

All Party Group for Excellence in the Built Environment



HOUSE OF COMMONS
LONDON SW1A 0AA

Re-energising the green agenda

Report from the Commission of Inquiry into
Sustainable Construction and the Green Deal

October 2013

Acknowledgement

We would like to thank the witnesses who gave oral evidence and the organisations that provided written submissions to the Inquiry, as well as those that took seats on the panel.

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Chairman's foreword

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Oliver Colvile MP
Chairman of the
All Party
Parliamentary Group
for Excellence in the
Built Environment

The world faces significant environmental challenges, and to help combat them our Government needs to:

- > ensure Britain plays its part in reducing CO₂ emissions;
- > make our homes more energy efficient;
- > reduce the costs of heating our homes;
- > help combat fuel poverty and
- > meet our required energy needs.

Last year I visited the British Antarctic Survey in Cambridge. I saw for myself the research that it is undertaking into climate change over the last 800,000 years. The researchers have extracted the Antarctic's ice and are analysing the changes to our global climate. For the majority of that time the research found that there had been little or no global warming. They concluded that for the last 300 years – since the beginning of the industrial revolution in the 18th century – there has been a significant change to our climate. This change has led to a rise in sea levels and acidification of our seas, which will harm our fishing stocks. Unless we take action, we will face even greater challenges that will have a detrimental impact on the global economy.

Britain is determined to lead the way in combatting climate change and we are embarking on an ambitious path to cut our carbon dioxide emissions by four fifths by 2050. However, if we are to come near to meeting this target, it is essential we upgrade the existing stock – domestic homes alone account for a quarter of our carbon dioxide emissions.

Unsurprisingly therefore, the main focus of this report is on the Green Deal, the Government's flagship policy aimed at kick starting a revolution in retrofitting, thus ensuring homes are better insulated and more energy efficient.

This report analyses how effectively the Green Deal is likely to be in delivering those

objectives alongside other key initiatives that are being rolled out. We all acknowledge it is still early days, but we hope our report provides constructive suggestions for cementing and delivering on pledges and policies and, where we think appropriate, shaping new ones.

Ultimately, the success or failure of Green Deal depends on a political will and strong leadership. Hence, we hope this report sends a clear message to Government to reaffirm and re-energise its commitment to the delivery of the sustainable agenda in construction and the built environment and in doing so, provide clarity and certainty to help industry play its part in turning policies into success stories. The potential to create jobs at home and export our new skills and expertise in this field abroad is a prize in itself.

I would like to end by thanking my colleagues on the panel, drawn from my fellow Parliamentarians and experts from industry, and to the secretariat who administered this Inquiry. I would also like to thank those who submitted evidence and, finally, say how grateful I am to those witnesses who presented at our five inquiry sessions and have made our work possible.

A handwritten signature in black ink, appearing to be 'O Colvile', written in a cursive style.

Executive summary and key recommendations

Meeting the carbon reduction targets and the need to re-energise the approach to sustainable construction

- › Successive governments have set out unambiguous targets for reducing carbon dioxide emissions and have stated the important role of CO₂ reductions in new and existing housing in meeting these targets.
- › This has been re-stated in the Industrial Strategy for Construction, published in July 2013, which reinforces the pledge to reduce CO₂ emissions by 50% in the building stock by 2025¹. A pledge to similarly reduce construction costs will add to the challenge of constructing sustainably at lower costs.
- › Meeting these targets will need the utmost focus, commitment and clarity from the Government, if it wants industry to invest in new skills and produce innovation. Provided with the right conditions, decarbonising the building stock could also be a huge opportunity to drive growth across the sector, export skills around the world and deliver a much needed lever for training a new generation of skilled workers. There are over one million 16–24 year olds not in education, employment or training. Yet, more than 160,000 skilled workers will be needed across all construction sectors, if the Government is to hit the carbon reduction targets for 2020.
- › Despite setting out ambitious targets, the Government has been sending mixed messages about its commitment to the green agenda. This has been particularly apparent over the delay to the revisions to Part L of the Building Regulations and the slow progress on establishing how zero carbon will be met for domestic buildings in 2016. In recent years unexpected

changes to the feed-in-tariffs also caused consternation and undermined confidence in the construction sector.

- › Meeting efficiency and renewable energy provision, while optimising economic viability, can be done via setting robust environmental standards and ensuring that they are enforced. Yet, these are really difficult policy issues which require cross-party support to guarantee the continuity of policy.
- › Witnesses to our Inquiry lacked confidence that the carbon reduction target of 80% by 2050 would be met with the existing policies and incentives. The framework for driving the Green Deal improvements in the existing domestic stock is not as strong as it needs to be. Without regulation and financial incentives in place, households and businesses retain the status quo.
- › Hand in hand with this, the integration of construction skills, knowledge and work practices are of concern in the construction industry and need to be addressed.

Improving the existing domestic stock and concerns about the Green Deal

- › Improving the energy efficiency of the existing domestic stock was the main focus of our Inquiry: without regulation or incentives, it is the most difficult and politically sensitive area to tackle.
- › The success or failure of meeting carbon emission targets stands or falls on the ability to cut emissions in the 26 million existing homes. However, there is currently little financial incentive for households to do this. New research by the Department of Energy and Climate Change, published in June this year, claimed that making energy saving improvements to a home could increase its value by 14% on average - and

up to 38% in some parts of England. Still, energy efficient homes are not elevated in value in terms of the Royal Institution of Chartered Surveyors' Valuation Standards (also known as the Red Book) primarily because there is no clear evidence that energy efficiency is as yet a significant factor in property valuation and there are no financial incentives to galvanise improvement work. Witnesses told us that in the commercial market low energy helps developers to rent a building quicker than an energy-inefficient one. We would like to see the RICS review how green improvements could be reflected in evaluations, in the domestic market.

- › One way of helping consumers value low energy homes is to make their energy use more apparent in the sales and lettings information. When consumers buy or let properties, they should be told the revenue costs as well as capital costs in a more consumer friendly and prominent way than simply handing over the Energy Performance Certificates, as is currently required. We have also heard evidence that smart metering can assist in this process by better informing the consumer.
- › The Green Deal, the Government's flagship policy to drive home improvements, is a step in the right direction towards a national retrofit programme. However, as it is, we are concerned that the Green Deal may not be strong enough to be of significant influence in meeting the UK's carbon emissions targets. Financially, the Green Deal is unattractive and uncompetitive, it is overly complicated and it doesn't work for social housing organisations. We note the approach in Germany, where loans for energy efficiency work are as little as 1-2%, has resulted in significant carbon emission improvements to their existing housing stock.
- › By comparison, Government's intention

to outlaw the letting of domestic and commercial buildings with low energy ratings, provides a powerful step in relation to galvanising the industry and sending a clear message to the consumer. We accept however that it would have significant negative impact on housing supply if landlords don't carry out the necessary improvements and millions of homes become "unlettable".

- › We are concerned that the Green Deal and the accompanying Energy Company Obligation (ECO) might deliver carbon reduction at a far lower rate than the rate of the policies it replaces – the CERT and CESP (Carbon Emission Reduction Target and the Community Energy Saving Programme).
- › A key recommendation of the Committee on Climate Change in its progress report published in June 2013² is that the Green Deal and the ECO should be aligned with the ambition to insulate all lofts and cavity walls by 2015, as well as 2.3 million solid walls by 2022.
- › We echo the Committee on Climate Change's sentiments that there is a perceived disconnect between CO₂ reduction ambitions and policy implementation, which also raises issues of fuel poverty. If we are going to get retrofit to work and meet targets by 2050, then we need to do 98% of the easy-to-treat and 95% of hard-to-treat work.
- › We are convinced that, unless the price of energy surges in a way that tips the financial scales and increases the savings, the Green Deal will not gather the necessary momentum to succeed, without additional incentives to encourage action and a means to reduce the cost of finance.
- › Whilst there has been significant progress in easy-to-treat home insulation, tackling

²Committee on Climate Change (June 2013), Meeting Carbon Budgets – 2013 Progress Report to Parliament theccc.org.uk/wp-content/uploads/2013/06/CCC-Prog-Rep-Book_singles_web_1.pdf

hard-to-treat homes has barely begun. Again, we accept that it is early days, but there needs to be a plan in place to ensure that, as part of ECO, the energy companies do start to tackle hard-to-treat homes, as soon as possible, and not just pick off the easy wins.

Our recommendations

We have made the following seven recommendations to Government:

1 Set clear shorter term targets for the construction sector, monitor and report on progress:

We must build on the excellent recommendations set out in the IGT report published in autumn 2010 and chaired by Paul Morrell, the then Chief Construction Adviser.³ Industry reads every signal, positive or negative, from Whitehall Departments, so Government's leadership is critical. Clear targets, whether dates, regulation changes or definitions, must be regularly reported on. Transparency of objectives and regular reporting on progress is very important.

2 Be clear on its priorities: Our view is that the Government needs to be clear on what objectives are most important. The consumer will value lower energy cost to them personally more than low CO₂ emissions to society generally. The Government has to decide whether it values lower CO₂ emissions, and is therefore prepared to invest more in green electricity, or lower fuel bills, which would tip the balance in favour of significantly reducing energy consumption and, in turn, to invest in that. If so, what subsidy is it prepared to pay and over what realistic time frame?

3 Give the Green Construction Board more teeth: There needs to be a transparent organisation with authority and charged with delivery, that can act as a focal point for all parties and which would coordinate

incentives, audit reports and recommend policy change. The appropriate body would seem to be the Green Construction Board. If it is to continue, it needs to be reconfigured and given real teeth in order to genuinely impact policy and provide a construction industry focal point for delivery and action. It needs to be made clear also what its relationship is with the newly constituted Construction Leadership Council and transparent reporting lines set out.⁴

4 Set up an Existing Homes Hub: In addition, the Government must review how it intends to engage with industry on sustainability issues. There are currently a number of proposals on the table for new forums. Our preference would be to set up an Existing Homes Hub, along similar lines to the Zero Carbon Hub. This could provide a neutral space for the industry and DECC to work together and deal with non-Green Deal retrofit issues as well.

5 Review the Green Deal: We are aware of the Government's argument that the Green Deal raises awareness of energy efficiency improvements and that householders will then go on to finance them by other means, rather than taking out a Green Deal loan. However, we believe that now would be the right time to review and simplify the Green Deal. Our view is that there needs to be a stronger focus on local initiatives. We welcome the £20m extra funding for local authorities to take a street by street approach, which was announced by DECC in July, but this will not be enough. Even on Germany's rate of progress it would take us 130 years to upgrade 26 million homes.

6 Consult on a new Green Deal for Registered Social Landlords: As part of any review of the Green Deal, it is also essential that it can be reconfigured to suit social housing providers, which may mean stripping away some of the accreditation processes, given they are regulated already by the Homes

³HM Government, Innovation and Growth Team (Autumn 2010), Low Carbon Construction, Final Report gov.uk/government/uploads/system/uploads/attachment_data/file/31774/10-1266es-low-carbon-construction-igt-executive-summary.pdf

⁴The Construction Leadership Council is a new 30-strong cross industry group tasked with delivering the Government's new industrial strategy and will be jointly chaired by the Secretary of State for Business, Innovation and Skills and Sir David Higgins, Chief Executive of Network Rail.

and Communities Agency. We urge the Government to consult with housing associations to find ways that will make the Green Deal workable for them. This would deliver much needed scale to the initiative. We believe that housing associations could play a key role galvanising the Green Deal at a local level, including offering their services to non-residents, in the same way that they played a successful role in the 1970s and 1980s, driving area improvement policies. We believe facilitating a greater role for local housing providers would build confidence in the Green Deal in the eyes of the consumers.

7 Make retrofit more financially attractive:

Retrofit needs to be made more attractive, whether through the Green Deal or otherwise. Again, our recommendation is that the Government urgently review ways in which it can reduce the interest rate on the Green Deal, which is likely to be through underwriting the financing, in much the same way as it has done with the new-build mortgages. It might also consider introducing additional incentives, including stamp duty and/or council taxes linked to energy efficiency (which could be fiscally neutral), which are looking necessary to galvanise the Green Deal take-up.

Section 1: The Inquiry

1.1 About the Inquiry

The delivery of low carbon buildings and the adaptation of the existing building stock to reduce energy consumption is the biggest challenge facing the property and construction industry. As part of its goal of cutting back carbon dioxide emissions by 80% by 2050, the Government has introduced a number of ambitious measures and policies. These include more stringent building regulations and the Green Deal - the instrument intended to kick start a revolution in building improvements. The importance of the issue and the pressing need to make progress made the investigation of sustainable construction and the Green Deal the obvious choice for the All Party Parliamentary Group's second Inquiry. Our aim has been to seek evidence of best practice, challenges and barriers.

Written evidence was submitted to the Inquiry in the early part of 2013 and five open sessions where oral evidence was presented took place during April, May and June.

1.2 Members of the Commission

Oliver Colvile *MP (chairman)*
 Peter Aldous *MP*
 John Alker
 Sir John Armit *CBE*
 Patrick Bellew
 Peter Bonfield *OBE*
 The Earl of Lytton *(vice chairman)*
 Jack Pringle
 Rt Hon Nick Raynsford *MP (vice-chairman)*
 Sir Andrew Stunell *MP*
 Lord Teverson
 Lord Whitty

1.3 Secretariat

Graham Watts *OBE*
 Denise Chevin
(rapporteur and the report author)
 Kamila Tomaszewska
 Sophie Hutchinson

Section 2: Context and challenges

2.1 The environmental challenge and the role of construction

Delivery of low carbon buildings and adapting the existing building fabric is the biggest and most pressing challenge facing the property and construction industry. However, provided with the right conditions, decarbonising the building stock could also be a huge opportunity to drive growth across the sector, export skills around the world and provide a much needed lever for training a new generation of skilled workers. The recession has hit young people in the UK particularly hard, and there are over one million 16-24 year olds not in education, employment, or training. Yet, more than 160,000 skilled workers will be needed across all construction sectors, if the Government is to hit carbon reduction targets for 2020.

The Climate Change Act 2008 established a legally binding target to reduce the UK's greenhouse gas emissions by at least 80% below 1990 base year levels by 2050. In the next 10 years, the UK Government has pledged to develop and deploy the technologies that will be needed to halve emissions from 1990 by 2025 which, it claims, will put the UK on a path towards an 80% reduction by 2050.

The Department of Energy and Climate Change's low carbon plan, published in December 2011, says that emissions have been reduced by a quarter since 1990.⁵ Current policies put the UK on track to cut emissions by over a third, on 1990 levels, by 2020, says DECC.

Furthermore, the report says, between 1990 and 2010 emissions from power stations fell by almost a quarter, as the 'dash for gas' in the 1990s saw large numbers of coal-fired power stations replaced. In the last decade wind and other renewables have grown to the point that they now provide nearly a tenth of UK generating capacity. With nuclear power generating 16% of total UK electricity, a

quarter of electricity generation is now low carbon. In buildings, emissions have fallen by 18%, despite the growth in population and housing. Eleven million homes have been fitted with cavity wall insulation, for example, which is equivalent to 60% of all homes with cavity walls.

However, as the Government acknowledges, if we are to cut emissions by 80% by 2050, there will have to be major changes in how we use and generate energy. One of areas where we need to reduce energy consumption dramatically is in buildings. In 2009, 37% of UK emissions were produced from heating and powering homes and buildings. Energy used for heating homes has increased by 40% since 1970s, even though the thermal efficiency of homes has improved by one-third, because people heat their homes more uniformly and to a more comfortable temperature.

By 2050, all buildings will need to have an emissions footprint close to zero. To achieve this target, buildings will need to become better insulated, use more energy efficient products and obtain their heating from low carbon sources.

The Government's recent Carbon Plan⁶ highlighted the fact that a quarter of the UK's emissions come from domestic property and that reducing demand for energy is the cheapest way of cutting emissions. The Carbon Plan included the following wildly ranging building improvement targets:

- › Reducing emissions by 29% by 2017, 35% by 2022, and 50% by 2027,
- › insulating all cavities and lofts, where practical, by 2020,
- › achieving between 1 million and 3.7 million additional solid wall insulations and between 1.9 million and 7.2million other energy efficiency installations by 2030,

⁵HM Government, Department of Energy and Climate Change (December 2011) *The Carbon Plan: Delivering our low carbon future*, Presented to Parliament pursuant to Sections 12 and 14 of the Climate Change Act 2008 gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf

⁶Ibid.

- › achieving between 1.6 million and 8.6 million building level low carbon heat installations, such as heat pumps (Government modelling suggests that 21 – 45% of heat supplies to buildings will need to be low carbon) by 2030.

However, energy chiefs are warning that closing down coal-powered stations before new low carbon generation comes on stream could result in insufficient generating capacity and the lights going out. Concerns are exacerbated by delays in the construction of new nuclear power stations.

Reducing energy used in the construction and operation of buildings is an enormous challenge. Half of housing stock in the UK is more than 50 years old and one fifth more than 100 years old. As much as 80% of the UK building stock that will exist in 2050 has already been built and millions of properties are hard and costly to treat.

The Government recently re-affirmed its aim of greening the building stock in its Industrial Strategy for construction.⁷ This document once again pledges a 50% reduction in greenhouse gas emissions in the built environment by 2025 – or the fourth Carbon Budget (2023-2027). It also raises the stakes by promising to reduce building costs for new-build and refurbishment, which presents a massive challenge. Industrial strategy has called for a 33% reduction in both the initial cost of construction, as well as the whole life cost of assets, and a 50% reduction in the overall time from inception to completion for new build and refurbishments.

The Government is certainly to be applauded for setting out such ambitious targets and strategy but, as we set about asking in this Inquiry, does it have the right policies and support in place to achieve them?

2.2 Policies and regulations driving energy efficiency and carbon emission reductions in the built environment

Moving towards a low carbon built environment is being driven by a mixture of regulation and, the Government hopes, market forces. The key mechanisms are:

- › **Regulation** - including Building Regulations and planning requirements specified by local authorities. By 2016 all new homes will have to be zero carbon (which is now low carbon rather than actual zero carbon) and by 2019 all new non-domestic buildings will be required to be likewise.
- › **Regulation** - to drive refurbishment of private rented housing and commercial property. It will become illegal to let either commercial or domestic property that falls below a specified minimum EPC rating. This provision must be in place by 1 April 2018, and will also encompass commercial property. The Act does not state what EPC rating the property must reach, but the Government has indicated that it is likely to be an E rating. The Act also requires the Government to introduce a right for tenants to request energy efficiency improvements.
- › **The Green Deal** - the instrument intended to kick start a revolution in retrofitting of existing homes, particularly in housing, and improve 14million by 2020. It allows work to be done for no upfront cost. Instead, it is paid back through the energy company in savings made in energy bills. Making the UK's ageing housing stock more energy efficient is one of the fastest ways of creating construction jobs and boosting the economy. Retrofitting the country's 26m homes is also the only way Government can hit its carbon emissions targets.
- › **Smart meter roll out** - the Energy Act

2008 requires energy companies to install smart meters in all domestic properties between 2014 and 2019. They are the next generation of gas and electricity meters, and offer a range of useful functions, such as a real time display of energy consumption and remote meter reading. Smart meters are intended to raise the profile of energy use for occupiers, so they know exactly what they are using and how much it is costing them. This could in turn increase the tenants' interest in the energy performance of the building that they are living in, or are considering renting.

- › **Rising energy bills** – will strengthen the business case. The average dual fuel energy bill for a typical household increased in nominal terms from around £605 in 2004 to £1,060 in 2010 (a 75% increase). It is projected that this will increase in real terms to £1,250 in 2020 (18%), however such projections assume some success in delivering improvements in energy efficiency. If such improvements are not delivered, energy bills will rise at an even faster rate.⁸

2.3 The Green Construction Board

To keep the industry on track, the Government set up the Green Construction Board (currently chaired by Michael Fallon, Minister for State, Business and Enterprise and Mike Putnam, Chief Executive of Skanska), which has set out the actions required for the sector to meet carbon reduction targets.

The Board was set up by, the then Chief Construction Adviser, Paul Morrell following the publication of a report by Low Carbon Construction Innovation & Growth Team, which he chaired, in December 2010. This made a series of detailed recommendations, focussing on carbon and covering all aspects of greening the built environment from setting up a construction-specific accreditation scheme for companies

committed to improving their environmental credentials to the development of standard solutions to the existing stock.

Much of this was then encapsulated into the Low Carbon Construction Action Plan published by the Department for Business Skills and Innovation in June 2011.⁹ The low carbon plan contains targets for the domestic sector to reduce operational carbon emissions by 34% on 2010 levels by 2017, with the non-domestic sector required to reduce emissions by 24% over the same period.

Its key findings include:

- › Meeting the 80 % reduction target is technically possible, but challenging.
- › Success is dependent on improving the economic viability of technical solutions and addressing market failures.
- › Taking responsibility for carbon reduction at an industry level is essential to driving uptake and delivering results as quickly as possible.
- › The drive to 80 % carbon reduction represents an economic opportunity, particularly in retrofitting domestic buildings.

This commitment was subsequently reaffirmed in Construction 2025 – the Industrial Strategy for Construction, set out in July 2013 by Morrell's successor Peter Hansford.¹⁰ As mentioned earlier, this pledged a 50% reduction in greenhouse gas emissions in the built environment by 2025. Lastly, it is also worth noting that the Green Construction Board produced a Low Carbon Route Map¹¹ to provide a visual tool to see what is required to reach these carbon reduction commitments and potential actions to take. We would like to see the Government being clearer about how it is going to use the route map and what

⁸British Property Federation (January 2013) Guide to Energy Efficiency and the Private Rented Sector bpf.org.uk/en/files/event_related_documents/Energy_Efficiency_and_the_Private_Rented_Sector.pdf

⁹HM Government, Department for Business Skills and Innovation (June 2011) Low Carbon Construction Action Plan: Government response to the Low Carbon Construction Innovation & Growth Team (IGT) Report bis.gov.uk/assets/biscore/business-sectors/docs/1/11-976-low-carbon-construction-action-plan.pdf

¹⁰gov.uk/government/uploads/system/uploads/attachment_data/file/210099/bis-13-955-construction-2025-industrial-strategy.pdf

¹¹The Green Construction Board (March 2013) The Low Carbon Route Map for the Built Environment greenconstructionboard.org/index.php/resources/routemap

the process is for the Green Construction Board to review progress against the targets set out in the Industrial Strategy. We think it is absolutely crucial to prevent confusion and tension that the relationship between the Green Construction Board and the newly formed Construction Leadership Council is made clear.

2.4 General comments on progress to date

The Government is certainly not short on targets, pledges and route maps. But delivering such an ambitious strategy needs leadership and commitment, with ministers pulling in the same direction.

A number of witnesses told us that progress on sustainable construction is slipping behind on all fronts – largely because there is lack of drive and focus in the Government, with clear tensions and differing priorities between The Department of Energy and Climate Change, Department for Communities and Local Government, Department for Business, Innovation and Skills and Treasury – the departments where responsibility for green issues in the built environment primarily lie.

A number of Government actions have sent out mixed messages. Industry critics have pointed to the Government's failure to provide fiscal incentives for the Green Deal, its u-turns on feed-in tariffs, and the cancelling of an industry-supported plan for all commercial buildings to display publicly the amount of energy being consumed with the use of display energy certificates. The delay to the implementation of the 2013 Building Regulations revision until April 2014 and the lack of clarity around what are to be "allowable solutions" to meet the 2016 zero carbon for housing, for which a consultation was finally published in August 2013, are two additional examples. Given we have been undergoing a deep recession, it is understandable that the Government choses

not to force home owners to carry out energy efficiency improvements when they had other works done to their house (so-called consequential improvement, also dubbed the conservatory tax) but again, it gives the impression of a Government not fully committed to being green.

Paul Everall, Chief Executive of Local Authority Building Control, told us: "Clear leadership is absolutely essential. Some of the leadership has to come from Government and Parliament; though some can also come from colleagues in industry. The way the Olympics were delivered provided a very good structure for this, but it was down to the drive and foresight of the people working on it that it went so well."

Witnesses said that not enough progress is being made by the Green Construction Board, with little to show for its efforts after a year in operation. Its funding comes to an end in November 2013 and at the time of publication its future was unclear. Our view is that the Government needs to set a clearer focus for the Green Construction Board, make it more transparent to industry and commit to genuinely use it to inform and influence policy. As has been mentioned above, it will also be essential to set up clear reporting lines with the overarching Construction Leadership Council.

The role of the Board was defended by Lynne Sullivan, a witness representing RIBA and a Green Construction Board member, who said: "I do see it as a really important focus because it does two things: it draws together all the bits across Government departments that relate to sustainability across the built environment. It is a partnership between the different ministries and with industry. I very much hope it continues. In the 18 months we have been going, we have galvanised key projects and in a couple of months we'll have some outputs. The Green Construction Board is also involved in key research which

will really influence the market going forward.”

One such piece of research involves examining the impact low energy policies and initiatives are having on commercial property. (See Section 5)

Meanwhile, we were pleased to note that the need for clarity in the industry is on the Government’s agenda. In its recent document launching the industrial strategy for construction, it says: “developing greater clarity and certainty around the sustainable and low carbon construction opportunities which are emerging is essential to give businesses and consumers the confidence to invest in the potential of new markets.”

2.5 Government’s commitment: general conclusions and recommendations

Successive governments have set out unambiguous targets for reducing carbon dioxide emissions and the clear and important role reducing carbon dioxide emissions in new and existing buildings has to play in meeting these targets. However, as we said above, meeting these targets will need utmost focus and commitment and clear messages from Government if it wants industry to invest. The delay to the 2013 revisions of Part L and the lack of clarity over how house builders will be expected to meet the zero carbon obligations is a case in point. A consultation on this was published in August.

As it is, meeting the legally binding 2050 80% carbon reduction requirements will necessitate a “heroic assumption” about what is possible, to cite Paul Morrell (Building, March 2013). “My personal view is that the assumptions the model makes are so heroic that I don’t believe anyone will believe it will happen in the timeframe,” he said.

Morrell is also quoted saying that the modelling in the low carbon plan showed

that, if the existing policy and regulatory environment continued, then only a 52% reduction in emissions would be achieved, even if the electricity grid was fully decarbonised. Hence, further regulation would be required to address the retrofitting of the existing stock, which would account for more than half of the potential reduction.

Witnesses to the Inquiry were certainly not confident that the targets could be met with current policies. The framework for driving improvements in the existing domestic stock is particularly weak. A lack of financial incentives and energy prices that are still affordable, though rising steeply, mean that households and businesses retain the status quo without the stick of regulation. Meeting efficiency and renewable energy provision, while optimising economic viability, can be done. Setting robust environmental standards and ensuring that they are enforced is the way to achieve the energy efficiency and sustainability goals. These are really difficult policy issues which require cross-party support to ensure continuity of policy. Hand in hand with this, the integration of construction skills, knowledge and work practices are of concern in the construction industry and need to be addressed.

Our recommendations are that the Government:

- › Set clear shorter term targets for the construction sector and monitor and report on progress: We must build on the excellent recommendations set out in the IGT report published in December 2010 and chaired by Paul Morrell, the then Chief Construction Adviser. Industry reads every signal, positive or negative, from Whitehall Departments, so Government leadership is critical. Clear targets, whether dates, or regulation changes, or definitions, must be regularly reported on. Transparency of objectives and regular reporting on progress is very important.

- › Be clear on its priorities: Our view is that the Government needs to be clear on what objectives are most important. The consumer will value lower energy cost more than low CO₂ emissions. The Government has to decide whether it values lower CO₂ emissions and it is therefore prepared to invest more in green electricity, or lower fuel bills which, in turn, would tip the balance in favour of significantly reducing energy consumption, and therefore in investing in that. If so, what subsidy is it prepared to pay and over what realistic time frame?
- › Give the Green Construction Board more teeth: There needs to be a transparent organisation with authority, charged with delivery that can act as a focal point for all parties and which would coordinate incentives, audit reports and recommend policy change. The appropriate body would seem to be the Green Construction Board. If it is to continue, the Green Construction Board needs to be reconfigured and given real teeth in order to genuinely impact policy. It needs to be made clear also what its relationship is with the newly constituted Construction Leadership Council and transparent reporting lines set out.
- › Set up an Existing Homes Hub: In addition to beefing up the Green Construction Board, the Government must review how it intends to engage with industry on sustainability issues generally. There are currently a number of proposals on the table for new forums. Our preference would be to set up an Existing Homes Hub, along similar lines to the Zero Carbon Hub. This could provide a neutral space for industry and DECC to work together and deal with non-Green Deal retrofit issues as well.

Section 3: Improving existing domestic stock and the Green Deal

3.1 Overview of the problem and barriers to improving existing homes

We will only be able to meet our carbon reduction commitments if we improve the energy efficiency of existing homes. This is one of the most difficult and complex areas to tackle, because of the sheer numbers and the cost and technical difficulty it can involve. It would also be politically difficult to introduce punitive or regulatory measures to encourage homeowners to improve energy efficiency in the same way that legislation will force landlords to tackle the worst performing rental stock.

There are 26 million homes and about 1.8 million non-domestic buildings in the UK and their energy use is responsible for 26% and 17% of our CO₂ emissions respectively. Around 80% of those homes and buildings will still be standing in 2050, meaning that we need to undertake a massive programme of green retrofit and energy demand reduction across almost the entire stock.

Buro Happold representatives, Adam Poole and Mark Dowson, highlighted the backlog of thermally inefficient homes. Across the UK, this amounts to 10 million hard-to-treat homes, 7.5 million of which have solid walls – nearly a third of the housing stock – and 8 million are not fully double glazed.¹² Industry does not have the capacity to retrofit all solid walled homes by 2050. The scale of the task is immense: 180,000 installations per year are required to retrofit 80% by 2050, which amounts to around 500 a day.

Energy Efficiency Partnership for Homes estimates the industry's maximum capacity is to make between 15,000 -20,000 installations/year.¹³ Yet, the Government's own forecasts are predicting that one million homes will have been upgraded by solid wall insulation by 2020, which means capacity must increase 10-fold.

As well as technical and cost complexities,

one of the key barriers is that there is a lack of public interest generally, and of incentives, for upgrading all types of homes. There is also an absence of market pressures to promote sustainable housing. UK Green Building Council indicates that there is some progress in the commercial sector, but the values and valuation methods of residential buildings do not reflect energy efficiency improvements. As one witness remarked; "The Green Deal is like pushing a boulder up hill."

Another witness, Jonathan Rickard from the housing association Radian, suggested introducing a type of kite mark or benchmark – "Something you could actually sell, so people could physically see it and make an active choice to purchase." There is already an obligation to provide Energy Performance Certificates when selling or renting a home, but the low key approach to their promotion, coupled with the shortage of stock, means they lack any kind of impact.

3.2 The Green Deal and ECO as drivers for improving energy efficiency of UK housing stock

3.2.1 What are the Green Deal and the ECO?

Government is putting all its hope into improving energy efficiency in the existing domestic stock into the Green Deal and Energy Company Obligation. The Green Deal allows homeowners, business owners and tenants to take out loans to pay for some or all improvements, over time, through their electricity bills.

People can also use their loans – which are attached to the house rather than the individual – to install a range of green technologies that generate low-cost energy, such as solar panels. The loans will be issued by Green Deal Providers and repaid out of the money saved on fuel bills via their energy suppliers. To qualify for a Green Deal loan,

¹²Utley J. and Shorrocks LD. (2008) Domestic energy fact-file 2008, Building Research Establishment, BRE press, Watford, UK

¹³Energy efficient partnership for housing 2008. The insulation industry, working in partnership with government to insulate the existing housing stock by 2050

they have to meet the so-called Golden Rule, which stipulates that repayments should not be more than the energy bill savings over a maximum 25-year period.

Running alongside the Green Deal is the Energy Company Obligation (ECO). This programme requires power suppliers to reduce the UK's energy consumption and support people living in fuel poverty. It does so by funding energy efficiency improvements worth around £1.3 billion every year and it replaces the CERT (Carbon Reduction Emission Target) and CESP (Community Energy Saving Programme) schemes. The ECO will run until March 2015, supporting the installation of energy efficiency measures in low-income households and areas, and in properties that are harder to treat.

There are three obligations under the ECO:

- › Carbon saving community obligation: this provides insulation measures to households in specified areas of low income. It also makes sure that 15% of each supplier's obligation is used to upgrade more hard-to-reach low-income households in rural areas;
- › Affordable warmth obligation: this provides heating and insulation measures to consumers living in private tenure properties that receive particular means-tested benefits. The obligation supports low-income consumers who are vulnerable in cold homes, including the elderly, disabled and families;
- › Carbon saving obligation: this covers the installation of measures like solid wall and hard-to-treat cavity wall insulation, which ordinarily cannot be financed solely through the Green Deal.

In introducing the Green Deal and ECO, the Government has gone to great lengths to protect consumers against unscrupulous

operators, introducing licencing for installers who are required to meet key qualifications before they can use the Green Deal approved mark and carry out the work. In addition, the process of obtaining Green Deal finance has been made very rigorous, with those applying for it being obliged to undergo credit searches, even though the loan is attached to the home rather than the individual. This belt-and-braces approach has added to the costs and the bureaucracy.

3.2.2 Progress to date

The Government's line is that the Green Deal is a long term initiative and it has restructured its goals to reflect this. The initial aim of signing 10,000 Green Deals by the end of 2013 has now become 20,000 by the end of 2014. Statistics released by the DECC in September 2013 show that by the end of August there were 12 completed Green deals and 677 Green Deal plans, of which 372 had been signed. There had been 71,210 assessments. The figures also showed that:

- › Provisional figures show there were 194,751 measures installed under ECO up to the end of July. The majority of all measures installed under ECO to date have been for loft insulation (40 %of all ECO measures), cavity wall insulation (34%) and boiler upgrades (21%). All solid wall insulation types accounted for 4 %.
- › £205 million worth of contracts had been let through ECO brokerage up to end of August compared to £175 million at the end of July 2013.
- › 101 Green Deal providers had been authorised up to the end of August. 269 Green Deal assessor organisations and 2,332 Green Deal advisors had been accredited up to the end of August 2013.
- › The figures also showed the government had now paid out cash back vouchers with a value of nearly £1.5 million, most

of which mostly covered the cost of boiler replacements. A further 5733 vouchers had been issued by the end of July.

- › Figures published at the end of June also showed that £131m of Energy Company Obligation (ECO) finance has so far been spent on 72,525 properties.
- › Of the measures funded through ECO, 56% were loft insulation measures, 33% were cavity wall measures, 10% were new boilers and just 2% were solid wall insulation measures.
- › The Government has provided some £7m in Green Deal grant incentives to those cities forming part of the City Deal programme, but this is money for England's largest cities. A number of these have signed partnership delivery programmes, such as Birmingham (Energy Savers) and Newcastle.

It is early days yet but witness after witness flagged up grave doubts about the Green Deal's ability as a mechanism to drive the widespread take of energy efficiency improvement measures. They listed many reasons, among them:

- › There is a danger that the Green Deal is likely to reduce rates of insulation in the domestic sector, and provide little likelihood of success in the commercial property sector.
- › According to the evidence submitted by Professor Tim Dixon of Reading University, "The Government's own impact assessment of the Green Deal suggests that, even after revision, loft and cavity insulation are set to fall dramatically, by 83% and 67% respectively, after the Green Deal commences. Indeed, recent research suggests that Green Deal/ECO will only deliver carbon reduction at a rate of one quarter of the rate of the policies it

replaces.¹⁴

- › A key recommendation of the latest progress report to Parliament by the Committee on Climate Change¹⁵ that the Green Deal and the ECO should be aligned with the ambition to insulate all lofts and cavity walls by 2015, as well as 2.3 million solid walls by 2022. It pointed out that, under the new Green Deal and ECO, incentives for delivery are weak, relying mainly on a market based approach to address significant non-financial barriers to uptake, and requiring that most households bear the full cost of these measures. Support is still available for some measures under the ECO but, with the exception of low-income households, this excludes lofts and most cavity walls (i.e. except those that are hard-to-treat) and suggested further incentives, particularly for loft and cavity wall insulation.
- › Lynne Sullivan, representing RIBA, said: "If we are going to get retrofit to work and meet targets by 2050, then we need to do 98% of the easy-to-treat work and 95% of hard-to-treat. We're not getting anywhere near that. We've got to start pretty quickly doing the difficult things, like floor insulation."

Witnesses also added that the Green Deal faces numerous barriers because financially it is unattractive.

- › Too complex: costs of governance, accreditations, and borrowing costs increases cost overall, reducing the amount of low carbon work available.
- › Size of Green Deal loan – which is limited by the Golden Rule - makes it difficult to choose measures such as double glazing or 'whole-house ventilation systems', from the scheme. This is a particular concern for the refurbishment of older, vulnerable

¹⁴J. Rosenow and N. Eyre, Oxford University Environmental Change Institute (2012) *The Green Deal and the Energy Company Obligation – will it work?*

¹⁵Committee on Climate Change (June 2013) *Meeting Carbon Budgets – 2013 Progress Report to Parliament.*

properties that require additional, more costly measures which cannot be done under the rule. Moreover, there is evidence to suggest that, because the Golden Rule is met only 'on average', in some cases repayments may well exceed energy savings.

- › Cost of loan – real interest rates of over 7% - make it too costly.
- › Lack of incentives – the £1000 cash back deals currently being offered are

temporary and they have almost entirely been used to fund boiler replacements.

- › No staged delivery- the Green Deal does not accommodate a staged approach to reducing carbon dioxide emissions. RIBA recommends the establishment of a medium-term low carbon retrofit plan for every owner occupied dwelling and for every dwelling type in social housing.

Secondly, there are numerous technical complexities and capacity issues:

Box A

The German approach

Like the UK, the German Government is committed to reducing the primary energy demand of buildings by 80% by 2050 and to carrying out thermal retrofits on 2% of its building stock annually. Thanks to this commitment, and the funding to back it, over 2 million homes have benefitted from energy efficiency programmes. It is worth noting that even if the UK were able to match the German effort it would still take the UK 130 years to upgrade its housing stock.

In Germany the main agent for energy efficiency is the KfW (Kreditanstalt für Wiederaufbau), a development state-owned bank whose stated mission is to "support change and encourage forward-looking ideas in Germany, Europe, and throughout the world." KfW began financing energy efficiency in the residential sector in the 90s and launched their first program with a strict focus on energy efficiency in 1993. In 2001 a program to reduce CO₂ was launched with support from the federal government, which focuses on support of energy-efficient refurbishment and new construction.

KfW is twice the size of the World Bank. It lent €70bn in 2011, of which a third goes to energy and climate change investments. Since 2001, it has helped insulate and seal over 2 million

homes, employing 200,000 people a year in the process. Since 2006, 156m tonnes of carbon have been saved, equivalent to over a quarter of the UK's total annual emissions.

Unlike the Green Deal this is not a pay as you save scheme with accompanying accreditation and assessment structures. Interest rates are low - 1-2%. Government support enabled the KfW to offer such a low rate of interest on finance for retrofit, which encouraged substantial rates of adoption. These rates are topped up by further government subsidy of the interest rate. In 2011, the state put in just under €1bn, which KfW turned into 6.5bn in loans, which created a total investment of €18.5bn. German homeowners can borrow up to €75,000 via KfW. For Passivhaus homes, home owners can get back up to 12.5% of the loan. And there are also grants of up to 20% of the cost of the works.

A key lesson is that the more transparent and simple the structure of the overall promotional scheme, the better it is to understand for all parties involved and the easier it is to distribute.

The mandatory involvement of an energy expert from the beginning of the application process until completion of the construction or refurbishment project is also very important.

Box B

The ‘Fair Green Deal’

The Ecology Building Society and The Energy Saving Co-operative are piloting a ‘Fair Green Deal’ in Oxfordshire, the West Midlands and the East Midlands, offering C-Change Retrofit mortgage discounts. The scheme provides financial incentives for energy efficiency.

For those undertaking substantial renovations, Ecology’s C-Change Retrofit scheme offers mortgage discounts linked to improvements in the home’s Energy Performance Certificate (EPC) rating.

For every grade improvement in a home’s Energy Performance Certificate (EPC) rating,

the scheme offers a discount of 0.25% from the Standard Variable Rate, currently 4.90%. The discount applies to the whole of the mortgage, for the lifetime of the loan. This compares to average loan rates of around 7.5% for the Government’s Green Deal.

The Ecology Building Society started in 1981 with ten shareholders and £5,000 capital. Today it has around 9,000 members and over £104m assets. It has supported over 2,000 projects that benefit the environment.

The take-up figures for the offer are not yet known.

- › Solid walls have low pay back periods and, as stated above, are technically complex. Yet, work to treat solid walls is signed off under a competent person’s scheme, rather than through Building Control. LABC’s Paul Overall told us he was concerned about this.
- › There are also issues over whether current planning regulations are flexible enough to deal with, for example, the need to use external insulation.
- › There are questions as to whether the Green Deal can deliver fair results, particularly in respect of initial assessment criteria (i.e. average rather than actual energy use) and whether buildings perform as predicted.

And thirdly, there is a general lack of consumer appetite:

- › The cost of assessment under the Green Deal, which may be £100 or more, is only refundable ‘if desirable and if this option is made available by the Green Deal provider’
- › Consumers are put off by the perceived disruption of carrying out energy efficiency

works, and in the current economic climate have other priorities.

- › LABC also pointed out: “Many people are concerned about what putting a charge on the property will do when it comes to selling it”.

3.2.3 Reconfiguring the Green Deal

Although the Green Deal is a major step forward in potentially enabling energy efficiency measures to be carried out at a large scale in the UK, in its current form it suffers from a number of major defects.

Witnesses said for the Green Deal to have a better chance of success, it needs to be reconfigured around the following principles:

Finance:

- › The cost of finance needs to be lowered and one option might be to expand the role of the Green Investment Bank with a view to trying to lower the interest rate.
- › Green Deal incentives should be wide-ranging and permanent. This could mean fiscal incentives, such as a revenue-neutral adjustment of Stamp Duty on sales of

Box C

Birmingham Energy Savers and Carillion

Funding worth £23m has been given to Core Cities to help them promote the Green Deal. One of the first wave of Green Deal public private partnerships is the Birmingham Energy Savers scheme. Under the BES scheme, Carillion will work with Birmingham City Council as its exclusive delivery partner to improve the energy and carbon efficiency of up to 60,000 households across the City, together with schools and other non-domestic council properties. However, even Carillion expresses doubts that the policy, in its current form, will drive the mass implementation of energy

efficiency measures.

Chris Hall from Carillion told us that Carillion Energy Services believes the Green Deal is the right policy working in conjunction with the ECO, but other incentives will be needed, since Green Deal and ECO alone cannot deliver energy efficiency and eradicate fuel poverty. The Backing Energy Bill Revolution campaign is calling for the £4bn money generated from carbon taxes each year to be ploughed into insulating homes. The campaign has widespread support amongst industry and politicians.

homes, so that the least efficient homes attract more Stamp Duty and vice versa.

- › VAT on refurbishment work needed to be cut: RIBA and other organisations have called on Government to address the current VAT regime, and ensure that it incentivises uptake of the Green Deal. However in the current climate of EU clamp downs on variations in VAT, this would be highly unlikely.
- › There is also emerging evidence to suggest that ECO would have greater impact if it is supplemented by using revenue raised from auctioned EU Emissions Trading System (ETS) allowances to invest in energy efficiency measures in fuel poor households. (Note the Energy Bill Revolution campaign which is calling for fuel poverty to be funded in this way).
- › More focus should be given to packages which help smaller towns and cities, and which also link best practice together more closely, through a national 'Low Carbon Cities Network'.
- › Greater push on promotion from

Government, who say it is down to the supply chain (budget for marketing Green Deal £3m compared with over £150m for digital switchover).

Technical:

- › The Green Deal should assess actual energy use rather than average energy use as the basis for a 'personalised' energy assessment (this would likely increase the costs). Assessments should also be guaranteed as 'independent'.
- › Introduce performance targets and monitoring: RIBA says there needs to be a way of measuring the Green Deal's effectiveness at delivering carbon reductions.

Our view is that Government should be applauded for launching the Green Deal but we suggest it is now time to review some of the mechanisms and make modifications to pave the way for wider take up.

We are pleased to note that, since taking our evidence, a £20m scheme to fund local authorities to galvanise the Green Deal up-take through a drive street-by-

street delivery of the Green Deal has been launched. We greatly welcome the Green Deal Communities Scheme which will enable those councils that are successful at bidding for funding to take a more proactive approach and identify target areas that would benefit most from the Green Deal, and then offer incentives to households to install energy efficiency improvements

Our view is that this local area approach needs to be promoted as much as possible. Our recommendations for moving the Green Deal forward are set out at the end of Section 3.5.

3.3 Green Deal and social housing

3.3.1 Problems with Green Deal for social housing

Witnesses told us the Green Deal doesn't stack up for social housing and that a separate new initiative is needed to make it work for social landlords.

There are about 500,000 homes in fuel poverty in the affordable housing sector but the cost-effective works have mostly been done, either funded out of housing associations (HA) own funds or through Decent Homes funding. So that means it may not be appropriate for low income groups to take a Green Deal charge at present because it may pay back at a negligible rate.

HAs aren't pursuing Green Deal: they are pursuing ECO or are doing "pseudo green deals", where residents are charged for the work through the rent.

However, ECO is not covering all the costs; so they are having to top up with their own asset management budgets and any other (EU) money they can get hold of. Housing associations say that there will be a limit to what they are able to afford. According to them, the Green Deal is problematic for a number of reasons:

- › The cost of finance is too expensive as the rate of return on investment is poor and

most organisations can borrow at better rates.

- › Credit checks are needed.
- › Social landlords need individual consent from every bill payer; this means it would prove difficult to make improvements to tenanted blocks if there are tenants who refuse to engage.
- › It is overly bureaucratic; which adds to cost and makes it less viable in some cases. Jeremy Kape of Affinity Sutton said: "It needs to be recognised that we're already regulated, we are long-term investors – so all the Green Deal regulations are unnecessary in the social housing world. The controls are already there."
- › The assessment process and the SAP (Standard Assessment Procedure- used to work out Energy Performance Certificates) is fundamentally skewed against those on low incomes, because they tend to under-heat homes, compared to SAP estimates, hence the savings they achieve will fall short of predictions.

Nicholas Doyle of Places for People said that the organisation had been enthusiastic about the Green Deal initially, but "DECC and others had lost sight of the end goal. We still see the Green Deal as a huge opportunity for the Sector – but just not now. At the moment, what we have is overly complicated and overly costly. In a couple of years' time, when energy bills will have gone up significantly and the value of those energy savings have gone up, then we might be able to afford these things".

3.3.2 Reconfiguring the Green Deal for social housing

Social housing providers told us they need a new Green Deal, specifically for social housing "that would allow [them] to bring [their] aggregated stock to the table and create some supply chains." Our

Box D

Affinity Sutton study finds Green Deal savings exaggerated

Social housing provider Affinity Sutton has recently completed a year-long study of 102 of its homes which have undergone improvements. The data, analysed by consultants Verco, Baily Garner and Parity Projects, found that the Standard Assessment Model (SAP), which is used to calculate building performance, on average predicted that tenants would save 77% more on their energy bills than they actually did. The SAP model is central to the Green Deal assessment process and is used to ensure that the Green Deal packages meet the scheme's "Golden Rule", which states

that measures must deliver more in energy savings than the cost of having them installed and financed.

However, it said that the occupancy assessment, which also forms part of the Golden Rule calculation, would have a "mitigating effect" on the unreliability of the energy savings predictions under the Green Deal. Yet, it is worth mentioning that a methodology for the occupancy assessment had not been put in place when the study was conducted. The study also found that 73% of residents felt their homes were warmer after the works took place.

witnesses said it could work for the sector if bureaucracy was stripped out, SAP measurements were adjusted and costly surveys were scrapped. They said that assessments could be done on line because "they are not that accurate anyway." More money is also needed to tackle energy efficiency improvements: "What we have is the homes and the clarity of vision and the capacity. What we don't have is the money. If you really wanted to drive capacity, the Government has got to put money into the social housing pot." One way of raising more cash, our witnesses suggested, was to allow social housing access to the affordable warmth aspect of ECO.

It seems a hugely missed opportunity if Green Deal funding or mechanisms cannot be harnessed for social housing, particularly as fuel bills are set to rise. Our view is that modifying the Green Deal to rectify this problem is essential.

3.4 Improving energy efficiency in the private rented sector

The growth of the private rental market has been reflected in recent figures, released as part of the English Housing Survey

2011/2012, published by the Department for Communities and Local Government.¹⁶ The data shows that, for the first time since the 1960s there are more people in England who are renting homes from private landlords than from local authorities and social housing landlords. The figures are almost equal, but private rents are now marginally ahead, with numbers standing at 3.84 million compared to 3.8 million for social housing rentals. Yet, because the private rented sector is totally unregulated, for the main part properties are let by individuals and suffer from a lack of investment. Privately rented properties are, on the whole, the worst performing in terms of energy efficiency.

However, unlike with other domestic property, regulation has been put in place to drive efficiency improvements in the private rented sector. From 2016 tenants will have the right to request that landlords undertake 'Green Deal-able' works, and from 2018 landlords will be restricted from renting out the least energy efficient, typically F and G-classified homes. This provides a powerful stick for work to be carried out on the worst performing properties. However,

¹⁶gov.uk/government/uploads/system/uploads/attachment_data/file/211288/EHS_Headline_Report_2011-2012.pdf

we suspect that the Green Deal mechanism will again be far too complicated to drive efficiency improvements in properties that are above this legal minimum. Tenants are unlikely to want to pay for improvements – albeit through savings to energy bills – for measures which improve the landlord’s asset.

3.5 Recommendations and conclusions on improving existing domestic stock

The success or failure of meeting carbon emission targets stands or falls on the ability to cut emissions in the 26million existing homes. But there is currently little financial incentive for households to do this. New research by the Department of Energy and Climate Change published in June claimed that that making energy saving improvements to a home could increase its value by 14 % on average - and up to 38 % in some parts of England.

However, energy efficient homes are not elevated in value in terms of the Royal Institution of Chartered Surveyors’ Valuation Standards – also known as the Red Book, primarily because there is no clear evidence that energy efficiency is as yet a significant factor in property valuation and there are no financial incentives to galvanise improvement work. Witnesses told us that in the commercial market low energy helps developers to rent a building quicker than an energy-inefficient one. We would like to see the RICS review how green improvements could be reflected in evaluations, in the domestic market.

The Green Deal is a step in the right direction towards a national retrofit programme, but as it is we are concerned that the Green Deal may not be strong enough to be of significant influence in meeting the UK’s carbon emissions targets. Financially it doesn’t stack up, it is overly complicated and it is unattractive to social housing organisations.

We are concerned that the Green Deal and the accompanying ECO may deliver carbon reduction at a far lower rate than was being achieved by the policies it replaces.

Government’s intention to outlaw renting domestic and commercial buildings with low energy ratings is by contrast a more powerful step in relation to galvanising the industry and sending a clear message to the consumer – though it could have an unwanted negative effect if it means millions of homes become unlettable because their landlords do not act to improve them.

A key recommendation of the Committee on Climate Change published in May 2013 was that the Green Deal and the ECO should be aligned with the ambition to insulate all lofts and cavity walls by 2015, as well as 2.3 million solid walls by 2022.

We echo the Committee’s sentiment that there is thus a perceived disconnect between carbon emission reduction ambitions and policy implementation, which also raises issues of fuel poverty. If we are going to get retrofit to work and meet the targets by 2050, then we need to do 98% of the easy to treat work and 95% of hard to treat.

We have seen no evidence to date to suggest that, unless the prices of energy surge in a way which tips the financial scales and increases the savings, then the Green Deal will not gather the necessary momentum.

Again, we accept that it is early days but there would seem to be no plan to ensure that as part of ECO the energy companies do tackle hard-to-treat homes as well as ‘easy wins’.

Our recommendations are as follow:

- › Review the Green Deal: We are aware of the Government’s argument that the Green Deal raises awareness of energy efficiency improvements and that householders will then go on to finance them by other

means, rather than taking out a Green Deal loan. However, we consider now would be the right time to review and simplify the Green Deal. Our view is that there needs to be a stronger focus on local initiatives. We welcome the £20m extra funding for local authorities to take a street by street approach which was announced by DECC in July, but this may not be enough. Even on Germany's rate of progress it would take us 130 years to upgrade 26 million homes.

- › Consult on a new Green Deal for Registered Social Landlords. As part of any review of the Green Deal, it is also essential that it can be reconfigured to suit social housing providers, which may mean stripping away some of the accreditation processes, given they are regulated already by the Homes and Communities Agency . We urge the Government to consult with housing associations to find ways that will make Green Deal workable for them. This would deliver much needed scale to the initiative. We believe that housing associations could play a key role in galvanising the Green Deal at a local level, including offering their services to non- residents, in the same way that they played a successful role in the 1970s and 1980s driving area improvement policies. We believe facilitating a greater role for local housing providers would build confidence in the Green Deal in the eyes of the consumers.
- › Make retrofit more financially attractive: Retrofit needs to be made more attractive, whether through the Green Deal or otherwise. Again, our recommendation is that Government urgently review ways in which it can reduce the interest rate on the Green Deal, which is likely to be through underwriting the financing, in much the same way as it has with new build mortgages. It might also consider introducing additional incentives, including stamp duty and/or council taxes linked to energy efficiency (which could be fiscally neutral) which are looking necessary to galvanise Green Deal take up.

Section 4:

Making new homes more sustainable

4.1 Drivers for change and progress so far

New homes are progressively becoming greener through Building Regulations and planning requirements. But a tough and challenging programme of ensuring that all new homes are zero carbon by 2016 has potentially been undermined by slow progress in setting out what will be required by house builders to meet these zero carbon standards. The 2013 revision to Part L of the Building Regulations, which covers energy efficiency, was meant to come in 2013 but will now not happen until April 2014 and a consultation of what is required to meet the 2016 zero carbon standards, was only published in August 2013.

The UK Government's target to make all new homes zero carbon from 2016 demands that emissions from a home's regulated energy, must be net zero over the course of a year. The Coalition Government scaled the definition back to only apply to regulated energy, when originally zero carbon covered non-regulated (i.e. energy used in cooking, running domestic appliances) energy as well.

When the policy was launched in 2006, the original intention was that all a home's energy be generated on site, in line with Level Code 6 of the Code for Sustainable homes, which presented considerable difficulties in mainstream roll out, not least because it treats every home as an individual energy 'island' which must generate all the power and heat it needs.

In response to concerns that this would be expensive and unattainable on many sites, the definition was redefined (still under the previous Labour Government) to allow so-called "allowable off site solutions" to be adopted by house builders. This would allow them to mitigate carbon emissions off site with the requirement for the energy efficiency of the house to be more in line with a house built between Code level 4

and 5. However it is only now that different options for delivery of allowable solutions are being consulted on in detail. The consultation sets out three different options for allowable solutions.

Our view is that the options being put forward strike the right balance between driving low carbon agenda whilst being workable and more affordable. However we are still some way off for reaching a final agreement and the uncertainty within the house building industry will not entirely be lifted yet.

Barriers to progress

The additional costs and technical difficulties associated with building to more stringent carbon targets, coupled with the recession and fall off of house building, has meant that house builders have not been more ambitious than strictly necessary to meet their legal obligations. There is yet to be a premium on energy efficiency homes. Fewer than 2,000 new homes have actually been built to the 2010 revision to the building regulations – of Level 3 on the Code for Sustainable Homes.

It is also worth noting that now, that the energy requirements of the Code for Sustainable Homes has been overtaken, the Government has proposed scrapping the Code in its consultation of the Housing Standards Review. This move was widely anticipated and the witnesses approved of this. However, we are concerned that important requirements enshrined within the Code, which do not form part of the Building Regulations, such as water usage, will as a consequence also be lost.

4.2 Closing the performance gap

If new homes are to be truly sustainable, then one of the problems that need to be overcome is ensuring that they live up to the specification performance when they are built. A picture is emerging of a yawning gap between design intent and as-built

Box E

How Radian has cut bills for its tenants

Housing association Radian has built a number of pioneering low energy homes and monitored how they work and what residents think of them. Radian told us that building low energy homes can reduce energy and water bills substantially which tenants are happy with, but it needs an approach of engaging with tenants. The key thing was the installation of an “energy dashboard” which allows users to see what energy they are using said Jonathan Rickard, Head of Design and Compliance.

Radian has built 40 zero-carbon homes since 2011 using different construction techniques, and different procurement options.

Rickard said: “We’re doing it because we want to understand how we can deliver to the 2016 zero-carbon deadline homes that are

cost-effective to build, which are easy to use and maintain, and are replicable. We’ve carried out an evaluation of four projects. What we’re finding is that we’re getting really high levels of satisfaction from residents: they are getting lower energy use and lower bills and we are changing peoples’ lifestyles. The average bills of £148 per month came down to £68 for living in these homes, which is well below the average use on three-bedroom houses. Water reduced too. So we can deliver sustainable homes, using this and setting performance standards. The key has been installing interactive energy dash board to help residents get the most from the technologies installed.”

This perhaps bodes well for the roll out of smart meters across all homes.

carbon emissions calculations – this is an area requiring much more dedicated research. Witnesses told us this performance gap stems from three things:

- › Compliance tools such as SAP (the Standard Assessment Procedure) are not good enough.
- › Poor quality control processes on site, which will require wholesale training programmes to align skills with need. (Home Building Skills Research report August 2013.)
- › Not enough measurement has been done to monitor how buildings perform – so if it has not been measured, it cannot be managed effectively.

Dr Bruce Tofield and Dr John French of the Adapt Low Carbon Group, University of East Anglia, told us there was a danger of a second housing crisis if quality, in housing construction in particular, is not improved and the performance gap eliminated. “Energy bills for new and retrofitted homes will

be higher than anticipated, occupant health may suffer from poor air quality and the UK may not be able to meet climate change targets. Damp, mouldy or cold homes have major adverse impacts on the health of young and elderly.”

Dr Tofield said that constructing to Passivhaus standards is the only approach to quality on construction of homes and the only reliable way to eliminate the performance gap. A Passivhaus home uses only ten % of the energy for heating of that of the average UK home.

Though Passivhaus is clearly an excellent solution to low energy housing construction, our view is that building to this Rolls Royce quality and the extra cost it entails will mean that it is unlikely to find widespread take up in the immediate future.

We welcome the work underway by the Zero Carbon Hub, which has started a major research project to establish the causes of this performance gap and how it can be rectified, as well as research into indoor air quality, which may suffer as homes become more airtight.

Section 5: Making commercial property more sustainable

5.1 Progress to date

There is regulation in place to ensure that both new and existing non-domestic property becomes more energy efficient over the next six years. In line with all non-domestic properties across the EU building will need to be “nearly zero energy” by 2020 ; and like existing domestic properties for rent, commercial property that does not obtain a certain level of EPC will be unlettable.

There is anecdotal evidence to suggest that, unlike the domestic sector, there is beginning to be a market premium in terms of increased “lettability” and reducing void periods for green commercial property, according to a number of our witnesses.

However, how far we have progressed already down this path is hard to say. There are a fair number of visionary clients pushing the boundaries of green construction, such as British Land and Marks and Spencer, but this is, as yet, by no means universal.

A major, independent study is now underway into whether the Government’s energy and carbon policies are having the desired effect on the property sector. The Government-led Green Construction Board has joined forces with the Green Property Alliance, a group of the UK’s leading property organisations, to commission Deloitte to carry out the study. The Committee on Climate Change in its 2013 Progress Report to Parliament urged the completion of a comprehensive assessment of non-residential low carbon policies.

It said that recent data on Energy Performance Certificates (EPCs) and Display Energy Certificates (DECs) shows that there has been little progress on energy performance in the sector: Of the 427,814 EPCs that had been issued by mid-June 2013, more than 18% received the lowest (F and G) energy performance ratings. Only 8% of EPCs received a rating of B or above. Overall,

there has been no improvement since 2012. While there is a large cost effective potential for energy efficiency improvement, this appears not to be taken up

5.2 Energy efficiency and new non-domestic property

This is being driven by:

- › Building Regulations
- › Planning requirements/ demand for renewal energy and BREEAM
- › Clients – larger ones/ with premiums for rent
- › 2011 Energy Act committed the government to banning the letting of poorly performing domestic and non-domestic buildings which is expected to mean those with an EPC rating of F or G by 2018.
- › Soft Landings¹⁸ being introduced for public projects which allows performance failings to be ironed out in a phased handover,
- › Building Information Modelling being made mandatory on all public projects from 2015, which could help optimise energy performance, in theory.

Factors holding it back are:

- › Innovation and sustainability gets cut out of budgets
- › U-turn on decision to impose DECs on commercial property. Display Energy Certificates (DECs) make organisations measure how much energy is being expended on powering their buildings, a vital first step to cutting carbon emissions. The draft carbon plan proposed extending the current requirement on public buildings to publish DECs to all commercial buildings by the end of last year, but this was thrown out by the

¹⁸Committee on Climate Change (May 2013) Next steps on Electricity Market Reform – securing the benefits, of low-carbon investment.

Box F:

Case study M&S Cheshire Oaks

Visionary clients like LOCOG, Olympic Development Authority (ODA) and Marks and Spencer are very clear on why sustainability matters and have a strong focus on desired outcomes.

Faithful & Gould has been commissioned to assist in identifying and closing the performance gap that often exists between design ambition and actual operation. This work includes a recent 12 month in-depth Post Occupancy Evaluation study of a large Marks & Spencer's store. Designed and built using sustainable building features such

as Hemclad wall panels, a biomass boiler, CO₂ based refrigeration and an 80,000 litre rainwater harvesting tank, it is predicted that the store will use 30% less energy.

The work includes collection and analysis of operational energy, space temperatures and operating parameters, in addition to conducting staff and customer satisfaction surveys, to understand their views in relation to the building and its operation. These activities will assist in identifying faults in operating conditions, which will be used to develop corrective action plans.

Treasury in September 2011 - despite support for the move by the UK Green Building Council, Confederation of British Industry and the British Property Federation.

- › Lack of performance data: there needs to be more information on performance data. Regular data capture on real performance in projects and of buildings can inform what works where. For example, Carbon Buzz – a RIBA/CIBSE platform which is a free tool that collects anonymous building energy consumption data to highlight the performance gap between design figures and actual readings.
- › Technical difficulty – like the domestic sector, research is revealing that low energy buildings are not performing as well as they should do.
- › Property valuation techniques do not necessarily boost the value of high efficiency commercial property, principally because the lack of evidence of the effect on value and also due to the impression that energy efficiency in practice is often user determined rather than construction

embedded.

What could improve?

Witnesses told us that a more integrated approach is needed within the Government to planning regulations, building regulations, and the low carbon transition. Introducing DEC's (which has now unfortunately been stalled) would also be a major and transformative step forward. The introduction of Soft Landings, which provides a phased handover of buildings and a chance for the consultants to see whether buildings have been commissioned properly, will however help solve some of the problems that new buildings encounter.

5.3 Improving the existing commercial stock and the Green Deal

In the past three years, regulations, incentives and Government's initiatives have evolved, driving a much greater interest in improving the energy performance of existing buildings. The key drivers include:

- › Revised Building Regulations 2010 (and a proposed future change in 2013/14) will mean that existing buildings will all demonstrate a lower EPC rating when re-assessed.

Box G

The next big thing – reducing embodied energy

As energy in use becomes lower over a building's lifetime, the embodied energy of the building takes on greater significance. According to the Institute of Structural Engineers the embodied energy of products could be 40% of the lifetime energy use of a new building.

Sarah Kaethner from the Institution of Structural Engineers (IstructE) told us:

- The contribution of industry (including construction) is around 35% to global CO₂ emissions, of which 25% are from steel production and 19% are from cement production. The construction industry consumes all the cement and nearly half the steel.
- It is estimated that cement/clinker production alone accounts for around 5% of manmade global greenhouse gas emissions.
- The reductions (50% reduction needed in the next 40 years) will only be met by reducing the impacts of materials in construction significantly.

She further said that the focus attention needs to encompass both retrofit of existing buildings and reduction of carbon dioxide emissions from use of construction materials, which will be challenging. There is a lack of financial incentives and much complexity of the supply chain.

The IstructE would like to see targets develop beyond avoiding landfill and achieving high recycled content. Strengthened initiatives are needed for consideration of end of life during initial design and procurement. That may mean dismantling and reuse for schools and hospitals.

One barrier which is often quoted is the difficulty in assessing the CO₂ footprint of materials. This is being overcome by standardisation and the Institution strongly recommends that Government is at the forefront of providing incentives for these standards to be adopted and developed in practice. It is also urging the Government to publish a transitional plan and timescale for the inclusion of consideration of material impacts into Building Regulations. This is necessary in order for the material supply industry and construction industry to develop an appropriate response.

The Alliance for Sustainable Building Products said one answer to reduce the embodied energy was to use natural building materials, as they have low embedded energy, the thermal mass to store heat, are safe, healthy and breathable and do no damage to the environment.

This also has the advantage of providing a means of sequestering carbon (i.e. soaking up). ASBP research into sequestered carbon has shown that bio-renewable materials typically have a carbon content of between 40-50%.

- › Introduction and subsequent changes made to the Feed-in Tariff incentive scheme for solar photovoltaic panels and a new incentive for the production of renewable heat, known as the Renewable Heat Incentive.
- › Proposed simplification of the CRC Energy Efficiency Scheme.
- › 'Green Deal' innovative funding mechanism.
- › Government plans to introduce a minimum energy performance standard preventing landlords from letting commercial properties with F and G EPC ratings from 2018 at the latest.
- › Encouraging RICS and the other property

valuation organisation to consider ways in which better energy efficiency might be reflected in property evaluations.

However, in the non-domestic sector there are also concerns that the Green Deal will not provide sufficient energy savings for the scheme to be worthwhile, with the Golden Rule running the risk of being a 'deal breaker', because technologies and building improvements which do not meet the rule are not likely to feature on the accredited list of improvements. Therefore, only very poorly performing buildings will be worth retrofitting under the Green Deal.

What could improve?

- › The role of the Green Deal needs to be more closely defined in the commercial property sector: there is considerable doubt as to whether the commercial sector will use the Green Deal to carry out the energy improvements needed.
- › More details on how legislation will restrict landlords from 2018 (landlords will be restricted from renting out the least energy efficient properties— typically F&G – homes.)

Section 6: Concluding remarks

AMBITIOUS CARBON REDUCTION targets for the built environment require no less than a revolution in our approach to the design, construction and improvement of new and existing buildings. Though meeting the 80% reduction targets will rely heavily on the decarbonisation of the grid, the course has been set to ensure that any new home, office, school or leisure centre does not add to the emissions burden.

Greening the built environment provides a huge opportunity to drive growth, skill up a new generation of young people and harness UK expertise to expand exports. All these benefits are apparent to the Government, as it sets out in its recently published Industrial Strategy for Construction.

However, meeting these targets needs more than grand strategies. It requires focus and commitment, which at times appears to have faded. Recession has brought with it decisions that seem at odds with the Government's stated aim of being the greenest ever administration. Instead, as we have documented in this report, it has given out a series of mixed messages that have caused confusion and uncertainty in the market, particularly where house building and its suppliers are concerned.

The recession may have slowed the pace of sustainability in commercial stock and housing, as budgets have been cut and building slumped, but, as we know, the regulation in place will drive energy reduction in the medium term. The weakest link is the existing housing stock, where many of our 26 million homes need upgrading. The requirement that landlords will be obliged to improve private rented homes sends out a powerful message to consumers.

Still, the problems remain with social housing and owner occupied homes. From the Government's view point, introducing anything mandatory (like the so-called conservatory tax) is a potential vote loser; and introducing incentives is spending money we are deemed not to have. Instead, the Government has put

its faith in the Green Deal, which supposedly covers the cost of improvement loans on the back of energy bill savings. However, despite it still being early days yet, our view is that there is no evidence to suggest that the Green Deal mechanism will gather enough momentum to meet improvement targets

In an effort to protect the consumer, Government has tied up the Green Deal in red tape, and because interest rates have been set so high, the mechanism simply does not stack up. Meanwhile the ECO – the grant scheme accompanying the Green Deal – would seem to be flying off the shelves, but as far as we can see in the direction of easy wins, not in the direction of difficult to treat properties.

We certainly applaud the Government for introducing the Green Deal, but we feel it is time to take another look at the detail, make it work for social housing, galvanise the schemes locally across the country and make financial incentives permanent – recommendations that we make in the corresponding chapters of this report. The concern is that the new policies of the Green Deal and ECO will deliver fewer carbon emissions reductions than the policies they replaced. For instance, insulation numbers have dropped dramatically since the Green Deal was announced.

Throughout our Inquiry, we have been inspired by many of our witnesses, who have presented us not just with problems, but examples of best practice. Examples like Radian housing association – where tenants have seen both energy and water bills halved thanks to the vision and commitment of their landlord. It is this spirit and vision we need to instil in business, public services and consumers alike. The Government must play a key leadership role and engage with the industry, to ensure that we can deliver it – and that surely must mean giving more teeth to the Green Construction Board. This could provide a strong, transparent focal point. It is pointless setting goals, and route maps without the commitment to stick to them.

List of witnesses who gave oral evidence

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Gavin Board
*Senior Project
Manager, Radian*
Prof Norry Bride
*Natural Energy
Efficient
Sustainable
Project*
Simon Corbey
*The Alliance
for Sustainable
Building Products*
Mark Dowson
*Sustainability
Engineer, Buro
Happold*
Nicholas Doyle
*Project Director,
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**Prof Rohinton
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Chris Hall
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Adam Poole
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National Housing
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Jonathan Richard
*Head of Design
and Compliance,
Radian*
**Martin Russell-
Croucher**
*Director of Special
Projects and
Sustainability RICS*

List of all written submissions

Adapt Low Carbon Group	English Heritage	Natural Energy
Alliance for Sustainable Building Products	Exeter and East Devon Low Carbon Task Force	Efficient Sustainable Project
APPG for the Roofing Industry	Federation of Master Builders	Prince's Regeneration Trust
Atkins	Glass Solutions	Radian
Brick Development Association	Green Gauge Trust	Rockwool
British Plastic Federation	Institute of Historic Building Conservation	Royal Institute of British Architects
Building and Engineering Services Association	Institution of Structural Engineers	Royal Institution of Chartered Surveyors
Built Environment Support Group	Integrated Environmental Solutions	UK Green Buildings Council
Buro Happold	Lime Technology & Lhoist UK	University of Reading
Carillion	Local Authorities Building Control	Velux
Chartered Institute of Building	Mineral Products Association	
Country Land and Business Association	National Skills Academy for Environmental Technologies	







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