POSITIVE ENERGY

Harnessing people power to prevent climate change

A summary

ENVIRONMENT

Simon Retallack and Tim Lawrence with Matthew Lockwood

ippr

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About the authors

Simon Retallack is head of the Climate Change Team at the Institute for Public Policy Research (ippr). He oversees ippr's Low Carbon Programme and was the lead researcher on the International Climate Change Taskforce project. Simon is also a board member of Redefining Progress, and an associate of the International Forum on Globalization. Previously, he was commissioning editor of *The Ecologist*. He is also the co-author of the prize-winning book *STOP* (with Laurent de Bartillat, Seuil, 2003).

Tim Lawrence was a research assistant in ippr's Sustainability Team, working on the Low Carbon Programme. Tim studied geography at the University of Bristol. With Tony Grayling and Tim Gibbs, he is the co-author of *Climate Commitment: Meeting the UK's 2010* CO_2 *emissions target* (ippr, 2005).

Matthew Lockwood is a Senior Research Fellow in ippr's Climate Change Team. He was environmental adviser to the Deputy Mayor of London and policy adviser to the London Climate Change Agency. Previously, Matthew was head of advocacy at ActionAid UK and head of international policy at Christian Aid.

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Introduction

Barely a week goes by without a press headline warning us of the dangers we face from climate change. Behind the stories, real people are already being hit, with climate change now killing 150,000 people a year.[1] The technological solutions to prevent it from becoming much worse already exist. The challenge is to make the transition to them in time to avoid dangerous climate change.

Some of the changes needed to make that transition will be achieved entirely through regulations that largely affect industry. Others will require individuals to choose to behave differently. In the UK, the energy we use in our homes and for personal transport is responsible for 44 per cent of the country's carbon dioxide (CO_2) emissions. Engaging with the public is therefore critical to reducing the country's overall contribution to climate change.

The challenge of doing so, however, is significant. A large proportion of the UK population is currently failing to take action to reduce their contribution despite high levels of awareness of the problem. In fact, the public is using an increasing amount of energy. Between 1990 and 2005, energy consumption rose by 40 per cent in the household sector, and by nearly 23 per cent in the transport sector.

Since 2001, national emissions have been growing too, and if the trend persists, the Government's target to reduce CO_2 emissions to 20 per cent below 1990 levels by 2010 will be missed by a substantial margin. Over the coming decades, the challenge will be even greater. Without the acceptance, support and active participation of the public, the UK's chances of reaching its target of reducing CO_2 emissions by 60 per cent below 1990 levels by 2050 will be very low.

Engaging the public in this way will not only benefit the climate: helping individuals to use energy more efficiently and be less reliant on fossil fuels will also help government meet its other energy policy objectives of increasing energy security and reducing fuel poverty. More broadly, empowering people to exert control and resolve problems for themselves is a good in its own right: improving governance, deepening democracy and rebuilding trust.

When it comes to climate change, there is clear evidence that members of the public who are concerned about this issue do not always feel engaged in the societal challenge of tackling it, and feel locked into the systems and norms that fuel it. There is an urgent need to enable people such as these to act to reduce their contribution. The aim of this report is to find more effective ways of doing so.

1 References for all the facts and figures cited in this summary can be found in the full report – go to www.ippr.org/publicationsandreports for information.

Based on an extensive, cross-disciplinary literature review, interviews and a discourse analysis of UK climate change communications, this report suggests policies, techniques and communications approaches for promoting behaviour change. It is intended to help policymakers and others seeking to reduce the public's contribution to climate change to do so as effectively as possible.

Which behaviours need changing?

Almost 60 per cent of the contribution of an average UK citizen to CO_2 comes from using energy in the home. Of these emissions, three quarters come from heating space and water alone (the single largest contributor to emissions by individuals in a given year), and one quarter from powering refrigerators, lights, ovens, washing and dishwashing machines, and consumer electronics.

Changes that will do the most to reduce individuals' CO_2 emissions from home energy use include fitting insulation in cavity walls and loft spaces, installing an efficient condensing boiler, and installing micro-renewable technology for heat (such as solar thermal and biomass) and electricity.

The remaining 40 per cent of an average UK citizen's contribution to CO_2 comes from transport, including flying. Almost three quarters of this can be attributed to car use, with almost a quarter coming from flying.

Consequently, changes that will do most to reduce individuals' transport emissions include cycling, walking, using public transport, buying lower-carbon cars (such as those with smaller or hybrid engines, or that use biofuels), and driving more efficiently ('eco-driving'). Flying less, by taking holidays nearer to home or by train, or offsetting flights effectively, will also help.

People can also affect climate change through less direct means, such as purchasing food and consumer products that have been made using less energy and transported smaller distances, or taking part in campaigning to encourage decision-makers to take action on climate change. Each of these is a legitimate, and potentially valuable, avenue of individual action.

However, in most cases it is still very difficult to assess accurately the significance of such actions. As a result, this report focuses mainly on those changes in behaviour relating to energy use in the home and in transport, whose contribution to climate change through emissions can be easily measured.

What is the public doing about climate change?

It is clear from the evidence that the majority of people in the UK are not

taking many actions to mitigate their emissions in a significant way.

A large number of homes are still not properly insulated. Almost two thirds (63 per cent) of homes that could have cavity-wall insulation – some 8.3 million homes – have not installed it. Similarly, in 2003, 48 per cent of homes that could have had loft insulation fitted at the optimum depth (4 inches) did not do so.

Since 2005 it has been mandatory to fit the most efficient type of condensing boiler. However, there are a further 15 million that need to be replaced. Homes are also kept appreciably warmer than they were 30 years ago: between 1990 and 2004 there was a rise of 1.9°C in internal temperatures.

While people do increasingly buy energy-efficiency A-rated appliances, the energy savings from doing so have been more than offset by the 50 per cent growth in the number of appliances in the home between 1990 and 2004 – especially in consumer electronics. Exacerbating the problem further, some new products consume more electricity than the products they replace (for example, plasma televisions consume 4.5 times more energy than their cathode ray tube predecessors).

By contrast, investment in micro-renewables is still a tiny niche market, as is 'green' tariff electricity (electricity that energy companies have produced from renewable sources of energy). There are currently only around 100,000 microgeneration installations in the UK, representing under 0.4 per cent of UK households. And just 212,000 customers have switched to a green electricity tariff, representing some 0.83 per cent of the total electricity market in 2005.

A similar picture exists for transport choices. People are using their cars to travel further, and more often, with an 18.5 per cent increase in the number of vehicle kilometres by cars and taxis since 1990. Car ownership is also increasing: there were nearly one third more cars on UK roads in 2005 than in 1990 – equivalent to another 7.5 million more cars.

Although there has been an increase in public transport use, it still makes up only 8 per cent of the total number of trips made. Only London has seen a shift away from car use to buses and an increase in cycling. Outside of the capital, local bus use has declined on average by almost 12 per cent since 1990. Nationally, cycling represents only 1.5 per cent of all journeys made and the distance travelled and number of trips taken by bicycle have fallen by 6 and 20 per cent respectively. Participation in car clubs and car-share schemes remains a niche choice.

The one area of positive change is that average emissions from the nation's car fleet are coming down. However, this is largely being driven by technology rather than by consumer behaviour. In 2005, total sales of low-carbon vehicles (LCVs), which are mostly hybrid cars, amounted to just 0.3 per cent of the market.

Meanwhile, few motorists recognise the concept of driving more efficiently. Data from average vehicle speeds on motorways shows that a majority (56 per cent) of cars exceed the 70 miles per hour speed limit, with more than one third of drivers exceeding 80 miles per hour.

Lastly, air travel is now more popular than ever, and offsetting remains a small minority practice. Between 1994 and 2004 the number of passengers flying abroad from the UK rose by about 65 per cent, and the number flying domestically by about 70 per cent. According to a 2006 poll, just 1–5 per cent of respondents said they offset their emissions from flying.

What are the attitudes of the public towards climate change?

Why is it that the behaviour of individuals in the UK is currently not 'climate friendly'? The most recent surveys show that more than 90 per cent of respondents accept that climate change is happening, and a majority see it as the result of human action. Most are also worried about climate change, with 77 per cent of respondents in one survey saying that they were very, or fairly, concerned about the issue, with just 23 per cent not very, or not at all, concerned. Equally, a large majority of people surveyed (76 to 90 per cent) in two recent polls stated that they believed climate change will affect the UK, and a majority of the public now associates extreme weather events with climate change.

However, despite this widespread concern, most people are unaware of how they are contributing to the problem (with many, for example, uninformed of the impact of domestic energy use) or what practical steps they can take to mitigate it.

The public acknowledges that it makes some contribution to the problem. In a recent government survey, over 70 per cent of people accepted that they personally contributed to the production of CO_2 emissions and thus climate change. But they said they did not believe that they had a responsibility to act to reduce their contribution, and just 7 per cent felt they personally could influence it to a large extent. Far too many say there is little they can do about climate change themselves.

The locus of responsibility is still frequently assigned to government, industry and other countries. There is also a wariness of 'free riders', and a felt need for everyone to play their part. According to a 2005 Eurobarometer poll, of those who are making an effort to protect the environment, 61 per cent do not feel their efforts will have any impact as long as other citizens or corporations and industry do not do the same. Those who do not take environmental action use this same reason as justification for continuing not to do so.

There are mixed results on unilateral action within the UK. In a 2006 survey, some 52 per cent believed that climate change will happen regard-

less of what we do in Britain. By contrast, other surveys show some support for the view that trying to tackle climate change is worthwhile, even without global agreement.

Many key public attitudes towards climate change should not be surprising. The worst impacts of climate change are distant in space and time, its direct causes (in other words, emissions) are invisible, and we are all responsible for producing them. Everyone seeks to be a free rider because it is in everyone's interest for others to take on the costs of acting as the individual will benefit from those actions while avoiding the costs of acting themselves.

Equally, climate change provides perfect conditions for the 'bystander effect', whereby there is mass paralysis when people are confronted with a problem but do not act because they think others should, and will. Defence mechanisms in the face of a threat perceived to be 'uncontrollable' are also likely to be at work here – notably, fatalism and seeking scapegoats. Clearly, public attitudes towards taking action are also justifications for the defence of lifestyles to which people are strongly attached and perceive to be under threat.

Are communications about climate change helping or hindering change?

Much of what people think about climate change is influenced by how the issue is communicated to them. The mass media plays a key role, as this is where most people get their information on social issues from, but other actors, such as the Government, public bodies, non-governmental organisations (NGOs) and companies, also play an important role in communicating about and providing information on climate change.

ippr commissioned experts to analyse communications from each of these sources, using tools and principles of discourse analysis and semiotics, to assess whether existing communications on climate change in the UK were helping or hindering efforts to achieve behaviour change. They identified several 'linguistic repertoires' – systems of language that are routinely used for making sense about climate change and our response to it. These fall into three groups:

- the alarmism repertoire
- the sceptical set of repertoires, which assume 'it'll be all right'
- the pragmatic set of repertoires, which assume 'it'll be all right as long as we do something.'

Climate change is most commonly talked about using the alarmism repertoire, which describes climate change as awesome, terrible and

immense, with implications that it is beyond human control. This repertoire is seen almost everywhere, and is used across the ideological spectrum, in broadsheet and tabloid newspapers, popular magazines and campaign literature from government and environmental groups. It is clearly disempowering, carrying the sub-text that 'things are so bad that we might as well give up and carry on emitting'.

In contrast, the underlying message of the two remaining sets of repertoires is that, despite all the fuss about climate change, everything will be all right.

In the sceptical set of repertoires, arguments are found that state either that man-made climate change is simply not happening at all, or that we need not worry about its consequences. Their underlying message is that there is no need to change behaviour. These repertoires are most clearly and commonly seen in the right-wing press.

The pragmatic set of repertoires contains the underlying message that everything will be all right as long as we do something. The most significant approach within these repertoires focuses on 'small actions'. This involves a large number of people doing small things to counter climate change (such as turning down thermostats, not leaving televisions on standby, and buying efficient light bulbs). The language conveys ease, convenience and effortless agency, as well as domesticity. The problem with this approach is that it easily lapses into 'wallpaper' – the domestic, the routine, the boring, and the too easily ignored.

The two most dominant approaches within the UK dialogue are the alarmism repertoire, and the 'small actions' repertoire, within the pragmatic set. Both these approaches are frequently paired, with headlines such as '20 small things you can do to save the planet from destruction'. This has been seen in many popular magazine features and government-funded campaigns.

The problem with this combination is that in the end, it is not convincing. The juxtaposition of the awesome scale of climate change in alarmism and the small, mundane responses in the 'small actions' discourse implicitly raises the question of how the latter can really make a difference to things happening on this epic scale. The question is left unanswered, and the public is not motivated enough to act.

What are the other barriers to behaviour change?

As we have seen, there is an absence of a compelling story on climate change within current communications, and a lack of a strong public sense of responsibility and agency for taking action. These are combined with a host of other factors that explain why people do not take up new climate-friendly behaviours. Many of the barriers are closely interlinked and

involve a combination of a range of practical problems, as well as a number of psychological and social factors that prevent change.

With energy use in the home, the status quo is perpetuated by the invisibility of energy use, by the desire for warm, bright, convenient and entertaining homes, and by engrained day-to-day habits. On the other hand, conservation measures largely fail to bring any personal benefit in terms of social status and emotional fulfilment, and only relatively marginal cost savings for most households. They suffer from a poor image, are perceived to involve high upfront capital costs (lifetime costs and discounts are ignored), and take time to organise and inconvenience to be installed – particularly as suppliers are not trusted.

Microgeneration technologies suffer from being seen as unfamiliar and eccentric. There are common misconceptions about their effectiveness, and it can be time-consuming to find out about relevant products and install them. But the single most significant barrier to their uptake is the high capital cost, with the unacceptably long payback periods this implies. In urban areas, micro-wind payback periods are of the order of 10–15 years, while for solar photovoltaics (PV) they can be longer than 30 years. This cost problem is compounded by the fact that it is still difficult to get a fair reward for any exported electricity and related Renewable Obligation certificates.[2]

The status quo with regards to car use is perpetuated by people's strong attachment to the car, based partly on the way it is associated with social status, and with an ability to shape identity, and its perceived superiority over alternatives in terms of independence, convenience, comfort, safety, and cost. Meanwhile, lower-carbon cars suffer from image problems, misconceptions about performance, higher upfront cost than their equivalents and, for certain technologies, a lack of infrastructure.

Finally, cutting back on flying is resisted because of people's aspiration and sense of entitlement to holiday abroad rather than in the UK, the higher social status associated with doing so, the desire to travel further than before for increasingly exotic holidays, and to take shorter but more frequent trips. In those circumstances, flying is the most convenient form of travel, given its speed, and has become much more affordable as the cost of flying has fallen significantly. Offsetting, meanwhile, is hampered by low awareness of the option and, where knowledge of it does exist, a lack of belief that it is meaningful.

2 These are currently issued to qualifying renewables generators as evidence that a licensed electricity supplier has supplied renewable electricity to their customers in Great Britain. These certificates can then be presented or bought by electricity suppliers to count towards meeting their targets under the Renewables Obligation to source an increasing proportion of the electricity they sell from renewables.

Has the traditional approach to behaviour change worked?

How can government and others most effectively intervene to remove the barriers people face? Historically, in trying to change public behaviour, governments have tended to rely on two main approaches – sending price signals and providing information. Both have been preferred over direct regulation or coercion, as this is expensive politically and financially, as well as being unworkable for some behaviours.

The use of these levers to change behaviour has been based largely on the 'rational choice' model of human behaviour, according to which humans behave in a way that rationally maximises their welfare. They do this by making systematic use of the information available to them and assessing the choices before them in terms of costs and benefits. However, this approach has had limited success.

It is true that providing more information about environmental problems has been shown to be one factor in acting pro-environmentally, but on its own, this approach has frequently failed to translate into behaviour change. Indeed, in some cases, it has been a change in behaviour that has caused a change in attitudes. In other situations, providing information that is not accompanied by measures enabling people to act may have been counterproductive, by making people feel helpless.

The use of taxes and subsidies to discourage – or encourage – behaviours has a rather better track record, as people's decisions are sometimes swayed by cost. The switch to unleaded petrol and the London congestion charge are two examples in which changing prices through tax has led to a shift in behaviour. But once again, evidence suggests that price signals alone are rarely sufficient. In some cases, because other factors are more influential in determining behaviours than rational calculations about cost, price fails to stimulate behaviour change at all. Gas and electricity use in the home, for example, has hardly changed in response to the large price increases over the last two years.

The limitations of the 'rational choice' approach for public policy can be clearly seen in the poor performance of some of the interventions designed solely on that basis. It is increasingly recognised within the cognitive sciences that individual rationality is profoundly embedded in, and dependent on, the individual's wider social environment and psychology. Until very recently, this more complex view has not been taken fully into account in designing policy.

What is the Government doing to change climate-related behaviours?

Over the past ten years, the Government has relied largely on the traditional tools for influencing climate-related behaviour: regulation, price incentives and information.

The most consistent element of government policy has been creating incentives. There has been price support for insulation and other domestic energy-efficiency measures through the £400 million a year Energy Efficiency Commitment programme (plus fuel poverty programmes), along with value-added tax (VAT) reductions. There has also been grant support for microgeneration. In addition, along with fuel duty, there have been variable tax policies to push people towards lower-carbon cars, with banded Vehicle Excise Duty (VED), as well as support for alternative fuels. Finally, to reduce flying, the Government raised Air Passenger Duty (APD) in December 2006.

The limited impact of these measures on behaviour is partly due to the fact that they have been rather cautious, combined with a very low effective price of carbon. For example, differential taxation through VED at current levels is too small to make a significant difference to behaviour, and small APD increases make little difference in a market where ticket costs have plummeted. Where a shift in behaviour does take place – for example, in the rising demand for micro-renewables – the scale of the resources provided by the Government (a mere £6 million initially for domestic microgeneration) cannot cope.

Government has used regulation to force behaviour change only in a limited way – for example through building regulations – and where incentives or voluntary agreements have failed. There is often a preference for schemes with manufacturers or energy suppliers (for example, with the Energy Efficiency Commitment, or the Renewable Fuels Obligation to introduce biofuels) that bypass the need to engage actively with the public.

Recent government leadership has been stronger in terms of the goals guiding the practices and procurement policies of government departments, although even here the record is patchy. But its broader policies – particularly in relation to transport, where there is clear backing for airport expansion and a new £1.9 billion road-building programme – have not always been consistent with the need to send a clear public signal about the importance of acting to reduce emissions.

The Government's own communications campaigns on climate have mainly been focused on changing attitudes to open up the political space for mitigation policies, rather than on behaviour change directly. This is now set to change, with a new (though somewhat cautious) series of campaigns starting in 2007. However, there remain significant gaps in the provision of practical information to the public on climate-friendly behaviour, and it remains sobering that the main government vehicle for communicating such information (the Energy Saving Trust) is contacted by only 3 per cent of the public in any one year.

What actually shapes behaviour?

Clearly, a great deal more needs to be done to overcome the barriers to behaviour change. To be more effective, policy needs to take into account the diverse and complex range of influences on behaviour, which should lead to the pursuit of a much greater range of options for action.

Decades of theoretical development and empirical research from different disciplines – ranging from psychology and anthropology to economics – have given us a much clearer idea of how, and why, behaviour changes. Some of the factors that drive behaviours are internal to an individual, while others are external. These internal and external factors feed off and influence each other, which means that behaviour is often best interpreted from an 'ecological' perspective that meshes personal factors with wider structural and social ones.

Policymakers have been relatively good at working with some internal influences on behaviour, such as wealth and age, as well as with some external influences, such as financial rewards and penalties. They also understand that the choices they make about which rules and infrastructure to put in place are very influential. But much more could be done to factor in other influences.

Important internal influences that need to be taken into account include:

- different psychological motivations (as defined, for example, by Abraham Maslow's 'hierarchy of human needs')
- the drive to seek status and forge identities
- emotions
- habits
- mental shortcuts used to decide how to act (combining pieces of information together and using rules to make decisions faster and more easily)
- a sense of responsibility and agency to act differently.

Important external influences that need to be factored in include:

- the behaviour and attitudes of others (noting that we do not learn equally from everyone)
- the dominant social and cultural norms (often shaped by the media and commercial organisations), which give us social proof about how to behave
- the nature of the experiences that people have (evidence suggests direct experiences are more powerful than indirect ones)
- any rewards and penalties (both financial and other) that are in place.

With a more complete understanding of how and why people behave the way they do, we stand a much better chance of deploying the most effective tools and techniques available to achieve behaviour change.

How has behaviour change been achieved?

The history of social and technological change in the 20th century shows that it is possible for people's behaviours to change completely – including some of the most harmful ones – even in the space of just a few years. We now know much more about how such change can be achieved. There is no single silver bullet. But critical to a successful approach is the deployment of interventions that work with, or on, the main internal and external drivers of behaviour.

Often, the most important first step is to provide people with alternatives that are convenient and affordable, since their capacity to act is often constrained by the amount of free time and money they have. We also know the importance of making sure that alternatives at least appear to be affordable, by providing ways of spreading any upfront costs over time. This is because of the mental shortcuts that people take, which mean that they are affected more by losses than gains, and discount the future and any delayed benefits from change.

Asking people to make public commitments to change (and deploying prompts to remind them to do so) can work, by raising people's consciousness about habitual behaviours. Publicly made commitments can also increase people's sense of responsibility for changing their behaviour.

Giving people feedback on attempts to change behaviour, providing face-to-face engagement, and involving people in group-level change can also increase their sense of agency, as participants can see and evaluate the impact of their efforts and are given direct, personal support to alter their behaviour.

A sense of agency from group-based engagement can be deepened by drawing people into participatory problem solving. This approach has taken off in the health field, where a new generation of interventions aimed at changing behaviour through greater patient participation in the delivery of services has been used to effect change in a range of situations, from managing diabetes to increasing mobility among older people.

Once alternatives, awareness, and a sense of responsibility are in place, then incentives, rewards and penalties are much more likely to work. Rewards do not have to involve cash: they can range from football tickets to meal vouchers or IT training. What is important is their appeal to the individual, their tangible, short-term benefit, and their visibility.

The impact of what others are doing around us is also very powerful. Interventions to create exemplars of change among figures of influence or col-

leagues in the workplace, and in the wider community, can help create new social norms that can have a significant impact on individual behaviour.

Another element of effective behaviour change is communication. Communication alone will not change behaviour, but it can play a role in complementing and reinforcing other interventions – especially where it is linked to specific behaviour changes and spells out what people can do, how, why, where and when. The history of commercial marketing points to another important pre-condition – the imperative to know and segment one's audience, not only along socio-economic lines, but also by psychological motivations.

Given what we know about the role of emotion, status seeking and the construction of identity in behaviour, the 'communication hooks' themselves must have emotional appeal and should make behaviour changes appear aspirational. They also need to take account of the mental shortcuts or frames that people use to make sense of incoming information, and to accept or reject it, which shapes how they react. Concepts, language and images need to be chosen accordingly. Lastly, repetition, staying power and, above all, consistency can make the difference between a successful campaign and an unsuccessful one.

The challenge for government and others seeking to change behaviour through public engagement is to recognise and embrace this full range of psychosocial approaches. Conventional policies are still important, but, as parts of government are increasingly recognising, the policy palette must be widened to successfully stimulate climate-friendly behaviour.

Recommendations: a new approach to stimulating climate-friendly behaviour

Getting people to change their climate-related behaviours requires a deeper understanding of what shapes these behaviours in the first place. Government is beginning to engage with this agenda, but to be successful, it needs to confront an array of deep-seated issues in a way that only a systematic, strategic approach can achieve.

There are four essential elements to such an approach:

- prioritising the areas where behaviour needs to change
- identifying which are the key barriers in the priority areas, and which groups of people are particularly involved
- developing the most appropriate interventions to overcome those barriers
- developing smart and effective communications.

To illustrate how the framework can be applied, we propose our own suggestions for prioritising behaviours to change, largely according to their contribution to carbon emissions. Our target behaviour changes include

those needed to reduce emissions from:

- domestic heating and hot water
- driving
- flying.

Together, these account for almost 85 per cent of measurable emissions from activities by individuals. Among the associated behaviour changes, we include installing micro-renewables, since this is potentially a high-status behaviour change that could act as a catalyst for further changes.

With each of the areas identified as priorities, government will seek to maximise the use of interventions that do not require behaviour change at all. But this will still leave a large proportion of the problem in the hands of the individual, who will need to actively choose to behave differently.

How the interventions might be applied

The following proposals provide examples of how psychosocial interventions might be applied in parallel with more traditional approaches to overcome barriers to achieving those changes. They present a range of possible options for government to consider, rather than a comprehensive list or road-map. Policymakers would need to cost them, sequence them carefully, and in some cases, trial them before implementing them on a national scale.

The specific proposals are detailed below, set out within the three priority areas identified above: domestic heating and hot water, car use, and flying. These three categories are then subdivided into types of specific activity.

Domestic heating and hot water (including micro-renewables)

Raising understanding

- Require energy companies to check customers' meters at least twice a year and put more information on their bills to allow them to compare their energy use and CO_2 impact over time.
- Draw up plans to start a five-year UK-wide programme to roll out the installation of smart meters and real-time feedback displays, from 2007.
- Explore ways of ensuring each UK home is given an energy audit by 2012, and train more auditors – possibly through the Energy Saving Trust or a new agency.
- Target accurate and authoritative information on energy-efficiency and microgeneration products at the building trade, architects and the public.
- Consider establishing an authoritative micro-renewables accreditation body to set standards and certify the performance of microgeneration technologies.

Improving image

- Support 'green home makeover' services to roll dull energy measures into a wider 'green home' package with aspirational appeal.
- Work to build up celebrity support for domestic energy saving and microgeneration to rival that for Prius cars.
- Set up product design competitions for real-time energy feedback devices, micro-renewables, and traditional products that are hard to sell, such as external wall insulation.

Social proofing[3]

- Set every government department a target to source 10 per cent of its energy from on-site renewables by 2010, and encourage city governments to promote flagship renewables projects.
- Explore ways of providing the funding necessary for every school to have an appropriate form of on-site renewable energy generation by 2015, as part of the major school rebuilding programme Schools for the Future.
- Extend this approach to other public buildings, such as those managed by health trusts, by expanding funding for civic leadership through the Low Carbon Buildings Programme.

Setting attractive rewards

- Explore ways of rolling out council-tax rebates for energy-efficiency measures nationwide.
- Require energy utilities to provide technology-specific feed-in tariffs for micro-renewables at a fair rate (following the lead of many European Union member states).
- Examine the possibility of allowing householders investing in microgeneration to claim 100 per cent enhanced capital allowances against tax. (This allowance could be phased out as the market matures.)

Increasing affordability

- Significantly expand the grant support programme for microgeneration, and take measures to make sure there are no funding gaps in future.
- Consider mandating on-site renewable generation for all new housing to reduce capital costs by achieving greater economies of scale.
- Work with the European Union to allow reduced VAT on 'do-it-yourself' insulation products.
- Introduce an obligation on suppliers to reduce energy sold, in place of the current Energy Efficiency Commitment (EEC), by 2008 – or at least

3 Social proofing refers to the process of taking steps to normalise measures to reduce emissions so that the 'social proof' about how to behave can be found all around us.

make the third phase of EEC (running from 2008-11) a transition towards it – to incentivise energy suppliers to finance large energy-efficiency investments through on-bill repayments of capital costs.
- Create incentives for banks and building societies to offer 'green' mortgages and loans to cover the capitals costs of energy-efficiency work done on a house, to install microgeneration systems.

Ensuring group support
- Expand financial support for initiatives such as Global Action Plan's 'eco-teams', so that most households have access to one within five years.
- Set up an agency to provide technical advice to community groups – particularly to ensure successful initiatives are replicated.

Providing convenience
- Support the development of a 'hand-holding' project-management service that removes from householders the hassle and risk of organising and installing insulation and micro-renewables.

Committing to change
- Consider tasking energy auditors to ask householders to sign a written but voluntary commitment to implement some or all of the recommendations made.
- Alternatively, explore the possibility of requiring all UK homes at the point of sale (and possibly even rented properties) to meet minimum energy performance standards. (The new Energy Performance Certificate could be the first step towards such an approach.)

Car use

Providing convenience
- Subject all new transport spending to an emissions assessment before funding is given, and prioritise investment in affordable, high quality and convenient public transport – particularly bus services.
- Increase support for better cycle lanes, more and better shower and parking facilities at work and in public places, and cycle-hire facilities at stations, working with local authorities to ensure that this takes place.
- Establish and fund a national forum for sharing good practice around the country in bus services, 'bus taxis', and measures to promote cycling, walking, car clubs, car-share services, and remote working.
- Build the requirement for high-density mixed-use development into the planning system at all levels, and reject any easing of restrictions on out-of-town developments that create more car trips.
- Explore scaling-up the existing programme to provide support for alter-

native refuelling stations to provide nationwide coverage rapidly.

Raising understanding

- Explore ways of facilitating a national rollout of personalised travel planning to all households in urban areas of England over a ten-year period.
- Improve the flexibility of Local Transport Plan funding so that it supports travel plans (see previous recommendation) and not only capital projects.
- Task the Carbon Trust to advise and assist all businesses in developing work travel plans, to match those for schools.
- Run an open competition – including in schools – for the design of stickers and other prompts to remind people to break their car habit and use alternatives instead, for use in the home and car. Distribute winning designs through supermarkets, newspapers, environmental NGOs and Global Action Plan groups.
- Make emissions-related car labelling mandatory for all new car sales.

Improving image

- Work to secure celebrity endorsements for public transport, cycling and walking, and step up the celebrity endorsement of lower-carbon vehicles such as the Toyota Prius – especially from public figures with high visibility with motorists, such as Premiership footballers.
- Organise a design competition for desirable buses and trains through the Design Council, involving the major franchisees on rail and bus routes.
- Take the lead within Europe in getting car companies to sign up to a code of good advertising practice by mid-2007, so that as with health warnings on tobacco products, all car advertising carries bold and visible warnings about the contribution of driving to climate change.

Social proofing

- Make additional funding available to those local authorities (including public transport franchises), health trusts and emergency services that adopt a target for reducing emissions from transport that is at least as ambitious as central Government's, to help them meet this target through a mixture of managing demand and procuring low-carbon vehicles.
- Ensure that ministers and MPs keep travel diaries, posted on appropriate websites, showing their use of buses, trains, cycling and walking.

Setting attractive rewards and repellent penalties

- Introduce a Vehicle Excise Duty (VED) escalator for the higher-band cars, and freeze or further reduce taxation of the lower bands. Over time, aim for differentials of £300 per band.

- Examine the option of a subsidy to employers located at the edge of cities or on industrial parks to encourage shuttle buses for staff – possibly financed by an increase in company car tax for high CO_2 emission bands.
- Commit to a policy of national road pricing and, if VED is cut as a result, impose a similar emissions-based banding system on the scheme, accompanied by increased investments in public transport.

Increasing affordability

- Explore the possibility of using revenues from steeper VED charges for higher bands to finance the restoration of the Government's programme of technology-neutral subsidies for the purchase of low-carbon vehicles for five years.
- Find ways of supporting loan finance packages for the purchase of low-carbon vehicles through a topping-up provision, to be phased out over five years as the market matures, similar to the proposed support for green mortgages (see above).

Committing to change

- Encourage commitments to make lower-carbon journeys to work, through workplaces, and through local community groups for all types of journeys, using the individualised travel-marketing home visits process described above to encourage people to commit to action on a voluntary basis.
- Incentivise city governments and local authorities to offer formal contracts for changing travel behaviour, combined with the provision of attractive alternatives and incentives (such as free tickets and bicycles).

Flying

Decreasing affordability

- Over time, increase a reformed Air Passenger Duty (APD) in real terms.
- Continue to press for reform of the international convention governing taxation of aviation fuel, and for effective terms for including aviation in the EU Emissions Trading Scheme, including full auctioning and tight caps.

Providing convenience

- Explore the possibility of matching any increase in APD with expanded support for investment in rail – especially to increase rail capacity and expand high-speed rail networks.
- Work with other EU member states to reform the currently fragmented European rail network, replacing it with a seamless EU-wide service, with simple timetabling and cheapness to rival flying.

Improving image

- Work with train operators to make rail travel aspirational, with celebrity endorsement and targeted marketing.
- Support investment in a more radical refitting and rebuilding of bus and train stations to make them fit for 21st-century (rather than 19th-century) travel.
- Consider providing more funding to market the UK as an enticing holiday destination that is easily reached without all the cost and hassle of flying.

Raising understanding

- Require all advertising for air travel and holiday packages that involves flying to carry bold, highly visible warnings about the contribution of flying to climate change. Similar warnings should be displayed at all UK airports.
- Make the Government's voluntary code of best practice for offsetting a mandatory standard, and require all airlines to offer passengers the chance to opt out (rather than to opt in) to offsetting schemes.

Social proofing

- Set new, climate-friendly travel guidelines for ministers and officials.
- Encourage other high-profile individuals in society to make public pledges not to fly, or to reduce their flying.
- Task the Carbon Trust to ensure that companies and public bodies adopt travel policies for employees that encourage a responsible approach to flying.
- Increase support for local mutual support groups in which members can set themselves goals or commitments to reduce their flying, as well as monitor and provide feedback on their own progress.
- Stop provision for the mass expansion of the UK's national airports so that efforts to create new social norms on flying are not undermined.

Smart and effective communications

- Lead on and fund a higher-profile, larger-scale, long-running national communications campaign on climate change, to run once the other kinds of policy interventions suggested above are adopted. This should be carried out in partnership with the private sector, the Energy Saving Trust and campaigning groups, with an initial financial commitment of at least £8 million per year for five years.
- Ensure that the primary focus of this campaign should not be on the problem but on the large-scale solutions that people can take and the impact these can have.
- Give the campaign an overarching brand under which different sub-messages appear over time, involving specific requests for the public to change specific behaviours.

- Make people feel that they can make these changes, and would want to do so, by making them appear desirable, while telling them how.
- For each targeted behaviour, test and establish exactly what should be communicated, how, to whom, using which messengers, and through which channels, through properly funded research with the public. Throughout the campaign, test and adapt the strategy using focus groups and deliberative workshops.
- Complement existing segmentation of the population by socio-economic or lifestyle group with psychographic models, allowing the motivations of particular groups to be more effectively tapped into.
- Make sure the campaign uses the 'strategic frame' analysis to deploy language relating to the higher-level values subscribed to by target audiences.
- Ensure the Government's own practices and policies (particularly on transport) are consistent with what it is asking the public to do at all times.

A new partnership

Although these recommendations are aimed at central government, the agenda set out here may be delivered through local government, community groups, eco-auditors working for civil society organisations, social enterprises and, indeed, large corporations. National government can clearly help by promoting initiatives led by these players, and by providing them with dependable funding streams. It might even consider setting up community groups itself, to deliver services on the ground.

At the same time, government itself must also remain visible. People look to government to take a lead, so it must be clear in all these different forms of delivery and engagement that government is playing the lead role.

A systematic and strategic approach also calls for a new centralised unit for climate-friendly behaviour change to be set up in Whitehall. This unit would be tasked with auditing all government policy to establish shortcomings, recommend improvements, and ensure a strategic and coordinated approach exists to stimulating climate-friendly behaviour across government. The unit should also engage with the public, as partners in the co-creation of policy through deliberative events. The unit could be housed in the Government Office of Climate Change, but it should work closely with the Government's current main delivery agency for behaviour change – the Energy Saving Trust.

The programmes of the Energy Saving Trust (EST) itself should be given expanded and dependable funding into the future so that the EST can increase its capacity to support the public in adopting climate-friendly behaviour. Any such additional funding should be conditional on an

assessment of the EST's effectiveness, and its adoption of the direction of travel outlined in this report.

Conclusions

The options outlined in this report are driven not only by appeals to the rational side of human nature, but also by a range of social and psychological factors. Some of them will prove fruitful, while others may not. But government urgently needs to begin considering them seriously. If we fail to use this palette of options to change behaviours in a significant way in the next few years, we may have to fall back on yet more radical (and possibly more costly) policy options, such as carbon rationing for individuals.

Before change on this scale is imposed, people deserve the right to be given the possibility to change. A growing proportion of the public is clearly concerned about the climate problem, and good policy will dictate that they should be empowered to do something about it themselves. Exhortations to behave differently will not work. Approaches to enable people to adopt alternative forms of behaviour, by making them cheaper, more visible and more attractive, are now urgently needed. Then the positive energy that people acting together can bring to bear may truly be harnessed to beat this problem.