



HOME TRUTHS:

A LOW-CARBON STRATEGY
TO REDUCE UK HOUSING
EMISSIONS BY 80% BY 2050

EXECUTIVE SUMMARY

Brenda Boardman

University of Oxford's Environmental Change Institute

A research report for The Co-operative Bank and Friends of the Earth

EXECUTIVE SUMMARY

The Low-carbon Strategy from the Environmental Change Institute at Oxford University identifies the policies needed to deliver an 80 per cent cut in carbon emissions from UK homes by 2050. These cuts are achievable but will require a quantum leap in commitment from Government and a radical new approach.

The policies have been designed not only to dramatically reduce carbon emissions, but also to be delivered equitably. The poorest households will be prioritised for assistance and fuel poverty will be wiped out.

The scientific consensus is that for the UK to play its part in helping the world avoid a rise of more than 2°C, we must reduce our carbon emissions by 80 per cent by 2050. The household sector represents 27 per cent of our total emissions and achieving deep cuts here is an imperative.

The low-carbon revolution starts at home.

Policy failures

It's time for some home truths. Since this Government came to power in 1997 carbon emissions from UK homes have risen by more than 5 per cent. This has occurred despite powerful Government rhetoric about reducing emissions, and a plethora of initiatives including two Energy White Papers, a Climate Change Programme, an Energy Review, the Stern Review and five pieces of legislation.

The Government's projection for the residential sector represents an 11-18 per cent carbon reduction by 2020 from 1990 levels. In the absence of essential details, there can only be limited confidence in the proposed policies to deliver within this range. Even so, these savings are an insufficient contribution from homes, if the UK is going to be on target to reduce its carbon emissions by 60 per cent by 2050, let alone 80 per cent.

Furthermore the Government's policy approach is short term. There are no proposals for how the 2050 target for carbon reductions will be achieved in households.

Yet there is no shortage of opportunities. A total of 17 million homes have cavity walls, but over half are still unfilled, despite this being an inexpensive measure that makes the home much more comfortable. Despite the existence of a few much trumpeted policies, the rate of improvement in the energy efficiency of the general housing stock is largely dependent upon the initiatives of the occupiers, with little assistance from Government. At the moment it is neither cheap nor easy to make your home low carbon. The Government has even failed to protect the most disadvantaged. Although the number of fuel poor initially fell under New Labour, the number of households in fuel poverty in the UK has doubled to 4 million since 2002.

The Government is facing a rising challenge in tackling household emissions. Due to increasing population and falling household size, by 2050 there could be 23 per cent more households and, if nothing else changed, a 23 per cent increase in energy consumption. Electricity use in light and appliances rises inexorably.

The Government has provided limited support for the roll out of low- and zero-carbon (LZC) technologies, including micro-generation and community combined heat and power systems (CHP). This is an area where a seismic shift in policy is needed. There are few LZC installations in the UK: about 107,000 in the domestic sector in 2005, including community-scale CHP. No more than four out of every 1,000 homes have any LZC technologies with only £18 million currently available in Government grants for UK households.

New versus old homes

The Government has given serious attention to emissions from new homes in England and this is welcomed. It has set a goal of all new homes being zero carbon by 2016. However, the 2 million homes that will be constructed between now and 2016 will lead to 1.7 million tonnes of carbon (MtC) additional emissions for England alone. Wales has set a target for all new build to be zero-carbon by 2011 and this should also apply in England.

Of the homes we will inhabit in 2050, around 80 per cent are already standing today and these have to be the main focus for carbon-reduction policies. The Government has comprehensively failed to set out effective policies to significantly reduce emissions from the homes we already live in.

The Low-carbon Strategy

Home Truths offers a way forward. It reveals that not only is an 80 per cent cut in household emissions achievable, but it can be done in an equitable and fair way that wipes out fuel poverty and enables every UK citizen to live in a warm, comfortable home. Our quality of life will be enhanced. Everyone stands to gain.

The vision is as follows:

The low-carbon house: Every household has excellent insulation. Every household has a solar installation. The individual is warmer, has more hot water and can even have more appliances than now. No household spends more than 10 per cent of its income on energy.

The benefits: Carbon emissions are cut, national energy security is increased; homes provide a healthier environment; there are significantly increased employment and business opportunities. Fuel poverty has disappeared.

The approach: Market transformation is the strategic approach recommended. It combines tough minimum energy standards for homes, lighting and appliances; regulation of utilities; generous financial support through grants, funding and the reform of energy tariffs; and much greater information for the consumer. Market transformation sets a long-term policy framework and recognises that combinations of policies are the most effective. There are more than 40 individual policy recommendations.

THE WAY FORWARD – A 10 POINT ACTION PLAN

Tough standards

- 1. An integrated strategy with legally-binding targets for housing emissions:** The Government sets a target for reducing emissions from the household sector by 3.7 per cent every year from 2008 as part of an integrated strategy for the whole economy. Local Authorities are set the same legally-binding target for emissions from housing. Immediate and forceful action is needed, as the first few years are critical to changing mindsets and the present flat trajectory, and because every year's delay makes the challenge tougher and climate change greater.
- 2. Minimum legal standards for homes:** Energy performance certificates, which rate houses from A to G, are rolled out for every home in the UK (not just those being sold or let) from 1 January 2008. A minimum standard is set and progressively tightened to transform the housing sector by making it illegal to re-sell (or let) the most energy-inefficient houses. Houses in bands F and G have such low levels of thermal comfort they are officially a health hazard – there are 3 million such homes in the UK today. They have to be improved before they can be re-sold. No G-rated property can be re-sold after 2010, no F-rated after 2013 and no E-rated ones after 2016. By 2050 the aim is that there is no house in the UK less than band D, today's average rating and that the rate of heat loss in the average house has been halved. The poorest and most vulnerable households are given unprecedented support to ensure the necessary changes happen quickly. The rest have access to long-term financing mechanisms and practical assistance.
- 3. Local authorities:** Local authorities have a clear responsibility to ensure that the carbon emissions from all energy use in all housing in their geographical area are reduced. They are the vanguard in the battle to reduce household carbon emissions, creating Low-carbon Zones, initially to cover areas where there is a concentration of fuel-poor households. Improvements to the building envelope are undertaken for whole streets at a time, to include solid wall insulation, solar hot water, photovoltaics and/or combined heat and power. After this, no visited home is still in fuel poverty. Low-carbon Zones are rolled out across the whole of the local authority's area, in the same way that smokeless zones

were. The local authorities ensure there are advice centres, to help all households make changes, they require energy efficiency improvement as a condition of planning permission and many set up Energy Service Companies.

- 4. Minimum legal standards for products:** The UK Government fights for the toughest possible European minimum energy standards on lighting and appliances and rapid implementation. The minimum standards set by the Commission for energy products have to be fixed at a level that achieves a substantial reduction, beyond what the industry was going to deliver anyway. This requires political courage from the UK Government to stand up to industry. Incandescent bulbs are phased out from sale in the UK by 2011. Standards are again tightened so that by 2030 all UK homes only have light-emitting diodes (LED) for lighting. All appliances on sale have clear energy consumption labels and retailers in the UK agree to stop selling the most energy-inefficient appliances.
- 5. New homes:** New construction is concentrated in urban areas, at increased densities, to reduce the need for greenfield sites, encourage the use of combined heat and power, reduce the need for private transport and enliven the community centre. Mandatory air-tightness tests are carried out on new dwellings, with failure to comply resulting in a prohibition on selling the property, until it does comply. The Government ensures that local authorities have the funds to employ sufficient building inspectors in-house, without the need to privatise any part of the service. Assessment against the Code for Sustainable Homes becomes mandatory for all new homes. The Government requires all local authorities to adopt the Merton Rule, so that most new housing has to have 10 per cent of all energy generated on-site. This proportion increases significantly, in preparation for the 2016 building regulations.

Making it cheap and easy

- 6. Reform the energy market:** A feed-in tariff is adopted guaranteeing a premium price for exported electricity that reflects the true cost of installing the equipment. This is a recognised and influential method of encouraging the installation of electricity from micro-generation. A renewable heat obligation is introduced requiring a proportion of household heat to come from LZC sources. It is complemented by a green gas tariff. Energy tariffs are reformed so that they reward energy saving rather than high consumption.
- 7. Financial support:** A robust programme of Government tax incentives and investments worth £12.9 billion a year is rolled out to ensure that every UK household becomes low carbon. It includes Stamp Duty rebates of £1.4 billion for those who insulate their homes within the first year; VAT on installing energy efficiency measures is reduced to 5 per cent, to provide parity with using energy; the Landlord's Energy Saving Allowance is widely publicised with a taper effect, to ensure rapid take-up (£0.75 billion pa) and low-interest

loans are there for householders substantially improving the energy efficiency of their home, at any time (building up to £3.6 billion pa). These could be linked to truly green mortgages. The utilities link nationwide Council Tax rebates to their carbon emission reduction targets.

By 2050 permanent energy savings from UK homes worth £12.3 billion a year are achieved. At today's prices, the average household energy bill is cut by at least 66 per cent – down from £725 per year in 2008 to £250 per year in 2050. Investing in low-carbon homes now helps to avoid damage from climate change, which The Stern Review estimates could cost the UK economy over £100 billion a year by 2050.

8. Roll out of low- and zero-carbon technologies

(LZC): There are grants for households through a revamped Low Carbon Buildings Programme, so that by 2050 there is at least one LZC technology per house, that's at least 25 million installations of LZC technologies in the existing housing stock in the next 42 years. Some of the investment is through other programmes, with £0.8 billion pa in addition. Community-wide combined heat and power is fully backed, as local authorities have to reduce the carbon emissions in their geographical area and they fire the CHP with renewable "green" gas derived from household and commercial waste. Local Authorities are given the Government funding to support the coherent uptake of these technologies and their wider responsibilities.

9. **Fuel poverty:** The Government already has a legal obligation to ensure that people are not living in fuel poverty by 2016 and it is on course to fail if fuel prices stay high. An urgent task is to be able to identify the fuel poor, so that they can be helped. This means developing an address-specific database of the energy efficiency of every home in the UK, based on the data being collated from the Energy Performance Certificates. The most fuel-poor households are tackled via the roll-out of the Low-carbon Zones. There is a second round of Decent Homes, so all social housing is rapidly brought to the level of today's building regulations. Home Improvement Agencies are given a mandate to include helping the householder obtain a

home that provides them with affordable warmth. To lift 4 million households out of fuel poverty will require investment of £3.3 billion a year to treat 444,000 homes at an average cost of £7,500 per house.

An information revolution

10. **Information is power:** At least a third of the carbon savings in the residential sector come from behavioural changes. Information about the amount of carbon emissions a householder is generating is essential to help consumers to reduce emissions. Spurred on by a European Directive, the Government's Energy White Paper 2007 requires electricity monitors to be put in, for free, from early 2008 until March 2010, but only if consumers request them. The White Paper does not put the same obligation on gas utilities. Smart Meters are being developed to enable the utilities to take remote meter readings – essential for providing customers with regular and accurate bills. In the Low-carbon Strategy, every household in the UK has an electricity and gas monitor by 2010 to help them understand exactly how much carbon they are producing. The Government undertakes a substantial trial of Personal Carbon Allowances to further incentivise energy efficient behaviour.

The power is in the package: Modelling by the Environmental Change Institute demonstrates that if the Low-carbon Strategy is implemented in full, the emissions from UK homes are reduced by at least 80 per cent by 2050.

The Climate Change Bill:

The solutions to climate change are out there – a strong climate change law will allow them to flourish by providing the framework and the necessary oversight. *Home Truths* demonstrates the potential in the housing stock and this could surely be matched in other sectors. Members of Parliament can have confidence in their discussions on the Climate Change Bill that an 80 per cent carbon reduction in the residential sector is achievable and that these cuts can be delivered equitably and without compromising living standards.



Campaigning in partnership



Electronic copies of the full report and summary are available at: www.foe.co.uk/hometruths

Friends of the Earth, England Wales and Northern Ireland
26-28 Underwood Street, London N1 7JQ, United Kingdom
Tel 020 7490 1555 Fax 020 7490 0881 Website www.foe.co.uk

© Friends of the Earth Trust. Company number 1533942, registered charity number 281681