have a part-time job at a local gambling shop. In my spare time I like to spend time with my friends - we like to go shopping, go to the cinema, and go clubbing in Reading."

Household 6: Josie Benson

ame: Josie
;e: 68
ousehold size: one
ccupation: retired
ousehold income: not known
commodation: terraced house
wnership status: council house tenant
cation: Liverpool



Josie is a retired widow from Liverpool. She lives by herself but has three children and nine grandchildren. She is a regular church-goer and has many friends in the local community, having worked as a community-leader for thirty years. She spends the daytime caring for her brother.

Josie cares about the environment and hates waste – a quality she picked up from her mother. She proudly recycles everything she can, and does not throw food away, preferring to give leftovers to the neighbours or to the birds. Josie uses household appliances rarely: she keeps the temperature in the house on a low setting and likes to clean her clothes with a scrubbing board. Josie prefers a simple, resourceful and more traditional way of life.

"Hello, I'm Josie. In this house I've lived 33 years, but in the street itself I've lived somewhere around the margin of 50 years. I have a brother who's a double amputee, no legs. I go along to him every day. It's about ten minutes' walk for me. We were born round here, you see, so it's nice to have him in the environment we were born in."

Providing evidence

In the next chapters we look at how our households use energy and water in their homes and create and dispose of waste, and how they respond to government policy in this area. Although these sample households are not representative of the country as a whole their responses provide rich examples, bringing statistics and behavioural theory to life, and give an indication of broader patterns of behaviour.





On his second day in office, Prime Minister David Cameron pledged to make his new coalition the "greenest government ever"⁸, while the secretary of state for energy and climate change, Chris Huhne, has promised that on tackling climate change this government will go "further and faster than ever before"⁹.

Lord Henley explained the government's resolve at a recent Green Alliance event¹⁰:

"The government's pledge to be the greenest ever is not a choice, it's an imperative. There is no point in rebuilding the economy unless it's a green economy: one that actively prevents waste and accurately reflects the value of our natural resources."

Accompanying this bold environmental ambition is a range of targets and commitments, some set in law. Through instruments such as the 2008 Climate Change Act and EU directives on waste, the government is committed to making significant reductions in carbon emissions and waste produced by the UK. If it is to meet these commitments, huge changes will be needed in our collective energy and resource use over the next decade.

In this chapter we take a look at national statistics and how our sample households are currently using energy and water and disposing of their waste, to find out whether we are on track.

Energy

What's the ambition?

Under the 2008 Climate Change Act, government is required to cut carbon emissions by 80 per cent by 2050 against a 1990 baseline. To do this, we will need to cut emissions generated by our homes and communities by around a third between now and 2022¹¹. This will require substantial changes in energy use at the household level, since a quarter of UK carbon emissions come from our homes¹².

Achieving this will mean great technical improvements to the fabric of existing houses.

The Committee on Climate Change (CCC)¹³ has said that by 2020, significant energy efficiency improvements will need to be delivered in the UK housing stock, including insulating 90 per cent of lofts and cavity walls. Currently only around half of lofts and cavity walls are insulated. Other necessary changes include:

- Switching to an efficient boiler: the CCC estimates that by 2020, 13 million existing boilers will need to be replaced;
- Improving the efficiency of electrical appliances: although appliances have been getting more efficient, we are also using more of them¹⁴. For example, 59 per cent of households now own two or more televisions¹⁵. This is the reason that, despite increased efficiency, residential electricity use has increased by around 34 per cent since 1990¹⁶; and
- Householders playing a part in generating renewable energy and heat: the UK has signed up to the EU Renewable Energy Directive which requires the UK to generate 15 per cent of its energy from renewables by 2020¹⁷, with two per cent of electricity expected to come from micro-renewables by then. Much of the 12 per cent of renewable heat needed to meet the target will come from the domestic sector as households move to biomass boilers and heat pumps. The first interim target (of around 3 per cent during 2011-12¹⁸) will be the hardest for the UK to meet because of the time required to plan, finance and build renewable energy.

However, achieving this ambition is not just a technical challenge about becoming more efficient in the way we use energy, and generating more from renewables. It also requires changes in behaviour, such as switching off appliances and lights when not in use, turning down the heating and taking shorter showers, to lead to an absolute reduction in the amount of energy each household uses.

One of the main findings of DECC's recent 2050 Pathways analysis report is that carbon reduction targets will require "ambitious per capita demand reduction", as well as low carbon generation. This is to decrease emissions over a period of time when the population is predicted to grow by 25 per cent and the number of households will increase by 50 per cent¹⁹. As Chris Huhne said last year: "We must take action on energy saving. For too long, the debate around energy has focused on supply"²⁰. In practice, this means changes in habitual behaviour in both heat and electricity use.

Progress at home?

In our sample households, some progress has been made in improving the fabric of the home. All three home-owners have had extra insulation put in. The Nichols and Ward families took up offers of subsidised insulation, whilst the Owens paid for it themselves. Josie, who lives in social housing, had her loft and wall cavities insulated by the council. The other two householders live in rented properties and therefore have no control over the fabric of their home.

"We got a government grant to have our cavity walls filled...at the time we were told... it would make a price difference to our heating bills, and I think it has actually." Wendy Ward

"[On insulation] I don't know how we would have done it, what we would have done if we had to pay for it mind, I think we probably would have tried to do some DIY." James Nichols

Two of our households have also fitted secondary glazing; the Owens, who were able to adapt some glazing from a relative and so got it almost for free, and the Nichols. The council replaced Josie's windows with double glazing as part of a scheme to upgrade all the social houses in her area.

"The loft is all insulated and the double glazing is on every window, upstairs and down." **Josie**

"When we moved in we had double glazing fitted, five years ago, so I feel double glazing makes a huge amount of difference." Wendy Ward



Less had been done to improve boiler efficiency. The Nichols are the only one of our households to have installed efficient radiators and a new boiler, prompted by their new insulation. The others have not considered it. Josie is waiting for a new boiler from the council as hers is having problems, whilst Michael's new build flat has a modern boiler which is apparently too large for the size of his flat.

None of the six households have installed micro-renewables. The Ward family have been approached by a number of businesses offering to install solar panels on their roof and, although they find the offer attractive, have not taken it up as they are considering extending their bungalow. None of the others have been approached or seriously considered installing small-scale renewable electricity. None of our households have even considered renewable heating.

Most of our households said that the energy efficiency of products did not influence their choice of product, although some had noticed the labelling.

"When I normally do buy like a TV or a laptop, I do look at the style, the size and the price, it would have to be a good package... No, I don't look at energy efficient [sic]." Latoya

Only the Owens had checked the energy efficiency of a product, going online to research the dishwasher they bought second hand. Many of our households have been sent free energy-saving light bulbs through the post; Josie said she had been sent so many she will never need to buy any. In terms of changing habits and using less energy overall, we did not see clear signs that the householders were taking comprehensive action.

All had heard snippets of information on energy-saving habits, such as adverts on TV promoting washing at 30 degrees or government campaigns. The householders undertook some sporadic energy-saving actions for a range of reasons, including cost, safety concerns and environmental considerations. But they also admitted to wasting energy by doing things such as leaving the TV on when nobody was watching.

"I always use 30°C because, to be honest with you, the advert said it does just as good a job and it does. It still has the same effect, it cleans my stuff, so I always use 30." Michael



The Ward family often make decisions in the spirit of saving time, which have an energysaving effect. When it's convenient to only put enough water in the kettle for one cup of tea, to have a quick shower, or to put a cake in the oven when the Sunday roast is cooking, they do it. If they have more time, energy use doesn't feature in their decision making.

For the Owens money is also a factor and, due to high energy bills last winter, they've cut down on use this year: for instance, only heating the room they are in, putting on extra clothing and turning lights off. Michael is very cost-conscious and reports never leaving on more than one light at a time. Josie and Michael both turn off appliances at standby due to safety worries, but others find this irritating.

"I mean it does annoy me if things are turned off at the sockets, especially in the lounge with the DVD or a video. You know, and all the clocks go to pot and stuff." Wendy Ward

Few of our households had looked for information about saving energy online, and none were aware of friends or neighbours doing much to save energy.

Will we meet the targets?

The experiences of our sample householders are in many ways typical of progress toward domestic energy saving on a national level.

Currently around half of the 23.2 million homes with lofts have the minimum standard loft insulation, and just over half of the 18.6 million houses with cavity walls have had them filled²¹. To meet the Committee on Climate Change (CCC) targets, this will need to almost double over the next nine years. Good progress was made in 2010, with 760,000 cavity walls and 1,230,000 lofts insulated. But reaching that number was not easy. One contractor estimates that only around one in three of the households they approach in areas known to be lacking insulation will take up their offer of free cavity wall or loft insulation²². Insulating the remaining houses will become progressively harder²³.

Building regulations now require all new and replacement boilers to be highly efficient, so gradual progress is being made²⁴. But of the 22 million boilers already in our homes, nearly 75 per cent are B rated or worse for energy efficiency²⁵. And of those, around a third are the most inefficient, with an F or G rating. Whilst the rate of replacement shows improvements are being made steadily, market modelling suggests that by 2020 over one million of the most inefficient boilers will still be in use. Looking at energy-saving habits overall, it is difficult to know how many people are already taking steps such as turning off lights when they leave the room. An increasing number of people report turning off unused lights (67 per cent in 2009, up from 61 per cent in 2007) but this is not a very reliable indication of what they actually do²⁶.

Residential demand for electricity now accounts for 40 per cent of the nation's overall energy

use, having increased by around 34 per cent since 1990²⁷. There is growing evidence that despite our homes and appliances becoming more efficient, our overall domestic energy use is not decreasing.

Our sample of households, and the wider research discussed above, shows that, without significant new initiatives, we are very unlikely to meet targets for reducing home energy use and carbon emissions.

Area	Target	Current progress across the UK	Nichols family	Owen family	Ward family	Michael Pepper	Latoya Peters	Josie Benson
Improving fabric of home, e.g. insulation or double glazing	90% of lofts and cavity walls and 2 million external walls should be insulated by 2020.	54% of lofts satisfy minimum standards of insulation. 56% of cavity walls are filled.	Insulated cavity walls and loft through grant.	Insulated loft privately and replaced windows with double glazing.	Insulated cavity walls (but not loft) through grant. Installed double glazing themselves.	Part-rented new build, no need for extra insulation.	Renting, has double glazing. Doesn't know if loft is insulated as doesn't have access to it.	Social housing landlord installed loft and wall insulation.
Heating	13 million new boilers by 2020.	Nearly 75% of boilers are rated 'B' or under, and 33% are 'F' and 'G' rated.	Bought new efficient radiators and boiler.	Old boiler but it is serviced regularly.	Don't know boiler details.	New efficient boiler, but too big for flat.	Doesn't know how efficient boiler is.	New boiler fitted by social landlord.
Electrical appliances	No firm target.	Household electricity use has increased by 34% since 1990.	Never considers efficiency of appliances.	Checks appliance efficiency online – even of second- hand goods.	Never considers efficiency of appliances.	Never considers efficiency of appliances.	Never considers efficiency of appliances.	Never considers efficiency of appliances.
Renewable energy	2% electricity generation from small-scale sources by 2020.	No indication of progress possible to find.	Has not considered renewable electricity or heating.	Decided renewable energy was too expensive.	Think solar panels are too expensive.	Has not considered renewable electricity or heating.	Has not considered renewable electricity or heating.	Has not considered renewable electricity or heating.
Saving energy	No firm target.	No firm figures.	Leave television and other items on without anybody watching/ using them.	Make an effort to turn lights off, turn heating down following a high bill last winter.	Use energy- saving measures when it is convenient. Tell the children to switch off appliances to save on bills.	Says that he never leaves more than one light on at a time, to reduce costs. We observed otherwise.	Wants to cut her costs, but leaves appliances on standby and doesn't think that they use energy.	Switches appliances off at the mains for safety reasons.

Box 1: Are we on track on energy? Our households and national trends



Waste

What's the ambition?

In the Coalition Agreement, the government committed to creating a 'zero waste economy'. It is currently reviewing how this commitment can be met, with the results of its waste review due to be published in summer 2011.

The waste review will look at how the government will meet strict targets from the EU on reducing biodegradable waste to landfill²⁸: by 2013 waste to landfill must be halved compared to 1995 levels, and then cut by a further 30 per cent by 2020²⁹.

The current target, set in the 2007 Waste strategy for England, is for England to recycle half of all household waste by 2020³⁰ (targets for Scotland are 60 per cent by 2020 and Wales 75 per cent by 2025³¹). The EU Waste Framework Directive sets a target for the UK as a whole to recycle half of its household waste by 2020.

The 2007 Waste strategy for England also set an aspiration to reduce the overall volume of

household waste going to landfill by 45 per cent by 2020, compared to 2000 levels, with an interim target of reducing it by 29 per cent by 2010.The overall ambition is equivalent to a fall of 50 per cent per person (from 450 kg per person in 2000 to 225 kg in 2020).

Progress at home?

Generally speaking, our households were making good progress on recycling. When we first came into contact with them, most said they recycled the materials that were collected from their doorstep, apart from Michael who said his flat had no recycling facility.

"I just put everything into the main dustbin but I had to upscale the size of the bin because it was getting full too quickly, but I don't have any kind of facility to recycle anything so it all has to go in one place." Michael

Michael subsequently discovered that he did have recycling bins at his flats and started recycling.

However our households were not always clear on what could and couldn't be recycled. Both



the Owen and Nichols families reported that their councils had distributed information leaflets, but then changed what could be collected, which proved confusing.

"People are confused by what they can recycle. Everyone is... we are, aren't we?" Jeannie Owen

"Milk cartons, everything I buy, packaging, everything, I put out and recycle in the recycle bin." **Josie**

Latoya was under the (false) impression that she would face stiff penalties for not recycling.

"If we mix our recycle stuff into [residual] waste then we would get a fine on that." Latoya

The Ward family seemed to feel they were 'doing their bit' by recycling the materials that were collected on their doorstep (not including glass which they would have to take to the bottle bank), but also admitted they could do more.

"We perhaps only do a bag, one bag of recycling a week when it goes out for the dustbin, compared to three bags of household rubbish, but I feel I'm doing more than a lot of people do. I'm making a bit of an effort." Wendy Ward

"Yes, I could do a lot more towards managing my waste; I'm a bit lazy I guess, I don't know. Glass wise perhaps too many wine bottles, would be too much of a shock to recycle." Wendy Ward

Despite their active recycling, few of our households recycled or composted food waste.

None had a separate food waste collection service available.

"Like the food waste, yeah? We just put them in the bin." Latoya

"The council don't provide food waste bins. If they did, we would probably use it." Vicky Nichols

Some of the households reported trying to reduce food waste. The Owens for instance say they actively try to reduce food waste by eating or freezing leftovers before it gets to the compost stage.

"If there's any food the birds will eat it. My leftovers get all put to a side for the birds, or if it's a fine day, to the park for the ducks." **Josie**

Only two of our households had outside space for a compost bin. Both had taken up offers of discounted bins from their council, which they had heard about through their neighbours. However the Ward family stopped using their compost bin, as they believed it attracted rats, so now food waste either goes to their chickens or in the rubbish bin (in fact compost bins usually only attract rats if meat or fish waste are put in them, which is not recommended). The Owen family, in contrast, have built a second bin so they can use it in rotation.



"I do have a compost bin but I haven't tended to use it. We did try when we first got it to go with it, but you get rats if you don't have it on a concrete base and, because we don't really have any neighbours on one side, there's quite a lot of open land there, so we get unwanted visitors." Wendy Ward

Will we meet the targets?

Our families, like most UK households, are active recyclers. The current household recycling rate in England is 40 per cent³². That doesn't seem far off the target in the 2007 *Waste strategy* for England, that 50 per cent of household waste should be recycled by 2020. But achieving that extra ten per cent is likely to require new approaches. This is because the household recycling rate is determined not only by how many households participate, but also by how much of their waste those households recycle. It will be necessary to motivate people who currently don't recycle, increase the levels with households that do and improve the collection of certain materials.

As our families show, food waste is a particular problem. Food makes up around a third of the content of an average bin³³. Unlike other materials such as paper and glass which are now widely collected by local authorities, food waste is only collected separately in an estimated 41 per cent of English councils³⁴. Around a third of households compost at home³⁵. Most (65 per cent³⁶) of the nation's food and drink waste occurs in people's homes and we still throw away around one third of all of the food we buy³⁷. Despite this, the UK has just reached the EU target to cut biodegradable waste to landfill by 25 per cent by 2010³⁸.

Whilst the total waste from households that was not composted, recycled or re-used decreased slightly last year (by 0.8 per cent) in line with the trend since 2002³⁹ the government has just missed its target to reduce this waste by 29 per cent to 15.8 million tonnes by 2010⁴⁰ (current total is 16.1m tonnes).

Overall, of all the green policies aimed at the household, policies for recycling have been the most successful.

Area	Target	Current progress across the UK	Nichols family	Owen family	Ward family	Michael Pepper	Latoya Peters	Josie Benson
Recycling	50% of English waste to be recycled by 2020.	40.1% of waste was recycled in England in the first quarter of 2010/11.	Recycle everything they can, but a bit confused about what they can recycle.	Recycle everything they can, but confused about what they can recycle.	One bag of recycling to three bags of rubbish. Don't recycle glass as not collected.	Recycles everything he can, but he prefers to shred confidential letters rather than recycle.	Fears she will be fined so tries to recycle everything she can.	Puts absolutely all of her waste in recycling bin.
Food waste	By 2013 biodegradable waste to landfill must be halved compared to 1995 levels.	Just reached the 2010 target of reducing biodegradable waste to landfill by 25% in the UK.	Food waste is thrown out in general rubbish.	Leftovers get eaten the next day. Then compost remainder.	Food waste goes to bin or to chickens.	Food waste is thrown out in general rubbish.	Food waste is thrown out in general rubbish.	Leftovers go to the neighbours or birds. Does not compost.

Box 2: Are we on track on waste? Our households and national trends



Water

What's the ambition?

In the Coalition Agreement, the government pledged to reform the water industry to ensure more efficient use of water, but it does not have any explicit commitments on water comparable to those on carbon emissions and waste.

This is problematic. Around two thirds of UK water use takes place in our homes⁴³, and while water is an abundant resource in some parts of the UK, in others it is becoming scarce. Climate change, rising population and new developments are already putting severe pressure on water resources in some areas. The UK climate impacts projections published in 2009 show that we are facing greater unpredictability in rainfall, and longer, drier summers in coming decades⁴⁴. This means that government will need to find a way to make the water we have go further.

Government also faces an imperative to reduce hot water use as part of its climate change targets. Heating water in homes produces five per cent of the UK's greenhouse gas emissions and a quarter of carbon emissions from homes⁴⁵, whilst extraction and treatment of water account for a further one per cent of the UK's emissions⁴⁶.

Progress at home?

Most of our householders were completely unaware of how much water they use. They were also confused over how water could be saved.

"You don't hear them pushing about it... using water doesn't sound as harmful as using the electricity and that." Nichols family

"I'm not aware of how much water I use at all." Latoya

"I take baths and showers, mainly it would be baths, I love taking baths... I reckon that the shower is more wasteful, it's more water I'm guessing, because it runs, doesn't it, constantly." Latoya (This is not the case – showers generally use less water)

The Ward family is an exception because of Wendy's upbringing in Australia. She picked up a number of habits as a child in a country where drought has been seen as a serious issue for a long time, and water efficiency has become the

norm. She is still practicing these habits now and shares them with her family.

"I mean if we have a bath I'll have a bath and then William will have the same water, the kids will have a shower." Wendy Ward

Few of our households own kit for water saving, such as rain water butts or low-flow tap inserts. None have water meters except Josie who requested one because she thought it would reduce her bills (which it has). Latoya is not sure whether she has one or not.

"I think it would be useful to have a water meter and I wouldn't be opposed to having one. I like to know exactly what I'm spending and I'm quite happy to try and keep costs to an absolute minimum if needs be, but with water I'm completely blind as to what I'm using." Michael

Will we meet the targets?

As there are no firm or statutory government targets to measure progress against, despite increasing water scarcity and its contribution to carbon emissions, it is hard to assess progress.

What we can say is that household use is not decreasing⁴⁷. In unmetered houses, water

consumption increased by around one per cent between 2001 and 2008. The number of households in the UK is growing (the CCC assumes a 30 per cent increase, and DECC a 50 per cent increase, in households by 2050⁴⁸), so the water we have will need to be spread further⁴⁹.

This confirms the picture from the households we studied: that very little is being done to encourage people to use less water.

A long way to go

This overview of current progress highlights the scale of the challenge if the government is to meet its targets. At best, it faces a steep curve of delivery, at worst it faces failure to meet them. In the absence of interim targets, it is hard to make a concrete judgement of progress, but national statistics and the experience of our research households both suggest that in many areas there is a long way to go.

Beneath each high level target there is a complex mix of policy instruments. In the chapters that follow we use insights from behavioural theory and research to suggest why some policies have had more success than others, and offer ideas as to how domestic energy, water and waste policy can be made more effective.

Area	Target	Current progress across the UK	Nichols family	Owen family	Ward family	Michael Pepper	Latoya Peters	Josie Benson
Water saving habits	No firm target.	Water use is increasing by 1% per-capita in unmetered households.	Do not consider it important because they do not hear much about it. Recall an advert about turning the tap off when brushing teeth but don't do this as don't want to stain the sink.	Do not see the need to save water since they do not have a water meter.	Have habits from Wendy's upbringing in Australia eg turning tap off when brushing teeth, not constantly flushing toilet and sharing bath water.	Has not heard of any water saving campaigns, and he doesn't see water use as an issue.	Does not think about her water use and has no idea how much she uses.	Requested a water meter because she felt she was being overcharged. She says it has made her think more about turning the taps off.
Water saving devices	No firm target.	Not known.	Independently ordered a low-flow shower device but do not use it because it does not fit.	Have a water butt, but say that water saving devices cost too much.	Not aware of any, despite saying they try to be water efficient.	Not aware of any, says he has not heard of any from his water supplier.	Not aware of any, believes baths save more water than showers (not true).	Has a low-flow shower device, installed with new shower fitted by local council.

Box 3: Are we on track on water? Our households and national trends





Our research has highlighted the mismatch between government aspirations and commitments, and the current realities of home energy and water use. There has, however, been more success in encouraging recycling. Why are some policies having a limited effect while others succeed in changing householders' behaviour?

Here, we seek to answer this question by analysing existing policies from a behavioural perspective.

As well as drawing on academic research, we have looked at how our six households have experienced government policies. What have existing policies sought to do? And what have they actually resulted in? Have they had any impact on how our householders live?

Behavioural theory

There is a large and growing body of evidence on what drives human behaviour, showing that people are influenced by a wide range of psychological, social, societal and contextual factors. As Michael Hallsworth, co-author of the MINDSPACE report states: "Our behaviour is guided not by the perfect logic of a supercomputer that can analyse the cost-benefits of every action, but by our sociable, emotional and sometimes fallible brain"⁵⁰. Rather than making decisions in a vacuum, we are affected by our context far more than we realise, and often respond automatically to certain cues around us. Behavioural sciences show that we are often guided by certain predictable mental shortcuts that we may not realise exist.

Even a single action, such as having a daily shower, is the product of a mixture of these influences. In the case of showering these could include: personal emotions (to wake you up, because it feels nice), social expectations (the need to look smart for work), cultural norms (being clean has come to mean washing daily, being attractive means being immaculately groomed), structural context (a working shower and ability to afford the water and heat),



and habit (it is part of a daily routine and is subconsciously repeated).

In the past few years several frameworks have been created to help officials and ministers apply behavioural research to policy.

In this chapter we use two approaches, both based on behavioural sciences, to analyse current policy: Defra's 4Es framework and the MINDSPACE tool from the Institute for Government.

a. Defra's 4Es framework

Defra's 4Es framework⁵¹ suggests that government needs to enable, engage and encourage individuals and communities to live more sustainably, while exemplifying what it wants its citizens to do. Broadly, encourage is about motivating people, enable is about making change possible, engage is about gaining permission and support for policies, and exemplify is about leading by example.

This tool is particularly useful because it reminds policy makers that, as well as motivating or persuading people to change, government needs to make that change possible and easy, to gain the public's support, and to lead by example. However, it is possible to engage, encourage, enable and exemplify in a blunt, ineffective manner, as well as in a sophisticated, effective way.



Figure 1. Defra's 4Es model of behaviour change

b. Institute for Government's MINDSPACE report⁵²

This report distils some of the core insights about individuals' motivations from behavioural theory, and presents them as a checklist for government. Box 4 below shows the MINDSPACE checklist for policymakers.

Box 4: The MINDSPACE checklist

Messenger	We are heavily influenced by who communicates information
Incentives	Our responses to incentives are shaped by predictable mental shortcuts, such as strongly avoiding losses and valuing today over tomorrow
Norms	We are strongly influenced by what others do
D efaults	We 'go with the flow' of pre-set options
S alience	Our attention is drawn to what is novel and seems relevant to us
P riming	Our acts are often defined by subconscious cues
Affect	Our emotional associations can powerfully shape our actions
Commitments	We seek to be consistent with our public promises, and reciprocate acts
Ego	We act in ways that make us feel better about ourselves

MINDSPACE emphasises that our decisions are influenced by the context in which our behaviour or choices take place. For example, where goods are placed in a supermarket or who communicates information to us, makes a difference.

However, we are also affected by contextual factors in a much broader sense, by the social and cultural norms that prevail in our society, and structural constraints such as the type of house we live in, and how the economy is structured. These factors shape the options that are available and the choices people make⁵³.

Policy under scrutiny

Using insights from these models and behavioural science more broadly, we draw out some of the main reasons why policies have not resulted in greener behaviours in the home, and why some are more successful than others.

1. The choice environment

Behavioural sciences show us that the structures within which we live have an inescapable influence on the choices we make. As sociologist Elizabeth Shove says, "Roads, railways, freezers, heating systems, etc are not innocent features of the background"⁵⁴, they shape the lives we lead.

At the macro-level, our current economic system underpins high-carbon patterns of consumption. If we don't address these structures, behavioural expert Andrew Darnton argues, "we will largely remain locked into unsustainable trends with only little incremental changes here and there"⁵⁵.

Getting the market right

With energy and water, the most important structural factor is the make up of the markets in which energy and water companies operate. These markets shape the way that utilities interact with their customers.

In the energy sector the gas and electricity retail companies have prime responsibility for encouraging energy efficiency, which presents a problem because the market framework incentivises companies to sell more energy, not less. There is currently an obligation on energy companies to reduce energy use, the Carbon Emissions Reduction Target (CERT), but once they meet their targets there is no incentive to insulate a single additional house. Experience in places such as California shows that if you shift the incentives of the energy companies – so they make as much money by helping customers save energy (or selling 'negawatts') as they do by selling energy – then it's possible to transform efforts on energy efficiency⁵⁶. This kind of market reform quickly unleashes powerful advocates of energy efficiency⁵⁷ and means that energy efficiency messages are not swimming against the prevailing tide.

The current consultation on electricity market reform stops short of considering Californianstyle change to the retail market. It looks at how demand response by suppliers could be improved, for example looking at ways to deliver short-term reductions in energy demand by managing the grid more effectively. But there is scope to look further at how companies can be incentivised to reduce consumer demand through long-term efficiency measures in homes.

For water, the problem is similar: water companies are not incentivised to help customers save water. The large cost of installing infrastructure, such as purification facilities, compared to low running costs means that companies have little incentive to increase water efficiency once infrastructure is in place, either inside people's homes or elsewhere. To address this the Cave Report⁵⁸ on competition and innovation in water markets and the Walker Report⁵⁹ on charging for household water and sewerage services both recommended that the full, long-term value of water needed to be reflected better in the regulatory framework⁶⁰. The last Ofwat price review in 2009 gave water companies a water efficiency target for the first time. So, recently, water companies have stepped up efforts to help households reduce their water use. However, such activities still account for a very small proportion of the amount they spend on supply-side activity, and this is unlikely to change while there is little incentive for largerscale water efficiency.

Our sample households showed the effects of the current state of the water market: when asked, not one of them could recall receiving anything from their water company to encourage them to use water more efficiently. And a recent survey from ICS Consulting/ YouGov⁶¹ found that most respondents labelled their water companies as 'invisible'.

In contrast, the relative success of recycling shows that much can be achieved when the right policy structures are in place. The threat of fines for not reaching targets for the diversion of biodegradable waste, and an increasing landfill tax that applies to all waste sent to landfill, has meant businesses and local authorities have



thrown their weight behind recycling and have provided alternative infrastructure to landfill.

Providing physical infrastructure

Another lesson from recycling is the importance of physical infrastructure. Without kerbside collections and the provision of bins, bags or boxes for recycling outside people's homes, recycling rates would be nowhere near current levels. Over 90 per cent of councils now collect at least two recyclable materials from people's doorsteps, meaning that recycling is easy for most people⁶².

Our sample households show how important doorstep collections are: all of them do some recycling, but few are willing to put in extra effort to recycle materials that are not collected from their doorstep.

AsVicky Nichols says:

"We recycle everything that the bin will take but we won't go out of our ways and means to recycle other things. Like we could, if we sort clothes out and stuff, we could put them in a clothes bag but we don't. We put them in the bin, the bin man takes them away."

And Wendy Ward:

"...we do have actually a lot of recycling facilities in the area, in the village, at the youth centre there's a newspaper bin and a glass bin and a clothes bin. I must say I don't tend to use it."

When it comes to recycling food waste, the lack of infrastructure means that fewer people are taking part. None of our six households had a separate food waste collection and most put food waste into the dustbin, headed for landfill. This is perhaps unsurprising since only 41 per cent of councils in England offer to collect food waste⁶³.

Clearly doorstep recycling enables people to recycle by making it easy. But some councils are also using their recycling infrastructure to encourage people to waste less. For example by providing a larger recycling bin and a smaller bin for the waste that goes to landfill, councils are subconsciously influencing householders ideas of what proportion of their rubbish should go where⁶⁴. Some councils physically limit a household's rubbish to what they can fit in a certain size bin⁶⁵, and others have instigated alternate weekly collections, prompting householders to create less residual waste (the latter works best when combined with weekly food waste collections). These policies are good examples of nudges: they encourage people to waste less by changing the context in which decisions take place, in this case by changing the shape of bins or the frequency of collection.

2. Pricing resources properly

Pricing alone is unlikely to drive changes in people's habitual behaviour, but it is an important part of the policy mix. Currently only energy is priced on a per use basis, but even this is not ideal as tariffs make energy cheaper the more you use.

Two thirds of UK households⁶⁶ pay a fixed price for their water however much they use, which means there is no financial incentive to use less. This is because they have no water meter which, on average, reduces water use by 16 per cent in UK households⁶⁷. The UK is almost unique in this low level of water metering, when compared to the EU and other developed countries across the world.

None of our research households had been offered a water meter, although water companies aim to have water meters in half of all UK households by 2015.

It means that a household which does everything possible to save water, such as fitting water-saving taps, using washing up bowls, re-using water and having shorter showers, would pay the same as their neighbours who left the taps running.

This would be less of a problem if there were other policies helping to reduce water usage and increase efficiency, but water meters are entering a pretty empty policy arena. A similar situation exists for waste. Waste collection is charged at a flat rate as part of council tax, regardless of how much waste a household produces, or how much they separate out for recycling. Charging householders according to the volume of waste they put out - so that the less they throw out the less they pay is one way to encourage people to reduce their waste. A recent OECD report analysing policies across a number of countries has shown that charging by weight has a "significant impact on reducing household waste generation"68. Whilst variable charging has provoked a heated debate in the UK, behavioural science shows that people value fairness and equity, and it is unclear whether people are aware that their current waste bill might be higher as a result of others not recycling.

3. Information that works

Information is important to create awareness and change attitudes, but numerous studies have shown that behaviour change rarely occurs as a result of simply providing information⁶⁹. This is because many of the barriers, such as unconscious habits, emotions and social norms cannot be overcome by facts and figures alone. As Dr Lorraine Whitmarsh of Cardiff University says, "You can give people information 'til the cows come home, but if they do the same thing every day, like they go to work with a car, or they have a strong car-use habit, they're very unlikely to pay attention to [information on] public transport." Significantly, one analysis reports that at least 80 per cent of environmental behavioural change does not result from knowledge or awareness⁷⁰.

Yet policies aimed at saving energy and water are over-reliant on information: we found that 11 out of the 23 government interventions to encourage householders to save energy have information provision as a major component.

One of the most recent government information campaigns, the multi-million pound *Act* on CO2 programme, relied primarily on generalised information to change people's behaviour through adverts, a website and an advice line to

encourage people to take actions. It had little clear evidence of success. Of around 50 million adults in the UK, fewer than two million people visited the website over the two years between September 2008 and May 2010⁷¹.

Michael eloquently summarises the problem of relying on information alone to change behaviour:

"I believe leaflets through the door are pointless, I get so much junk mail as it is. It all gets banded together and thrown straight back in the bin."

Opt in vs opt out

What is striking is that many information initiatives require the householder to go out of their way to find information. Typically this involves calling a helpline, looking online, or visiting an advice centre. E.ON's Energyfit and British Gas's EnergySmart initiatives (set up to meet their CERT targets), for example, rely on householders to come to them, signing up on websites and submitting monthly meter readings to receive personalised recommendations.

But only a small proportion of people will take these steps. Behavioural science shows that people tend to go with the flow and stick to default options, following the path of least resistance rather than taking the initiative to seek out alternatives, even when this could save them money⁷². This is demonstrated by the fact that 20 per cent of households in the UK still get their electricity from their old regional supplier, and their gas from British Gas, despite the fact the markets have been deregulated for over a decade and big efforts have been made to persuade householders to switch⁷³.

Among our householders most had heard about where to find more information on saving energy through leaflets, adverts etc, but had not sought it out. As Michael says:

"I would go online to look into it, I'm online most nights, but I've never thought about doing it to be honest..." "I'd like to say I'd go out of my way to find out if there is anything locally ... but I've been here four and half years, and haven't done so, so I'd probably be lying if I said I would."

Research suggests that the impact of information would be much higher if householders automatically receive it unless they opt out. This is the model used by the American company Opower, which has brought about a 2.75 per cent reduction in household energy use (on average across all customers) in California over a 16 month period⁷⁴. Opower does this by automatically sending personalised information to households about how their energy use compares to average and more efficient houses in their area. Jim Kapsis of Opower says that whilst the opt-out system engages an average of 80 per cent of targeted households, with "an opt-in program, or a passive communication medium such as a web portal, engagement numbers are traditionally well below five per cent."

Good communication

When used alongside other measures, good communications can be crucial to help people change their behaviour. Relevant and welldesigned local information using social marketing techniques has been one of the components of getting recycling rates up. With the help of the Waste and Resources Action Programme (WRAP), many councils have designed emotive campaigns on recycling and food waste with relevant information and clear goals. But much of the information used so far to promote behaviour change at home has not been so well designed.

For example, communicators have often used fear to persuade people to take action on climate change, but fear is typically only an effective motivator when people feel personally vulnerable to a threat and are in a position to control it⁷⁵. Most people in the UK don't feel personally threatened by climate change, and often do not feel their individual actions will make a difference. Campaigns that contain messages designed to elicit fear or guilt can actually be counter-productive, leading people to continue with the same behaviour while either feeling more anxious or denying the problem⁷⁶. In contrast positive framing, emphasising the benefits of a low-carbon future and changes to lifestyles, has been shown to elicit positive responses⁷⁷.

Studies also show that salient, personally relevant, and easily comparable information is more effective in promoting home energy efficiency than technical, detailed information⁷⁸. So far, much information on saving energy has been generic, but the proposed roll-out of smart meters should enable households to receive regular, accurate, personalised and easily comparable information about their energy consumption.

Personalised data could also allow companies to draw on the power of social norms to help persuade people to use less energy. Social norms "provide implicit guidelines on acceptable behaviour"⁷⁹ and can have great effect on people's actions. We perceive these norms either by observing what most people do (descriptive norms) or by being told what to do (injunctive norms) or by being told what to do (injunctive norms)⁸⁰. Opower uses both of these, first by showing householders how much energy other similar households use, and then by telling householders whether their level of use is approved of by adding a sad/smiley face. This also draws on the power of emotion, or 'affect' as MINDSPACE puts it.

Information labels on products will only have an effect "if they can be understood and taken in at a glance"⁸¹ according to environmental consultancy Brook Lyndhurst. One environmental product label which has had some success is the EU's energy label, whose simple and salient A-G grades provide an easy way to differentiate between products. Alongside standards, labelling has helped transform the market for certain products such as refrigerators and freezers, and is now becoming mandatory for a much wider variety of energy-using products. But it may have become a victim of its own success: the A-G scale should have been recalibrated as products become more efficient, meaning the same



Figure 2: Example of an Opower bill comparing a customer's electricity use with their neighbours'

product would receive a lower rating under a new scale. But pressure from manufacturers has meant that the label will feature new classes above A; A+, A++ and eventually, A+++ instead. Under this system, a mid or even poor performing product could still receive an 'A' rating, a confusing message for consumers.

4. Creatures of habit

Many of our behaviours at home are habits; that is they "occur frequently (daily or more often), with little thought or intent, and in the same place"⁸². But very little policy focuses on changing habitual energy or water use. We found only five government energy initiatives designed to encourage behaviour such as turning lights off, turning down thermostats or taking shorter showers, out of a total of 21. Most policies focus on one-off structural changes to the home such as installing insulation, as these are easier to measure, and thought to be easier to achieve. Figure 3 illustrates the lack of policies to change habitual behaviour.

This is a missed opportunity, since changing habits is an important part of reducing energy and water demand. It is also worrying since, if it is not addressed, householders' behaviour has the potential to undermine efficiency savings from measures such as insulation. As Dr Kathryn Janda, author of a recent paper for the UK Energy Research Centre, says, "Often, buildings don't perform as expected, partially because occupants behave in more complex ways than designers account for; they open windows, leave doors open, generate body heat, keep tropical fish tanks and install plasma TV screens"⁸³.

Latoya, who lives in a double glazed house, gives a good example of this:

"Yeah, when the house is absolutely boiling hot I do open the windows." Well what about turning down the heating for example? "Yeah, well it cools down better when you have the door open." Latoya

In one of the largest literature reviews on the topic⁸⁴, the Breakthrough Institute, an American think tank, estimates that 10-30 per cent of energy savings from efficient homes are subsequently lost through a phenomenon called 'the rebound effect', when some savings from energy efficiency are cancelled out by changes in people's behaviour. The rebound effect can be either direct, such as turning up the heating in a newly insulated house, or indirect, for instance spending the money saved on bills on a flight to Spain.

There is little incentive for companies to encourage people to change their habits because their CERT targets are not based on actual energy or carbon reductions, but on estimated savings associated with particular measures, such as installing insulation or giving out light bulbs. This means there is no incentive for companies to ensure that the measures achieve maximum results, for example by investing time in making sure householders are using their heating systems correctly, or have installed their energy-

Figure 3: Energy policies designed to create habitual and one-off behaviour change

One-off behaviour change: energy efficiency

Green Deal loans to be attached to the property for investing in energy efficiency measures	Boiler Scrappage Scheme £400 voucher to upgrade a working G-rated boiler to an A-rated boiler	X Warm Front grants insulation and heating improvements for vulnerable groups in, or at risk of, fuel poverty	Carbon Emissions Reduction Target (CERT) obligation on energy suppliers to help consumers reduce household CO2 emissions	A Decent Homes standard for social housing, includes minimum requirements for heating and insulation	
EU Ecodesign directive minimum standards for energy consumption of all energy-related products	EU Energy Labelling Directive (and subsidiary directives) all energy-related products must carry a label displaying their energy efficiency rating	Building Regulations Part L minimum standards of energy conservation, for new properties and renovation of existing homes	Performance Certificates requirement for all properties being sold, shows how energy efficient a property is	Landlords Energy Saving Allowance a deduction against taxable profits for various energy efficiency measures	
			Saving Trust information, support and advice	X Act on CO2 emissions reduction campaign	
Certification schemes: microgen, energy efficiency advisers or installers certifies products and installers in accordance with consistent standards	Reduced rate of VAT on microgen technologies for professional installation of certain energy saving material and equipment		Pilot: low Carbon Communities Challenge project to evaluate different ways of reducing carbon emissions	Community Energy Saving Programme (CESP) obligation on energy suppliers to help consumers in low income areas reduce Co2 emissions	
X Low carbon buildings programme information and grants towards microgeneration technologies	A Green Energy Supply certification scheme clarity on green electricity tariffs		• Smart meter installation energy companies will be responsible for providing smart meters to all households		
▲ Feed-in Tariffs householders are paid by energy companies for generating their own green electricity	Renewable Heat Incentive (RHI) consumers can claim a payment on most types of renewable heating installations		Habitual beh energy effici	naviour change: ency	

One-off behaviour change: renewable energy

- Programme activeProgramme planned
- Programme ended/ending
saving gadgets. Sending out light bulbs in the post has now been banned under CERT for this reason. The few efforts to change people's habits have largely been information-based, which is unfortunate since habits are by definition automatic or unthinking behaviours, so information is unlikely to be very effective. Our households had received information through various sources about reducing their energy use but it had little impact on their behaviour. As Vicky Nichols says:



"You see the adverts...saying if you turn your box to standby that could light so many streets in Birmingham ... it makes you think...but I think you just think for a little while and then you just stop thinking about it."

Only two households make a concerted effort to reduce their energy use on a regular basis: Michael, who is very cost conscious, and the Owens.

"We're aware of turning off all the lights. We try not to waste it [energy]. If the heating's on we won't use the tumble drier, we put clothes on the radiator. And we put clothes on the washing line when we can. The reason is I think years ago it wasn't so readily available. Didn't take stuff so much for granted. We do think it's running out...yes, fossil fuels are running out. You can't get enough energy from wind and solar power." Jeannie Owen

The success of recycling shows that it is possible to change people's habits on a large scale. As Professor Imran Rasul states, "Habitual behaviours are activated by situational cues like sights, words or sensations. Therefore, detecting and altering these cues, a technique called priming, might be helpful in changing the habit."⁸⁵ With recycling, the presence of bins or bags in homes serves as a cue, prompting us to recycle. In other areas such as energy and water the cues may be more permanent, the design of a bathroom for example, and harder to change.

According to the academic Bas Verplanken, because habits are 'cued' by the context in which behaviour takes place, they can be disrupted at particular moments when the context changes, eg moving house or changing job⁸⁶, which suggests government policies could be targeted at these occasions.

5. Carrots and sticks

Financial levers have been used to try to encourage householders to save energy or install small-scale renewables. Some of these incentives have been well targeted and provide a good model, but there has been an over-reliance on positive incentives, and little use of nonfinancial rewards or disincentives. In waste and water policy there have been few carrots or sticks directly aimed at individuals, apart from for recycling in some boroughs.

Too positive

As can be seen in figure 4, almost all of the incentives in energy policy have been positive ones. But evidence from behavioural science shows that humans tend to be loss averse and will put twice as much effort into preventing a loss than they will into securing a gain⁸⁷.

Loss aversion means that "a fine can be a much stronger disincentive than a reward is an incentive, even if they are of a comparable amount."⁸⁸ Analysis by behavioural expert Andrew Darnton for Defra⁸⁹ has suggested that, to change things we do frequently in a stable context, ie strong habits, disincentives are needed.

This suggests that by committing to "encourage councils to pay people to recycle"⁹⁰ – and supporting schemes such as RecycleBank, which now offers residents in Windsor and Maidenhead and the borough of Halton

Figure 4: Incentives versus disincentives for energy efficiency and domestic renewables

Incentives X Boiler X Warm Front X Pilot: Insulate **Landlords Green Deal:** Energy Scrappag Saving Allowance: Scheme: loans for investing Today: provides Scrappage grants: in energy a deduction efficiency profits for various energy efficiency measures Community **A** Feed-in tariffs: **A** Reduced rate X Low carbon **Carbon Energy Saving** Emissions householders are of VAT on microgen buildings Programme Reduction paid by energy technologies: programme: (CESP): Target (CERT): companies for for professional subsidised energy subsidised energy generating their installation of efficiency efficiency own green certain energy measures through saving material suppliers for low suppliers and equipment income households **Renewable** A Pilot: **Heat Incentive Low Carbon** (RHI): consumers Communities **Challenge:** payment on most grants for types of renewable community heating projects installations Cost of Energy: A Programme active Ρ Programme planned **Disincentives** Programme ended/ending

vouchers for recycling – but not allowing variable charging, the coalition government may be limiting its effectiveness on recycling. As mentioned above, an OECD study has shown that charging householders on the basis of how much rubbish they put out, rather than collecting a flat fee, can reduce the amount of waste generated⁹¹.

Deposit schemes, such as those in widespread use in the Netherlands, successfully exploit people's aversion to loss because consumers will lose the additional money they have paid for a drink, for example, if they do not return the bottle. Evaluation from IrnBru⁹² which operates such a scheme shows 70 per cent of bottles are returned, whilst there is also evidence from abroad that these schemes reduce littering⁹³.

Well targeted

Although incentives often have less power than disincentives, there have been examples where they have been used successfully, which could be replicated.

The recent boiler scrappage scheme, for example, encouraged people with inefficient G-rated boilers to upgrade. Take up was good; during the first quarter of 2010, gas boiler sales were more than 11 per cent higher than the same period in 2009, and all 125,000 moneyoff vouchers had been claimed by late March⁹⁴. The limited availability of vouchers added more pressure on people to act, invoking the so-called 'scarcity effect'. And an incentive of the order of £400 encouraged householders to spend £2,000 to £3,000 of their own money. Feed-in tariffs (FITs), offered since April 2010 to householders who install small-scale renewables such as solar panels on their property, are also a well-designed example of an incentive from a behavioural point of view. Householders are paid monthly for the power they produce, with a competitive rate of return⁹⁵.

As well as being a generous incentive, FITs have motivated powerful messengers such as money experts and financial advisers to advocate the scheme, because of the good rate of return. Companies offering free solar panels in return for keeping the FITs themselves, leaving householders with free electricity at certain times of day, have also promoted the scheme.

The threat of removal of the FITs, in the autumn 2010 Comprehensive Spending Review, put pressure on people to take up the offer sooner rather than later, again invoking a scarcity effect. Ofgem figures show that during the second quarter of the scheme the number of installations was almost double that of the first quarter⁹⁶.

The new Renewable Heat Incentive (RHI) should have a similar impact at the household level by giving households a set payment for using renewable heating technologies from July 2011, and then a full tariff from September 2012.

A stamp-duty rebate on efficient homes has been mooted. This would come at the time of purchase, so could influence both the seller and buyer. It is also likely to influence estate agents to promote more efficient homes to their client base. Behavioural sciences suggest that if this incentive was combined with an increase in stamp duty for inefficient homes, thereby, invoking loss aversion, it could be even more effective. Buyers of inefficient homes could then be given the opportunity to get the extra money they paid back if they improve the house's efficiency in a given time period.

There are numerous areas where a well-targeted incentive could be effective, such as a purchase tax, separated out on the label, to indicate the purchase choices that make environmental sense. Even a small financial incentive here could lead to a large behavioural change, as people often value items depending on the relative change in value from a reference point⁹⁷. Making these incentives visible will help customers feel good about their choices, invoking the ego effect.

There is one major drawback with incentives, whether positive or negative: once they are introduced they often cannot be removed without undoing at least some of the behaviour that they were encouraging⁹⁸. This is why incentives should only be introduced if the desired behaviour is not being undertaken by the majority of people. Paying people to recycle may well fail on this point, and risks undermining the social norms that encourage many people to recycle already.

Other incentives

Research suggests that non-financial incentives can also help change behaviour. Professor Erik Bichard's work⁹⁹ has shown that non-cash rewards can motivate people to make improvements to their homes. Two out of three people in his programme near Manchester, who were disinclined to invest in energy saving or flood protection, changed their minds when offered non-cash rewards, such as free fruit and vegetables or garden makeovers.

Non-cash incentives can be designed to be sustainable in nature, offering seasonal fruit as a reward for example. This gets around the problem of the so-called 'rebound effect' where householders can undo some of the benefits of energy efficiency by spending the extra money on high energy products and services. In addition, non-cash incentives may be attractive because they are novel.

Prizes can be a cost-effective way of motivating people, because we tend to overestimate the likelihood of something very frightening (such as a plane crash) or exciting (such as winning the lottery) happening¹⁰⁰. Offering prizes to groups of people could work well, as it brings social pressure into play. The London Borough of Ealing, for example, is offering rewards such as

re-vamped playgrounds to the wards with the highest and most improved rates of household recycling, with the idea being that neighbours encourage each other to recycle more in order to secure the prize for the local area¹⁰¹.

However, prizes and other non-cash incentives need to support the overall aims of policy. Chris Huhne's suggestion that energy companies "could offer the chance of a cruise for two to the Norwegian fjords"¹⁰² as a prize for people who insulate their homes, risks undermining the end goal of energy efficiency, which is to reduce carbon emissions. According to some estimates¹⁰³, cruises produce three times as many carbon emissions per passenger per kilometre as flights, and promoting them will not only have a direct negative environmental impact, but will undermine the overall credibility of government's efforts.

6. Invisible action

Energy and water efficiency both suffer from invisibility. You can't usually see insulation and more efficient products often look the same as any others. The machinery for delivering insulation is also invisible – it is not obvious if an engineer is visiting a home to install solidwall insulation or fit a kitchen.

By contrast, recycling is a visible, public act. The infrastructure, the special bins and bags and the collections, are not only regularly seen but visually differentiated from landfill waste bins and collections. This visibility helps to make it a social norm and the paraphernalia associated with recycling helps to reinforce the habit, providing cues or prompts to do it¹⁰⁴. It makes messengers of us all: parents remind their children, children remind their parents, housemates remind their friends. And friends and family, as behavioural science reminds us, are the most powerful messengers of all.

There are two areas where energy use links to visible actions. One is habitual behaviour, such as turning off lights, which can be seen by other people in the house. The second is small-scale renewables, such as solar panels, which are an external sign that change is afoot. Small-scale renewables are useful in helping to change social norms as, unlike other measures like loft insulation, they can also help to popularise and attach status to sustainable living. Research shows that some people are more likely to make green choices when they think others will find out about it, or when the product is highly priced, providing an opportunity to display wealth¹⁰⁵.

The Nichols family noticed their neighbours fitting solar panels:

"Outside's just had it put in [solar panels] ... just up the road, two minutes away ... [in the] last couple of months. 'Cos they had scaffolding up for a while." **Vicky Nichols**

When certain measures are visible and attractive, using them in combination with less visible installations is likely to encourage greater uptake of the non-visible, but effective, option. A hierarchy of measures could be a useful way to approach energy and water retrofits, whereby the more attractive option, such as solar panels, becomes available once a less attractive option, such as insulation, has been taken up.

7. The myth of choice

A cornerstone of policy so far has been encouraging consumers to buy greener products to drive market change. But there are limitations to this approach.

People often prefer not to make a choice at all. They tend to stick with what they know and use mental shortcuts when faced with a variety of options¹⁰⁶. As Michael says:

"Energy appliances, right, what influences me most when buying appliances, I have to be honest, I'm a bit of a stickler for brands because generally I believe that they come with a guarantee."

There is a limited amount of information people can take in before simply opting to 'choose not to choose' and plumping for defaults, such as trusted brands. When people go shopping they



are juggling a huge number of variables including design, brand, price etc., and for most people environmental performance comes well down the priority list. Labels on products are "one of the poorest tools to change behaviour" according to the author of a study on labelling, because people will only look at them if they already think the issue is important, and if the label can be understood and taken in at a glance¹⁰⁷.

Another problem is that we undervalue efficiency in products because, on the whole, people value today over tomorrow¹⁰⁸, a factor known as 'hyperbolic discounting'. This means that we are much more influenced by upfront cost than savings down the line, as shown by the Nichols family:

"I wouldn't buy one that was more efficient and a dearer price if something cheaper looked exactly the same because, like I say, you look at the pound signs. You don't think how much it's going to cost in the long run by using this, by the electricity you're going to use, you just look at the price from when you're going to buy it." Vicky Nichols Although the Owens had ensured their new second-hand washing machine was energy efficient, none of our households cited water efficiency as a driver in their purchase of products. For example, the Owens recently installed a new shower but said they didn't consider water efficiency when buying it. The Ward family fitted a dual flush toilet, but only because it looked smoother without a handle.

Even if customers are interested in making the most sustainable choice, it's often not obvious what this is. For example there are more than 70 self-certified water efficiency labels on the market for various products, a confusing minefield for consumers.

Setting minimum efficiency standards is one way of getting around these difficulties. Improving standards for new boilers has played an important role in driving up efficiency¹⁰⁹, and means that consumers can select a product based on factors that interest them, such as cost or look, without having to worry about energy efficiency.



Furthermore, by setting minimum efficiency standards no lower than the level of 'least life cycle cost', ie the most cost effective option for the consumer when both upfront costs and running costs are taken into account, our tendency to disregard future savings can be tackled.

The EU is in the process of setting standards for a range of energy-using products, and the coming years will see the scope of this process expand to encompass energy-related products such as taps, where use has an impact on energy consumption.

Whilst at least there is progress on standards for energy-using products, regulations on water use currently only apply to newly built properties, or renovations, affecting certain water-using products within them. These are helping to improve performance, but they do not yet apply to the many more existing homes or to the entire set of water-using products¹¹⁰.

8. Regulation

Regulation has been used in a variable way across the three policy areas, only impacting directly on the householder when it comes to a few regulations relating to the energy performance of the home. It has been used effectively upstream in recycling, as described previously, and is fairly absent from water policy apart from when hosepipe bans impact at times of drought.

As the Sustainable Development Commission argued in their final report on behaviour, Making sustainable lives easier¹¹¹, many of the sustainable behaviours taking place to date have been driven by regulation on either individuals or businesses. The EU energy efficiency standards described above are one good example of this and the UK has decided to go further on the issue of efficient light bulbs by agreeing with retailers to ban the use of the most inefficient type of light bulbs earlier¹¹². Ministers in this government do not seem completely averse to regulation: the Energy Bill moots the idea of regulation for the private rented sector if landlords fail to upgrade the energy efficiency of their properties; the Department of Business, Innovation and Skills has talked about regulation in the recast of the Waste Electrical and Electronic Equipment Directive, and Defra recently threatened to use regulation to bolster the current voluntary approach to environmental land management¹¹³ if it fails to deliver.

Regulation in other policy areas, for example the ban on smoking in public places, shows that regulation on individuals can help change social norms if implemented effectively.

Support from the right messengers Who delivers the message of the regulation has a great impact on how it is perceived. On energy efficiency, both of the regulations which work directly on the householder have not had effective messengers.

Part L of the building regulations requires homeowners to ensure that new extensions meet the latest energy efficiency requirements, which may be a significantly higher standard than the rest of their home. This could seem like a drag or an opportunity, depending on how it is presented. The messengers in this case tend to be builders and architects who often don't value the action. This was demonstrated by the last minute rush to register home extensions before 31 October 2010, when the legislation came into force, avoiding the need to comply¹¹⁴.

The same is true of Energy Performance Certificates (EPC). Estate agents who do not see energy efficiency as a selling point will often advise people on how to get an EPC in the cheapest way, irrespective of quality¹¹⁵, and tend not to highlight the importance of good energy performance to buyers. Behavioural science shows that the messenger is as important as what is being said. The impact of regulation will be strengthened if the messenger finds a reason to support it and therefore should be considered in the design of policy measures.

9. The power of local action

There are many benefits to delivering action locally including harnessing the influence of norms, the power of groups and the knowledge of the local area.

Whilst local action has been an essential component of the success of recycling policy, it has not been systematically introduced into energy policy, where government has consistently chosen not to go down the local route. On water, although companies are broadly regional, there has not been enough of a systematic effort to say that local areas have had any real effect.

Social norms

Working on a local basis can help to drive social norms around energy and water efficiency. Many of the effective local energy efficiency programmes have happened street-by-street, which means that households can see their neighbours taking action. The Nichols family's experience illustrates the point. They had seen the council doing other people's windows in the street, which prompted them to investigate installing double glazing in their home.

"Then the council came round and started doing everybody's windows and we missed outand I think they got theirs in December and we got ours in January."

The power of groups

Involvement of local organisations, including local authorities, in driving energy and water efficiency has not been systematic. However, companies have found that often collaboration with the local authority, a community or a civil society organisation has been the best way to get uptake in delivery of the CERT obligation¹¹⁶. Evidence from the last government's Household Energy Management Strategy suggests that partnerships between local authorities and energy companies can deliver £6 billion in benefits, compared to -£0.3 billion for an energy company model alone¹¹⁷. The Community Energy Saving Program (CESP) for low income areas, launched in 2009, has encouraged greater partnership between energy companies, local authorities and community groups.

People have been shown to be more likely to change their behaviour when engaged as part of a group, as the success of initiatives such as Weight Watchers demonstrates. Working in groups brings a number of factors into play including the power of social norms, ie wanting to belong or conform, and the tendency to stick to public commitments. Global Action Plan's Eco Teams are a good example of this. Households meet monthly to compare their domestic environmental performance and encourage each other to do better. Typically it has led to reductions of 40 per cent in waste production, 12 per cent in energy use and 20 per cent in water use. It has been demonstrated that, given effective leadership, engaging as few as five to ten per cent of the households in a housing estate in the Eco Teams program can influence the behaviour of the whole community, as these households then become messengers themselves¹¹⁸.

Local knowledge

Community based social marketing expert Douglas Mackenzie-Mohr advocates a local approach to driving behaviour change, arguing that barriers and motivators to change are context specific and can only be adequately addressed in context¹¹⁹: for example, addressing the lack of space in a block of flats to store recyclables prior to collection.

Waste policy is devolved across the UK so different councils have been able to take different approaches to collecting and managing household waste, tailoring messages, advice and service provision to their audiences and taking advantage of their role as trusted messengers.

How much support local authorities give householders to manage their energy and water better varies greatly. Now that Local Area Agreements which contained targets on climate change are being scrapped, there is little to encourage poorly performing councils to raise their game. Local carbon budgets could be one way to rectify this situation.

This is also not to say that local delivery is an unqualified success on recycling. Because what can be recycled differs in each council it is often unclear what can be recycled in a given location. Our households were all confused over what could go in their recycling bin; with Josie simply putting in everything, thinking she was going beyond the call of duty.

This lack of standardisation as to which materials are collected can also cause problems

for retailers, manufacturers and product designers, who produce products and packaging for a national, not a local, market. But local authorities argue that retailers and brands could do more to ensure that more of their products and packaging are realistically recyclable, by using more commonly recyclable materials and avoiding tricky combinations of materials. WRAP's efforts to ameliorate this 'chicken and egg' situation have focused on a voluntary agreement known as the Courtauld Commitment. Signatories agree to help WRAP achieve targets around packaging reduction and supply chain waste, as well as support and advise local authorities to help them design the most effective collection systems.

10. Leading by example and engaging the public

Whilst exemplifying action is an essential part of Defra's 4Es programme, and was seen as essential by the participants in DECC's Big Energy Shift Dialogue¹²⁰, it is only slowly being adopted by government.

We expect others to reciprocate behaviour, such as giving presents, doing favours or making sacrifices. Therefore if government fails to display the behaviours asked of the public it goes against people's desire for reciprocity and fairness, and invites charges of hypocrisy. And as MINDSPACE points out, mixed messages go against people's desire for consistency. Progressive businesses seem to understand this well, sorting out their own supply chain before asking their customers to change.

Although David Cameron committed to reducing carbon emissions by ten per cent in central government buildings on his second day in office, and DECC has overachieved this target with a 25 per cent reduction¹²¹, Defra's building is still a lowly E.

Local exemplification

Exemplification is even more important on a local level in buildings that people come into contact with regularly. Unfortunately, public buildings, rather than being a bastion of good practice, mostly lag behind private homes in resource efficiency. Research by the Centre for Sustainable Energy (CSE) has shown that less than 200 (0.3 per cent) of our 40,146 public buildings have the top energy rating while 15 per cent are in the lowest band G^{122} . There is currently no target for emissions reduction in the broader public estate, although it was expected¹²³ in the publication of the government's carbon plan in March 2011¹²⁴.

Exemplification should go beyond the public estate. Initiatives such as the Sustainable Energy Academy's Old Home SuperHome¹²⁵ network, which aims to create an exemplar home within 15 minutes of everyone in the country, are essential for normalising sustainable homes, making them familiar and inspiring to householders. Currently this is the only network of its type and, although excellent, it only focuses on energy use.

Engaging the public

Politicians have often used a perceived lack of public support as a reason for limited action on sustainable living. Certainly policies which raise people's bills or which play into tabloid-framed debates that stir up fears about 'bin spies' and 'slop buckets' risk being unpopular.

But government can reduce this risk by stepping up its public engagement efforts. Involving the public in decision making and in the design of projects can improve people's acceptance of, and commitment to, sustainable living. This is true on a national level and also for projects that target a particular group or locality. For example, research in Japan has found that public debate was a useful tool for introducing a system of charging for waste disposal, which was not popular before the debates¹²⁶. As the Sustainable Development Commission points out, "Omitting proper engagement can leave government in a defensive position searching for 'quick-fix' measures which are more likely to fail and to be a waste of resources."¹²⁷ If an intervention is perceived as fairly implemented and has involved citizens in the decision-making process, it is more likely to lead to public acceptance and co-operation¹²⁸.

DECC's Big Energy Shift Dialogue¹²⁹ is an example of public engagement, albeit on a small scale,

and showed that when people are engaged in a comprehensive and systematic way they support many of the solutions advocated by experts.

Currently DECC is running the Low Carbon Communities Challenge¹³⁰ and Defra is sponsoring behaviour change projects through the Greener Living fund¹³¹. There is also the 2050 roadshow looking at what policy solutions overall could deliver our carbon targets, but there is no broader attempt to engage people across the different areas of resource use as to the specific kinds of responses that could be brought in at a household level.

11. A reinforcing policy suite

The relative success in promoting recycling demonstrates that a successful behaviour change initiative needs complementary measures.

People recycle because a set of measures working together, whether by design or accident, encourages them to. Widespread kerbside collections have made recycling easy; recycling bags and bins act as a prompt; good communication initiatives, such as WRAP's Recycle Now campaign, have informed and persuaded householders; and recycling is a visible act, seeing neighbours doing it brings the pressure of social norms into play. There is still a way to go for the UK to do as well as some of its European neighbours, as the most recent Eurostat figures show¹³², but nevertheless recycling has become an accepted activity of everyday life.

As this chapter has shown, a failure to recognise the importance of psychological, social and structural factors in determining our behaviour, or to address some fundamental structural issues that govern our choices has hindered the success of other policies on sustainable living. To improve on this policy suite will require action on a number of fronts; one policy alone is rarely likely to be enough to enable or persuade someone to change their behaviour.

Where behaviour meets policy: summary of findings

1. Structural issues haven't been tackled. The

material infrastructure within which we operate has an inescapable influence on our actions. Without kerbside collection it would be difficult to recycle and, at a macro level, the way energy and water markets are structured affects the way utility companies interact with us. The current shape of these markets makes it harder for energy and water efficiency to be prioritised. When it comes to waste, it isn't easy for householders in the 59 per cent of English council areas without a food waste collection to stop their leftovers from going to landfill¹³³.

2. Resources aren't properly priced. The charging systems for water and waste are not based on usage, so households that throw all their waste to landfill and keep the taps on all day might pay the same as their more resourceful neighbours. Charging per unit of waste and water can significantly reduce usage¹³⁴.

3. Information is not designed effectively.

Information has an important role in creating awareness and changing attitudes but rarely changes behaviour alone. Policies have relied heavily on generalised information provision, often requiring the householder to find out more, rather than providing it automatically in a simple, salient and personally relevant manner.

4. Habit and routine have been underestimated.

The way we use energy and water is borne of ingrained habits, yet barely any policy attempts to tackle this. Reducing habitual energy use will be an essential component of reaching our climate targets, and is particularly important when you consider that the way we behave has the potential to undermine efficiency savings in our homes through the so-called 'rebound effect'.

5. Too many carrots. Evidence from behavioural science shows us that humans are loss averse and will put more effort into preventing a loss than securing a gain. But most financial levers used by government are incentives rather than disincentives. Some well-targeted incentives have had an impact, but incentives can risk undermining behaviours that are already normal. Non-cash rewards should be considered too.

6. Green actions are often invisible. Recycling is a far more visible act than water or energy saving, which helps create a social norm around it. Government has paid little attention to the visibility of its policies or initiatives.

7. More choice hasn't led people to choose green.

People can only take in a limited amount of information, and often other variables such as design, cost and brand have far more influence on people's purchasing habits than energy or water efficiency. Clearly signalled regulations to drive up the efficiency of some products such as boilers have been successful.

8. Regulation has been effective at driving

change, although it has not often placed requirements directly on the individual. Regulations that have directly influenced householders, such as the requirement to get an energy performance certificate (EPC) when selling a home, have not successfully won over their main messengers: estate agents rarely value energy efficiency, for example.

9. Too much policy is delivered from the centre.

With recycling, councils have been able to tailor their messages, advice and service provision through knowledge of local audiences. Water and energy policy has, by contrast, not been localised, apart from local partnerships in the delivery of insulation for example. Working on a local basis also helps to drive social norms and harness effective local messengers.

10. Government hasn't led by example or

engaged people. Government bodies are only slowly adopting actions themselves that they want individuals to undertake. Greening public buildings and developing a network of exemplar homes around the country are key. Involving citizens in the decision-making processes for sustainable living can help lead to acceptance and co-operation.

11. Mutually reinforcing policies are most effective.

The relative success in promoting recycling demonstrates that a successful behaviour change initiative is made up of complementary measures. Good communication is important, but recycling rates would be nowhere near current levels if councils had simply informed householders about recycling and then expected them to go out of their way to visit local recycling points.





Meeting our environmental targets will depend significantly on changing people's choices and habits at home. Yet, as our analysis has shown, policies designed to do this have often not been sophisticated enough to work.

The Coalition government has shown a keen interest in understanding human behaviour, which could help it to significantly improve on the set of policies it inherited. However, using the ideas popularised by Professors Richard Thaler and Cass Sunstein's book Nudge¹³⁵, which found a receptive audience in the Conservative party in opposition, will not be enough. A nudge is a change in the choice environment (such as altering the way a shop is laid out, or a question is framed) to help people make better decisions.

Government ambition

The Coalition Agreement states that government will seek "intelligent ways to encourage, support and enable people to make better choices for themselves", and this has already led to some structural changes in government. A new Behavioural Insight Team, informally known as the 'nudge unit' has been created in the strategy unit of the Cabinet Office. Tasked with finding more cost-effective and less bureaucratic ways of changing behaviour, the unit is advised by Richard Thaler, and includes David Halpern, an author of the influential MINDSPACE report¹³⁶.

The Treasury has also recently launched a Behavioural Science Government Network, and Dr Rachel McCloy, a psychologist from Reading University, was brought in to lead crossgovernmental work on behaviour change. The National School of Government has begun to integrate behavioural science into core policy training for civil servants, and a House of Lords sub-committee is halfway through an investigation into the policy implications of behaviour change research.

All this is having an impact on departments such as DECC, Defra and Communities and Local Government (CLG). DECC has had a formal 'customer insight team' in place since June 2010, which aims to distil some of the messages from behavioural science for use in energy policy. It also has a policy evaluation team which includes two social researchers. According to Dr McCloy, CLG is making efforts to improve knowledge and skills on behaviour change. Defra, which has long led the way on pro-environmental behaviour change, has recently created a new Centre of Expertise on Influencing Behaviours.

This new impetus is now bearing fruit in other policy areas: the government's 2010 green paper on giving¹³⁷, which seeks to increase charitable giving, featured behavioural science prominently when it made the argument that we need a more visible culture of giving in the UK so that it becomes a norm. Recently the Cabinet Office published a paper on how behavioural sciences could improve health policy¹³⁸. There is now a paper in development looking at how behavioural science could help the government meet its environmental commitments¹³⁹.

Is behavioural economics enough?

The strand of behavioural research that has particularly caught government's attention is behavioural economics, which looks at the influence of psychological biases on people's decisions. This is what both Nudge and MINDSPACE are based on. It challenges the idea that people always act rationally in their own self-interest, and argues that much of people's behaviour is automatic and influenced by the context they are operating within.

This interest in behavioural economics should lead to better policy design. "It is progress", said one academic we interviewed¹⁴⁰, "at least it's recognising that people are a bit more complex and that decision-making isn't entirely economically driven and rational". However, it will only lead to real success if insights from behavioural economics are not interpreted too narrowly.

Accounting for social factors

As well as being influenced by our friends and family, and by who communicates information to us, most behavioural experts agree that our behaviour is shaped by the broader cultural norms and practices that dominate our society.

Informing people about an existing social norm in their locality can help errant groups to come into line with the norm, for example householders may reduce their energy use if they realise that they are using more than their neighbours. But this will not change the average trend. This can only be done by addressing the underlying social norms by which we live.

An excellent example of this is the Japanese government's 'Cool biz' programme to reduce energy demand in offices by changing social norms around office wear. The government identified that "a distinctly inefficient combination of suits, ties, jackets and extensive air-conditioning" was the norm in the summertime in Japanese offices, so it set about changing this. The government mobilised its own role as an employer; government buildings were not heated or cooled between 20 and 28°C; it called on the support of diverse organisations, using business leaders, department stores and clothing manufacturers to design and promote lightweight summer clothing; and it capitalised on the media profile of ministers and ambassadors, who were used as fashion models. In combination, these moves have helped to redefine lightweight clothing and natural cooling as normal. As sociologist Elizabeth Shove noted¹⁴¹, it "has had a significant impact on collective behaviour in less than five years".

Our ideas of what constitutes smart office wear, convenient meals, or a clean and comfortable home have great repercussions for our use of energy and water and our production of waste. Government, businesses and public figures play a great role in shaping these norms and can also help to change them. This means that government has an important role in leading by example.

Accounting for structural factors

Behavioural economics tends to focus on the immediate context in which we make decisions, concerned with factors such as where healthy food is positioned in a canteen, what the default setting is on a washing machine or whether there are bike lanes on our streets. But the broader structure of our economy and physical environment also affects our behaviour profoundly, as we discussed in chapter four.

Recognising that our behaviour is affected by these structures means accepting that "policy areas like those of urban planning, business development and technology are inextricably part of behaviour change"¹⁴².

A range of policy tools

In Thaler and Sunstein's book, a nudge is described as "any aspect of the 'choice architecture' that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives". In other words, Nudge uses the insights of behavioural economics but only insofar as it fits a political ideology they call 'liberal paternalism', which does not condone measures such as banning the worst options or using disincentives.

However, as the MINDSPACE report points out, behavioural insights, such as the fact that humans fear losses more than they appreciate gains, can do much to improve traditional policy instruments including regulation and incentives.

The coalition government's approach

Although the government has shown interest in Nudge, there are encouraging signs that it is willing to embrace a broader approach. In his evidence to the House of Lords sub-committee on behaviour change¹⁴³, Oliver Letwin, minister for government policy, said:

"We see behavioural science in the round, there has been a great deal of discussion of nudge, or prompted choice ... and it is a very important part of what we're seeking to use as tools to achieve behaviour change ... but it is not by any means the whole. The way that things are designed, whether housing estates, urban environments or school dining facilities ... systems and physical locations alike can have a profound impact on behaviour. It's a very important area for investigation, how to design best to encourage ... desirable objectives. Nudging is just one part of a wider theme."

Fully taking into account behavioural sciences means considering how social and structural factors, as well as individual-level influences, affect our behaviour. It also means looking at how existing policy tools such as regulation can be enhanced with behavioural insights, as well as developing innovative non-coercive tools.

However, just as information alone cannot change the public's behaviour, it would be naïve to assume that policy makers can instantly take on board a rich new field of academic enquiry and apply it effectively from the start. There is a "huge gulf" between academic research and policy-making, according to Dr Chatterton, an academic from the University of the West of England, Bristol, who spent 12 months working at DECC on a Research Council Fellowship. He argues that this needs to be addressed in government by cultivating greater expertise, and moving away from "the rotating short-term" posts that are usual in policy teams", and in academia "by formally recognising the value of policy outreach" as well as academic publication¹⁴⁴. Greater expertise in government is essential if more sophisticated evaluation methods like field experiments, and scientificallyrobust measures, such as attitudinal scales and objective indicators, are to be applied to assess and improve interventions.

6. Policy that works



6

This chapter sets out specific recommendations for designing better policy on sustainable living at home, and provides an example of how these recommendations could be put into practice to reduce domestic energy use.

To reach its environmental targets, government will need to help bring about widespread changes in householders' behaviour, whether that's helping us to insulate our lofts or offering separate food waste collections. But the current policy framework for driving proenvironmental behaviour is insufficient. Our six households showed that in the real world people are busy and have other priorities. They are prepared to make changes when prompted to do so, and when the transition is made easy (for example all the households recycle the materials that are collected from their doorstep), but few have made changes when they are difficult, too expensive or outside the norm.

The government's enthusiasm for behavioural theory means there is a real opportunity to significantly improve policy on sustainable living at home, and to maximise the chances of meeting ambitious environmental targets. There is an opportunity to set a framework so that businesses, local governments and a host of other players, such as estate agents and builders, are helping householders to be green, not hindering them.

The government's localism agenda also has much to offer, as behaviour change policy often works best when implemented at a local level, but only if the national framework within which it will operate is sufficient. There will be new opportunities to engage householders though local initiatives and through civil society leadership on the environment, if local funding and capacity is directed at environmental outcomes.

In the next section, we discuss the areas that need to be addressed for the government to ensure it delivers people-centred policies to meet its energy and waste targets, and to reduce the pressure on our water supply. We have three over-arching principles to follow and then some key questions to ask when designing green living policy.



Three principles for greener living

1. Set out the vision

For a change strategy to succeed, the target audience needs to believe in it and understand how they fit into the plan. The perceived benefits of action to protect and improve the environment are not always evident at an individual or local level. The onus is on government to provide a clear vision and bold leadership.

A lesson from the behavioural sciences is that people will take action if they see others also doing so and feel a sense of fairness. Policy will be most effective if people believe that national government has a credible vision and a plan to support their own efforts. They also need to see the government putting in corresponding effort, and receive benefits from doing the 'right' thing.

2. Transform the 'choice architecture'

The magnitude of the environmental challenge and, specifically, the imperative to tackle climate change within a relatively short timescale, requires a step change in how we manage resources in our homes. The structures within which we operate need to change to ensure this can be achieved. Otherwise incremental improvements in the environmental performance of products and services, and efforts to nudge us in the right direction, will be drowned out by increasing consumption. Systemic problems need a systemic approach, rethinking the markets within which people are making their choices about their use of energy, waste and water, and the products and services available to them. These changes will not come about without clear leadership from government.

The effectiveness of recycling policy has demonstrated the importance of structural change. Changing the structure within which businesses and local authorities operated through the landfill tax and tough targets has resulted in the uptake of recycling across the country, amongst different sectors of society and values groups. It has led to the introduction of new infrastructure, behaviours and social norms, which have contributed to meeting ambitious targets.

3. Apply behavioural insights for smarter policy

A more sophisticated understanding of how people behave enables the development of more intelligent, and more effective, policy. Nudge will be helpful in encouraging pro-environment action but it will be insufficient on its own. Without a reappraisal of existing approaches and the application of behavioural insights to a broad set of policies, government will not be able to reach its stated ambitions within the necessary timescale.

Policies aimed at driving greener living should be re-examined through the lens of behavioural science. The aim of such policy measures should be to use the best of the evidence base to encourage desirable behaviours and to discourage undesirable ones. While the nudge approach has something to offer this process, it cannot replace policy which helps to create new choices or makes damaging behaviour difficult or impossible to pursue.

Successful initiatives are likely to need all the policy tools available; a mix of well-designed information, incentives, regulation, services and nudges to encourage the desired actions and outcomes.

Key questions to ask when designing green living policy

We believe that the government already has a useful tool in Defra's 4Es approach, which highlights the importance of integrated policy that engages, enables, encourages and exemplifies the changes desired. But it needs to be adopted on a much larger scale and in a more robust way. Here, we summarise a number of questions that we believe government needs to ask when designing policy in this area. We have grouped these questions under the 4Es.

Engage Gaining public support and involving people

Is government engaging the public in the development of policy in this area? Behaviour change and support for policy will be maximised if people are involved in policy decisions. The conversation should involve individuals, the third sector and community groups, to increase people's commitment and trust in new initiatives. This could be done through the roll-out of a programme like the Big Energy Shift on a larger scale across the country.

<u>Is delivery using local channels?</u> What role do local authorities and local groups have to play in delivery? What are their obligations and expectations? The involvement of local delivery agents has a huge number of advantages, but performance needs to be kept to a consistently high standard and responsibility for meeting national targets must be distributed.

Does government have a clear plan that people know about and have confidence in? Small individual actions can seem insignificant in the face of global problems like climate change. People are more likely to believe that their actions count if they can see that they are part of a greater plan which involves government and businesses making significant changes.

<u>Is it seen as fair?</u> Is policy in this area seen as fair and equitable?

Enable

Making desirable behaviour possible, and easy

Do householders have the right practical infrastructure for action to take place? Widespread changes in some behaviours will be impossible without certain services or changes to infrastructure. For instance, if a higher proportion of food waste is to be diverted from landfill, a collection infrastructure will need to be rolled out in councils across the UK. People will only be able to wash at low temperatures when machines come with low temperature settings as standard. For homeowners to make improvements to their properties, reliable and trusted service providers will be needed.

Are stakeholders enabled to help householders, and do their business models let them do this properly? The markets in which energy and water companies currently operate are not structured in a way that encourages them to help householders use less energy and water. The current set up is particularly unlikely to lead businesses to help householders change their habits, as it is geared towards one-off changes such as installing insulation. These frameworks urgently need reviewing so that it is in businesses' interests to promote efficiency.

Are people given accurate information on the efficiency of their homes and on their use of resources? Energy Performance Certificates need to be accurate and give relevant advice to householders, otherwise they will not lead to sensible changes, or trust from householders. Smart meters can allow people to have a better understanding of their energy use if people know how to use them and why they are useful. Without measuring water use and waste production people can have little idea of the volume they are using/producing.

Encourage Understanding and influencing behaviour

<u>Have behavioural insights been used to create</u> <u>effective tools to encourage people?</u> Has research about human behaviour been used to screen and improve policies, using tools such as MINDSPACE?

Are messengers motivated to support, rather than contradict, policy aims? Estate agents, lawyers, builders, plumbers and architects can influence whether people value home efficiency or not, and therefore influence the impact of policies. Friends and family can also have powerful sway over their peers. Has policy design taken this into account?

Do defaults encourage the best environmental options? Many more people will engage with a policy if it is opt-out rather than opt-in. This means that to have widespread influence, information or services will need to be delivered to everyone as a default, rather than expecting people to opt-in in large numbers, which experience shows they won't.

Are people rewarded for doing the right thing, and discouraged from doing the wrong thing? Rewards can be effective, especially if they are only available for a limited period of time, thus putting pressure on people to act. However, if people are already doing something like recycling for other reasons, introducing rewards can be counter-productive. Offering sustainable non-cash incentives can help overcome the rebound effect. But government needs to go beyond carrots; people respond more strongly to disincentives, and these should also be used to discourage undesirable actions.

<u>Is there a clear signal which shows that</u> <u>government means business?</u> Many effective behaviour change policies, such as recycling, have only come about because of legislation. This is an essential part of the policy mix and should not be ruled out. Government should introduce regulation when it is necessary to provide clear signals to businesses and individuals and give them confidence to plan for change.

Are the results clearly visible locally and nationally? As we've seen, social norms can be a powerful motivator. Seeing other people make changes to their homes and their habits helps to motivate householders, so it is often more effective to roll-out policies in a visible, local and systematic way, where possible.

<u>Is information being used so it works for</u> <u>people?</u>Whilst information alone is unlikely to lead to action, it is an important tool when used effectively along with other policy levers. Information needs to be simple and relevant, and appeal to people's emotions.

Does pricing reflect usage of a resource? Paying for resources such as water depending on how much we use, and paying for services such as waste collection at a variable, instead of flat, rate has been shown to send the right signals to people, and help change behaviour.

Exemplify Leading by example

Is government exemplifying the action it wants individuals to take? People in focus groups repeatedly say that, if they are going to make changes in their own lives, they want to see consistent and commensurate action from government. Public buildings and services should provide inspiration and a positive example of sustainable living.

<u>Are well known people taking action?</u> If people who are admired and respected demonstrate that they have changed their behaviour, others will follow suit. Equally if high profile politicians or local leaders don't show commitment to their own policies and take action, people will ask why.

<u>Is there a network of exemplar homes</u>? Is it easy for people to see examples of efficient, resourceful homes that are desirable and comparable to their own?

Recommendations in action: domestic energy policy that works

To show how these principles and questions could be used, here we apply them to existing and proposed policy to help bring down domestic energy use. This starts to show what integrated policy that uses behavioural insights could look like.

There are a number of policies in train to reduce our energy use at home, with the aim of meeting the 29 per cent energy reduction target by 2020. This target will be tough to meet, as we have shown.

How does domestic energy policy fare against the three principles?

Policies to reduce energy use in the home fail on each of the three principles outlined in our recommendations.

First of all there is no visible plan to ensure that the domestic sector delivers its part of our climate change targets. Whilst Labour's Home Energy Management Strategy (HEMS) never got a chance to be tested to see if it worked as a strategy, there is no comparable vision or plan under the current government. And without a clear vision, there can be no communication to individuals about what they are part of, why they should take corresponding action and how their action will add up to a larger whole.

Second the choice architecture is not being tackled sufficiently. Whilst electricity market reform is being addressed, the focus is on the wholesale rather than the retail market, so the broader question of how to get energy companies to make money by saving energy in people's homes is not being looked at in enough detail. Equally there is no corresponding reform being undertaken in the gas retail market. Moreover, whilst the successor to CERT is being considered, the new Energy Company Obligation is likely to look fairly similar to the last supplier obligation. Without addressing issues such as misaligned incentives (with the responsibility to deliver energy efficiency given to the companies who make money from selling energy) and introducing an outcomes-based system that requires actual emissions reductions, ECO is likely to suffer from similar problems to its predecessor.

Last, there is no process in train to examine domestic energy policy as a whole and whether it is fit for purpose from a behavioural sciences point of view. The Green Deal and existing policies are insufficient to drive habitual behaviour change in particular, and without a thorough policy overhaul government will not meet its targets.

Domestic energy use broadly breaks down into two types of behaviour: habitual energy reduction and one-off changes to the structure of the home to make it more efficient. New policies in the pipeline are shown in the diagram in box 5.

Box 5: Domestic energy saving policies in development



Next we go through our key questions, asking them of current and planned policy to help reduce domestic energy usage. We group the questions under the 4Es as we have done previously.

An analysis of the coalition government's plans for domestic energy

Engage		
Key questions	Current situation	Recommendations
Is government engaging the public in the development of policy in this area?	There does not appear to be any plan to engage the public or local community groups in a national conversation on the development of energy efficiency policy, either on its own or in conjunction with other resource areas.	Hold a national conversation on individual action as part of the current debates around the 2050 calculator. Make the need for action on the individual scale clearer and show how government is doing its commensurate bit.
	There is no positioning of energy efficiency as contributing to the wider vision for a low carbon society.	Show the importance of energy efficiency; stating the clear benefits for individuals, such as protection against rising bills, and collective benefits, such as reduced emissions and increased energy security.
Is delivery using local channels?	All targets and responsibilities to help meet national carbon targets at a local level have been scrapped.	Establish a substantial role for local authorities in the roll-out of smart meters and the Green Deal beyond that detailed in the Memorandum of Understanding. In the design of ECO allow local authorities to bid for funding to deliver efficiency savings like any other delivery partner.
	Whilst local roll-outs were considered for smart meters the government appears minded to go for a competitive energy company-led model, whereby energy companies can engage with local authorities if they wish.	
	Local authorities and DECC have brokered a Memorandum of Understanding ¹⁴⁵ on how local authorities can participate in national carbon reduction initiatives at the local level, particularly the Green Deal, smart metering and renewable energy deployment.	
Does government have a clear plan that people know about and have confidence in?	There is no plan to ensure that carbon emissions in the domestic sector are sufficiently reduced so that households make an adequate contribution to the carbon budget targets for 2020, and interim targets at 2015.	Develop a clear plan that shows a) how policy will help deliver action in the domestic sector and b) how this will contribute to overall carbon budget targets.
Is it seen as fair?	There are concerns growing over the levies on people's fuel bills for various carbon reduction measures. These are applied to all energy users, irrespective of their ability to pay, and are therefore socially regressive. These levies have not been highlighted or discussed nationally.	Look at how levies could be delivered in a more progressive manner, through altering the means by which they are collected.

Enable

Key questions	Current situation	Recommendations
Are stakeholders enabled to help householders? Do their business plans let them do this properly?	The electricity market reform process does not adequately explore how the retail electricity market could be reformed to incentivise companies to save energy as part of their core business model. The gas retail market, which affects heating in our homes, is not being examined at all. Gas and electricity retail markets do not incentivise habitual or one-off changes in people's homes.	Reform the retail gas and electricity markets to incentivise long-term energy efficiency in households. Design the new ECO to be an outcomes- based obligation that allows a whole range of players to bid into a pot of money to deliver actual emissions reductions.
	The proposed Energy Company Obligation broadly appears to be on the lines of the previous supplier obligation (CERT), putting a requirement on energy companies to deliver efficiency, but with no outcomes- based obligation. Due to these misaligned incentives, companies operating within the proposed Green Deal framework will not be encouraged to provide as thorough a retrofit as possible, nor to address habitual behaviour.	
	Equally they will not be incentivised to help people change their habits through the smart meter roll-out, either at the point of installation or in the future.	
Do they have the right practical infrastructure for	For habitual energy use, many homes are still without effective boiler controls, meaning it is difficult for householders to control their heating.	Ensure boiler controls are part of the Green Deal package.
action to take place?		Implement the new EU regulations on energy-using products as fast as possible and push for further removal of the bottom performing products from the market.
	Regulation coming down through the EU is slowly enabling households to choose a default efficient energy-using model when purchasing a new product.	
Are people given accurate information on the efficiency of their homes and on their use of resources?	EPC reports are under reform to provide the householder with clearer, more accurate information, tailored to the house and at the point of sale.	EPCs need to be accurate, implementable, personal recommendations for householders. They will need to become much more reliable if they are to be the basis for Crean Deal accessments
	The ambition to bring smart meters to all households by 2016 will provide households with accurate bills for the first time. Questions still remain over how often readings will be taken to provide households with comparative data on their usage compared to the norm. In addition it is unclear if this information would be provided on an opt-in or opt-out basis.	Provide information from smart meters on an opt-out basis, from data collected at minimum on a daily basis.

Encourage		
Key questions	Current situation	Recommendations
Are messengers motivated to support, rather than contradict, policy aims?	There is currently nothing in place to encourage estate agents, lawyers, builders, plumbers and architects to become effective messengers of the benefits associated with the Green Deal or minimum efficiency standards for upgrades to existing homes.	Ensure that incentives activate messengers in the Green Deal, ie stamp duty rebates on efficient homes to encourage estate agents to value EPCs.
Do defaults encourage the best environmental options?	There is no measure that would automatically place homes in the Green Deal process. Opt-outs are not being used.	Develop ways to start the Green Deal process automatically through other processes that people already take, i.e. mortgage application, loan or smart meter installation.
Are people rewarded for doing the right thing, and discouraged from doing the wrong thing?	For the Green Deal there is little indication that incentives and disincentives will be introduced at key trigger points, such as sale or rental of a home. A simple stamp duty rebate is being mooted. Companies will be able to offer their own incentives for take-up, but a free emissions- heavy cruise was suggested which goes against the overall aim of the programme. For habitual energy use there are no rewards for regularly saving energy beyond a lower bill. Some energy companies are offering small incentive schemes on certain tariffs but this is not the norm. On products there is no support for efficient models through reduced VAT for example, or product surcharges.	Introduce any incentives with what we know about human behaviour in mind. Invoke losses, use commitment periods etc. For example a stamp duty rebate would best be introduced with a corresponding surcharge, and a time limit within which that surcharge can be claimed back if upgrades are made to the home. Use nationwide government-backed competitions, both for individuals and groups. For example, a prize for the first street to be entirely retrofitted; prizes for every street that can get all houses done; all houses that get retrofitted get entered into a prize draw. These prizes could be non-financial and need to fit with the aims of the scheme: free fruit and vegetables, money towards community energy, local schools, etc. Provide an attractive interest rate that means that the financing for the Green Deal works. Promote efficient products and products to retrofit homes through reduced VAT and product surcharges.
Is there a clear signal which shows the government means business?	The government is only considering legislation for the private rented sector. It will reassess the need for regulation in 2014 if landlords are not taking up the Green Deal, and review whether renting out a house that has an F or G rating on its EPC should become illegal after a certain date. There is no regulation being considered for the privately owned sector to give businesses and individuals a clear steer of the direction of policy. Whilst legislation is coming through the EU on energy-using products it is a slow process and it is unclear whether it will be routinely upgraded on a regular basis to take advantage of innovation, with the poorer performing	Bring in clear backstop legislation for both private rented sector and privately owned sector, to show that there will be a time beyond which inefficient homes will not be acceptable.

products removed from the market.

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Encourage (contd.)		
Key questions	Current situation	Recommendations
Is information being used so it works for people?	Labelling on energy-efficient products led by the EU is confusing, with multiple calibrations above the A grade.	The UK delegation should be strong on the EU labelling programme, pushing for A to be the top calibration.
	EPC reports are under reform to provide the householder with clearer, more accurate information, tailored to the house and at the point of sale.	The EPC process needs to be reformed to provide S.M.A.R.T implementable, personal recommendations for householders. The EPC rating should be displayed on all estate
	Energy bills are not clear. It is often hard to understand the information presented and there are multiple different information sets at once.	Provide all customers with billing showing how they compare in energy use to their neighbours. This should be done in addition to monthly bills on usage. If placed on the same bill the information will be drowned out.
Does pricing reflect usage of a resource?	As a high proportion of gas and electricity bills are based on consumption above a standing charge, consumers do have a financial incentive to use less energy. However most gas and electricity tariffs are two tier, so that high energy users pay a lower price per unit of energy.	Reform the market to rising block tariffs once smart meters are in place.
	Rising block tariffs have been mooted for both electricity and gas ¹⁴⁷ , and smart meters should allow consumers to easily move to new types of tariffs, e.g. those that reward off-peak energy use, but these are not yet in place.	

Exemplify		
Key questions	Current situation	Recommendations
Are messengers motivated to support, rather than contradict, policy aims?	There is currently nothing in place to encourage estate agents, lawyers, builders, plumbers and architects to become effective messengers of the benefits associated with the Green Deal or minimum efficiency standards for upgrades to existing homes.	Ensure that incentives activate messengers in the Green Deal, ie stamp duty rebates on efficient homes to encourage estate agents to value EPCs.
Are well known people taking the action?	Currently there are relatively few well known people publicly taking action on energy efficiency, either in government or outside it, although initiatives like 10:10 have recruited high profile supporters.	Require all MPs, council leaders and high-profile government officials to take up the Green Deal to avoid charges of hypocrisy. Encourage other well-known names to also follow suit.
Is there a network of exemplar homes?	There is a network of exemplar efficient homes that is being run by the Sustainable Energy Academy, funded by EST. This aims to have a highly efficient home within 15 miles of everyone in the country.	As discussed above, incentivise people who have taken up the Green Deal to open their homes to others.

Clearly we have only dipped into energy policy and there is much more that could be analysed about all these areas. In addition we would recommend that any policy analysis is done holistically to ensure that policy areas are linked up wherever possible, especially water and energy. However we hope it has given a taster for the kind of questions and responses that enable an assessment of policy from a behavioural point of view. In Figure 5 we represent our recommendations under the 4Es.

Figure 5: Recommendations for domestic energy saving policy

Develop a **S.M.A.R.T** plan of action that shows a) how policy will help deliver action in the domestic sector, b) how this will contribute to overall carbon budget targets and c) how government is taking action only it can take.

Establish substantial role for local authorities in roll-out of smart meters, Green Deal and new ECO.

Exemplify

Bring in a target to reduce energy use throughout the entire **public estate** nationally and locally

Require all MPs, council leaders and highprofile government officials to take up the green deal

Set up an **exemplar home network** by incentivising those that have had their home retrofitted to open it to others

Engage

Use the roadshow for the 2050 calculator to hold a **national conversation** on individual efforts to reduce energy use, **build public support** and **co-develop policy**.

Publicise a **positive vision and plan** to show the importance of energy demand reduction and what individual and collective benefits it will bring.

Look at how **energy levies** could be collected in a more progressive, and fairer, manner.

Be **consistent**, use Green Deal visits to also upgrade water efficiency in a home, for both hot and cold water.

Encourage

Ensure incentives are designed to gain the **support of messengers** such as builders and estate agents.

Invoke **losses and use commitment periods**, **use competition and non-financial incentives** to encourage energy saving and take up of the Green Deal. Plus provide an **attractive interest rate** and financial subsidy for Green Deal.

Use more visible and desirable items (renewable energy) to encourage less popular (insulation) through a **hierarchy of measures.**

Ensure defaults encourage participation; look at how to start the Green Deal process automatically.

Propose **clearly signalled backstop legislation** for the efficiency of homes to show government means business and give certainty and clarity.

Use **social norms to drive change**: retrofit homes in a visible, local way, introduce a high-profile brand for the Green Deal. Use comparative data to drive habitual energy reduction.

Introduce rising block tariffs, so people pay more for their energy the more they use.

Evaluate

Assess programmes and tools regularly

behaviours to install energy efficiency measures in the home and habitual energy using behaviours What are the

Explore

Explore one off

barriers and motivations behind these actions?

Enable

Provide accurate information on energy usage on an opt-out basis from data collected on a daily basis as minimum from smart meters.

Reform the gas and electricity retail markets to incentivise companies to help people save energy.

Design ECO to be outcomes-based and allow a whole range of players to deliver it.

Ensure a **broad range of measures** can be delivered through the **Green Deal**.

Reform EPCs to provide accurate, personal, implementable recommendations for householders.

Implement new EU regulations on energyusing products as fast as possible. Push for removal of bottom-performing products.

Bringing it home

As we've shown in chapter four, when existing policy was assessed against these questions it was found to be sorely lacking, and as a result there is a long way to go in changing household behaviour. If we did this same research in five years' time with a new set of householders we would hope to find a completely different result.

First, we would hope that any householders we followed would be aware of the need for action across water, energy and waste as part of a well-publicised and well-understood government plan; they might have even been involved in a focus group to help develop it. They would be aware that their actions were being replicated across the country with everyone contributing to deliver a more positive future, and would be more aware of what their neighbours and friends were doing.

Second, the households would be broadly acting more sustainably across all of the three policy areas. They would be more aware of the need to save water and would be making some changes to the way they use it; they would be taking action on saving energy; any appliances they purchased would by default be water and energy efficient; they would be separating out food waste for a separate collection and would be able to recycle a broader range of materials from their doorstep. Our households might even be using renewable heat or electricity, would have improved their insulation and may have replaced old boilers and windows, or at least be looking to do so. They might even have visited an exemplar home to get ideas. They will be accustomed to seeing evidence of renewable energy and energy efficiency around their neighbourhood and may have taken part in a neighbourhood competition to green their homes.

Our households would feel good about taking these actions. They would feel they were being rewarded for doing the right thing, and know that those who were not doing the right thing were not better off as a result. They would feel that these actions were normal, acceptable and easy, and would be demanded of everyone in time through upcoming legislation.

How might this have come about? Although this scale of change requires all sectors of the 'big society' to take some responsibility (business, the media, civil society organisations and individuals), clear leadership from government will drive it.

Government needs to know what contribution action at a household level will make towards its macro targets on energy and waste. And it needs to thoroughly revamp policy in this area, putting what we know about human behaviour at its core.

Government should have a clear, visible delivery plan at the national and local level. This plan could then shape policy to make sustainable living easy and attractive and the alternatives difficult and unattractive. Figure 5 shows what this could look like as an overall group of policies within the 4Es framework.

If this government succeeds in enabling sustainable living, it will have taken action where others have hesitated, and will be on the journey towards meeting its environmental goals. For the first time ever, it could truly bring home greener living.

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